

Stanford University

Stanford, California

Reports on Federal Awards in

Accordance with the Uniform Guidance

August 31, 2023

EIN: 94-1156365

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I. Financial



Report of Independent Auditors

To the Board of Trustees of the Leland Stanford Junior University

Report on the Audit of the Consolidated Financial Statements

Opinion

We have audited the accompanying consolidated financial statements of The Leland Stanford Junior University and its subsidiaries (“Stanford”), which comprise the consolidated statements of financial position as of August 31, 2023 and 2022, and the related consolidated statements of activities and of cash flows for the years then ended, including the related notes (collectively referred to as the “consolidated financial statements”).

In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the financial position of Stanford as of August 31, 2023 and 2022, and the changes in its net assets and its cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Basis for Opinion

We conducted our audit in accordance with auditing standards generally accepted in the United States of America (US GAAS) and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Our responsibilities under those standards are further described in the Auditors’ Responsibilities for the Audit of the Consolidated Financial Statements section of our report. We are required to be independent of Stanford and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Responsibilities of Management for the Consolidated Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with accounting principles generally accepted in the United States of America, and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about Stanford’s ability to continue as a going concern for one year after the date the financial statements are issued.

Auditors’ Responsibilities for the Audit of the Consolidated Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors’ report that includes our opinion. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with US GAAS and *Government*

Auditing Standards, will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.

In performing an audit in accordance with US GAAS and *Government Auditing Standards*, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of Stanford's internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the consolidated financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about Stanford's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control-related matters that we identified during the audit.

Supplemental Information

Our audit was conducted for the purpose of forming an opinion on the consolidated financial statements as a whole. The accompanying schedule of expenditures of federal awards for the year ended August 31, 2023 is presented for purposes of additional analysis as required by Title 2 U.S. *Code of Federal Regulations* Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance) and is not a required part of the consolidated financial statements. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the consolidated financial statements. The information has been subjected to the auditing procedures applied in the audit of the consolidated financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the consolidated financial statements or to the consolidated financial statements themselves, and other additional procedures, in accordance with auditing standards generally accepted in the United States of America. In our opinion, the schedule of expenditures of federal awards is fairly stated, in all material respects, in relation to the consolidated financial statements taken as a whole.

Other Information

Management is responsible for the other information included in the annual report. The other information comprises the information included in the August 31, 2023 Stanford Annual Financial Report (not presented herein), but does not include the consolidated financial statements and our auditors' report thereon. Our opinion on the consolidated financial statements does not cover the other information, and we do not express an opinion or any form of assurance thereon.

In connection with our audit of the consolidated financial statements, our responsibility is to read the other information and consider whether a material inconsistency exists between the other information and the consolidated financial statements or the other information otherwise appears to be materially misstated. If, based on the work performed, we conclude that an uncorrected material misstatement of the other information exists, we are required to describe it in our report.

Other Reporting Required by *Government Auditing Standards*

In accordance with *Government Auditing Standards*, we have also issued our report dated December 6, 2023, except with respect to the opinion on the schedule of expenditures of federal awards, as to which the date is May 6, 2024 on our consideration of Stanford's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts and grant agreements and other matters for the year ended August 31, 2023. The purpose of that report is solely to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing and not to provide an opinion on the effectiveness of internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering Stanford's internal control over financial reporting and compliance.

PricewaterhouseCoopers LLP

San Francisco, California

December 6, 2023, except with respect to the opinion on the schedule of expenditures of federal awards, as to which the date is May 6, 2024

CONSOLIDATED STATEMENTS OF FINANCIAL POSITION*At August 31, 2023 and 2022 (in thousands of dollars)*

| | 2023 | 2022 |
|---|----------------------|----------------------|
| ASSETS | | |
| Cash and cash equivalents | \$ 1,738,944 | \$ 2,285,765 |
| Accounts receivable, net | 2,176,591 | 2,007,638 |
| Prepaid expenses and other assets | 566,158 | 506,861 |
| Pledges receivable, net | 2,781,116 | 2,201,736 |
| Student loans receivable, net | 37,527 | 37,524 |
| Faculty and staff mortgages and other loans receivable, net | 1,098,851 | 997,576 |
| Assets limited as to use | 651,980 | 450,390 |
| Investments at fair value | 52,826,274 | 52,180,412 |
| Right-of-use assets | 1,064,424 | 1,038,384 |
| Plant facilities, net of accumulated depreciation | 14,184,041 | 13,377,434 |
| Works of art and special collections | — | — |
| TOTAL ASSETS | \$ 77,125,906 | \$ 75,083,720 |
| LIABILITIES AND NET ASSETS | | |
| LIABILITIES: | | |
| Accounts payable and accrued expenses | \$ 2,855,495 | \$ 2,805,757 |
| Liabilities associated with investments | 878,955 | 863,746 |
| Lease liabilities | 1,133,933 | 1,093,986 |
| Deferred income and other obligations | 2,018,011 | 1,991,260 |
| Accrued pension and postretirement benefit obligations | 582,483 | 562,496 |
| Notes and bonds payable | 8,551,143 | 8,271,006 |
| TOTAL LIABILITIES | 16,020,020 | 15,588,251 |
| NET ASSETS: | | |
| Without donor restrictions | 36,083,147 | 35,519,294 |
| With donor restrictions | 25,022,739 | 23,976,175 |
| TOTAL NET ASSETS | 61,105,886 | 59,495,469 |
| TOTAL LIABILITIES AND NET ASSETS | \$ 77,125,906 | \$ 75,083,720 |

The accompanying notes are an integral part of these consolidated financial statements.

CONSOLIDATED STATEMENTS OF ACTIVITIES

For the years ended August 31, 2023 and 2022 (in thousands of dollars)

| | 2023 | 2022 |
|---|-------------------|-------------------|
| NET ASSETS WITHOUT DONOR RESTRICTIONS | | |
| OPERATING REVENUES: | | |
| TOTAL STUDENT INCOME, NET | \$ 760,534 | \$ 715,465 |
| Sponsored support: | | |
| Direct costs - University | 1,094,064 | 971,253 |
| Direct costs - SLAC National Accelerator Laboratory | 571,654 | 524,943 |
| Indirect costs | 347,576 | 315,562 |
| TOTAL SPONSORED SUPPORT | 2,013,294 | 1,811,758 |
| TOTAL HEALTH CARE SERVICES , primarily net patient service revenue | 10,100,570 | 9,232,029 |
| TOTAL CURRENT YEAR GIFTS IN SUPPORT OF OPERATIONS | 275,630 | 278,501 |
| Net assets released from restrictions: | | |
| Payments received on pledges | 226,717 | 224,177 |
| Prior year gifts released from donor restrictions | 148,404 | 81,402 |
| TOTAL NET ASSETS RELEASED FROM RESTRICTIONS | 375,121 | 305,579 |
| Investment income distributed for operations: | | |
| Endowment | 1,749,583 | 1,475,411 |
| Expendable funds pools and other investment income | 144,784 | 276,740 |
| TOTAL INVESTMENT INCOME DISTRIBUTED FOR OPERATIONS | 1,894,367 | 1,752,151 |
| TOTAL SPECIAL PROGRAM FEES AND OTHER INCOME | 923,811 | 1,036,678 |
| TOTAL OPERATING REVENUES | 16,343,327 | 15,132,161 |
| OPERATING EXPENSES: | | |
| Salaries and benefits | 9,761,082 | 8,881,869 |
| Depreciation | 853,821 | 851,818 |
| Other operating expenses | 5,438,459 | 4,863,755 |
| TOTAL OPERATING EXPENSES | 16,053,362 | 14,597,442 |
| CHANGE IN NET ASSETS FROM OPERATING ACTIVITIES | \$ 289,965 | \$ 534,719 |

The accompanying notes are an integral part of these consolidated financial statements.

CONSOLIDATED STATEMENTS OF ACTIVITIES, Continued

For the years ended August 31, 2023 and 2022 (in thousands of dollars)

| | 2023 | 2022 |
|---|---------------------|---------------------|
| NET ASSETS WITHOUT DONOR RESTRICTIONS (continued) | | |
| CHANGE IN NET ASSETS FROM OPERATING ACTIVITIES | \$ 289,965 | \$ 534,719 |
| NON-OPERATING ACTIVITIES: | | |
| Increase (decrease) in reinvested gains | 268,816 | (743,938) |
| Donor advised funds, net | (41,846) | 34,611 |
| Current year gifts not included in operations | 822 | 5,053 |
| Capital and other gifts released from restrictions | 48,799 | 71,100 |
| Pension and other postemployment benefit related changes other than service cost | (9,096) | 89,504 |
| Transfer to net assets with donor restrictions, net | (57,781) | (70,233) |
| Swap interest and change in value of swap agreements | 63,609 | 138,866 |
| Other | 565 | 7,288 |
| NET CHANGE IN NET ASSETS WITHOUT DONOR RESTRICTIONS | 563,853 | 66,970 |
| NET ASSETS WITH DONOR RESTRICTIONS | | |
| Gifts and pledges, net | 1,636,548 | 1,679,138 |
| Decrease in reinvested gains | (229,519) | (1,255,771) |
| Change in value of split-interest agreements, net | 31,158 | (63,311) |
| Net assets released to operations | (397,520) | (321,244) |
| Capital and other gifts released to net assets without donor restrictions | (48,799) | (71,100) |
| Transfer from net assets without donor restrictions, net | 57,781 | 70,233 |
| Other | (3,085) | (3,904) |
| NET CHANGE IN NET ASSETS WITH DONOR RESTRICTIONS | 1,046,564 | 34,041 |
| NET CHANGE IN TOTAL NET ASSETS | 1,610,417 | 101,011 |
| Total net assets, beginning of year | 59,495,469 | 59,394,458 |
| TOTAL NET ASSETS, END OF YEAR | \$61,105,886 | \$59,495,469 |

The accompanying notes are an integral part of these consolidated financial statements.

CONSOLIDATED STATEMENTS OF CASH FLOWS

For the years ended August 31, 2023 and 2022 (in thousands of dollars)

| | 2023 | 2022 |
|--|---------------------|---------------------|
| CASH FLOW FROM OPERATING ACTIVITIES | | |
| Change in net assets | \$ 1,610,417 | \$ 101,011 |
| Adjustments to reconcile change in net assets to net cash provided by (used for) operating activities: | | |
| Depreciation | 853,821 | 852,123 |
| Amortization of bond premiums, discounts and other | 18,317 | 28,637 |
| Net losses (gains) on investments | (1,420,202) | 884,229 |
| Change in fair value of interest rate swaps | (68,761) | (161,455) |
| Change in split-interest agreements | 15,999 | (28,173) |
| Change in deferred tax asset and liability | 5,873 | (23,182) |
| Investment expense for restricted purposes | (22,919) | (48,573) |
| Gifts restricted for long-term investments | (1,007,624) | (723,823) |
| Gifts of securities and properties | (5,423) | (22,698) |
| Other | 88,583 | 20,681 |
| Premiums received from bond issuance | 58,451 | — |
| Changes in operating assets and liabilities: | | |
| Accounts receivable | (172,667) | (239,528) |
| Pledges receivable, net | (120,354) | (345,886) |
| Prepaid expenses and other assets | (76,402) | (88,117) |
| Accounts payable and accrued expenses | 85,535 | 213,018 |
| Accrued pension and postretirement benefit obligations | 19,987 | (67,355) |
| Lease liabilities | 46,411 | (43,160) |
| Deferred income and other obligations | 11,053 | (33,402) |
| NET CASH PROVIDED BY (USED FOR) OPERATING ACTIVITIES | (79,905) | 274,347 |
| CASH FLOW FROM INVESTING ACTIVITIES | | |
| Additions to plant facilities, net | (1,621,683) | (925,020) |
| Faculty, student and other loans: new loans made | (157,369) | (179,502) |
| Faculty, student and other loans: principal collected | 63,341 | 77,313 |
| Purchases of investments | (15,391,722) | (17,466,423) |
| Sales and maturities of investments | 16,186,356 | 18,336,816 |
| Change associated with short term investments | (130,304) | 111,202 |
| Swap settlement payments, net | (5,095) | (19,811) |
| NET CASH USED FOR INVESTING ACTIVITIES | (1,056,476) | (65,425) |
| CASH FLOW FROM FINANCING ACTIVITIES | | |
| Gifts and reinvested income for long-term purposes | 563,640 | 595,107 |
| Proceeds from borrowing | 768,114 | 268,547 |
| Repayment of notes and bonds payable | (592,440) | (263,377) |
| Contributions received for split-interest agreements | 9,791 | 20,402 |
| Payments made under split-interest agreements | (57,454) | (58,334) |
| Commercial paper and variable rate debt proceeds (repayments), net | (12,299) | — |
| Securities lending collateral sold, net | (2,151) | (7,696) |
| Other | (13,500) | (9,401) |
| NET CASH PROVIDED BY FINANCING ACTIVITIES | 663,701 | 545,248 |
| INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS | (472,680) | 754,170 |
| Cash and cash equivalents, beginning of year | 2,619,895 | 1,865,725 |
| CASH AND CASH EQUIVALENTS, END OF YEAR | \$ 2,147,215 | \$ 2,619,895 |
| SUPPLEMENTAL DATA: | | |
| Cash and cash equivalents as shown in the <i>Statements of Financial Position</i> | \$ 1,738,944 | \$ 2,285,760 |
| Restricted cash and cash equivalents included in assets limited as to use | 269,202 | 134,410 |
| Restricted cash included in other assets | 16,725 | 20,530 |
| Cash and restricted cash included in investments | 122,344 | 179,195 |
| TOTAL CASH AND CASH EQUIVALENTS AS SHOWN ON THE STATEMENTS OF CASH FLOWS | \$ 2,147,215 | \$ 2,619,895 |
| Interest paid, net of capitalized interest | \$ 300,243 | \$ 286,217 |
| Change in payables for plant facilities | \$ 49,228 | \$ 25,300 |
| Right-of-use assets obtained in exchange for lease liabilities | \$ 178,329 | \$ 172,836 |

The accompanying notes are an integral part of these consolidated financial statements.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

1. Basis of Presentation and Significant Accounting Policies

BASIS OF PRESENTATION

The *Consolidated Financial Statements* include the accounts of The Leland Stanford Junior University (“Stanford University” or the “University”), Stanford Health Care (SHC), Lucile Salter Packard Children’s Hospital at Stanford (LPCH) and other majority-owned or controlled entities of the University, SHC and LPCH. Collectively, all of these entities are referred to as “Stanford”. LPCH and its controlled entities comprise and are known in the marketplace as Stanford Medicine Children’s Health. All significant inter-entity transactions and balances have been eliminated in consolidation. Certain prior year amounts have been reclassified to conform to the current year’s presentation. These reclassifications had no impact on total net assets or the change in total net assets.

University

The University is a private, not-for-profit educational institution, founded in 1885 by Senator Leland and Mrs. Jane Stanford in memory of their son, Leland Stanford Jr. A Board of Trustees (the “Board”) governs the University. The University information presented in the *Consolidated Financial Statements* comprises all of the accounts of the University, including its institutes and research centers, and the Stanford Management Company.

SLAC National Accelerator Laboratory (SLAC) is a federally funded research and development center owned by the U.S. Department of Energy (DOE). The University manages and operates SLAC for the DOE under a management and operating contract; accordingly, the revenues and expenditures of SLAC are included in the *Consolidated Statements of Activities*, but SLAC’s DOE funded assets and liabilities are not included in the *Consolidated Statements of Financial Position*. SLAC employees are University employees and participate in the University’s employee benefit programs. The University holds some receivables from the DOE substantially related to reimbursement for employee compensation and benefits.

Hospitals

SHC and LPCH (the “Hospitals”) are California not-for-profit public benefit corporations, each governed by a separate Board of Directors. The University is the sole member of each of these entities. SHC and LPCH support the mission of medical education and clinical research of the University’s School of Medicine (SOM). Collectively, the SOM and Hospitals comprise Stanford Medicine. SHC and LPCH operate two licensed acute care and specialty hospitals on the Stanford campus, a leading community acute care hospital, and numerous physician clinics on the campus, in community settings and in association with regional hospitals in the San Francisco Bay Area and elsewhere in California. The University has partnered with SHC and LPCH, respectively, to establish physician medical foundations to support Stanford Medicine’s mission of delivering quality care to the community and conducting research and education.

TAX STATUS

The University, SHC and LPCH are exempt from federal and state income taxes to the extent provided by Section 501(c)(3) of the Internal Revenue Code and equivalent state provisions, except with regard to unrelated business income which is taxable at corporate income tax rates.

In accordance with the guidance on accounting for uncertainty in income taxes, management regularly evaluates its tax positions and does not believe the University, SHC or LPCH have any uncertain tax positions that require disclosure in or adjustment to the *Consolidated Financial Statements*. The University, SHC and LPCH are subject to routine audits by taxing jurisdictions. Management of each of the consolidated entities believes they are no longer subject to income tax examinations for fiscal years prior to August 31, 2019.



BASIS OF ACCOUNTING

The *Consolidated Financial Statements* are prepared in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP"). These principles require management to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the *Consolidated Financial Statements* and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

For financial reporting purposes, net assets and revenues, expenses, gains and losses are classified into one of two categories - net assets without donor restrictions and net assets with donor restrictions based on the existence or absence of legal or donor-imposed restrictions (see *Note 10*).

Net assets without donor restrictions are expendable resources which are not subject to donor-imposed restrictions. These net assets may be designated by Stanford for specific purposes under internal operating and administrative arrangements or be subject to contractual agreements with external parties (see *Note 10*).

Net assets with donor restrictions include gifts, pledges and split-interest agreements (a) which by donor stipulation must be made available in perpetuity for investment or specific purposes, or (b) for which legal or donor-imposed restrictions have not yet been met. Such restrictions include purpose restrictions where donors have specified the purpose for which the net assets are to be spent, or time restrictions imposed by donors, or appreciation and income on certain donor-restricted endowment funds that have not yet been appropriated for spending (see *Note 11*).

Gifts and pledges subject to donor-imposed restrictions for specific purposes are recorded as net assets with donor restrictions and reclassified to net assets without donor restrictions upon expiration of time and purpose restrictions. Donor-restricted resources intended for capital projects are initially recorded as "Net assets with donor restrictions" and then released and reclassified as "Net assets without donor restrictions" when the asset is placed in service. Contributions with donor restrictions that are received and expended or deemed expended, based on the nature of donors' restrictions, in the same fiscal year are recorded as "Net assets without donor restrictions".

Transfers from net assets without donor restrictions to net assets with donor restrictions are primarily the result of donor redesignations or matching funds that are added to donor gift funds which then take on the same restrictions as the donor gift.

The operating activities of Stanford include the revenues earned and expenses incurred in the current year to support education, research, and health care. The non-operating activities of Stanford include increases in reinvested gains, current year gifts not included in operations, capital and other gifts released from restrictions, pension and other postemployment benefit related changes other than service cost, and certain other non-operating activities. All expenses are recorded as a reduction of net assets without donor restrictions with the exception of investment expenses that are required to be netted against investment returns.

CASH AND CASH EQUIVALENTS

"Cash and cash equivalents" included in the *Consolidated Statements of Financial Position* primarily consist of U.S. Treasury bills, certificates of deposit, repurchase agreements, money market funds and all other short-term investments available for current operations with original maturities of 90 days or less at the time of purchase. These amounts are carried at amortized cost, which approximates fair value. Cash and cash equivalents that are held for investment purposes are classified as investments (see *Note 6*). The University has elected the policy to treat cash equivalents held for investment as short-term investments, and are therefore excluded from "Cash and cash equivalents" on the *Consolidated Statements of Cash Flows*.

ASSETS LIMITED AS TO USE

Assets limited as to use consist of deferred compensation plan assets and tax-exempt bond proceeds as described below:

Deferred compensation plan assets

The University's custodians hold 457(b) non-qualified deferred compensation plan assets under a grantor trust which requires that they be used to satisfy plan obligations to participants and beneficiaries unless the University becomes insolvent. The funds are primarily invested in mutual funds, at the participants' discretion, which are valued based on quoted market prices (and exchange rates, if applicable) on the last trading date of the principal market on or before August 31.



Tax-exempt bond proceeds

The proceeds of tax-exempt bonds issued for the benefit of the University and trustee-held accounts holding proceeds of tax-exempt bonds issued for the benefit of SHC and LPCH are limited by the terms of indentures to use for qualified capital projects. The assets consist of cash and cash equivalents, recorded at cost, which approximates fair value.

ACCOUNTS AND LOANS RECEIVABLE

Accounts and loans receivable are carried at cost, less an allowance for doubtful accounts.

PREPAID EXPENSES

Prepaid expenses consist of amounts paid in advance for goods or services that will be received after the end of the fiscal year.

PLEDGES RECEIVABLE

Unconditional promises to give are included in the *Consolidated Financial Statements* as "Pledges receivable, net" and are classified as net assets with donor restrictions. Pledges recognized on or after September 1, 2009 are recorded at an applicable risk-adjusted discount rate commensurate with the duration of the donor’s payment plan. Pledges recognized in periods prior to September 1, 2009 were recorded at a discount based on the U.S. Treasury rate. Conditional promises to give are not recorded until specified obligations or barriers, such as milestones or performance targets, are met.

INVESTMENTS

Investments are recorded at fair value. Gains and losses (realized and unrealized) on investments are recognized in the *Consolidated Statements of Activities* (see Note 6).

PLANT FACILITIES

Plant facilities are recorded at cost or, for donated assets, at fair value at the date of donation, except for land and improvements previously reported as “Investments” and reclassified as “Plant facilities”. Such land and improvements are reported at fair value as of the date of reclassification (see Note 8) in accordance with interpreted accounting guidance. Interest expense for construction financing, net of income earned on unspent proceeds, is capitalized as a cost of construction. Depreciation is computed using the straight-line method over the estimated useful lives of the assets. The useful lives used in calculating depreciation for the years ended August 31, 2023 and 2022 are as follows:

| | |
|-------------------------------------|------------|
| Land improvements | 5-25 years |
| Buildings and building improvements | 3-50 years |
| Furniture, fixtures and equipment | 3-20 years |
| Utilities | 5-40 years |

WORKS OF ART AND SPECIAL COLLECTIONS

Works of art, historical treasures, literary works and artifacts, which are preserved and protected for educational, research and public exhibition purposes, are not capitalized. Donations of such collections are not recorded for financial statement purposes. Purchases of collection items are recorded as operating expenses in the period in which they are acquired. Proceeds from sales of such items are used to acquire other items for the collections.

DONATED ASSETS

Donated assets, other than works of art and special collections, are recorded at fair value at the date of donation. Undeveloped land, including land acquired under the original endowment to the University from Senator Leland and Mrs. Jane Stanford, is reported at fair value as of the date of acquisition. Under the terms of the original founding grant, a significant portion of University land may not be sold.



DONOR ADVISED FUNDS

The University receives gifts from donors under donor advised fund (DAF) agreements. These funds are owned and controlled by the University and are separately identified by donor. A significant portion of the gift must be designated to the University. At August 31, 2023 and 2022, \$703.7 million and \$733.1 million, respectively, of DAFs may be used to support other approved charities; the donors have advisory privileges with respect to the distribution of these funds.

Current year gifts under the DAF agreements are included in the *Consolidated Statements of Activities* as “Donor advised funds, net” at the full amount of the gift. Transfers of funds to other charitable organizations are included in the *Consolidated Statements of Activities* as a reduction to “Donor advised funds, net” at the time the transfer is made.

SPLIT-INTEREST AGREEMENTS

Split-interest agreements consist of arrangements with donors where Stanford has an interest in the assets and receives benefits that are shared with other beneficiaries. Stanford’s split-interest agreements with donors, for which Stanford serves as trustee, consist primarily of irrevocable charitable remainder trusts, charitable gift annuities, pooled income funds, perpetual trusts and charitable lead trusts. Assets are invested and payments are made to donors or other beneficiaries in accordance with the respective agreements. Contribution revenues are recognized at the date the agreements are established. The fair value of the estimated future payments to beneficiaries under these agreements is recorded as a liability.

The assets held under split-interest agreements, where the University is the trustee, were \$1.0 billion at both August 31, 2023 and 2022, and were recorded in specific investment categories. The assets held under split-interest agreements, where LPCH is the trustee, were \$11.4 million and \$12.8 million at August 31, 2023 and 2022, respectively, and were recorded in specific investment categories. Liabilities for the discounted present value of any income beneficiary interest are reported in “Liabilities associated with investments” in the *Consolidated Statements of Financial Position*, and were \$632.7 million and \$662.6 million at August 31, 2023 and 2022, respectively, and were classified as Level 2 in the Fair Value Hierarchy (see Note 6). At August 31, 2023 and 2022, the University used discount rates of 5.0% and 3.8%, respectively, based on the Charitable Federal Midterm Rate. The LPCH discount rate used during the years ended August 31, 2023 and 2022 was 5.0% and 3.3%, respectively, determined using Charitable Federal Midterm Rate for fiscal year 2023 and the Treasury bill rate for fiscal year 2022.

For irrevocable split-interest agreements whose assets are held in trusts not administered by the University, Stanford recognizes the estimated fair value of its beneficial interest in the trust assets and the associated gift revenue when reported to Stanford. These split-interest agreements are recorded in the “Assets held by other trustees” category of “Investments” in the *Consolidated Statements of Financial Position* as described in Note 6.

During fiscal years 2023 and 2022, the discounted present value of new University gifts subject to split-interest agreements, net of any income beneficiary share, was \$6.4 million and \$17.2 million, respectively, and was included in net assets with donor restrictions as “Gifts and pledges, net” in the *Consolidated Statements of Activities*. Actuarial gains or losses were included in “Change in value of split-interest agreements, net” in the *Consolidated Statements of Activities*.

DEFERRED INCOME AND OTHER OBLIGATIONS

Deferred income and other obligations consist of advance payments of student tuition, student room and board, sponsored support, and support of other operating programs. Revenue is recognized as it is earned or as the associated conditions are satisfied. In addition, the University records other deferred income and obligations as described below.

Deferred rental income

As part of its investment portfolio, the University holds certain investment properties that it leases to third parties under non-cancellable leases. In some lease transactions with properties in the Stanford Research Park and other properties, including the Stanford Shopping Center, prepaid rent is received, recorded as deferred rental income and amortized over the term of the lease (see also the *Future Minimum Rental Income* section in Note 6). As of August 31, 2023 and 2022, deferred rental income was \$898.1 million and \$919.3 million, respectively.



457(b) deferred compensation plan

The University offers a non-qualified deferred compensation plan under Internal Revenue Code 457(b) to a select group of highly compensated employees. There is no University contribution related to the plan. The University has recorded both an asset and a liability related to the plan of \$382.8 million and \$316.0 million as of August 31, 2023 and 2022, respectively; the assets are included in “Assets limited as to use” in the *Consolidated Statements of Financial Position*.

Repurchase obligations

In an effort to provide affordable housing, certain residential units are offered to eligible faculty and staff under long-term restricted ground leases. These units are located on or in close proximity to Stanford’s campus. The cost of the units that are constructed or purchased by the University is included in “Plant facilities, net of accumulated depreciation” in the *Consolidated Statements of Financial Position*.

The University has the obligation to repurchase certain residential units when specified triggering events occur. As of August 31, 2023 and 2022, Stanford has recognized a net repurchase obligation of \$158.0 million and \$142.3 million, respectively, to repurchase its interests in these residential units, net of home mortgage financing assistance provided by the University of \$233.9 million and \$222.8 million, respectively (see *Note 5*). The change in the repurchase obligation and the original purchase price is recorded as interest accretion and is reflected in “Other operating expenses” in the *Consolidated Statements of Activities*. For the years ended August 31, 2023 and 2022, interest accretion was \$16.3 million and \$13.3 million, respectively.

Asset retirement obligations

Asset retirement obligations are legal obligations associated with the retirement of long-lived assets. These liabilities are initially recorded at fair value and the related asset retirement costs are capitalized at the same amount as the liability. Asset retirement costs are subsequently amortized over the useful lives of the related assets and the obligations are increased based on an appropriate discount rate. As of August 31, 2023 and 2022, the University had asset retirement obligations of \$11.7 million and \$17.2 million, respectively. SHC had asset retirement obligations of \$114.4 million and \$111.3 million, respectively.

SELF-INSURANCE

The University self-insures at varying levels for unemployment, disability, workers’ compensation, property losses, certain health care plans and general and professional liability losses. SHC and LPCH self-insure at varying levels for general and cyber liability risks, postretirement medical benefits, health care plans, workers’ compensation and, through their captive insurance company, for professional liability losses. In some cases, third-party insurance is purchased to cover liabilities in excess of self-insured retentions. Estimates of retained self-insured losses are reserved and accrued.

INTEREST RATE EXCHANGE AGREEMENTS

The University and SHC have entered into several interest rate exchange agreements to reduce the effect of interest rate fluctuation on their variable rate revenue bonds and notes. Current accounting guidance for derivatives and hedges requires entities to recognize all derivative instruments at fair value. The University and SHC do not designate and qualify their derivatives for hedge accounting; accordingly, any changes in the fair value (i.e. gains or losses) flow directly to the *Consolidated Statements of Activities* as a non-operating activity in “Swap interest and change in value of swap agreements.” The settlements (net cash payments less receipts) under the interest rate exchange agreements are also recorded in the *Consolidated Statements of Activities* in “Swap interest and change in value of swap agreements.”

The University has also entered into interest rate exchange agreements to reduce the effect of interest rate fluctuations of certain investment positions (see *Note 7*).



REVENUE

Student income and financial aid

"Student income, net" reported in the *Consolidated Statements of Activities* consists of tuition, room and board, and other student fees from undergraduate and graduate students which are recognized as revenue ratably during the fiscal year in which the academic services are rendered. The University also provides financial aid in the form of scholarship and fellowship grants that cover a portion of tuition, room and board, and other student fees; this financial assistance is reflected as a reduction of student income. Student payments are due at the beginning of each academic term. Payments received for future academic terms are recorded as deferred income and totaled \$32.7 million and \$13.9 million for the years ended August 31, 2023 and 2022, respectively. These payments are recognized in the subsequent fiscal year. The following table presents student income, net of financial aid, for the years ended August 31, in thousands of dollars:

| | 2023 | 2022 |
|----------------------------------|-------------------|-------------------|
| Student income: | | |
| Undergraduate programs | \$ 469,415 | \$ 445,406 |
| Graduate programs | 431,993 | 404,204 |
| Room and board | 284,542 | 267,386 |
| Student financial aid | (425,416) | (401,531) |
| TOTAL STUDENT INCOME, NET | \$ 760,534 | \$ 715,465 |

In addition to student financial aid, the University also provided other graduate support in the form of stipends, teaching and research assistantships, and related allowances for tuition. These amounts are reflected in operating expenses.

Sponsored support

The University conducts substantial research pursuant to contracts and grants from the federal government, state and local governments, corporations, foundations and others. Sponsored support earned from the federal government (including SLAC) is the largest segment of sponsored support. For the years ended August 31, 2023 and 2022, federal sponsored support was \$1.6 billion and \$1.4 billion, respectively. The Office of Naval Research is the University’s cognizant federal agency for determining indirect cost rates charged to federally sponsored agreements. It is supported by the Defense Contract Audit Agency, which has the responsibility for auditing direct and indirect charges under those agreements.

The majority of sponsored support is considered contribution revenue and is recognized when any sponsor-imposed conditions have been met, typically when qualifying expenditures are incurred. Sponsored contribution revenue for the years ended August 31, 2023 and 2022 was \$1.3 billion and \$1.1 billion, respectively.

Other sponsored arrangements are considered exchange transactions and revenue is recognized in accordance with the terms of each contract or grant which are primarily based on costs incurred, completion of milestones, or other obligations as specified in the contracts. For the years ended August 31, 2023 and 2022, the University recognized \$147.5 million and \$144.6 million in revenue from exchange contracts, respectively.

SLAC is managed and operated by the University for the DOE under a management and operating contract, which is considered to be an exchange transaction. The University operates SLAC, and the DOE is obligated to pay for allowable operating costs. The University recognizes revenue from the DOE as costs are incurred in the management and operation of SLAC per the terms of the contract. Revenue of \$571.7 million and \$524.9 million was recognized for the years ended August 31, 2023 and 2022, respectively.

Deferred income of \$222.6 million and \$209.1 million was recorded at August 31, 2023 and 2022, respectively, for payments received from sponsors that have not been earned. During the years ended August 31, 2023 and 2022, \$153.7 million and \$126.0 million of revenue was recognized that was included in the prior year deferred income balance, respectively. In addition, as of August 31, 2023 and 2022, the University had been awarded \$1.4 billion and \$1.3 billion, respectively, in sponsored support for which the conditions to recognize revenue have not been met. These are conditional contributions and are not recorded in the *Consolidated Financial Statements*.



Health Care Services

"Total health care services" is reported in the *Consolidated Statements of Activities* at the estimated net realizable amounts from patients, third-party payers, and others for services rendered (collectively, "Patient care revenue"). Estimated net realizable amounts represent amounts due, net of price concessions. Price concessions are based on management's assessment of expected net collections considering economic conditions, historical experience, trends in health care coverage and other collection indicators. SHC and LPCH derive a majority of patient care revenues from contractual agreements with Medicare, Medi-Cal and other third-party payers. Payments under these agreements and programs are based on a variety of payment models (see *Note 12*). Health care revenue is recognized as services are rendered either at a point in time or, for inpatient acute care services, over time generally from admission to discharge. Generally, patients and third-party payers are billed several days after services are performed or shortly after discharge. Substantially all health care revenue relates to contracts with customers with a duration of less than one year.

The University has entered into various operating agreements with SHC and LPCH for the professional services of School of Medicine faculty members, and for non-physician services such as telecommunications, facilities, and other services. The payments by the Hospitals to the University for professional and other services are eliminated in consolidation.

SHC and LPCH provide care to patients who meet certain criteria under their charity care policies without charge or at amounts less than their established rates. The Hospitals do not record revenue for amounts determined to qualify as charity care (see *Note 12*).

Gifts

Gifts are contributions primarily received from donors such as alumni and other private individuals, trusts, and foundations. Gifts may be designated by donors for specific purposes; accordingly, they are recognized in the period received and in the appropriate net asset category based on the presence or absence of donor restrictions on their use. Contributions designated for the acquisition of plant facilities and long-term investments are initially reported in net assets with donor restrictions.

Gifts are considered conditional if the terms of the agreement include both a requirement for Stanford to meet certain specified obligations, or barriers, such as milestones or performance targets, and a refund of amounts paid (or a release from obligation to make future payments). Conditional gifts are not recorded until the obligations or barriers are met.

Special Program Fees and Other Income

Special program fees and other income consists of several streams of income from exchange contracts. Depending on the program, revenue is recognized at a point in time or over time as obligations are met. For the years ended August 31, 2023 and 2022, other income includes \$0 and \$205.0 million of CARES Act provider relief funding, respectively. Provider relief funding was recognized based on information contained in laws and regulations, as well as interpretations issued by the Department of Health and Human Services (see *Note 19*).

RECENT ACCOUNTING PRONOUNCEMENTS

Periodically, the Financial Accounting Standards Board (FASB) issues updates to the Accounting Standards Codification (ASC) which impact Stanford's financial reporting and related disclosures. The following paragraphs summarize relevant updates.

Reference rate reform

ASU 2020-04, 2021-01, and 2022-06, FASB Issue Date: March 2020, January 2021, December 2022, Effective Date: All contracts as of March 12, 2020 through December 31, 2024

ASC 2020-04 and 2021-01 provide optional expedients for applying GAAP to contracts and other transactions that reference LIBOR or other reference rates that are expected to be discontinued because of reference rate reform. The amendments also permit an entity to consider contract modifications due to reference rate reform to be an event that does not require contract remeasurement.

ASU 2022-06 extends the effective date of ASC 848 from December 31, 2022 to December 31, 2024. In fiscal year 2023, Stanford transitioned away from using LIBOR rates and elected to not treat transitions as loan modifications.

Discount rate guidance for lessees that are not public business entities (Amendments to ASC 842)

ASU 2021-09, FASB Issue Date: November 2021, Effective Date: Fiscal Year 2023

This ASU allows a lessee that is a not-for-profit entity or not a public business entity the option to elect a risk-free discount rate by class of underlying asset rather than for all leases at the entity-wide level. Stanford opted not to implement this accounting policy election.



Lessors' accounting for certain leases with variable lease payments

ASU 2021-05, FASB Issue Date: July 2021, Effective Date: Fiscal Year 2023

This ASU amends ASC 842 so that lessors are no longer required to recognize a selling loss upon commencement of a lease with variable lease payments that, prior to the amendments, would have been classified as a sales-type lease or direct financing lease. This new guidance was adopted in fiscal year 2023 and did not have any impact on the *Consolidated Financial Statements*.

Equity method investments

ASU 2020-01, FASB Issue Date: January 2020, Effective Date: Fiscal Year 2023

This ASU clarifies the accounting treatment of certain equity securities upon application or discontinuation of the equity method of accounting and clarifies accounting of forward contracts and purchased options for securities that will be accounted for under the equity method of accounting upon settlement or exercise. The new guidance was adopted in fiscal year 2023 and it did not have any impact on the *Consolidated Financial Statements*.

2. Financial Assets and Liquid Resources

OVERVIEW

Stanford closely monitors its liquidity requirements and structures its financial assets to meet its short and long-term needs and contractual commitments. To meet these needs, Stanford holds investments in various pools or in specific assets with varying degrees of liquidity, as well as having an authorized short-term commercial paper program. Stanford also has access to additional short-term financing facilities such as revolving lines of credit that can be available for unexpected liquidity needs (see *Note 9*).

OPERATIONS

The University, SHC and LPCH each manage their own operating cash through short-term investment pools. The primary investment objective for these funds is to preserve the principal value of the portfolio while meeting the liquidity needs of each of the entities. Cash flows vary seasonably during the year due to a variety of factors including timing of donor contributions, the University's academic calendar and the Hospitals' patient admission cycles. For working capital purposes, cash is managed by matching the timing of inflows and outflows as closely as possible, combined with active use of cash forecasting models to manage investment timing. Operating liquidity is tracked daily and reported weekly to provide management visibility. As noted above, back up borrowing facilities are also available to meet working capital needs.

MERGED POOL

The Merged Pool (MP) is the primary investment pool for endowment and other long-term funds for the University and the Hospitals. Approximately 14% of the MP consists of liquid investments, with the balance representing investments which are generally subject to constraints which either limit Stanford's ability to withdraw such capital or limit the amounts available for withdrawal at given redemption dates. The MP further maintains sufficient liquidity to distribute the monthly endowment payout in support of University operating expenditures, and to meet unfunded commitments associated with certain alternative investments. It is not the intention of the University to utilize its financial assets without donor restrictions - including board designated endowment funds - that are invested for the long-term for unplanned operating commitments; however, amounts could be made available from these sources if necessary, except for those underlying investments with lock-up provisions (see *Note 6*).



Consolidated Financial Statements

Financial assets and liquid resources available within one year of the balance sheet date at August 31, 2023 and 2022, in thousands of dollars, are as follows:

| | UNIVERSITY | SHC | LPCH | CONSOLIDATED |
|---|---------------------|---------------------|---------------------|----------------------|
| 2023 | | | | |
| Financial assets: | | | | |
| Cash and cash equivalents | \$ 745,015 | \$ 611,592 | \$ 382,337 | \$ 1,738,944 |
| Assets limited as to use available for current use | 193,732 | — | — | 193,732 |
| Accounts receivable, net | 270,383 | 1,042,786 | 695,849 | 2,009,018 |
| Pledges receivable available for operations | 288,527 | — | 31,942 | 320,469 |
| Investments available for current use | 496,267 | 2,163,730 | 698,875 | 3,358,872 |
| Endowment payout in support of operations | 1,809,400 | — | 83,878 | 1,893,278 |
| Financial assets available to meet cash needs for general expenditure within one year | 3,803,324 | 3,818,108 | 1,892,881 | 9,514,313 |
| Liquid resources available for use: | | | | |
| Taxable commercial paper | 439,544 | 150,000 | — | 589,544 |
| Tax-exempt commercial paper | 292,700 | — | — | 292,700 |
| Revolving credit facilities | 421,114 | 100,000 | 200,000 | 721,114 |
| TOTAL FINANCIAL ASSETS AND LIQUID RESOURCES AVAILABLE WITHIN ONE YEAR | \$ 4,956,682 | \$ 4,068,108 | \$ 2,092,881 | \$ 11,117,671 |
| 2022 | | | | |
| Financial assets: | | | | |
| Cash and cash equivalents | \$ 1,355,180 | \$ 536,803 | \$ 393,777 | \$ 2,285,760 |
| Assets limited as to use available for current use | 81,946 | — | — | 81,946 |
| Accounts receivable, net | 269,539 | 1,023,568 | 599,587 | 1,892,694 |
| Pledges receivable available for operations | 293,664 | — | 51,156 | 344,820 |
| Investments available for current use | 458,637 | 1,408,067 | 677,928 | 2,544,632 |
| Endowment payout in support of operations | 1,748,400 | — | 76,963 | 1,825,363 |
| Financial assets available to meet cash needs for general expenditure within one year | 4,207,366 | 2,968,438 | 1,799,411 | 8,975,215 |
| Liquid resources available for use: | | | | |
| Taxable commercial paper | 469,945 | — | — | 469,945 |
| Tax-exempt commercial paper | 300,000 | — | — | 300,000 |
| Revolving credit facilities | 425,000 | 100,000 | 200,000 | 725,000 |
| TOTAL FINANCIAL ASSETS AND LIQUID RESOURCES AVAILABLE WITHIN ONE YEAR | \$ 5,402,311 | \$ 3,068,438 | \$ 1,999,411 | \$ 10,470,160 |



3. Accounts Receivable

Accounts receivable, net of allowances for doubtful accounts, at August 31, 2023 and 2022, in thousands of dollars, are as follows:

| | UNIVERSITY | SHC | LPCH | CONSOLIDATED |
|--------------------------------------|-------------------|---------------------|-------------------|---------------------|
| 2023 | | | | |
| U.S. government sponsors | \$ 137,320 | \$ 33,750 | \$ 2,573 | \$ 173,643 |
| Non-federal sponsors and programs | 66,916 | 3,974 | — | 70,890 |
| Accrued interest on investments | 25,286 | — | — | 25,286 |
| Student | 15,034 | — | — | 15,034 |
| Patient and third-party payers | — | 1,042,786 | 682,349 | 1,725,135 |
| Other | 60,405 | 103,797 | 10,927 | 175,129 |
| | 304,961 | 1,184,307 | 695,849 | 2,185,117 |
| Less allowance for doubtful accounts | (8,526) | — | — | (8,526) |
| ACCOUNTS RECEIVABLE, NET | \$ 296,435 | \$ 1,184,307 | \$ 695,849 | \$ 2,176,591 |
| 2022 | | | | |
| U.S. government sponsors | \$ 138,624 | \$ 1,760 | \$ — | \$ 140,384 |
| Non-federal sponsors and programs | 65,316 | 3,548 | — | 68,864 |
| Accrued interest on investments | 25,965 | — | — | 25,965 |
| Student | 16,114 | — | — | 16,114 |
| Patient and third-party payers | — | 1,023,568 | 590,940 | 1,614,508 |
| Other | 54,931 | 83,037 | 8,647 | 146,615 |
| | 300,950 | 1,111,913 | 599,587 | 2,012,450 |
| Less allowance for doubtful accounts | (4,812) | — | — | (4,812) |
| ACCOUNTS RECEIVABLE, NET | \$ 296,138 | \$ 1,111,913 | \$ 599,587 | \$ 2,007,638 |



4. Pledges Receivable

Pledges are recorded at discounted rates ranging from 0.6% to 5.7%. At August 31, 2023 and 2022, pledges receivable, net of discounts and allowances, in thousands of dollars, are as follows:

| | UNIVERSITY | SHC | LPCH | ELIMINATIONS | CONSOLIDATED |
|---------------------------------|---------------------|------------------|-------------------|--------------------|---------------------|
| 2023 | | | | | |
| One year or less | \$ 611,158 | \$ 19,883 | \$ 61,434 | \$ (57,964) | \$ 634,511 |
| Between one year and five years | 1,713,800 | 29,352 | 98,459 | (10,895) | 1,830,716 |
| More than five years | 619,837 | 1,250 | 25,014 | — | 646,101 |
| | 2,944,795 | 50,485 | 184,907 | (68,859) | 3,111,328 |
| Less discounts and allowances | (313,839) | (5,303) | (11,070) | — | (330,212) |
| PLEDGES RECEIVABLE, NET | \$ 2,630,956 | \$ 45,182 | \$ 173,837 | \$ (68,859) | \$ 2,781,116 |
| 2022 | | | | | |
| One year or less | \$ 652,373 | \$ 29,346 | \$ 138,364 | \$ (54,141) | \$ 765,942 |
| Between one year and five years | 1,180,469 | 13,695 | 94,257 | (18,653) | 1,269,768 |
| More than five years | 325,449 | 2,250 | 25,020 | (200) | 352,519 |
| | 2,158,291 | 45,291 | 257,641 | (72,994) | 2,388,229 |
| Less discounts and allowances | (171,411) | (3,414) | (11,668) | — | (186,493) |
| PLEDGES RECEIVABLE, NET | \$ 1,986,880 | \$ 41,877 | \$ 245,973 | \$ (72,994) | \$ 2,201,736 |

During fiscal year 2022, John and Ann Doerr pledged \$1.1 billion to support the new Stanford Doerr School of Sustainability. The gift was recorded in the financial statements as milestones in establishing the school were completed. In fiscal year 2023 and 2022, \$1.0 billion and \$99.6 million of the gift was recorded, respectively. The University had total conditional pledges of \$16.3 million and \$1.0 billion at August 31, 2023 and 2022, respectively, which are subject to specified future events. SHC and LPCH had no conditional pledges at August 31, 2023 and 2022.

Lucile Packard Foundation for Children's Health (LPFCH) is the primary community fundraising agent for LPCH and the pediatric faculty and programs at the University's SOM. Pledges received by LPFCH on behalf of the University are recorded by the University as beneficial interest in LPFCH. At August 31, 2023 and 2022 the University held \$68.9 million and \$73.0 million, respectively, of beneficial interest in LPFCH, which is included in "Pledges receivable, net", and eliminated in consolidation.



5. Loans Receivable

Loans receivable consist primarily of University student loans receivable and faculty and staff mortgages. University management regularly assesses the adequacy of the allowance for credit losses of its loans by performing ongoing evaluations considering the differing economic risks associated with each loan category, the financial condition of specific borrowers, the economic environment in which the borrowers operate, the level of delinquent loans and the value of any collateral.

STUDENT LOANS RECEIVABLE

Student loans receivable consist of institutional and federally-sponsored loans due from both current and former students. Student loans and allowance for student loan losses at August 31, 2023 and 2022, in thousands of dollars, are as follows:

| | 2023 | 2022 |
|--|------------------|------------------|
| Institutional loans | \$ 31,405 | \$ 29,774 |
| Federally-sponsored loans | 7,718 | 9,459 |
| | 39,123 | 39,233 |
| Less allowance for student loan losses | (1,596) | (1,709) |
| STUDENT LOANS RECEIVABLE, NET | \$ 37,527 | \$ 37,524 |

Institutional loans are funded by donor funds restricted for student loan purposes and University funds made available to meet demand for student loan borrowing in specific situations. Federally-sponsored loans are funded by advances to the University primarily under the Federal Perkins Loan Program.

FACULTY AND STAFF MORTGAGES

In a program to attract and retain excellent faculty and senior staff, the University provides home mortgage financing assistance, primarily in the form of subordinated loans. The loans and mortgages are collateralized by deeds of trust on properties concentrated in the region surrounding the University. Notes receivable amounting to \$1.1 billion and \$969.3 million at August 31, 2023 and 2022, respectively, from University faculty and staff are included in "Faculty and staff mortgages and other loans receivable, net" in the *Consolidated Statements of Financial Position*. Management has determined that no allowance is necessary. For the years ended August 31, 2023 and 2022 SHC mortgage loans receivable were \$9.5 million and \$8.9 million, respectively, and LPCH mortgage loans receivable were \$4.5 million and \$4.6 million, respectively.

The August 31, 2023 and 2022 amounts are net of the University's recorded obligation to repurchase certain residential units sold under long-term restricted ground leases of \$233.9 million and \$222.8 million, respectively. See the *Repurchase Obligations* section of *Note 1*.



6. Investments

Investments are measured and recorded at fair value. The valuation methodology, investment categories, fair value hierarchy, certain investment activities and related commitments for fiscal years 2023 and 2022 are presented below. Investments held by Stanford at August 31, 2023 and 2022, in thousands of dollars, are as follows:

| | UNIVERSITY | SHC | LPCH | ELIMINATIONS | CONSOLIDATED |
|--|---------------------|---------------------|---------------------|-----------------|----------------------|
| 2023 | | | | | |
| Investment assets: | | | | | |
| Cash and short-term investments | \$ 1,082,013 | \$ 55,905 | \$ 4,160 | \$ — | \$ 1,142,078 |
| Public equities | 9,843,988 | 1,206,842 | 58,091 | — | 11,108,921 |
| Derivatives | 5,936 | — | — | — | 5,936 |
| Fixed income | 3,087,938 | 777,229 | 103,764 | — | 3,968,931 |
| Real estate | 9,954,369 | — | 5,887 | — | 9,960,256 |
| Natural resources | 1,369,379 | — | 6,931 | — | 1,376,310 |
| Private equities | 16,896,296 | — | 37,629 | — | 16,933,925 |
| Absolute return | 7,064,050 | — | 23,406 | — | 7,087,456 |
| Assets held by other trustees | 123,659 | — | 17,153 | — | 140,812 |
| Other | 1,073,699 | 27,950 | — | — | 1,101,649 |
| Total | 50,501,327 | 2,067,926 | 257,021 | — | 52,826,274 |
| Hospitals' funds invested in the University's investment pools | (3,645,241) | 2,580,599 | 1,056,898 | 7,744 | — |
| INVESTMENTS AT FAIR VALUE | \$46,856,086 | \$ 4,648,525 | \$ 1,313,919 | \$ 7,744 | \$ 52,826,274 |

| | UNIVERSITY | SHC | LPCH | ELIMINATIONS | CONSOLIDATED |
|--|---------------------|---------------------|---------------------|-----------------|----------------------|
| 2022 | | | | | |
| Investment assets: | | | | | |
| Cash and short-term investments | \$ 1,770,226 | \$ 67,850 | \$ 5,247 | \$ — | \$ 1,843,323 |
| Collateral held for securities loaned | 2,151 | — | — | — | 2,151 |
| Public equities | 9,683,129 | 1,061,767 | 50,515 | — | 10,795,411 |
| Derivatives | (8,968) | — | — | — | (8,968) |
| Fixed income | 2,421,961 | 744,330 | 101,994 | — | 3,268,285 |
| Real estate | 10,032,000 | — | 8,134 | — | 10,040,134 |
| Natural resources | 1,497,476 | — | 7,268 | — | 1,504,744 |
| Private equities | 16,830,775 | — | 41,768 | — | 16,872,543 |
| Absolute return | 6,703,158 | — | 23,164 | — | 6,726,322 |
| Assets held by other trustees | 126,994 | — | 15,942 | — | 142,936 |
| Other | 960,190 | 33,341 | — | — | 993,531 |
| Total | 50,019,092 | 1,907,288 | 254,032 | — | 52,180,412 |
| Hospitals' funds invested in the University's investment pools | (3,545,292) | 2,496,403 | 1,041,464 | 7,425 | — |
| INVESTMENTS AT FAIR VALUE | \$46,473,800 | \$ 4,403,691 | \$ 1,295,496 | \$ 7,425 | \$ 52,180,412 |

VALUATION METHODOLOGY

To the extent available, Stanford's investments are recorded at fair value based on quoted prices in active markets on a trade-date basis. Stanford's investments that are listed on any U.S. or non-U.S. recognized exchanges are valued based on readily available market quotations. When such inputs do not exist, fair value measurements are based on the best available information and usually require a degree of judgment. For alternative investments, which are principally interests in limited partnerships or similar investments in private equity, real estate, natural resources, public equities and absolute return funds, the value is primarily based on the Net Asset Value (NAV) of the underlying investments as a practical expedient. The NAV is reported by external investment managers in accordance with their policies as described in their respective financial statements and offering memoranda. The most recent NAV reported is adjusted for any investment-related transactions such as capital calls or distributions and significant known

valuation changes of its related portfolio through August 31, 2023 and 2022, respectively. These investments are generally less liquid than other investments, and the value reported may differ from the values that would have been reported had a ready market for these investments existed.

The University exercises due diligence in assessing the policies, procedures, and controls implemented by its external investment managers and believes its proportionate share of the carrying amount of these alternative investments is a reasonable estimate of fair value. Such due diligence procedures include, but are not limited to, ongoing communication, on-site visits, and review of information from external investment managers as well as review of performance. In conjunction with these procedures, estimated fair value is determined by consideration of a range of factors, such as market conditions, redemption terms and restrictions, and risks inherent in the inputs of the external investment managers' valuations.

For certain alternative investments which are direct investments, Stanford considers various factors to estimate fair value, such as, but not limited to, the timing of the transaction, the market in which the company operates, comparable transactions, company performance and projections, as well as discounted cash flow analysis. The selection of an appropriate valuation technique may be affected by the availability and general reliability of relevant inputs. In some cases, one valuation technique may provide the best indication of fair value while in other circumstances, multiple valuation techniques may be appropriate. Furthermore, Stanford may review the investment's underlying portfolio as well as engage external appraisers, depending on the circumstances and the nature of the investment.

The investment portfolio may be exposed to various risks, including, but not limited to, interest rate, market, sovereign, geographic, counterparty, liquidity and credit risk. Stanford management regularly assesses these risks through established policies and procedures. Fair value reporting requires management to make estimates and assumptions about the effects of matters that are inherently uncertain. Actual results could differ from these estimates and such differences could have a material impact on the *Consolidated Financial Statements*.

INVESTMENT CATEGORIES

Investments are categorized by asset class and valued as described below:

Cash and short-term investments include cash, cash equivalents, mutual funds, and fixed income investments with original maturities of less than one year (see also *Note 1*). Cash equivalents such as money market funds and overnight repurchase agreements are carried at cost. Fixed income investments such as short-term U.S. Treasury bills are carried at amortized cost. Due to the short-term nature and liquidity of these financial instruments, the carrying values of these assets approximates fair value. Cash may include collateral provided to or received from counterparties associated with investment-related derivative contracts (see *Note 7*).

Collateral held for securities loaned is generally received in the form of cash and cash equivalents and is reinvested for income in cash equivalent vehicles. These investments are recorded at fair value.

Public equities are investments valued based on quoted market prices (and exchange rates, if applicable) on the last trading date of the principal market on or before August 31. They include investments that are directly held as well as commingled funds which invest in publicly traded equities. The fair values of public equities held through alternative investments are reported by the respective external investment managers using NAV as described in the *Valuation Methodology* section above.

Derivatives are used by Stanford to manage its exposure to certain risks relating to ongoing business and investment operations. Derivatives may include swaps and forward currency contracts which are reflected at fair value by using quantitative models that utilize multiple market inputs. The market inputs are actively quoted and can be validated through external sources, including market transactions, brokers and third party pricing sources.

Fixed income investments are valued by independent pricing sources, broker dealers or pricing models that factor in, where applicable, recently executed transactions, interest rates, bond or credit default spreads and volatility. They primarily include investments that are actively traded fixed income securities or mutual funds.

Real estate represents directly owned real estate, mutual funds, interests in long-term ground leases and other real estate interests held through limited partnerships. A significant portion of the fair value of real estate directly owned by Stanford and subject to long-term ground leases, including the Stanford Shopping Center and the Stanford Research Park, is based on independent appraisals that



use discounted cash flows and market data, if available. The fair value of alternative investments in real estate held through limited partnerships is based on the NAV reported by the external investment managers and is adjusted as described in the *Valuation Methodology* section above. The fair value of real estate held through commingled and mutual funds are based on quoted market prices.

Natural resources represent commodity and energy related investments held through both public and non-public investments. Public securities are valued based on quoted market prices (and exchange rates, if applicable) on the last trading day of the principal market on or before August 31. The fair value of direct non-public investments is based on a combination of models, including appraisals, discounted cash flows and commodity price factors. The fair value of natural resources held as alternative investments is based on the NAV reported by the external investment managers and is adjusted as described in the *Valuation Methodology* section above.

Private equities are investments primarily in venture capital, growth equity, and leveraged buyout strategies. Distributions from these investments are received in the form of either cash or distributed shares, which are typically valued using quoted market prices. The fair value of alternative investments is based on the NAV reported by the external investment managers and is adjusted as described in the *Valuation Methodology* section above.

Absolute return investments are typically commingled funds that employ multiple strategies to produce positive returns which may be uncorrelated to financial market activities. The fair value of these types of alternative investments is valued based on the NAV reported by the external investment managers and is adjusted as described in the *Valuation Methodology* section above.

Assets held by other trustees generally represent Stanford's residual (or beneficial) interest in split-interest agreements where the University, SHC or LPCH is not the trustee. The residual interest represents the present value of the future distributions expected to be received over the term of the agreement, which approximates fair value.

Other investments are typically non-public investments such as preferred stocks, convertible notes and mineral rights. The fair value of these types of direct investments is determined as described in the *Valuation Methodology* section above.

LIABILITIES ASSOCIATED WITH INVESTMENTS

Income beneficiary share of split interest agreements - See the *Split-Interest Agreements* section of Note 1.

Net investment income excise tax - Under the Tax Cuts and Jobs Act, the University is subject to a 1.4% excise tax on its net investment income as defined under the Internal Revenue Code which, among other things, includes net investment income of certain related entities such as the Hospitals. The University has recorded current and deferred tax liabilities based on reasonable estimates.

Securities lending - The University has a collateralized borrowing program in which it receives short-term U.S. government obligations or cash and cash equivalents in exchange for transferring securities as collateral to the counterparty and recognizes an obligation to reacquire the securities for cash at the transaction's maturity. It is the University's policy to require receipt of collateral equal to a minimum of 102% of the fair market value of these collateralized borrowings. In the event the counterparty was to default on its obligations, the University has the right to repurchase the securities in the open market using the collateral received.

Under the securities lending agreement, securities loaned are primarily public equities, corporate bonds or U.S. Treasury bills and the agreement continues until the security is delivered back to the University.

Securities sold, not yet purchased are obligations to acquire and deliver to the lenders the publicly traded securities identical to the ones borrowed. A realized gain or loss is recognized for the difference between the proceeds and the cost of such securities at that time.

Accrued management fees are obligations related to management and performance fees due quarterly or annually to external investment managers in accordance with agreed-upon terms.

Pending trades of securities are obligations arising from trades of securities purchased but not settled. These are usually settled three business days after the trade date.



FAIR VALUE HIERARCHY

U.S. GAAP defines fair value as the price received upon sale of an asset or paid upon transfer of a liability in an orderly transaction between market participants. Current guidance establishes a hierarchy of valuation inputs based on the extent to which the inputs are observable in the marketplace. Inputs are used in applying the various valuation techniques and take into account the assumptions that market participants use to make valuation decisions. Inputs may include price information, credit data, liquidity statistics, and other factors specific to the financial instrument. Observable inputs reflect market data obtained from independent sources. In contrast, unobservable inputs reflect the entity's assumptions about how market participants would value the financial instrument. Valuation techniques used under U.S. GAAP must maximize the use of observable inputs to the extent available.

A financial instrument's level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement. The following describes the hierarchy of inputs used to measure fair value and the primary valuation methodologies used for financial instruments measured at fair value on a recurring basis:

Level 1 - Investments whose values are based on quoted market prices in active markets for identical assets or liabilities are classified as Level 1. Level 1 investments include active listed equities and certain short-term fixed income securities. Such investments are valued based upon the closing price quoted on the last trading date on or before the reporting date on the principal market, without adjustment.

Level 2 - Investments that trade in markets that are not actively traded, but are valued based on quoted market prices, dealer quotations, or alternative pricing sources for similar assets or liabilities are classified as Level 2. These investments include certain U.S. government and sovereign obligations, government agency obligations, investment grade corporate bonds and certain limited marketable securities.

Privately negotiated over-the-counter (OTC) derivatives such as forward currency contracts, total return swaps, and interest rate swaps are typically classified as Level 2 (see *Note 7*). In instances where quotations received from counterparties or valuation models are used, the value of an OTC derivative depends upon the contractual terms of the instrument as well as the availability and reliability of observable inputs. Such inputs include market prices for reference securities, yield curves, or credit curves.

Level 3 - Investments classified as Level 3 have significant unobservable inputs, as they trade infrequently or not at all. The inputs into the determination of fair value of these investments are based upon the best information available and may require significant management judgment. These investments primarily consist of Stanford's direct real estate and directly held private investments.



The following tables summarize Stanford's investment assets and liabilities within the fair value hierarchy and asset categories at August 31, 2023 and 2022, in thousands of dollars:

| | LEVEL 1 | LEVEL 2 | LEVEL 3 | TOTAL |
|---|---------------------|---------------------|---------------------|----------------------|
| 2023 | | | | |
| Investment assets: | | | | |
| Cash and short-term investments | \$ 174,863 | \$ 959,966 | \$ — | \$ 1,134,829 |
| Public equities | 3,618,065 | 5,034 | — | 3,623,099 |
| Derivatives | — | 5,936 | — | 5,936 |
| Fixed income | 562,576 | 3,399,733 | — | 3,962,309 |
| Real estate | 210,227 | — | 7,490,481 | 7,700,708 |
| Natural resources | 5,268 | — | 57,260 | 62,528 |
| Private equities | 66,075 | — | 1,731 | 67,806 |
| Absolute return | — | — | 23,736 | 23,736 |
| Assets held by other trustees | — | — | 140,812 | 140,812 |
| Other | 14,346 | 5,438 | 1,069,494 | 1,089,278 |
| INVESTMENTS SUBJECT TO FAIR VALUE LEVELING | \$ 4,651,420 | \$ 4,376,107 | \$ 8,783,514 | 17,811,041 |
| Investments measured using Net Asset Value ¹ | | | | 35,015,233 |
| TOTAL CONSOLIDATED INVESTMENT ASSETS | | | | \$ 52,826,274 |

| | LEVEL 1 | LEVEL 2 | LEVEL 3 | TOTAL |
|---|---------------------|---------------------|---------------------|----------------------|
| 2022 | | | | |
| Investment assets: | | | | |
| Cash and short-term investments | \$ 241,942 | \$ 1,593,325 | \$ — | \$ 1,835,267 |
| Collateral held for securities loaned | — | 2,151 | — | 2,151 |
| Public equities | 3,139,972 | 4,111 | — | 3,144,083 |
| Derivatives | — | (8,968) | — | (8,968) |
| Fixed income | 1,009,556 | 2,252,463 | — | 3,262,019 |
| Real estate | 218,614 | — | 7,721,395 | 7,940,009 |
| Natural resources | 5,337 | — | 67,375 | 72,712 |
| Private equities | 96,951 | 125 | 12,589 | 109,665 |
| Absolute return | — | — | 24,616 | 24,616 |
| Assets held by other trustees | — | — | 142,936 | 142,936 |
| Other | 15,068 | 5,055 | 958,653 | 978,776 |
| INVESTMENTS SUBJECT TO FAIR VALUE LEVELING | \$ 4,727,440 | \$ 3,848,262 | \$ 8,927,564 | 17,503,266 |
| Investments measured using Net Asset Value ¹ | | | | 34,677,146 |
| TOTAL CONSOLIDATED INVESTMENT ASSETS | | | | \$ 52,180,412 |

¹ Entities may estimate the fair value of certain investments by using NAV as a practical expedient as of the measurement date. Investments measured under this method are not categorized in the fair value hierarchy. The fair value amounts of such investments are presented for reconciliation purposes.

SUMMARY OF LEVEL 3 INVESTMENT ACTIVITIES AND TRANSFERS

The following tables present the activities for Level 3 investments for the years ended August 31, 2023 and 2022, in thousands of dollars:

| FAIR VALUE MEASUREMENTS USING SIGNIFICANT UNOBSERVABLE INPUTS (LEVEL 3) | BEGINNING BALANCE AS OF SEPTEMBER 1, 2022 | PURCHASES AND ADDITIONS | SALES AND MATURITIES | NET REALIZED AND UNREALIZED GAINS (LOSSES) | TRANSFERS IN* | TRANSFERS OUT* | ENDING BALANCE AS OF AUGUST 31, 2023 |
|---|---|-------------------------|----------------------|--|---------------|----------------|--------------------------------------|
| Real estate | \$ 7,721,395 | \$ 22,143 | \$ (16,487) | \$ (236,570) | \$ — | \$ — | \$ 7,490,481 |
| Natural resources | 67,375 | — | (3,390) | (6,725) | — | — | 57,260 |
| Private equities | 12,852 | — | (67) | (11,054) | — | — | 1,731 |
| Absolute return | 24,616 | — | (3,901) | 3,021 | — | — | 23,736 |
| Assets held by other trustees | 142,936 | 518 | (10,826) | 7,236 | 948 | — | 140,812 |
| Other | 958,390 | 50,214 | (26,077) | 86,967 | — | — | 1,069,494 |
| TOTAL | \$ 8,927,564 | \$ 72,875 | \$ (60,748) | \$ (157,125) | \$ 948 | \$ — | \$ 8,783,514 |

| FAIR VALUE MEASUREMENTS USING SIGNIFICANT UNOBSERVABLE INPUTS (LEVEL 3) | BEGINNING BALANCE AS OF SEPTEMBER 1, 2021 | PURCHASES AND ADDITIONS | SALES AND MATURITIES | NET REALIZED AND UNREALIZED GAINS (LOSSES) | TRANSFERS IN* | TRANSFERS OUT* | ENDING BALANCE AS OF AUGUST 31, 2022 |
|---|---|-------------------------|----------------------|--|---------------|---------------------|--------------------------------------|
| Real estate | \$ 6,985,383 | \$ 46,387 | \$ (12,523) | \$ 896,655 | \$ — | \$ (194,507) | \$ 7,721,395 |
| Natural resources | 125,178 | — | (113,811) | 56,008 | — | — | 67,375 |
| Private equities | 7,289 | 8,800 | — | (3,392) | — | (108) | 12,589 |
| Absolute return | 16,662 | — | (1,393) | 9,347 | — | — | 24,616 |
| Assets held by other trustees | 169,182 | 7,230 | (4,033) | (27,610) | 751 | (2,584) | 142,936 |
| Other | 688,743 | 42,126 | (40,347) | 269,858 | — | (1,727) | 958,653 |
| TOTAL | \$ 7,992,437 | \$ 104,543 | \$ (172,107) | \$ 1,200,866 | \$ 751 | \$ (198,926) | \$ 8,927,564 |

*Transfers in (out) are primarily due to reclassification of investments between asset classes and changes in the fair value hierarchy.

Net realized and unrealized gains (losses) in the tables above are included in the *Consolidated Statements of Activities* primarily as increases or decreases in reinvested gains by level of restriction. For the years ended August 31, 2023 and 2022, the change in unrealized gains (losses) for Level 3 investments still held at August 31, 2023 and 2022 was \$(101.1) million and \$1.2 billion, respectively.



LEVEL 3 INVESTMENT VALUATION TECHNIQUES AND SIGNIFICANT UNOBSERVABLE INPUTS

The following table summarizes the significant unobservable inputs and valuation methodologies for Level 3 investments as of August 31, 2023 and 2022, in thousands of dollars.

For each investment category and respective valuation technique, the range of the significant unobservable input is dependent on the nature and characteristics of the investment and may vary at each balance sheet date.

| INVESTMENT CATEGORIES | FAIR VALUE ¹ | VALUATION TECHNIQUE | SIGNIFICANT UNOBSERVABLE INPUTS | RANGE | | WEIGHTED AVERAGE | IMPACT TO VALUATION FROM AN INCREASE IN INPUT ² |
|--|-------------------------|----------------------|---------------------------------|-------|-------|------------------|--|
| | | | | MIN | MAX | | |
| 2023 | | | | | | | |
| Real estate | \$ 6,599,473 | Discounted cash flow | Discount rate | 5.9% | 20.0% | 7.5% | Decrease |
| | | | Capitalization rate | 6.0% | 8.5% | 6.6% | Decrease |
| Assets held by other trustees | 140,812 | Net present value | Discount rate | 5.0% | 5.0% | N/A | Decrease |
| TOTAL AMOUNT WITH SIGNIFICANT UNOBSERVABLE INPUTS \$6,740,285 | | | | | | | |
| 2022 | | | | | | | |
| Real estate | \$ 6,807,660 | Discounted cash flow | Discount rate | 5.8% | 20.0% | 7.1% | Decrease |
| | | | Capitalization rate | 5.5% | 8.3% | 6.3% | Decrease |
| Assets held by other trustees | 126,994 | Net present value | Discount rate | 3.8% | 3.8% | N/A | Decrease |
| TOTAL AMOUNT WITH SIGNIFICANT UNOBSERVABLE INPUTS \$6,934,654 | | | | | | | |

¹ Level 3 investments of \$2.0 billion and \$1.9 billion at August 31, 2023 and 2022, respectively, are valued using third-party valuations, other market comparables or recent transactions as an approximation of fair value.

² Unless otherwise noted, this column represents the directional change in the fair value of the Level 3 investments that would have resulted from an increase to the corresponding unobservable input. A decrease to the unobservable input would have the opposite effect. Significant increases and decreases in these unobservable inputs in isolation would result in significantly higher or lower fair value measurements.

INVESTMENT-RELATED COMMITMENTS

The University is obligated under certain alternative investment agreements to advance additional funding up to specified levels over a period of several years. The following table presents significant terms of such agreements including redemption terms, notice periods, and remaining life for all related alternative investments at August 31, 2023, in thousands of dollars:

| ASSET CLASS | FAIR VALUE | UNFUNDED COMMITMENT | REMAINING LIFE (YEARS) | REDEMPTION TERMS |
|-------------------|---------------------|---------------------|------------------------|--|
| Public equities | \$ 7,446,430 | \$ 45,235 | 0 to 5 | Generally, lock-up provisions ranging from 0 to 3 years. After initial lock up expires, redemptions are available on a rolling basis and require 30 to 90 days prior notification. |
| Real estate | 2,292,813 | 1,151,643 | 0 to 9 | Not eligible for redemption |
| Natural resources | 1,345,784 | 717,788 | 0 to 9 | Not eligible for redemption |
| Private equities | 16,830,168 | 5,529,580 | 0 to 20 | Not eligible for redemption |
| Absolute return | 7,064,050 | 343,715 | 0 to 3 | Generally, lock-up provisions ranging from 0 to 3 years. After initial lock up expires, redemptions are available on a rolling basis and require 30 to 90 days prior notification. |
| TOTAL | \$34,979,245 | \$ 7,787,961 | | |



OFFSETS TO INVESTMENT-RELATED ASSETS AND LIABILITIES

Financial instruments with off-balance sheet risk such as derivatives, securities lending agreements, securities sold, not yet purchased and repurchase agreements are subject to counterparty credit risk. The University seeks to control this risk in various ways, such as entering into transactions with counterparties with high creditworthiness, establishing and monitoring credit limits, and requiring collateral in certain situations.

The University generally maintains master netting agreements and collateral agreements with its counterparties. These agreements provide the University the right to net a counterparty's rights and obligations under the agreement and to liquidate and offset collateral against any net amount owed by the counterparty, in the event of default by the counterparty, such as bankruptcy or a failure to pay or perform. For certain derivatives, a master netting arrangement allows the counterparty to net any of its applicable liabilities or payment obligations to the University against any collateral previously provided or received (see Note 7).

The University may enter into repurchase and reverse repurchase agreements to sell or purchase securities to or from the counterparty with an agreement to repurchase or sell the same securities from or to the counterparty at a predetermined price.

The following table presents information about the gross amounts of assets and liabilities, the offset of these instruments and the related collateral amounts as of August 31, 2023 and 2022, in thousands of dollars:

| | GROSS AMOUNTS OF ASSETS AND LIABILITIES | OFFSET AMOUNTS | NET AMOUNTS | COLLATERAL RECEIVED (PLEGGED) ² | NET EXPOSURE |
|------------------------------------|---|--------------------|-----------------|--|--------------|
| 2023 | | | | | |
| Assets: | | | | | |
| Derivatives ¹ | \$ 9,003 | \$ (3,067) | \$ 5,936 | \$ 5,936 | \$ — |
| Repurchase agreements ³ | 430,947 | — | 430,947 | 430,947 | — |
| TOTAL | 439,950 | (3,067) | 436,883 | 436,883 | — |
| Liabilities: | | | | | |
| Derivatives ¹ | 3,067 | (3,067) | — | — | — |
| TOTAL | \$ 3,067 | \$ (3,067) | \$ — | \$ — | \$ — |
| 2022 | | | | | |
| Assets: | | | | | |
| Derivatives ¹ | \$ 3,363 | \$ (12,331) | \$ (8,968) | \$ (8,968) | \$ — |
| Repurchase agreements ³ | 304,683 | — | 304,683 | 304,683 | — |
| TOTAL | 308,046 | (12,331) | 295,715 | 295,715 | — |
| Liabilities: | | | | | |
| Derivatives ¹ | 12,332 | (12,332) | — | — | — |
| Securities lending | 2,151 | — | 2,151 | (2,151) | — |
| TOTAL | \$ 14,483 | \$ (12,332) | \$ 2,151 | \$ (2,151) | \$ — |

¹ Gross derivative assets less gross derivative liabilities are presented as derivatives in the investment assets table.

² These collateral amounts received (pledged) are limited to the asset balance and accordingly, do not include any excess collateral received.

³ Repurchase agreements are included in cash and short-term investments in the investment assets table.



INVESTMENT RETURNS

Total investment returns for the years ended August 31, 2023 and 2022, in thousands of dollars, are as follows:

| | UNIVERSITY | SHC | LPCH | CONSOLIDATED |
|--|---------------------|---------------------|--------------------|---------------------|
| 2023 | | | | |
| Investment income | \$ 500,053 | \$ 125,657 | \$ 18,390 | \$ 644,100 |
| Net realized and unrealized gains | 1,078,952 | 208,298 | 53,215 | 1,340,465 |
| TOTAL INVESTMENT RETURNS, NET | \$ 1,579,005 | \$ 333,955 | \$ 71,605 | \$ 1,984,565 |
| Reconciliation to <i>Statements of Activities</i> : | | | | |
| Total investment income distributed for operations | \$ 1,878,501 | \$ 3,691 | \$ 12,174 | \$ 1,894,366 |
| Increase (decrease) in reinvested gains: | | | | |
| Without donor restrictions | (96,173) | 326,565 | 38,424 | 268,816 |
| With donor restrictions | (252,663) | 3,699 | 19,445 | (229,519) |
| Change in value of split-interest agreements, net | 29,596 | — | 1,562 | 31,158 |
| Adjustments for actuarial re-evaluations and maturities of split-interest agreements | 19,744 | — | — | 19,744 |
| TOTAL INVESTMENT RETURNS, NET | \$ 1,579,005 | \$ 333,955 | \$ 71,605 | \$ 1,984,565 |
| 2022 | | | | |
| Investment income | \$ 398,137 | \$ 123,298 | \$ 2,303 | \$ 523,738 |
| Net realized and unrealized losses | (445,728) | (386,982) | (38,851) | (871,561) |
| TOTAL INVESTMENT RETURNS, NET | \$ (47,591) | \$ (263,684) | \$ (36,548) | \$ (347,823) |
| Reconciliation to <i>Statements of Activities</i> : | | | | |
| Total investment income distributed for operations | \$ 1,742,175 | \$ 606 | \$ 9,370 | \$ 1,752,151 |
| Increase (decrease) in reinvested gains: | | | | |
| Without donor restrictions | (449,755) | (264,528) | (29,655) | (743,938) |
| With donor restrictions | (1,243,613) | 238 | (12,396) | (1,255,771) |
| Change in value of split-interest agreements, net | (59,444) | — | (3,867) | (63,311) |
| Adjustments for actuarial re-evaluations and maturities of split-interest agreements | (36,954) | — | — | (36,954) |
| TOTAL INVESTMENT RETURNS, NET | \$ (47,591) | \$ (263,684) | \$ (36,548) | \$ (347,823) |

Investment returns are net of investment management expenses, including both external management fees and internal University investment-related salaries, benefits and operating expenses.

FUTURE MINIMUM RENTAL INCOME

As part of its investment portfolio, Stanford holds certain investment properties that it leases to third parties. Future minimum rental income due from the Stanford Shopping Center, the Stanford Research Park and other properties under non-cancellable leases in effect with tenants at August 31, 2023, in thousands of dollars, is as follows:

| YEAR ENDING AUGUST 31 | FUTURE MINIMUM RENTAL INCOME | | | |
|-----------------------|------------------------------|------------------|-----------------|---------------------|
| | UNIVERSITY | SHC | LPCH | CONSOLIDATED |
| 2024 | \$ 112,887 | \$ 5,092 | \$ 1,309 | \$ 119,288 |
| 2025 | 120,490 | 3,137 | 529 | 124,156 |
| 2026 | 112,426 | 2,316 | 522 | 115,264 |
| 2027 | 93,215 | 1,936 | 444 | 95,595 |
| 2028 | 92,845 | 1,275 | 80 | 94,200 |
| Thereafter | 1,242,628 | 8,504 | — | 1,251,132 |
| TOTAL | \$ 1,774,491 | \$ 22,260 | \$ 2,884 | \$ 1,799,635 |

7. Derivatives

Stanford, directly or through external investment managers on Stanford's behalf, utilizes various strategies to reduce investment and credit risks, to serve as a temporary surrogate for investment in stocks and bonds, to manage interest rate exposure on debt, and/or to manage specific exposure to foreign currencies. Futures, options and other derivative instruments are used to adjust elements of investment exposures to various securities, sectors, markets and currencies without actually taking a position in the underlying asset or basket of assets. Interest rate swaps are used to manage interest rate risk. With respect to foreign currencies, Stanford utilizes forward contracts and foreign currency options to manage exchange rate risk.

INVESTMENT-RELATED DERIVATIVES

The following table presents amounts for investment-related derivatives, including the notional amount, the fair values at August 31, 2023 and 2022, and gains and losses for the years ended August 31, 2023 and 2022, in thousands of dollars:

| | NOTIONAL AMOUNT ¹ | GROSS DERIVATIVE ASSETS ² | GROSS DERIVATIVE LIABILITIES ² | REALIZED AND UNREALIZED GAINS (LOSSES) ³ |
|----------------------------|---------------------------------|--|---|---|
| | AS OF AUGUST 31 | | | YEAR ENDED AUGUST 31 |
| 2023 | | | | |
| Foreign exchange contracts | \$ 13,426 | \$ — | \$ 275 | \$ (27) |
| Equity contracts | 715,867 | 9,003 | 2,792 | (34,093) |
| TOTAL | \$ 729,293 | \$ 9,003 | \$ 3,067 | \$ (34,120) |
| 2022 | | | | |
| Foreign exchange contracts | \$ 102,873 | \$ 42 | \$ 913 | \$ (1,937) |
| Equity contracts | 378,657 | 3,321 | 11,418 | 87,318 |
| TOTAL | \$ 481,530 | \$ 3,363 | \$ 12,331 | \$ 85,381 |

¹ The notional amount is representative of the volume and activity of the respective derivative type during the years ended August 31, 2023 and 2022.

² Gross derivative assets less gross derivative liabilities of \$5.9 million and \$(9.0) million as of August 31, 2023 and 2022, respectively, are presented as derivatives on the investment table in Note 6.

³ Gains and losses on derivatives are included in the Statements of Activities line "Increase (decrease) in reinvested gains" in "Non-operating activities."

DEBT-RELATED DERIVATIVES

The University and SHC use interest rate exchange agreements to manage the interest rate exposure of their debt portfolios. Under the terms of the current agreements, the entities pay a fixed interest rate, determined at inception, and receive a variable rate on the underlying notional principal amount. Generally, the exchange agreements require mutual posting of collateral by the University and SHC and the counterparties if the termination values exceed a predetermined threshold dollar amount.

At August 31, 2023, the University had interest rate exchange agreements related to \$97.0 million of the outstanding balance of the CEFA Series S bonds in variable rate mode (see Note 9). The agreements, which have a weighted average interest rate of 3.68%, expire November 1, 2039. The notional amount and the fair value of the exchange agreements are included in the table below. Collateral posted with various counterparties was \$6.1 million and \$9.7 million at August 31, 2023 and 2022, respectively, and is included in the Consolidated Statements of Financial Position. In addition, the University issued an irrevocable standby letter of credit of \$15.0 million to support collateral requirements at August 31, 2023 and 2022 (see Note 9).

At August 31, 2023, SHC had interest rate exchange agreements expiring through November 2051 (see Note 9). The agreements require SHC to pay fixed interest rates to the counterparties varying from 3.37% to 4.08% in exchange for variable rate payments from the counterparties based on a percentage of the Secured Overnight Financing Rate (SOFR) plus an applicable 1-Month spread. The notional amount and the fair value of the exchange agreements are included in the table below. There was no cash collateral posted with counterparties at August 31, 2023 and 2022.

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The following table presents amounts for debt-related derivatives including the notional amount, the fair values at August 31, 2023 and 2022, and gains and losses for the years ended August 31, 2023 and 2022, in thousands of dollars:

| | AS OF AUGUST 31, 2023 | | YEAR ENDED AUGUST 31, 2023 | AS OF AUGUST 31, 2022 | | YEAR ENDED AUGUST 31, 2022 |
|---------------------------------------|---------------------------------|---|----------------------------------|---------------------------------|---|----------------------------------|
| | NOTIONAL AMOUNT ¹ | GROSS DERIVATIVE LIABILITIES ² | UNREALIZED GAINS ³ | NOTIONAL AMOUNT ¹ | GROSS DERIVATIVE LIABILITIES ² | UNREALIZED GAINS ³ |
| Debt-related interest-rate contracts: | | | | | | |
| University | \$ 97,000 | \$ 12,433 | \$ 9,117 | \$ 97,000 | \$ 21,550 | \$ 21,707 |
| SHC | 573,050 | 86,262 | 59,644 | 573,725 | 145,906 | 139,748 |
| TOTAL | \$ 670,050 | \$ 98,695 | \$ 68,761 | \$ 670,725 | \$ 167,456 | \$ 161,455 |

¹The notional amount is representative of the volume and activity of the respective derivative type during the years ended August 31, 2023 and 2022.

²Fair value is measured using Level 2 inputs as defined in Note 6. Amounts are included in the Statements of Financial Position in "Accounts payable and accrued expenses" and discussed more fully in Note 9.

³Gains on derivatives are included in the Statements of Activities as "Swap interest and change in value of swap agreements" in "Non-operating activities".



8. Plant Facilities

Plant facilities, net of accumulated depreciation, at August 31, 2023 and 2022, in thousands of dollars, are as follows:

| | UNIVERSITY | SHC | LPCH | CONSOLIDATED |
|--|---------------------|---------------------|---------------------|----------------------|
| 2023 | | | | |
| Land and improvements | \$ 901,483 | \$ 156,441 | \$ 120,605 | \$ 1,178,529 |
| Buildings and building improvements | 10,601,370 | 4,242,155 | 1,974,474 | 16,817,999 |
| Furniture, fixtures and equipment | 2,294,268 | 1,828,646 | 512,912 | 4,635,826 |
| Utilities | 1,085,835 | — | — | 1,085,835 |
| Construction in progress | 553,721 | 419,997 | 108,845 | 1,082,563 |
| | 15,436,677 | 6,647,239 | 2,716,836 | 24,800,752 |
| Less accumulated depreciation | (6,877,840) | (2,771,562) | (967,309) | (10,616,711) |
| PLANT FACILITIES, NET OF ACCUMULATED DÉPRECIATION | \$ 8,558,837 | \$ 3,875,677 | \$ 1,749,527 | \$ 14,184,041 |
| 2022 | | | | |
| Land and improvements | \$ 899,191 | \$ 155,325 | \$ 120,605 | \$ 1,175,121 |
| Buildings and building improvements | 9,714,384 | 3,912,975 | 1,954,449 | 15,581,808 |
| Furniture, fixtures and equipment | 2,194,236 | 1,720,456 | 500,663 | 4,415,355 |
| Utilities | 1,053,134 | — | — | 1,053,134 |
| Construction in progress | 458,954 | 503,430 | 58,531 | 1,020,915 |
| | 14,319,899 | 6,292,186 | 2,634,248 | 23,246,333 |
| Less accumulated depreciation | (6,415,976) | (2,566,698) | (886,225) | (9,868,899) |
| PLANT FACILITIES, NET OF ACCUMULATED DÉPRECIATION | \$ 7,903,923 | \$ 3,725,488 | \$ 1,748,023 | \$ 13,377,434 |

At August 31, 2023, \$2.8 billion, \$1.6 billion, and \$489.1 million of fully depreciated plant facilities were still in use by the University, SHC, and LPCH, respectively, and are included in plant facilities and accumulated depreciation in the above table.

In May 2022, the Board of Trustees of the University approved the purchase of Oak Creek Apartments, a 759-unit apartment complex on leased Stanford land reflecting an effort to meet increased demand for faculty, staff, and student housing on and near the historic campus. As a result, in fiscal year 2022 the \$194.5 million value of the ground lease was reclassified from "Investments" to land and improvements in "Plant facilities, net of accumulated depreciation".

9. Notes and Bonds Payable

The University borrows at tax-exempt interest rates through the California Educational Facilities Authority (CEFA), a conduit issuer. CEFA debt is a general unsecured obligation of the University. Although CEFA is the issuer, the University is responsible for the repayment of the tax-exempt debt. SHC and LPCH borrow at tax-exempt interest rates through the California Health Facilities Financing Authority (CHFFA). CHFFA debt is a general obligation of each of the hospitals. Payments of principal and interest on SHC's and LPCH's bonds are collateralized by a pledge of their respective revenues. Although CHFFA is the issuer, each hospital is responsible for the repayment of its respective tax-exempt debt.

Notes and bonds payable for the University, SHC, and LPCH at August 31, 2023 and 2022, in thousands of dollars, are presented in the table below. The University is not an obligor or guarantor with respect to any obligations of SHC or LPCH, nor are SHC or LPCH obligors or guarantors with respect to obligations of the University or each other.

Consolidated Financial Statements

| | YEAR OF MATURITY | EFFECTIVE INTEREST RATE * 2023/2022 | OUTSTANDING PRINCIPAL | |
|--|---------------------|--|-----------------------|---------------------|
| | | | 2023 | 2022 |
| UNIVERSITY: | | | | |
| Tax-exempt: | | | | |
| CEFA Fixed Rate Revenue Bonds: | | | | |
| Series S | 2040 | 3.18% | \$ 30,210 | \$ 30,210 |
| Series T | 2026-2039 | 4.28%-4.30% | 137,135 | 188,900 |
| Series U | 2033-2046 | 2.71%-4.25% | 1,043,090 | 1,043,090 |
| Series V | 2029-2051 | 1.83%-3.12% | 983,775 | 742,230 |
| CEFA Variable Rate Revenue Bonds and Notes: | | | | |
| Series L | 2023 | 1.20% | — | 36,208 |
| Series S | 2040-2051 | 3.10%/1.20%-1.47% | 141,200 | 141,200 |
| Commercial Paper | 2024 | 3.05% | 7,300 | — |
| Taxable: | | | | |
| Fixed Rate Notes and Bonds: | | | | |
| Stanford University Bonds | 2024 | 6.88% | 150,000 | 150,000 |
| Medium Term Note | 2026 | 7.65% | 50,000 | 50,000 |
| Stanford University Series 2012 | 2042 | 4.01% | 143,235 | 143,235 |
| Stanford University Series 2013 | 2044 | 3.56% | 150,115 | 150,115 |
| Stanford University Series 2014 | 2054 | 4.25% | 150,000 | 150,000 |
| Stanford University Series 2015 | 2047 | 3.46% | 250,000 | 250,000 |
| Stanford University Series 2017 | 2048 | 3.65% | 750,000 | 750,000 |
| Stanford University Series 2019 | 2029 | 3.09% | 121,000 | 121,000 |
| Stanford University Series 2020 | 2027-2050 | 1.29%-2.41% | 750,000 | 750,000 |
| Other | 2036 | 3.37%/3.29% | 85,717 | 480 |
| Commercial Paper | 2024 | 5.40%-5.50%/2.32%-2.55% | 60,456 | 30,055 |
| Revolving Credit Facilities | 2024-2025 | 5.71% | 3,886 | — |
| University notes and bonds payable | | | 5,007,119 | 4,726,723 |
| Unamortized issuance costs, premiums, and discounts, net | | | 463,376 | 427,115 |
| UNIVERSITY TOTAL | | | \$ 5,470,495 | \$ 5,153,838 |
| SHC: | | | | |
| CHFFA Fixed Rate Revenue Bonds: | | | | |
| 2012 Series B | 2023 | 2.57% | \$ — | \$ 7,430 |
| 2015 Series A | 2052-2054 | 4.10% | 100,000 | 100,000 |
| 2017 Series A | 2024-2041 | 2.89%/2.87% | 437,440 | 447,075 |
| 2020 Series A | 2050 | 2.70% | 170,120 | 170,120 |
| 2021 Series A | 2025 | 0.42% | 157,715 | 157,715 |
| 2018 Series Taxable Bonds | 2049 | 3.80% | 500,000 | 500,000 |
| 2020 Series Taxable Bonds | 2030 | 3.31% | 300,000 | 300,000 |
| 2021 Series Taxable Bonds | 2051 | 3.03% | 365,100 | 365,100 |
| CHFFA Variable Rate Revenue Bonds: | | | | |
| 2008 Series B | 2042-2046 | 2.94%/1.38% | 168,200 | 168,200 |
| SHC notes and bonds payable | | | 2,198,575 | 2,215,640 |
| Unamortized issuance costs, premiums, and discounts, net | | | 71,870 | 79,697 |
| SHC TOTAL | | | \$ 2,270,445 | \$ 2,295,337 |
| LPCH: | | | | |
| CHFFA Fixed Rate Revenue Bonds: | | | | |
| 2014 Series A | 2025-2043 | 3.84% | \$ 100,000 | \$ 100,000 |
| 2016 Series A | 2016-2033 | 2.54%/2.48% | 50,505 | 53,940 |
| 2016 Series B | 2052-2055 | 3.34% | 100,000 | 100,000 |
| 2017 Series A | 2019-2057 | 3.14%/3.11% | 188,175 | 190,940 |
| 2022 Series A | 2023-2051 | 2.49%/2.47% | 203,760 | 206,670 |
| CHFFA Variable Rate Revenue Bonds: | | | | |
| 2014 Series B | 2034-2043 | 4.09%/2.17% | 100,000 | 100,000 |
| LPCH notes and bonds payable | | | 742,440 | 751,550 |
| Unamortized issuance costs, premiums, and discounts, net | | | 67,763 | 70,281 |
| LPCH TOTAL | | | \$ 810,203 | \$ 821,831 |
| CONSOLIDATED TOTAL | | | \$ 8,551,143 | \$ 8,271,006 |

*Exclusive of interest rate exchange agreements (see Note 7).

The University's long-term ratings of AAA/AAA/Aaa were affirmed in May 2023 by S&P Global Ratings, Fitch Ratings, and Moody's Investors Service, respectively. In fiscal year 2022, Moody's additionally rated the University as part of their updated Environmental, Social and Governance methodology which introduced ESG Issuer Profile (IPS) and Credit Impact Scores (CIS) for rated entities. The new scores are part of Moody's incorporation of material ESG issues into credit ratings. The scoring range is from 1 (positive) to 5 (very highly negative). The University was rated as a 2 on each of the environmental, governance and social dimensions, respectively, of the Issuer Profile score; and 2 on the Credit Impact Score. The score of 2 correlates to a "neutral-to-low" credit impact of impact of ESG considerations. In March and April 2023, SHC's long-term ratings were affirmed by S&P Global Ratings, Moody's Investors Service, and Fitch Ratings at AA-/Aa3/AA, respectively. In June and July 2023, LPCH's long-term ratings of A+/A1/AA- were affirmed by S&P Global Ratings, Moody's Investors Service, and Fitch Ratings, respectively.

SHC and LPCH are each party to separate master trust indentures that include, among other requirements, limitations on the incurrence of additional indebtedness, liens on property, restrictions on disposition or transfer of assets and compliance with certain financial ratios. Subject to applicable no-call provisions, SHC and LPCH may cause the redemption of the bonds, in whole or in part, prior to the stated maturities.

UNIVERSITY

Debt issuances and repayment activity

In June 2023, CEFA, on behalf of the University, issued its tax-exempt Series V-3 bonds in the amount of \$241.5 million plus an original issue premium of \$58.5 million, maturing on June 1, 2033. The series has a coupon rate of 5.00% and has a yield of 2.28% and will be used to finance or refinance certain capital projects of the university.

In March 2023, CEFA Series T-5 tax-exempt bonds in the amount of \$51.8 million matured and were refunded with a portion of the proceeds of CEFA Series V-3 bonds.

In October 2022, CEFA Series L-6 and L-7 tax-exempt bonds in the amounts of \$17.8 million and \$18.4 million, respectively, matured and were repaid.

The University has two unsecured revolving credit facilities. One credit facility has a capacity of \$250.0 million and maturity date of May 31, 2024 and the other has a capacity of \$175.0 million and maturity date of September 30, 2024. Funds drawn on the revolving credit facilities bear interest at a floating rate equal to the applicable financing rate rate plus a specified margin. The amount outstanding on these credit facilities was \$3.9 million and \$0 at August 31, 2023 and 2022, respectively.

Variable rate debt subject to remarketing or tender

The University had \$141.2 million of revenue bonds in variable rate mode outstanding at August 31, 2023. CEFA Series S bonds bear interest at a commercial paper municipal rate for various interest periods of 270 days or less. In the event the University receives notice of any optional tender of these bonds, or if the bonds become subject to mandatory tender, the purchase price of the bonds will be paid from the remarketing of such bonds. However, if the remarketing proceeds are insufficient, the University will have a current obligation to purchase the bonds tendered. The University has identified several sources of funding including cash, money market funds, U.S. Treasury securities and agencies' discount notes to provide for the full and timely purchase price of any bonds tendered in the event of a failed remarketing.

The University's taxable and tax-exempt commercial paper authorized borrowing capacity was \$500.0 million and \$300.0 million, respectively, at both August 31, 2023 and 2022. Taxable commercial paper of \$60.5 million and \$30.1 million was outstanding at August 31, 2023 and 2022, respectively. Tax-exempt commercial paper of \$7.3 million and \$0 was outstanding at August 31, 2023 and 2022, respectively.

SHC

Debt issuances and repayment activity

SHC has a revolving line of credit facility, which has a maturity date of November 2024, for general corporate purposes. Drawdowns from the facility bear interest at the Bloomberg Short-Term Bank Yield Index (BSBY) plus an applicable spread. The size of the facility is \$150.0 million, of which \$50.0 million is earmarked for the issuance of stand-by letters of credit. There were no amounts drawn on this credit facility as of August 31, 2023 and 2022.

SHC also has a \$150.0 million taxable commercial paper facility for general corporate purposes. There were no amounts outstanding as of August 31, 2023 and 2022.

Variable rate debt

At August 31, 2023, SHC had \$168.2 million of revenue bonds in variable rate mode outstanding. The 2008 Series B bonds are supported by SHC's self-liquidity. In the event SHC receives a tender notice of any of the 2008 Series B bonds, the purchase price of the bonds will be paid from the remarketing of such bonds. However, if the remarketing proceeds are insufficient, SHC has an obligation to purchase any remaining bonds. SHC maintains sufficient liquidity to provide for the full and timely purchase price of any bonds tendered in the event of a failed remarketing.



LPCH

Debt activity

In June 2022, LPCH extended its \$200.0 million revolving credit facility until June 2025. There were no amounts drawn on the line of credit as of August 31, 2023 and 2022.

In May 2022, CHFFA issued, on behalf of LPCH, forward delivery refunding bonds in the aggregate par amount of \$206.7 million, with a premium of \$23.9 million (the “2022 Series A Bonds”). Proceeds of the 2022 Series A Bonds were used for the legal defeasance and redemption of the 2012 Series A bonds, partial refund of the 2012 Series B bonds, and payments of costs of issuance. The coupon interest rates for the Series 2022 Series A Bonds range from 4.00-5.00% over the life of the bonds. The defeasance of 2012 Bonds resulted in a gain of \$6.9 million recognized in "Other changes in net assets without donor restrictions" in the *Statements of Activities*.

LETTERS OF CREDIT

In December 2010, the University entered into a credit agreement and established a letter of credit facility under which the bank agreed to issue standby letters of credit in a principal amount not to exceed \$50.0 million. In June 2018, the facility was raised to \$75.0 million and in June 2020, the University decreased the facility to \$65.0 million. Irrevocable standby letters of credit outstanding as of August 31, 2023 and 2022, in thousands of dollars, is as follows:

| | UNIVERSITY | SHC | LPCH | CONSOLIDATED |
|--|------------------|------------------|------------------|------------------|
| 2023 | | | | |
| Security for workers compensation insurance | \$ 12,520 | \$ 28,916 | \$ 10,988 | \$ 52,424 |
| Collateral for interest rate exchange agreements | 15,000 | — | — | 15,000 |
| Other | 4,145 | 2,210 | 1,422 | 7,777 |
| TOTAL | \$ 31,665 | \$ 31,126 | \$ 12,410 | \$ 75,201 |
| Amounts drawn as of August 31, 2023 | \$ — | \$ — | \$ — | \$ — |
| Amounts drawn as of August 31, 2022 | \$ — | \$ — | \$ — | \$ — |



INTEREST

Stanford's interest expense, which includes amortized bond issuance costs and amortized bond premium or discount, is recorded in "Other operating expenses". Interest expense for the years ended August 31, 2023 and 2022, in thousands of dollars, is as follows:

| | UNIVERSITY | SHC | LPCH | CONSOLIDATED |
|---|-------------------|------------------|------------------|-------------------|
| 2023 | | | | |
| Interest expense, gross | \$ 173,299 | \$ 74,100 | \$ 31,258 | \$ 278,657 |
| Less: | | | | |
| Interest income earned on unspent bond proceeds | (4,467) | — | — | (4,467) |
| Interest capitalized as a cost of construction | (7,083) | — | — | (7,083) |
| Interest expense which is classified as an investment expense | (3,954) | — | — | (3,954) |
| INTEREST EXPENSE, NET | \$ 157,795 | \$ 74,100 | \$ 31,258 | \$ 263,153 |
| 2022 | | | | |
| Interest expense, gross | \$ 164,162 | \$ 71,939 | \$ 31,042 | \$ 267,143 |
| Less: | | | | |
| Interest income earned on unspent bond proceeds | (1,398) | — | — | (1,398) |
| Interest capitalized as a cost of construction | (8,021) | — | — | (8,021) |
| Interest expense which is classified as an investment expense | (4,151) | — | — | (4,151) |
| INTEREST EXPENSE, NET | \$ 150,592 | \$ 71,939 | \$ 31,042 | \$ 253,573 |

The University and SHC use interest rate exchange agreements to manage the interest rate exposure of their debt portfolios. University net payments on interest rate exchange agreements were \$662.8 thousand and \$3.2 million for the years ended August 31, 2023 and 2022, respectively. SHC net payments on interest rate exchange agreements were \$5.1 million and \$19.8 million for the years ended August 31, 2023 and 2022, respectively.

PRINCIPAL PAYMENTS

At August 31, 2023, scheduled principal payments on notes and bonds, in thousands of dollars, are as follows:

| YEAR ENDING AUGUST 31 | PRINCIPAL PAYMENTS | | | |
|---|---------------------|---------------------|-------------------|---------------------|
| | UNIVERSITY | SHC | LPCH | CONSOLIDATED |
| 2024 Commercial paper | \$ 67,756 | \$ — | \$ — | \$ 67,756 |
| 2024 Variable debt subject to remarketing | 141,200 | 168,200 | 100,000 | 409,400 |
| 2024 Other | 159,639 | 13,475 | 9,570 | 182,684 |
| 2025 | 5,960 | 175,330 | 9,975 | 191,265 |
| 2026 | 81,527 | 18,480 | 10,470 | 110,477 |
| 2027 | 306,380 | 19,320 | 11,020 | 336,720 |
| 2028 | 6,596 | 20,260 | 12,080 | 38,936 |
| Thereafter | 4,238,061 | 1,783,510 | 589,325 | 6,610,896 |
| TOTAL | \$ 5,007,119 | \$ 2,198,575 | \$ 742,440 | \$ 7,948,134 |



10. Net Assets

Net assets without donor restrictions include Board-designated funds functioning as endowment (see *Note 11*), net investment in plant facilities and other operating funds.

Net assets with donor restrictions consist primarily of endowment gifts that are limited for long-term investment, and accumulated appreciation that may be appropriated for expenditure by the University (see *Note 11*). Net assets with donor restrictions also include gifts and pledges that are subject to donor-imposed restrictions that expire with the passage of time, payment of pledges, and/or actions of the University, and other funds including Stanford's net equity in split-interest agreements and student loans.

Net assets at August 31, 2023 and 2022, in thousands of dollars, are as follows:

| | UNIVERSITY | SHC | LPCH | ELIMINATIONS | CONSOLIDATED |
|---|---------------------|--------------------|--------------------|---------------------|----------------------|
| 2023 | | | | | |
| NET ASSETS WITHOUT DONOR RESTRICTIONS | | | | | |
| Board designated endowment - Funds functioning as endowment | \$ 16,841,959 | \$ — | \$ 145,276 | \$ — | \$ 16,987,235 |
| Net investment in plant facilities and other plant funds | 4,745,919 | 2,392,495 | 939,324 | — | 8,077,738 |
| Operating funds | 5,605,980 | 4,306,411 | 1,341,959 | (236,176) | 11,018,174 |
| Total net assets without donor restrictions | 27,193,858 | 6,698,906 | 2,426,559 | (236,176) | 36,083,147 |
| NET ASSETS WITH DONOR RESTRICTIONS | | | | | |
| Subject to expenditure for specified purpose: | | | | | |
| Unspent gifts and gifts with undecided purpose restrictions | 891,791 | — | — | — | 891,791 |
| Plant facilities | 393,541 | 8,356 | 156,411 | — | 558,308 |
| Total | 1,285,332 | 8,356 | 156,411 | — | 1,450,099 |
| Subject to passage of time: | | | | | |
| Pledges receivable | 1,314,014 | 45,182 | 112,932 | (14,113) | 1,458,015 |
| Other funds | 364,416 | 42,662 | 100,487 | — | 507,565 |
| Total | 1,678,430 | 87,844 | 213,419 | (14,113) | 1,965,580 |
| Subject to University's spending policy: | | | | | |
| Accumulated appreciation | 10,541,248 | 26,185 | 209,857 | — | 10,777,290 |
| Subject to restrictions in perpetuity: | | | | | |
| Endowment funds | 8,928,113 | 15,544 | 268,330 | — | 9,211,987 |
| Pledges receivable | 1,316,942 | — | 6,460 | — | 1,323,402 |
| Other funds | 294,381 | — | — | — | 294,381 |
| Total | 10,539,436 | 15,544 | 274,790 | — | 10,829,770 |
| Total net assets with donor restrictions | 24,044,446 | 137,929 | 854,477 | (14,113) | 25,022,739 |
| TOTAL NET ASSETS | \$51,238,304 | \$6,836,835 | \$3,281,036 | \$ (250,289) | \$ 61,105,886 |

Consolidated Financial Statements

| | UNIVERSITY | SHC | LPCH | ELIMINATIONS | CONSOLIDATED |
|---|---------------------|--------------------|--------------------|---------------------|----------------------|
| 2022 | | | | | |
| NET ASSETS WITHOUT DONOR RESTRICTIONS | | | | | |
| Board designated endowment - Funds functioning as endowment | \$ 16,915,950 | \$ — | \$ 144,650 | \$ — | \$ 17,060,600 |
| Net investment in plant facilities and other plant funds | 4,742,628 | 2,216,499 | 926,193 | — | 7,885,320 |
| Operating funds | 5,719,867 | 3,756,261 | 1,268,887 | (171,641) | 10,573,374 |
| Total net assets without donor restrictions | 27,378,445 | 5,972,760 | 2,339,730 | (171,641) | 35,519,294 |
| NET ASSETS WITH DONOR RESTRICTIONS | | | | | |
| Subject to expenditure for specified purpose: | | | | | |
| Gifts with undecided purpose restrictions | 864,997 | — | — | — | 864,997 |
| Plant facilities | 298,676 | 13,390 | 87,629 | — | 399,695 |
| Total | 1,163,673 | 13,390 | 87,629 | — | 1,264,692 |
| Subject to passage of time: | | | | | |
| Pledges receivable | 1,182,846 | 41,877 | 268,983 | (46,254) | 1,447,452 |
| Other funds | 329,483 | 48,550 | 30,276 | — | 408,309 |
| Total | 1,512,329 | 90,427 | 299,259 | (46,254) | 1,855,761 |
| Subject to University's spending policy: | | | | | |
| Accumulated appreciation | 10,808,455 | 25,737 | 198,821 | — | 11,033,013 |
| Subject to restrictions in perpetuity: | | | | | |
| Endowment funds | 8,454,185 | 15,544 | 260,854 | — | 8,730,583 |
| Pledges receivable | 804,034 | — | 2,376 | — | 806,410 |
| Other funds | 285,716 | — | — | — | 285,716 |
| Total | 9,543,935 | 15,544 | 263,230 | — | 9,822,709 |
| Total net assets with donor restrictions | 23,028,392 | 145,098 | 848,939 | (46,254) | 23,976,175 |
| TOTAL NET ASSETS | \$50,406,837 | \$6,117,858 | \$3,188,669 | \$ (217,895) | \$ 59,495,469 |



11. Endowments

The University classifies a substantial portion of its financial resources as endowment, which is invested to generate income to support operating and strategic initiatives. The endowment, which includes endowed lands, is comprised of pure endowment funds, term endowment funds, and funds functioning as endowment (FFE). Depending on the nature of the donor’s stipulation, these resources are recorded as net assets with donor restrictions or net assets without donor restrictions. Term endowments are similar to other endowment funds except that, upon the passage of a stated period of time or the occurrence of a particular event, all or part of the principal may be expended. Accordingly, term endowments are classified as net assets with donor restrictions until expiration of the term or completion of the donor restriction. FFE are University resources designated by the Board as endowment and are invested for long-term appreciation and current income. These assets, however, remain available and may be spent at the Board’s discretion. Accordingly, FFE are recorded as net assets without donor restrictions.

Stanford classifies as net assets with donor restrictions (a) the original value of gifts donated to the endowment with donor restrictions and (b) accumulations to the endowment with donor restrictions made in accordance with the direction of the applicable donor gift instrument at the time the accumulation is added to the fund. The remaining accumulation to the endowment funds that are required to be maintained in perpetuity in accordance with the direction of the applicable donor gift instrument, is classified as net assets with donor restrictions until those amounts are authorized for expenditure.

Endowment funds by net asset classification at August 31, 2023 and 2022, in thousands of dollars, are as follows:

| | 2023 | 2022 |
|--|----------------------|----------------------|
| University endowment | | |
| Endowment funds without donor restrictions: | | |
| Funds functioning as endowment | \$ 16,841,959 | \$ 16,915,950 |
| Endowment funds with donor restrictions: | | |
| Original donor-restricted gift amount and gains maintained in perpetuity | 8,928,113 | 8,454,185 |
| Term endowment and related gains | 276,442 | 259,640 |
| Additional accumulated gains available for expenditure, subject to spending policy | 10,448,379 | 10,709,019 |
| Total endowment funds with donor restrictions | 19,652,934 | 19,422,844 |
| University endowment | 36,494,893 | 36,338,794 |
| LPCH endowment | | |
| Endowment funds without donor restrictions: | | |
| Funds functioning as endowment | 145,276 | 144,650 |
| Endowment funds with donor restrictions | 482,181 | 477,209 |
| LPCH endowment | 627,457 | 621,859 |
| SHC endowment funds with donor restrictions | 41,729 | 41,281 |
| TOTAL ENDOWMENT FUNDS | \$ 37,164,079 | \$ 37,001,934 |

Most of Stanford’s endowment is invested in the MP. The return objective for the MP is to generate optimal long-term total return while maintaining an appropriate level of risk. Investment returns are achieved through both capital appreciation (realized and unrealized gains) and current yield (interest and dividends). Portfolio asset allocation targets as well as expected risk, return and correlation among the asset classes are reevaluated regularly by Stanford Management Company.

UNIVERSITY

Changes in the University's endowment, excluding pledges, for the years ended August 31, 2023 and 2022, in thousands of dollars, are as follows:

| | NET ASSETS WITHOUT DONOR RESTRICTIONS | NET ASSETS WITH DONOR RESTRICTIONS | TOTAL |
|--|---|--|----------------------|
| 2023 | | | |
| Endowment, beginning of year | \$ 16,915,950 | \$ 19,422,844 | \$ 36,338,794 |
| Total investment returns, net | 378,870 | 786,411 | 1,165,281 |
| Amounts distributed for operations | (689,138) | (1,047,208) | (1,736,346) |
| Gifts, transfers and other changes in endowment: | | | |
| Current year gifts and pledge payments | 822 | 429,025 | 429,847 |
| Transfers of prior year gifts | 3,488 | 51,998 | 55,486 |
| Added to FFE reserves | 199,254 | — | 199,254 |
| Other funds added to the endowment, net | 32,713 | 9,864 | 42,577 |
| Total gifts, transfers and other changes in endowment | 236,277 | 490,887 | 727,164 |
| Total net increase (decrease) in endowment | (73,991) | 230,090 | 156,099 |
| ENDOWMENT, END OF YEAR | \$ 16,841,959 | \$ 19,652,934 | \$ 36,494,893 |
| 2022 | | | |
| Endowment, beginning of year | \$ 17,556,924 | \$ 20,231,263 | \$ 37,788,187 |
| Total investment returns, net | 566,728 | (474,784) | 91,944 |
| Amounts distributed for operations | (609,718) | (855,939) | (1,465,657) |
| Gifts, transfers and other changes in endowment: | | | |
| Current year gifts and pledge payments | 5,053 | 398,596 | 403,649 |
| Transfers of prior year gifts | 3,125 | 98,629 | 101,754 |
| Withdrawn from FFE reserves | (372,878) | — | (372,878) |
| Other funds added to (withdrawn from) the endowment, net | (233,284) | 25,079 | (208,205) |
| Total gifts, transfers and other changes in endowment | (597,984) | 522,304 | (75,680) |
| Total net decrease in endowment | (640,974) | (808,419) | (1,449,393) |
| ENDOWMENT, END OF YEAR | \$ 16,915,950 | \$ 19,422,844 | \$ 36,338,794 |

Approximately 14% of the University's endowment is invested in real estate on Stanford's lands, including the Stanford Research Park. This portion of the endowment includes the present value of ground leases, and rental properties that have been developed on Stanford lands. The net operating income from these properties is distributed each year for University operations.

Through the combination of investment strategy and payout policy, the University strives to provide a reasonably consistent payout from endowment to support operations, while preserving the purchasing power of the endowment adjusted for inflation.

The Board approves the amounts to be paid out annually from endowment funds invested in the MP. Consistent with the Uniform Prudent Management of Institutional Funds Act, when determining the appropriate payout the Board considers the purposes of the University and the endowment, the duration and preservation of the endowment, general economic conditions, the possible effect of inflation or deflation, the expected return from income and the appreciation of investments, other resources of the University, and the University's investment policy.

The Board approved spending rate for fiscal year 2023 was 5.25%. The payout amount is determined by applying a smoothing rule designed to mitigate the impact of short-term market volatility on the flow of funds to support operations. The Board has the authority to override the smoothing rule and set the payout rate directly. Beginning in fiscal year 2021, the Board approved the creation of two payout rates, one for student aid funds and the other for non-student aid funds. In fiscal year 2023, the Board reverted back to one single payout rate for all funds. The sources of payout are earned income on endowment assets (interest, dividends, rents and royalties), realized capital gains and FFE, as needed and as available.



SHC

SHC's endowment is intended to generate investment income to support its current operating and strategic initiatives. SHC invests all of its endowment in the University's MP. The endowments are subject to the same investment and spending strategies that the University employs. "Amounts distributed for operations" in the table below represents SHC's current year endowment payout spent for designated purposes. All of SHC's endowment is donor restricted. Changes in SHC's endowment, excluding pledges, for the years ended August 31, 2023 and 2022, in thousands of dollars, are as follows:

| | 2023 | 2022 |
|--|------------------|------------------|
| Endowment, beginning of year | \$ 41,281 | \$ 42,678 |
| Total investment returns, net | 1,511 | (1,184) |
| Amounts distributed for operations | (1,063) | (384) |
| Gifts and pledge payments | — | 171 |
| Total net increase (decrease) in endowment | 448 | (1,397) |
| ENDOWMENT, END OF YEAR | \$ 41,729 | \$ 41,281 |



LPCH

LPCH's endowment is intended to generate investment income to support its current operating and strategic initiatives. The endowment includes funds held by LPCH and Lucile Packard Foundation for Children's Health (LPFCH). LPCH is the sole member of LPFCH, a public charity, whose mission is to elevate the priority of children's health and increase the quality and accessibility of children's health care through leadership and direct investment. LPCH invests the majority of its endowment in the University's MP, and LPFCH invests its endowment in other long-term investments.

LPCH's endowment is subject to the same investment and spending strategies that the University employs for its donor-restricted and board designated funds functioning as an endowment that provide for annual amounts (payout) to be distributed to appropriate restricted funds supporting operating and strategic activities of LPCH.

LPFCH's endowment is approved as board designated funds functioning as endowment by LPFCH's Board of Directors. LPFCH has a policy of appropriating for distribution each year an amount determined annually based on budget needs. The annual distribution is expected to average no more than 5% of the endowment fund's fair value. For individual years, it is expected to fall within a target range of 4.75% to 5.25% of the endowment fund's average fair value over the prior 12 quarters. Unspent program budget may be spent in future years subject to certain limits. LPFCH's Board of Directors may also appropriate an amount outside this target range. Accordingly, depending on anticipated activity and timing of the grant opportunities, actual spending may fall outside of the range. In establishing this policy, the LPFCH considered the long term expected return on its endowment. Over the long term, the LPFCH expects the current spending policy to allow its endowment to grow at a rate of expected inflation. This is consistent with the LPFCH's objective to maintain the purchasing power of the endowment assets held in perpetuity as well as to provide additional real growth through investment return.

Changes in LPCH's endowment, excluding pledges, for the years ended August 31, 2023 and 2022, in thousands of dollars, are as follows:

| | NET ASSETS WITHOUT DONOR RESTRICTIONS | NET ASSETS WITH DONOR RESTRICTIONS | TOTAL |
|------------------------------------|---|--|-------------------|
| 2023 | | | |
| Endowment, beginning of year | \$ 144,650 | \$ 477,209 | \$ 621,859 |
| Total investment returns, net | 4,837 | 17,592 | 22,429 |
| Amounts distributed for operations | (4,211) | (12,174) | (16,385) |
| Gifts and pledge payments | — | 9,582 | 9,582 |
| Other | — | (10,028) | (10,028) |
| Total net increase in endowment | 626 | 4,972 | 5,598 |
| ENDOWMENT, END OF YEAR | \$ 145,276 | \$ 482,181 | \$ 627,457 |
| 2022 | | | |
| Endowment, beginning of year | \$ 162,832 | \$ 509,796 | \$ 672,628 |
| Total investment returns, net | (12,436) | (17,340) | (29,776) |
| Amounts distributed for operations | (5,746) | (9,370) | (15,116) |
| Gifts and pledge payments | — | 3,103 | 3,103 |
| Other | — | (8,980) | (8,980) |
| Total net decrease in endowment | (18,182) | (32,587) | (50,769) |
| ENDOWMENT, END OF YEAR | \$ 144,650 | \$ 477,209 | \$ 621,859 |



12. Health Care Services Revenue

SHC and LPCH derive a majority of health care services revenue from contractual agreements with Medicare, Medi-Cal and other third-party payers that provide for payments at amounts different from established rates. Payments under these agreements and programs are based on a variety of payment models, including estimated retroactive audit adjustments under reimbursement agreements with third-party payers. Retroactive adjustments are estimated and recorded in the period the related services are rendered and adjusted in future periods, as final settlements are determined. Contracts, laws and regulations governing the Medicare and Medi-Cal programs are complex and subject to interpretation. As a result, it is reasonably possible that recorded estimates may change by a material amount in the near term.

A summary of payment arrangements with major third-party payers follows:

Medicare

Inpatient acute care services rendered to Medicare program beneficiaries are paid at prospectively determined rates per discharge. These rates vary according to a patient classification system that is based on clinical, diagnostic and other factors. Medicare reimburses hospitals for covered outpatient services rendered to its beneficiaries by way of an outpatient prospective payment system based on ambulatory payment classifications.

Inpatient non-acute services, certain outpatient services and medical education costs related to Medicare beneficiaries are paid based, in part, on a cost reimbursement methodology subject to final settlement after submission of annual cost reports and audits thereof by the Medicare fiscal intermediary. The estimated amounts due to or from the program are reviewed and adjusted annually based on the status of such audits and any subsequent appeals. Differences between final settlements and amounts accrued in previous years are reported as adjustments to net health care services revenue in the year examination is substantially completed. Medicare cost reports have been audited by the Medicare administrative contractor through August 31, 2012 for SHC and August 31, 2019 for LPCH.

Professional services are reimbursed based on a fee schedule.

Medi-Cal

The State reimburses hospitals for inpatient services rendered to Medi-Cal program beneficiaries using an All Patient Refined-Diagnosis Related Group (APR-DRG) methodology. Hospital outpatient and professional services are reimbursed based upon prospectively determined fee schedules.

The California Children's Services (CCS) Program is a partnership between state and counties that provides medical case management for children in California diagnosed with serious chronic diseases. Currently, approximately 70% of CCS-eligible children are also Medi-Cal eligible. The Medi-Cal program reimburses their care.

Managed Care Organizations

SHC and LPCH have entered into agreements with numerous third-party payers to provide patient care to beneficiaries under a variety of payment arrangements. These include arrangements with:

- Commercial insurance companies which reimburse at negotiated charges.
- Managed care contracts such as those with Health Maintenance Organizations (HMOs) and Preferred Provider Organizations (PPOs), which reimburse at contracted or per diem rates, which are usually less than full charges.
- Counties in the State of California, which reimburse for certain indigent patients covered under county contracts.



Uninsured

For uninsured patients that do not qualify for charity care, revenue is recognized on the basis of standard rates for services less an uninsured discount applied to the patient’s account and an implicit pricing concession that approximates the average discount for managed care payers.

Premium Revenue

SHC has capitated agreements with various HMOs to provide medical services to enrollees. Under these agreements, monthly payments are received based on the number of health plan enrollees. Premium revenue is recognized in the month in which the member is eligible for Medicare services as "Health care services" in the *Consolidated Statements of Activities*. Costs are accrued when services are rendered under these contracts, including cost estimates of incurred but not reported (“IBNR”) claims. The IBNR accrual (which is included in "Accounts payable and accrued expenses") includes an estimate of the costs of services for which SHC is responsible, including referrals to outside healthcare providers.

The following table presents health care services revenue, net of price concessions, for the years ended August 31, in thousands of dollars:

| | UNIVERSITY | SHC | LPCH | ELIMINATIONS | CONSOLIDATED |
|--|--------------------|--------------------|--------------------|-----------------------|----------------------|
| 2023 | | | | | |
| Patient care revenue, net: | | | | | |
| Medicare | \$ — | \$ 1,279,346 | \$ 2,770 | \$ — | \$ 1,282,116 |
| Medi-Cal | — | 175,157 | 542,835 | — | 717,992 |
| Managed care | — | 5,723,278 | 1,742,559 | — | 7,465,837 |
| Self pay and other | — | 299,241 | 230,261 | — | 529,502 |
| Physician services and support (see Note 1) | 1,577,976 | 44,013 | — | (1,621,989) | — |
| Total patient care revenue, net | 1,577,976 | 7,521,035 | 2,518,425 | (1,621,989) | 9,995,447 |
| Premium revenue | — | 65,386 | — | — | 65,386 |
| Other services and support | 47,419 | — | — | (7,682) | 39,737 |
| HEALTH CARE SERVICES REVENUE, NET | \$1,625,395 | \$7,586,421 | \$2,518,425 | \$ (1,629,671) | \$ 10,100,570 |
| 2022 | | | | | |
| Patient care revenue, net: | | | | | |
| Medicare | \$ — | \$ 1,119,713 | \$ 4,606 | \$ — | \$ 1,124,319 |
| Medi-Cal | — | 168,892 | 431,405 | — | 600,297 |
| Managed care | — | 5,327,820 | 1,626,472 | — | 6,954,292 |
| Self pay and other | — | 261,785 | 179,408 | — | 441,193 |
| Physician services and support (see Note 1) | 1,440,263 | 44,258 | — | (1,484,521) | — |
| Total patient care revenue, net | 1,440,263 | 6,922,468 | 2,241,891 | (1,484,521) | 9,120,101 |
| Premium revenue | — | 75,310 | — | — | 75,310 |
| Other services and support | 45,924 | — | — | (9,306) | 36,618 |
| HEALTH CARE SERVICES REVENUE, NET | \$1,486,187 | \$6,997,778 | \$2,241,891 | \$ (1,493,827) | \$ 9,232,029 |

For the years ended August 31, 2023 and 2022, SHC recognized net health care services revenue adjustments of \$16.5 million and \$6.1 million, respectively, as a result of prior years’ favorable developments related to reimbursement and appeals. LPCH had no significant adjustments to revenue for the years ended August 31, 2023 and 2022.

Charity Care and Community Benefits

SHC and LPCH provide charity care, free of charge, to vulnerable populations. SHC’s estimated cost of providing charity care was \$16.3 million and \$16.2 million, and LPCH’s estimated cost of providing charity care was \$1.6 million and \$1.3 million for the years ended August 31, 2023 and 2022, respectively. This cost is estimated by calculating a ratio of total costs to gross patient service charges at established rates, and then multiplying that ratio by gross uncompensated patient service charges at established rates associated with providing care to charity patients.

SHC and LPCH also provide services to other patients under the Medicare, Medi-Cal and other publicly sponsored programs, which reimburse at amounts less than the cost of the services provided to the recipients. Estimated costs in excess of reimbursements for the Medicare, Medi-Cal and other publicly sponsored programs for the years ended August 31, 2023 and 2022 were \$1.8 billion and \$1.7 billion for SHC, respectively. For LPCH, estimated cost in excess of reimbursements for Medi-Cal and other publicly sponsored programs for the years ended August 31, 2023 and 2022 were \$339.0 million and \$284.1 million, respectively.

Provider Fee

The State of California enacted legislation in 2013 which established a Hospital Quality Assurance Fee (QAF) Program and a Hospital Fee Program. These programs impose a provider fee on certain California general acute care hospitals that, combined with federal matching funds, is used to provide supplemental payments to certain hospitals and support the State’s effort to maintain health care coverage for children. California’s participation in these programs was made permanent by a ballot initiative passed in November 2016. Specific portions of the program covering the period from January 1, 2021 to December 31, 2021 have not yet been approved by the Centers for Medicare and Medicaid Services (CMS). Accordingly, any potential activity under unapproved programs related to January 1, 2021 through August 31, 2023 have not been recognized as revenue or expense in the *Consolidated Statements of Activities*.

Provider fee revenue is recorded in "Health care services" while provider fee expense is recorded in "Other operating expenses" in the *Consolidated Statements of Activities*. Provider fee revenue, net of expense, under the approved portions of the programs for the years ended August 31, in thousands of dollars, is as follows:

| | SHC | LPCH | CONSOLIDATED |
|--------------|------------------|------------------|-------------------|
| 2023 | | | |
| Revenue | \$ 118,859 | \$ 136,655 | \$ 255,514 |
| Expense | (65,827) | (37,598) | (103,425) |
| TOTAL | \$ 53,032 | \$ 99,057 | \$ 152,089 |
| 2022 | | | |
| Revenue | \$ 98,230 | \$ 93,730 | \$ 191,960 |
| Expense | (54,850) | (24,127) | (78,977) |
| TOTAL | \$ 43,380 | \$ 69,603 | \$ 112,983 |

Deferred revenue and prepaid expense associated with unapproved programs will be recognized as revenue and expense upon CMS approval. Deferred revenue and prepaid expense as of August 31, 2023 and 2022, in thousands of dollars, is as follows:

| | SHC | LPCH | CONSOLIDATED |
|------------------|-----------|-----------|--------------|
| 2023 | | | |
| Deferred revenue | \$ 42,713 | \$ 38,397 | \$ 81,110 |
| Prepaid expense | \$ 38,074 | \$ 19,927 | \$ 58,001 |
| 2022 | | | |
| Deferred revenue | \$ 73,145 | \$ 86,628 | \$ 159,773 |
| Prepaid expense | \$ 44,121 | \$ 22,410 | \$ 66,531 |



13. Gifts and Pledges

Gifts and pledges reported for financial statement purposes are recorded on the accrual basis. The Office of Development (OOD), which is the primary fundraising agent for the University and SHC, reports total gifts (including pledge payments) based on contributions received in cash or property during the fiscal year. Lucile Packard Foundation for Children’s Health (LPFCH) is the primary community fundraising agent for LPCH and the pediatric faculty and programs at the University’s SOM. The following summarizes gifts and pledges reported for the years ended August 31, 2023 and 2022, per the *Consolidated Statements of Activities*, in thousands of dollars:

| | UNIVERSITY | SHC | LPCH | ELIMINATIONS | CONSOLIDATED |
|--|---------------------|------------------|-------------------|------------------|---------------------|
| 2023 | | | | | |
| Current year gifts in support of operations | \$ 269,096 | \$ 506 | \$ 6,028 | \$ — | \$ 275,630 |
| Donor advised funds, net | (41,846) | — | — | — | (41,846) |
| Current year gifts not included in operations | 822 | — | — | — | 822 |
| Gifts and pledges, net - with donor restrictions | 1,521,106 | 20,884 | 90,423 | 4,135 | 1,636,548 |
| TOTAL | \$ 1,749,178 | \$ 21,390 | \$ 96,451 | \$ 4,135 | \$ 1,871,154 |
| 2022 | | | | | |
| Current year gifts in support of operations | \$ 272,812 | \$ 247 | \$ 5,442 | \$ — | \$ 278,501 |
| Donor advised funds, net | 34,611 | — | — | — | 34,611 |
| Current year gifts not included in operations | 5,053 | — | — | — | 5,053 |
| Gifts and pledges, net - with donor restrictions | 1,437,387 | 9,178 | 215,571 | 17,002 | 1,679,138 |
| TOTAL | \$ 1,749,863 | \$ 9,425 | \$ 221,013 | \$ 17,002 | \$ 1,997,303 |

14. Functional Expenses

Expenses are presented by functional classification in alignment with Stanford’s mission of teaching, research and health care.

Major functional categories consist of the following:

- **Instruction and departmental research** includes teaching and internally funded research expenses.
- **Organized research - direct costs** include sponsored support costs.
- **Health care services** include patient care provided by SHC, LPCH, SOM faculty, and other health care related activities.
- **Auxiliary activities** include housing and dining services, intercollegiate athletics, Stanford Alumni Association, and other activities.
- **SLAC construction** includes the costs associated with major projects and facilities at the SLAC National Accelerator Laboratory.

Natural expenses attributable to more than one functional expense category are allocated using a variety of cost allocation techniques such as square footage and time and effort. Depreciation and facility operations and maintenance expenses are allocated to the functional categories directly or based on the square footage occupancy. Salaries and benefits expenses are allocated to functional categories directly based on time and effort incurred.



Expenses by functional and natural classification for the years ended August 31, 2023 and 2022, in thousands of dollars, are as follows:

| | SALARIES AND BENEFITS | DEPRECIATION | OTHER OPERATING EXPENSES | TOTAL OPERATING EXPENSES |
|---------------------------------------|-----------------------------|-------------------|--------------------------------|--------------------------------|
| 2023 | | | | |
| UNIVERSITY | | | | |
| Instruction and departmental research | \$ 1,799,280 | \$ 142,171 | \$ 754,085 | \$ 2,695,536 |
| Organized research - direct costs | 937,254 | 78,377 | 567,347 | 1,582,978 |
| Health care services | 1,091,086 | 4,683 | 25,917 | 1,121,686 |
| Auxiliary activities | 219,265 | 137,968 | 365,722 | 722,955 |
| Administration and general | 386,500 | 55,269 | 229,610 | 671,379 |
| Student services | 219,170 | 7,218 | 175,802 | 402,190 |
| Libraries | 70,965 | 71,878 | 62,279 | 205,122 |
| Development | 110,538 | 4,527 | 22,598 | 137,663 |
| SLAC construction | 53,037 | — | 67,338 | 120,375 |
| TOTAL EXPENSES | 4,887,095 | 502,091 | 2,270,698 | 7,659,884 |
| SHC | | | | |
| Health care services | 3,307,740 | 244,834 | 3,359,035 | 6,911,609 |
| Administration and general | 266,724 | 17,878 | 243,796 | 528,398 |
| Development | 1,335 | — | 15,498 | 16,833 |
| TOTAL EXPENSES | 3,575,799 | 262,712 | 3,618,329 | 7,456,840 |
| LPCH | | | | |
| Health care services | 1,153,311 | 81,567 | 1,057,491 | 2,292,369 |
| Administration and general | 123,002 | 6,328 | 127,122 | 256,452 |
| Development | 21,875 | 1,123 | 11,540 | 34,538 |
| TOTAL EXPENSES | 1,298,188 | 89,018 | 1,196,153 | 2,583,359 |
| ELIMINATIONS | | | | |
| Health care services | — | — | (1,587,565) | (1,587,565) |
| Administration and general | — | — | (42,529) | (42,529) |
| Development | — | — | (16,627) | (16,627) |
| TOTAL ELIMINATIONS | — | — | (1,646,721) | (1,646,721) |
| CONSOLIDATED | | | | |
| Instruction and departmental research | 1,799,280 | 142,171 | 754,085 | 2,695,536 |
| Organized research - direct costs | 937,254 | 78,377 | 567,347 | 1,582,978 |
| Health care services | 5,552,137 | 331,084 | 2,854,878 | 8,738,099 |
| Auxiliary activities | 219,265 | 137,968 | 365,722 | 722,955 |
| Administration and general | 776,226 | 79,475 | 557,999 | 1,413,700 |
| Student services | 219,170 | 7,218 | 175,802 | 402,190 |
| Libraries | 70,965 | 71,878 | 62,279 | 205,122 |
| Development | 133,748 | 5,650 | 33,009 | 172,407 |
| SLAC construction | 53,037 | — | 67,338 | 120,375 |
| TOTAL EXPENSES | \$ 9,761,082 | \$ 853,821 | \$ 5,438,459 | \$ 16,053,362 |



| | SALARIES AND BENEFITS | DEPRECIATION | OTHER OPERATING EXPENSES | TOTAL EXPENSES |
|---------------------------------------|-----------------------------|-------------------|--------------------------------|---------------------|
| 2022 | | | | |
| UNIVERSITY | | | | |
| Instruction and departmental research | \$ 1,635,655 | \$ 141,514 | \$ 636,365 | \$ 2,413,534 |
| Organized research - direct costs | 850,822 | 78,024 | 507,624 | 1,436,470 |
| Health care services | 1,014,285 | 4,546 | 20,073 | 1,038,904 |
| Auxiliary activities | 164,366 | 125,517 | 322,156 | 612,039 |
| Administration and general | 291,809 | 55,019 | 218,453 | 565,281 |
| Student services | 192,248 | 7,186 | 149,707 | 349,141 |
| Libraries | 71,936 | 71,196 | 52,138 | 195,270 |
| Development | 96,514 | 4,507 | 18,271 | 119,292 |
| SLAC construction | 55,549 | — | 53,592 | 109,141 |
| TOTAL EXPENSES | 4,373,184 | 487,509 | 1,978,379 | 6,839,072 |
| SHC | | | | |
| Health care services | 3,097,671 | 252,056 | 3,048,541 | 6,398,268 |
| Administration and general | 245,898 | 17,827 | 216,894 | 480,619 |
| Development | 1,351 | — | 14,136 | 15,487 |
| TOTAL EXPENSES | 3,344,920 | 269,883 | 3,279,571 | 6,894,374 |
| LPCH | | | | |
| Health care services | 1,044,197 | 87,632 | 966,880 | 2,098,709 |
| Administration and general | 101,339 | 6,263 | 123,948 | 231,550 |
| Development | 18,229 | 531 | 8,804 | 27,564 |
| TOTAL EXPENSES | 1,163,765 | 94,426 | 1,099,632 | 2,357,823 |
| ELIMINATIONS | | | | |
| Health care services | — | — | (1,458,095) | (1,458,095) |
| Administration and general | — | — | (34,814) | (34,814) |
| Development | — | — | (918) | (918) |
| TOTAL ELIMINATIONS | — | — | (1,493,827) | (1,493,827) |
| CONSOLIDATED | | | | |
| Instruction and departmental research | 1,635,655 | 141,514 | 636,365 | 2,413,534 |
| Organized research - direct costs | 850,822 | 78,024 | 507,624 | 1,436,470 |
| Health care services | 5,156,153 | 344,234 | 2,577,399 | 8,077,786 |
| Auxiliary activities | 164,366 | 125,517 | 322,156 | 612,039 |
| Administration and general | 639,046 | 79,109 | 524,481 | 1,242,636 |
| Student services | 192,248 | 7,186 | 149,707 | 349,141 |
| Libraries | 71,936 | 71,196 | 52,138 | 195,270 |
| Development | 116,094 | 5,038 | 40,293 | 161,425 |
| SLAC construction | 55,549 | — | 53,592 | 109,141 |
| TOTAL EXPENSES | \$ 8,881,869 | \$ 851,818 | \$ 4,863,755 | \$14,597,442 |



15. University Retirement Plans

The University provides retirement benefits through both defined contribution and defined benefit retirement plans for substantially all of its employees.

DEFINED CONTRIBUTION PLAN

The University offers a defined contribution plan to eligible faculty and staff through the *Stanford Contributory Retirement Plan (SCR)*. Employer contributions are based on a percentage of participant annual compensation, participant contributions and years of service. University and participant contributions are primarily invested in annuities and mutual funds. University contributions under the SCR, which are vested immediately to participants, were \$234.2 million and \$212.0 million for the years ended August 31, 2023 and 2022, respectively.

DEFINED BENEFIT PLANS

The University provides retirement and postretirement medical and other benefits through the *Staff Retirement Annuity Plan*, the *Faculty Retirement Incentive Program*, and the *Postretirement Benefit Plan* (the “Plans”). The obligations for the Plans, net of plan assets, are recorded in the *Consolidated Statements of Financial Position* as “Accrued pension and postretirement benefit obligations.” These plans are described in more detail below.

Staff Retirement Annuity Plan

Retirement benefits for certain employees are provided through the *Staff Retirement Annuity Plan (SRAP)*, a noncontributory plan. While the SRAP is closed to new participants, certain employees continue to accrue benefits. Contributions to the plan are made in accordance with the Employee Retirement Income Security Act (ERISA) based on actuarially determined amounts sufficient to meet the benefits to be paid to plan participants.

Faculty Retirement Incentive Program

The University provides a retirement incentive bonus for eligible faculty through the University *Faculty Retirement Incentive Program (FRIP)*. The University’s faculty may become eligible for the FRIP program if they commit to retire within a designated window of time. At August 31, 2023 and 2022, there were no program assets. The University funds benefit payouts as they are incurred.

Postretirement Benefit Plan

The University provides medical, dental, and vision benefits for retired employees through its *Postretirement Benefit Plan (PRBP)*. The University’s employees and their covered dependents may become eligible for the PRBP upon the employee’s retirement and meeting specific years of service and age criteria. Retiree health plans are paid for, in part, by retiree contributions, which are adjusted annually. The University’s subsidy varies depending on whether the retiree is covered under the legacy design or the defined dollar benefit design. The University provides Medicare and non-Medicare medical plans to eligible retirees and their dependents.



The change in the Plans' assets, the related change in benefit obligations and the amounts recognized in the financial statements, in thousands of dollars, are as follows:

| | SRAP | FRIP | PRBP | TOTAL |
|---|--------------------|---------------------|---------------------|---------------------|
| 2023 | | | | |
| Fair value of plan assets, beginning of year | \$ 216,200 | \$ — | \$ 256,151 | \$ 472,351 |
| Change in plan assets: | | | | |
| Actual return on plan assets | 5,989 | — | 18,394 | 24,383 |
| Employer contributions | — | 10,889 | 5,348 | 16,237 |
| Plan participants' contributions | — | — | 21,797 | 21,797 |
| Benefits and plan expenses paid | (18,993) | (10,889) | (40,430) * | (70,312) |
| FAIR VALUE OF PLAN ASSETS, END OF YEAR | 203,196 | — | 261,260 | 464,456 |
| Benefit obligation, beginning of year | 239,194 | 160,554 | 515,423 | 915,171 |
| Change in projected benefit obligation: | | | | |
| Service cost | 823 | 8,883 | 16,653 | 26,359 |
| Interest cost | 10,421 | 7,212 | 23,486 | 41,119 |
| Plan participants' contributions | — | — | 21,797 | 21,797 |
| Actuarial loss (gain) | (15,428) | (1,747) | 8,228 | (8,947) |
| Benefits and plan expenses paid | (18,993) | (10,889) | (40,430) * | (70,312) |
| BENEFIT OBLIGATION, END OF YEAR | 216,017 | 164,013 | 545,157 | 925,187 |
| NET LIABILITY RECOGNIZED IN THE STATEMENTS OF FINANCIAL POSITION | \$ (12,821) | \$ (164,013) | \$ (283,897) | \$ (460,731) |
| * Net of Medicare subsidy of \$2.4 million | | | | |
| 2022 | | | | |
| Fair value of plan assets, beginning of year | \$ 291,085 | \$ — | \$ 337,058 | \$ 628,143 |
| Change in plan assets: | | | | |
| Actual return on plan assets | (54,551) | — | (59,394) | (113,945) |
| Employer contributions | — | 10,449 | 4,365 | 14,814 |
| Plan participants' contributions | — | — | 17,655 | 17,655 |
| Benefits and plan expenses paid | (20,334) | (10,449) | (43,533) * | (74,316) |
| FAIR VALUE OF PLAN ASSETS, END OF YEAR | 216,200 | — | 256,151 | 472,351 |
| Benefit obligation, beginning of year | 301,571 | 187,773 | 652,259 | 1,141,603 |
| Change in projected benefit obligation: | | | | |
| Service cost | 1,084 | 11,704 | 23,913 | 36,701 |
| Interest cost | 6,684 | 4,403 | 17,146 | 28,233 |
| Plan participants' contributions | — | — | 17,655 | 17,655 |
| Actuarial gain | (49,811) | (32,877) | (152,017) | (234,705) |
| Benefits and plan expenses paid | (20,334) | (10,449) | (43,533) * | (74,316) |
| BENEFIT OBLIGATION, END OF YEAR | 239,194 | 160,554 | 515,423 | 915,171 |
| NET LIABILITY RECOGNIZED IN THE STATEMENTS OF FINANCIAL POSITION | \$ (22,994) | \$ (160,554) | \$ (259,272) | \$ (442,820) |
| * Net of Medicare subsidy of \$1.8 million | | | | |

The accumulated benefit obligation for the SRAP was \$215.6 million and \$238.6 million at August 31, 2023 and 2022, respectively.

Net periodic benefit expense and non-operating activities related to the Plans for the years ended August 31, 2023 and 2022, in thousands of dollars, includes the following components:

| | SRAP | FRIP | PRBP | TOTAL |
|---|--------------------|--------------------|--------------------|--------------------|
| 2023 | | | | |
| Service cost | \$ 823 | \$ 8,883 | \$ 16,653 | \$ 26,359 |
| PERIODIC BENEFIT EXPENSE | 823 | 8,883 | 16,653 | 26,359 |
| Non-operating: | | | | |
| Interest cost | 10,421 | 7,212 | 23,486 | 41,119 |
| Expected return on plan assets | (10,018) | — | (16,650) | (26,668) |
| Amortization of: | | | | |
| Prior service cost | 850 | — | 373 | 1,223 |
| Actuarial loss (gain) | 880 | (612) | (2,372) | (2,104) |
| Non-operating periodic benefit cost | 2,133 | 6,600 | 4,837 | 13,570 |
| NET PERIODIC BENEFIT COST¹ | 2,956 | 15,483 | 21,490 | 39,929 |
| | | | | |
| Non-operating periodic benefit cost | 2,133 | 6,600 | 4,837 | 13,570 |
| Net actuarial loss (gain) | (11,399) | (1,747) | 6,484 | (6,662) |
| Amortization of: | | | | |
| Prior service cost | (850) | — | (373) | (1,223) |
| Actuarial loss (gain) | (880) | 612 | 2,372 | 2,104 |
| TOTAL AMOUNTS RECOGNIZED IN NON-OPERATING ACTIVITIES | \$ (10,996) | \$ 5,465 | \$ 13,320 | \$ 7,789 |
| 2022 | | | | |
| Service cost | \$ 1,084 | \$ 11,704 | \$ 23,913 | \$ 36,701 |
| PERIODIC BENEFIT EXPENSE | 1,084 | 11,704 | 23,913 | 36,701 |
| Non-operating: | | | | |
| Interest cost | 6,684 | 4,403 | 17,146 | 28,233 |
| Expected return on plan assets | (13,742) | — | (20,223) | (33,965) |
| Amortization of: | | | | |
| Prior service cost | 850 | — | 373 | 1,223 |
| Non-operating periodic benefit cost | (6,208) | 4,403 | (2,704) | (4,509) |
| NET PERIODIC BENEFIT COST¹ | (5,124) | 16,107 | 21,209 | 32,192 |
| | | | | |
| Non-operating periodic benefit cost | (6,208) | 4,403 | (2,704) | (4,509) |
| Net actuarial gain | 18,482 | (32,877) | (72,400) | (86,795) |
| Amortization of: | | | | |
| Prior service cost | (850) | — | (373) | (1,223) |
| TOTAL AMOUNTS RECOGNIZED IN NON-OPERATING ACTIVITIES | \$ 11,424 | \$ (28,474) | \$ (75,477) | \$ (92,527) |

¹The components of net periodic benefit cost other than service cost are included in "Pension and other postemployment benefit related changes other than service cost" in the Statement of Activities.



Cumulative amounts recognized in non-operating activities, but not yet recognized in net periodic benefit cost in the *Consolidated Statements of Activities*, are presented in the following table for the years ended August 31, 2023 and 2022, in thousands of dollars:

| | SRAP | FRIP | PRBP | TOTAL |
|---|------------------|--------------------|--------------------|--------------------|
| 2023 | | | | |
| Prior service cost | \$ 2,130 | \$ — | \$ 1,755 | \$ 3,885 |
| Net actuarial loss (gain) | 30,713 | (29,270) | (77,078) | (75,635) |
| ACCUMULATED PLAN BENEFIT COSTS NOT YET RECOGNIZED IN NET PERIODIC BENEFIT COST | \$ 32,843 | \$ (29,270) | \$ (75,323) | \$ (71,750) |
| 2022 | | | | |
| Prior service cost | \$ 2,980 | \$ — | \$ 2,127 | \$ 5,107 |
| Net actuarial loss (gain) | 42,992 | (28,135) | (85,933) | (71,076) |
| ACCUMULATED PLAN BENEFIT COSTS NOT YET RECOGNIZED IN NET PERIODIC BENEFIT COST | \$ 45,972 | \$ (28,135) | \$ (83,806) | \$ (65,969) |

ACTUARIAL ASSUMPTIONS

The weighted average assumptions used to determine the benefit obligations and net periodic benefit cost for the Plans are shown below:

| | SRAP | | FRIP | | PRBP | |
|----------------------------------|-------|-------|-------|-------|-------|-------|
| | 2023 | 2022 | 2023 | 2022 | 2023 | 2022 |
| BENEFIT OBLIGATIONS | | | | | | |
| Discount rate | 5.31% | 4.66% | 5.35% | 4.71% | 5.37% | 4.65% |
| Covered payroll growth rate | 3.00% | 3.00% | 4.80% | 4.80% | N/A | N/A |
| NET PERIODIC BENEFIT COST | | | | | | |
| Discount rate | 4.66% | 2.34% | 4.71% | 2.43% | 4.65% | 2.67% |
| Expected returns on plan assets | 5.00% | 5.00% | N/A | N/A | 6.50% | 6.00% |
| Covered payroll growth rate | 3.00% | 3.00% | 4.80% | 4.80% | N/A | N/A |

The expected long-term rate of return on asset assumptions for the SRAP and PRBP plans is 6.00% and 6.50%, respectively. The assumption is used in determining the expected returns on plan assets, a component of net periodic benefit expense (income), representing the expected return for the upcoming fiscal year on plan assets. This assumption is developed based on future expectations for returns in each asset class, as well as the target asset allocation of the portfolios. The use of expected long-term returns on plan assets may result in income that is greater or less than the actual returns of those plan assets in any given year. Over time, however, the expected long-term returns are designed to approximate the actual long-term returns, and therefore result in a pattern of income and cost recognition that more closely matches the pattern of the services provided by the employees. Differences between actual and expected returns are recognized as a component of non-operating activities and amortized as a component of net periodic benefit expense (income) over the service or life expectancy of the plan participants, depending on the plan, provided such amounts exceed the accounting standards threshold.

To determine the accumulated PRBP obligation at August 31, 2023, a 8.90%, 6.30% and 4.10% annual rate of increase in the cost of covered health care for Medical Pre-65, Medical Post-65, and Part D, respectively, was assumed for calendar year 2023 with all three rates declining gradually to 4.00% by 2047 and remaining at this rate thereafter.

EXPECTED CONTRIBUTIONS

The University expects to contribute \$15.9 million to the FRIP, \$23.8 million to the PRBP, and does not expect to contribute to the SRAP during the fiscal year ending August 31, 2024.

EXPECTED BENEFIT PAYMENTS

The following benefit payments, which reflect expected future service, are expected to be paid for the years ending August 31, in thousands of dollars:

| YEAR ENDING AUGUST 31 | PRBP | | | |
|-----------------------|-----------|-----------|----------------------------|----------------------------------|
| | SRAP | FRIP | EXCLUDING MEDICARE SUBSIDY | EXPECTED MEDICARE PART D SUBSIDY |
| 2024 | \$ 27,870 | \$ 15,926 | \$ 25,991 | \$ 2,194 |
| 2025 | 19,101 | 16,559 | 27,599 | 2,267 |
| 2026 | 19,032 | 13,253 | 29,128 | 2,337 |
| 2027 | 17,909 | 10,673 | 30,657 | 2,435 |
| 2028 | 17,263 | 10,855 | 32,296 | 2,533 |
| 2029 - 2033 | 74,202 | 66,189 | 185,182 | 14,187 |

INVESTMENT STRATEGY

The University’s Retirement Program Investment Committee, acting in a fiduciary capacity, has established formal investment policies for the assets associated with the University’s funded plans (SRAP and PRBP). The investment strategy of the plans is to preserve and enhance the value of the plans’ assets within acceptable levels of risk. Investments in the plans are diversified among asset classes, striving to achieve an optimal balance between risk and return, and income and capital appreciation. Because the liabilities of each of the plans are long-term, the investment horizon is primarily long-term, with adequate liquidity to meet short-term benefit payment obligations.

CONCENTRATION OF RISK

The University manages a variety of risks, including market, credit, and liquidity risks, across its plan assets. Concentration of risk is defined as an undiversified exposure to one of the above-mentioned risks that increases the exposure of the loss of plan assets unnecessarily. Risk is minimized by predominately investing in broadly diversified index funds for public equities and fixed income. As of August 31, 2023, the University did not have concentrations of risk in any single entity, counterparty, sector, industry or country.

PLAN ASSETS AND ALLOCATIONS

Current U.S. GAAP defines a hierarchy of valuation inputs for the determination of the fair value of plan assets as described in Note 6. As of August 31, 2023 and 2022, all of the assets of the PRBP and substantially all of the assets of the SRAP were categorized as Level 1 investments. The fair value of plan assets by asset category, in thousands of dollars, at August 31, 2023 and 2022 and actual allocations and weighted-average target allocations at August 31, 2023 are as follows:

| | 2023 | 2022 | 2023 ACTUAL ALLOCATION | 2023 TARGET ALLOCATION |
|--|-------------------|-------------------|------------------------|------------------------|
| SRAP: | | | | |
| Cash and cash equivalents | \$ 2,147 | \$ 1,666 | 1% | —% |
| Public equities | 88,553 | 94,677 | 44% | 45% |
| Fixed income | 112,496 | 119,842 | 55% | 55% |
| Private equities | — | 15 | —% | —% |
| TOTAL | 203,196 | 216,200 | 100% | 100% |
| PRBP: | | | | |
| Public equities | 195,088 | 190,149 | 75% | 75% |
| Fixed income | 66,172 | 66,002 | 25% | 25% |
| TOTAL | 261,260 | 256,151 | 100% | 100% |
| TOTAL PLAN ASSETS AT FAIR VALUE | \$ 464,456 | \$ 472,351 | | |



16. SHC and LPCH Retirement Plans

SHC and LPCH provide retirement benefits through defined benefit and defined contribution retirement plans covering substantially all of its regular employees.

DEFINED CONTRIBUTION PLAN

The Hospitals offer a defined contribution plan to eligible employees. Employer contributions to the defined contribution retirement plan are based on a percentage of participant annual compensation, participant contributions and years of service. SHC contributions under the plan, which are vested immediately to participants, were \$192.9 million and \$164.8 million, and LPCH contributed \$74.3 million and \$64.7 million for the years ended August 31, 2023 and 2022, respectively.

DEFINED BENEFIT PLANS

The Hospitals provide retirement and postretirement medical benefits through the SHC *Staff Pension Plan*, the SHC *Postretirement Medical Benefit Plan*, and the LPCH *Frozen Pension Plan*, collectively (the “Plans”). The obligations for the Plans, net of plan assets, are recorded in the *Consolidated Statements of Financial Position* as “Accrued pension and postretirement benefit obligations.” These plans are described in more detail below.

Staff Pension Plan

Certain employees of SHC and LPCH are covered by the SHC *Staff Pension Plan* (the “Pension Plan”), a noncontributory, defined benefit pension plan. Benefits are based on years of service and the employee’s compensation. Contributions to the plan are made in accordance with ERISA based on actuarially determined amounts sufficient to meet the benefits to be paid to plan participants. SHC and LPCH have an arrangement whereby SHC assumes the pension liability of the LPCH employees and previously leased employees. However, LPCH is required to reimburse SHC for the annual expense incurred for these employees and previously leased employees.

SHC has adopted an amendment to terminate the Pension Plan, effective as of March 31, 2023. Plan participants will elect to receive a lump sum distribution (if eligible) or have their benefits transferred to a third-party annuity provider. This will relieve SHC from any further obligations under the Pension Plan once it is fully settled. Final true-up contributions in connection with the annuity contract purchase are expected to be made by January 31, 2024.

Postretirement Medical Benefit Plan

SHC and LPCH provide health care benefits for certain retired employees through the SHC *Postretirement Medical Benefit Plan* (PRMB). The Hospitals’ employees and their covered dependents may become eligible for the PRMB upon the employee’s retirement as early as age 55, with years of service as defined by specific criteria. Retiree health plans are paid, in part, by retiree contributions, which are adjusted annually. The Hospitals’ subsidies vary depending on whether the retiree is covered under the legacy design or the defined dollar benefit design. Medicare supplement options are provided for retirees over age 65. LPCH reimburses SHC for costs related to this plan on a periodic basis.

Frozen Pension Plan

Certain other LPCH employees and previously leased employees not covered by the previously described plans were covered by a frozen noncontributory defined benefit pension plan (the “LPCH Frozen Pension Plan”). Benefits were based on years of service and the employee’s compensation. Contributions to the plan were based on actuarially determined amounts sufficient to meet the benefits to be paid to plan participants. In November 2020, the LPCH Board of Directors approved a resolution to terminate the LPCH Frozen Pension Plan. As of August 2022, the LPCH Frozen Pension Plan was fully settled, and all benefit obligations released. Plan participants elected to receive either a lump-sum distribution or to transfer benefits to a third-party annuity provider. A handful of missing participants were also transferred to the Pension Guarantee Benefit Corporation. As a result of the settlement, LPCH was relieved of any further obligations under the pension plan. During the year ended August 31, 2022, pension settlement charges totaling \$1.9 million were recognized, consisting of unrecognized actuarial losses previously included in the adjustment for minimum pension liability. No cash contributions were required during the fiscal year in connection with the plan termination.



The change in the Plans' assets, the related change in benefit obligations and the amounts recognized in the financial statements, in thousands of dollars, are as follows:

| | STAFF PENSION PLAN | PRMB | LPCH FROZEN PENSION PLAN |
|---|-----------------------|---------------------|-----------------------------|
| 2023 | | | |
| Fair value of plan assets, beginning of year | \$ 164,594 | \$ — | \$ 13 |
| Change in plan assets: | | | |
| Actual return on plan assets | (1,112) | — | — |
| Employer contributions | — | 5,642 | — |
| Plan participants' contributions | — | 1,156 | — |
| Benefits and plan expenses paid | (12,092) | (6,798) * | (13) |
| FAIR VALUE OF PLAN ASSETS, END OF YEAR | 151,390 | — | — |
| Benefit obligation, beginning of year | 167,017 | 117,266 | — |
| Change in projected benefit obligation: | | | |
| Service cost | 894 | 5,478 | — |
| Interest cost | 7,533 | 5,322 | — |
| Plan participants' contributions | — | 1,156 | — |
| Actuarial gain | (5,829) | (7,230) | — |
| Benefits and plan expenses paid | (12,092) | (6,798) * | — |
| Plan amendments | 887 | 394 | — |
| Plan curtailments | (856) | — | — |
| BENEFIT OBLIGATION, END OF YEAR | 157,554 | 115,588 | — |
| NET LIABILITY RECOGNIZED IN THE STATEMENTS OF FINANCIAL POSITION | \$ (6,164) | \$ (115,588) | \$ — |
| <i>* Net of Medicare subsidy of \$79 thousand</i> | | | |
| 2022 | | | |
| Fair value of plan assets, beginning of year | \$ 213,366 | \$ — | \$ 7,501 |
| Change in plan assets: | | | |
| Actual return on plan assets | (37,941) | — | (246) |
| Employer contributions | — | 6,244 | — |
| Plan participants' contributions | — | 1,489 | — |
| Benefits and plan expenses paid | (10,831) | (7,733) * | (530) |
| Plan settlements | — | — | (6,712) |
| FAIR VALUE OF PLAN ASSETS, END OF YEAR | 164,594 | — | 13 |
| Benefit obligation, beginning of year | 213,136 | 116,620 | 7,502 |
| Change in projected benefit obligation: | | | |
| Service cost | 1,104 | 5,156 | 150 |
| Interest cost | 5,097 | 2,700 | 44 |
| Plan participants' contributions | — | 1,489 | — |
| Actuarial loss (gain) | (41,489) | (23,211) | (454) |
| Benefits and plan expenses paid | (10,831) | (7,733) * | (530) |
| Plan amendments | — | 22,245 | — |
| Plan settlements | — | — | (6,712) |
| BENEFIT OBLIGATION, END OF YEAR | 167,017 | 117,266 | — |
| NET ASSET (LIABILITY) RECOGNIZED IN THE STATEMENTS OF FINANCIAL POSITION | \$ (2,423) | \$ (117,266) | \$ 13 |
| <i>* Net of Medicare subsidy of \$98 thousand</i> | | | |



The net liability for the PRMB includes amounts for both SHC and LPCH employees and is recognized on the Hospitals' respective *Statements of Financial Position*. The table below presents the plan obligations for each entity as of August 31, 2023 and 2022, in thousands of dollars:

| | | 2023 | | 2022 |
|--------------|-----------|----------------|-----------|----------------|
| SHC | \$ | 85,337 | \$ | 86,276 |
| LPCH | | 30,251 | | 30,990 |
| TOTAL | \$ | 115,588 | \$ | 117,266 |

The accumulated benefit obligation for the Pension Plan was \$157.6 million and \$166.1 million at August 31, 2023 and 2022, respectively.



Net periodic benefit cost and non-operating activities related to the Plans for the years ended August 31, 2023 and 2022, in thousands of dollars, includes the following components:

| | STAFF PENSION PLAN | PRMB | LPCH FROZEN PENSION PLAN |
|---|-----------------------|-------------------|-----------------------------|
| 2023 | | | |
| Service cost | \$ 894 | \$ 5,478 | \$ — |
| PERIODIC BENEFIT EXPENSE | 894 | 5,478 | — |
| Non-operating: | | | |
| Interest cost | 7,533 | 5,322 | — |
| Expected return on plan assets | (7,370) | — | — |
| Amortization of: | | | |
| Prior service cost | — | 3,553 | — |
| Actuarial loss (gain) | 349 | (1,193) | — |
| Non-operating net periodic benefit cost (income) | 512 | 7,682 | — |
| NET PERIODIC BENEFIT COST¹ | 1,406 | 13,160 | — |
| Non-operating net periodic benefit cost | 512 | 7,682 | — |
| Net actuarial loss (gain) | 1,797 | (7,230) | — |
| New prior service cost | 887 | 394 | — |
| Amortization of: | | | |
| Prior service cost | — | (3,553) | — |
| Actuarial gain (loss) | (349) | 1,193 | — |
| TOTAL AMOUNTS RECOGNIZED IN NON-OPERATING ACTIVITIES | \$ 2,847 | \$ (1,514) | \$ — |
| 2022 | | | |
| Service cost | \$ 1,104 | \$ 5,156 | \$ 150 |
| PERIODIC BENEFIT EXPENSE | 1,104 | 5,156 | 150 |
| Non-operating: | | | |
| Interest cost | 5,097 | 2,700 | 44 |
| Expected return on plan assets | (7,627) | — | (54) |
| Amortization of: | | | |
| Prior service cost | — | 2,415 | — |
| Actuarial loss | 2,027 | 167 | 45 |
| Settlement loss | — | — | 1,905 |
| Non-operating net periodic benefit cost (income) | (503) | 5,282 | 1,940 |
| NET PERIODIC BENEFIT COST¹ | 601 | 10,438 | 2,090 |
| Non-operating net periodic benefit cost (income) | (503) | 5,282 | 1,940 |
| Net actuarial loss (gain) | 4,079 | (23,211) | (189) |
| New prior service cost | — | 22,245 | — |
| Amortization of: | | | |
| Prior service cost | — | (2,415) | — |
| Actuarial loss | (2,027) | (167) | (45) |
| Settlement loss | — | — | (1,905) |
| TOTAL AMOUNTS RECOGNIZED IN NON-OPERATING ACTIVITIES | \$ 1,549 | \$ 1,734 | \$ (199) |

¹The components of net periodic benefit cost other than service cost are included in "Pension and other postemployment benefit related changes other than service cost" in the Statements of Activities.



The net periodic benefit cost and amounts recognized in non-operating activities for the PRMB include amounts for both SHC and LPCH employees and is recognized on the Hospitals' respective *Statements of Activities*. The table below presents the amount for each entity as of August 31, 2023 and 2022, in thousands of dollars:

| | SHC | LPCH | TOTAL |
|--|-----------------|-----------------|-----------------|
| 2023 | | | |
| Net periodic benefit cost | \$ 9,450 | \$ 3,710 | \$ 13,160 |
| Amounts recognized in non-operating activities | (6,374) | (2,822) | (9,196) |
| TOTAL AMOUNT RECOGNIZED IN NET PERIODIC BENEFIT COST AND NON-OPERATING ACTIVITIES | \$ 3,076 | \$ 888 | \$ 3,964 |
| 2022 | | | |
| Net periodic benefit cost | \$ 7,497 | \$ 2,941 | \$ 10,438 |
| Amounts recognized in non-operating activities | (3,746) | 198 | (3,548) |
| TOTAL AMOUNT RECOGNIZED IN NET PERIODIC BENEFIT COST AND NON-OPERATING ACTIVITIES | \$ 3,751 | \$ 3,139 | \$ 6,890 |

Cumulative amounts recognized in non-operating activities, but not yet recognized in net periodic benefit cost in the *Consolidated Statements of Activities*, are presented in the following table for the years ended August 31, 2023 and 2022, in thousands of dollars:

| | STAFF PENSION PLAN | PRMB |
|---|--------------------|------------------|
| 2023 | | |
| Prior service cost | \$ 887 | \$ 33,987 |
| Net actuarial loss (gain) | 54,125 | (26,554) |
| ACCUMULATED PLAN BENEFIT COSTS NOT YET RECOGNIZED IN NET PERIODIC BENEFIT COST | \$ 55,012 | \$ 7,433 |
| 2022 | | |
| Prior service cost | \$ — | \$ 37,146 |
| Net actuarial loss (gain) | 52,677 | (20,517) |
| ACCUMULATED PLAN BENEFIT COSTS NOT YET RECOGNIZED IN NET PERIODIC BENEFIT COST | \$ 52,677 | \$ 16,629 |

ACTUARIAL ASSUMPTIONS

The weighted average assumptions used to determine the benefit obligations and net periodic benefit cost for the Plans are shown below:

| | STAFF PENSION PLAN | | PRMB | | LPCH FROZEN PENSION PLAN | |
|----------------------------------|--------------------|-------|-------|-------|--------------------------|-------|
| | 2023 | 2022 | 2023 | 2022 | 2023 | 2022 |
| BENEFIT OBLIGATIONS | | | | | | |
| Discount rate | 5.33% | 4.68% | 5.34% | 4.69% | N/A | N/A |
| Covered payroll growth rate | 3.00% | 3.00% | N/A | N/A | N/A | N/A |
| NET PERIODIC BENEFIT COST | | | | | | |
| Discount rate | 4.68% | 2.46% | 4.69% | 2.39% | N/A | 2.34% |
| Expected return on plan assets | 4.00% | 4.00% | N/A | N/A | N/A | 3.00% |
| Covered payroll growth rate | 3.00% | 3.00% | N/A | N/A | N/A | N/A |



The expected long-term rate of return on asset assumptions for the Pension Plan is 4.00%. The assumption is used in determining the expected returns on plan assets, a component of net periodic benefit expense (income), representing the expected return for the upcoming fiscal year on plan assets based on the calculated market-related value of plan assets. This assumption is developed based on future expectations for returns in each asset class, as well as the target asset allocation of the portfolios. The use of expected long-term returns on plan assets may result in income that is greater or less than the actual returns of those plan assets in any given year. Over time, however, the expected long-term returns are designed to approximate the actual long-term returns, and therefore result in a pattern of income and cost recognition that more closely matches the pattern of the services provided by the employees. Differences between actual and expected returns are recognized as a component of non-operating activities and amortized as a component of net periodic benefit expense (income) over the service or life expectancy of the plan participants, depending on the plan, provided such amounts exceed the accounting standards threshold.

To determine the accumulated PRMB obligation at August 31, 2023, a 6.60% for Medical Pre-65 and 6.08% for Medical Post-65 annual rates of increase in the per capita cost of covered health care were assumed for calendar year 2023, declining gradually to 4.00% by 2047 and remaining at this rate thereafter.

EXPECTED CONTRIBUTIONS

SHC expects to contribute \$6.3 million to the PRMB and \$8.8 million to the Pension Plan during the fiscal year ending August 31, 2024.

EXPECTED BENEFIT PAYMENTS

The following benefit payments, which reflect expected future service, are expected to be paid for the fiscal years ending August 31, in thousands of dollars:

| YEAR ENDING AUGUST 31 | STAFF PENSION PLAN | PRMB | |
|-----------------------|-----------------------|----------------------------------|--|
| | | EXCLUDING MEDICARE SUBSIDY | EXPECTED MEDICARE PART D SUBSIDY |
| 2024 | \$ 161,398 | \$ 8,561 | \$ 196 |
| 2025 | — | 8,496 | 74 |
| 2026 | — | 8,784 | 65 |
| 2027 | — | 9,074 | 56 |
| 2028 | — | 9,378 | 49 |
| 2029 - 2033 | — | 51,559 | 154 |

INVESTMENT STRATEGY

Given the Pension Plan’s short time horizon, due to the upcoming planned termination, the focus of the asset allocation is on funded status stabilization. The Pension Plan’s asset allocation has been revised to reflect the termination status of the plan. The Pension Plan’s assets are invested in cash and fixed income to minimize investment risk during plan termination. As of August 31, 2022, the LPCH Frozen Pension Plan was terminated.

CONCENTRATION OF RISK

SHC and LPCH manage a variety of risks, including market, credit, and liquidity risks, across their plan assets. Concentration of risk is defined as an undiversified exposure to one of the above-mentioned risks that increases the exposure of the loss of plan assets unnecessarily. Risk is minimized by diversifying the Hospitals’ exposure to such risks across a variety of instruments, markets, and counterparties. As of August 31, 2023, the Pension Plan does not have concentrations of risk in any single entity, counterparty, sector, industry or country.



PLAN ASSETS AND ALLOCATIONS

Current U.S. GAAP defines a hierarchy of valuation inputs for the determination of the fair value of plan assets as described in *Note 6*. The Plans' assets measured at fair value at August 31, 2023 and 2022, are all categorized as Level 1 investments. The fair value of plan assets by asset category, in thousands of dollars, at August 31, 2023 and 2022 and actual allocations and weighted-average target allocations at August 31, 2023 are as follows:

| | 2023 | | 2022 | | 2023 ACTUAL ALLOCATION | 2023 TARGET ALLOCATION |
|----------------------------------|-----------|----------------|-----------|----------------|------------------------|------------------------|
| STAFF PENSION PLAN: | | | | | | |
| Cash and cash equivalents | \$ | — | \$ | 430 | —% | —% |
| Public equities | | — | | 16,406 | —% | —% |
| Fixed income | | 151,390 | | 147,758 | 100% | 100% |
| PLAN ASSETS AT FAIR VALUE | \$ | 151,390 | \$ | 164,594 | 100% | 100% |
| LPCH FROZEN PENSION PLAN: | | | | | | |
| Cash and cash equivalents | \$ | — | \$ | 13 | —% | —% |
| Fixed income | | — | | — | —% | —% |
| PLAN ASSETS AT FAIR VALUE | \$ | — | \$ | 13 | —% | —% |



17. Leases

LESSEE

Stanford leases research and development facilities, office spaces, buses, and equipment under operating and finance leases expiring through November 2057. Under the accounting standard for leases, a lease conveys the right to control the use of an identified asset for a period of time in exchange for consideration. On the *Consolidated Statements of Financial Position*, "Right-of-use assets" represent Stanford's right to use an underlying asset for the lease term and "Lease liabilities" represent Stanford's obligation to make lease payments arising from the lease based on the present value of lease payments over the lease term. Lease liabilities do not include lease payments that were not fixed at commencement or lease modification. The lease terms may include options to extend or terminate the lease when it is reasonably certain that Stanford will exercise that option. The exercise of lease renewal options is at Stanford's sole discretion. Stanford uses an incremental borrowing rate for discounting leases, as applicable. Lease costs are included in "Other operating expenses" on the *Consolidated Statements of Activities*.

Supplemental information related to leases, in thousands of dollars, except lease term and discount rate, is as follows:

| | UNIVERSITY | | SHC | | LPCH | | ELIMINATIONS | | CONSOLIDATED | |
|--|------------|----------------|-----------|----------------|-----------|----------------|--------------|------------------|--------------|------------------|
| 2023 | | | | | | | | | | |
| Operating lease | \$ | 429,183 | \$ | 318,150 | \$ | 206,915 | \$ | (116,838) | \$ | 837,410 |
| Finance lease | | 227,014 | | — | | — | | — | | 227,014 |
| TOTAL LEASE RIGHT-OF-USE ASSETS | \$ | 656,197 | \$ | 318,150 | \$ | 206,915 | \$ | (116,838) | \$ | 1,064,424 |
| Operating lease | \$ | 459,339 | \$ | 330,012 | \$ | 220,386 | \$ | (116,838) | \$ | 892,899 |
| Finance lease | | 241,034 | | — | | — | | — | | 241,034 |
| TOTAL LEASE LIABILITY | \$ | 700,373 | \$ | 330,012 | \$ | 220,386 | \$ | (116,838) | \$ | 1,133,933 |
| 2022 | | | | | | | | | | |
| Operating lease | \$ | 472,211 | \$ | 247,560 | \$ | 207,491 | \$ | (129,930) | \$ | 797,332 |
| Finance lease | | 241,040 | | 12 | | — | | — | | 241,052 |
| TOTAL LEASE RIGHT-OF-USE ASSETS | \$ | 713,251 | \$ | 247,572 | \$ | 207,491 | \$ | (129,930) | \$ | 1,038,384 |
| Operating lease | \$ | 493,923 | \$ | 261,321 | \$ | 219,402 | \$ | (129,930) | \$ | 844,716 |
| Finance lease | | 249,257 | | 13 | | — | | — | | 249,270 |
| TOTAL LEASE LIABILITY | \$ | 743,180 | \$ | 261,334 | \$ | 219,402 | \$ | (129,930) | \$ | 1,093,986 |

| | UNIVERSITY | | SHC | | LPCH | |
|--|------------|-------|-------|-------|-------|-------|
| | 2023 | 2022 | 2023 | 2022 | 2023 | 2022 |
| WEIGHTED-AVERAGE REMAINING LEASE TERM IN YEARS: | | | | | | |
| Operating lease | 23.23 | 22.98 | 6.17 | 5.57 | 7.04 | 7.87 |
| Finance lease | 26.19 | 26.55 | N/A | 0.17 | N/A | N/A |
| WEIGHTED-AVERAGE DISCOUNT RATE: | | | | | | |
| Operating lease | 3.10% | 2.38% | 3.68% | 2.14% | 2.69% | 2.19% |
| Finance lease | 2.71% | 2.59% | N/A | 1.79% | N/A | N/A |

The components of lease expenses, in thousands of dollars, are as follows:

| | UNIVERSITY | SHC | LPCH | CONSOLIDATED |
|-------------------------------|------------------|-------------------|------------------|-------------------|
| 2023 | | | | |
| Operating lease cost | \$ 44,248 | \$ 82,782 | \$ 38,084 | \$ 165,114 |
| Finance lease cost: | | | | |
| Amortization of leased assets | 14,771 | 12 | — | 14,783 |
| Interest on lease liabilities | 6,238 | — | — | 6,238 |
| Variable lease cost | 5,399 | 11,338 | 6,360 | 23,097 |
| Short-term lease cost | 27,599 | 11,696 | 809 | 40,104 |
| Sublease income | (7,023) | (3,949) | (4,532) | (15,504) |
| TOTAL LEASE COST | \$ 91,232 | \$ 101,879 | \$ 40,721 | \$ 233,832 |
| 2022 | | | | |
| Operating lease cost | \$ 56,698 | \$ 78,618 | \$ 37,589 | \$ 172,905 |
| Finance lease cost: | | | | |
| Amortization of leased assets | 13,809 | 70 | — | 13,879 |
| Interest on lease liabilities | 4,715 | 1 | — | 4,716 |
| Variable lease cost | 4,287 | 10,936 | 6,784 | 22,007 |
| Short-term lease cost | 22,411 | 10,624 | 781 | 33,816 |
| Sublease income | (11,936) | (2,801) | (6,808) | (21,545) |
| TOTAL LEASE COST | \$ 89,984 | \$ 97,448 | \$ 38,346 | \$ 225,778 |

Supplemental cash flow information related to leases, in thousands of dollars, is as follows:

| | UNIVERSITY | SHC | LPCH | CONSOLIDATED |
|---|------------|------------|-----------|--------------|
| 2023 | | | | |
| Cash paid for amounts included in the measurement of lease liabilities: | | | | |
| Operating cash flows from operating leases | \$ 35,806 | \$ 84,650 | \$ 37,256 | \$ 157,712 |
| Operating cash flows from finance leases | 6,238 | — | — | 6,238 |
| Financing cash flows from finance leases | 8,968 | 12 | — | 8,980 |
| Obtaining right-of-use assets in exchange for lease liabilities: | | | | |
| Operating leases | \$ 316 | \$ 143,898 | \$ 33,370 | \$ 177,584 |
| Finance leases | 745 | — | — | 745 |
| 2022 | | | | |
| Cash paid for amounts included in the measurement of lease liabilities: | | | | |
| Operating cash flows from operating leases | \$ 50,263 | \$ 83,180 | \$ 36,123 | \$ 169,566 |
| Operating cash flows from finance leases | 4,715 | 1 | — | 4,716 |
| Financing cash flows from finance leases | 8,729 | 76 | — | 8,805 |
| Obtaining right-of-use assets in exchange for lease liabilities: | | | | |
| Operating leases | \$ 51,339 | \$ 27,892 | \$ 9,479 | \$ 88,710 |
| Finance leases | 84,126 | — | — | 84,126 |



Maturities of lease liabilities for periods subsequent to August 31, 2023, in thousands of dollars, are as follows:

| YEAR ENDING AUGUST 31 | MATURITY OF LEASE LIABILITIES | | | | | CONSOLIDATED |
|------------------------------|-------------------------------|-------------------|-------------------|---------------------|-----------|------------------|
| | UNIVERSITY | SHC | LPCH | ELIMINATIONS | | |
| 2024 | \$ 58,261 | \$ 80,028 | \$ 36,932 | \$ (19,510) | \$ | 155,711 |
| 2025 | 55,404 | 66,158 | 36,644 | (18,989) | | 139,217 |
| 2026 | 54,463 | 55,650 | 34,301 | (18,222) | | 126,192 |
| 2027 | 54,513 | 47,680 | 29,767 | (15,900) | | 116,060 |
| 2028 | 50,840 | 36,536 | 29,757 | (16,175) | | 100,958 |
| Thereafter | 761,409 | 86,015 | 74,227 | (45,924) | | 875,727 |
| TOTAL LEASE PAYMENTS | 1,034,890 | 372,067 | 241,628 | (134,720) | | 1,513,865 |
| LESS IMPUTED INTEREST | (334,517) | (42,055) | (21,242) | 17,882 | | (379,932) |
| TOTAL | \$ 700,373 | \$ 330,012 | \$ 220,386 | \$ (116,838) | \$ | 1,133,933 |

LESSOR

Stanford holds investment properties that it leases to external parties under non-cancellable operating leases. Stanford receives minimum rental income over the life of the lease; however, certain of the leases include variable rental payments that are based on a percentage of the tenant sales in excess of contractual amount. Certain leases include options for lessee to extend or terminate the lease. The residual value from the underlying asset following the end of the lease term is based on independent appraisals and internal models that are based on discounted cash flows and market data, if available.

Rental income is recognized over time in accordance with the contractual term of the related lease agreements. Total rental income under these leases for the years ended August 31, 2023 and 2022 was \$275.2 million and \$251.4 million for the University, \$3.9 million and \$2.8 million for SHC, and \$1.5 million and \$1.4 million for LPCH, respectively. See Note 6 for future minimum rental income under non-cancellable leases.

18. Related Party Transactions

Members of the University, SHC, and LPCH boards and senior management may, from time to time, be associated, either directly or indirectly, with companies doing business with Stanford.

The University, SHC and LPCH have separate written conflict of interest policies that require, among other items, that no member of their respective board can participate in any decision in which he or she (or an immediate family member) has a material financial interest. Each board member is required to certify compliance with his or her respective entity’s conflict of interest policy on an annual basis and indicate whether his or her respective entity does business with any entity in which the board member has a material financial interest. When such relationships exist, measures are taken to mitigate any actual or perceived conflict, including requiring that such transactions be conducted at arm's length, for good and sufficient consideration, based on terms that are fair and reasonable to and for the benefit of the respective entity, and in accordance with applicable conflict of interest laws and policies. No such associations are considered to be significant.

The University, SHC, and LPCH each requires its senior management to disclose annually any significant financial interests in, or employment or consulting relationships with, entities doing business with it. These annual disclosures cover both senior management and their immediate family members. When such relationships exist, measures are taken to appropriately manage the actual or perceived conflict in the best interests of the relevant entity. No such associations are considered to be significant.



19. Commitments and Contingencies

Management is of the opinion that none of the following commitments and contingencies will have a material adverse effect on Stanford's consolidated financial position.

LABOR AGREEMENTS

Approximately 6% of the University's, 33% of SHC's and 44% of LPCH's employees are covered under union contract arrangements and are, therefore, subject to labor stoppages when contracts expire. The University's agreement with the Service Employees International Union (SEIU) will expire in 2024 and the agreement with the Stanford Deputy Sheriffs' Association will expire in 2026. SHC's and LPCH's agreements with SEIU will expire in 2026 and the agreements with the Committee for Recognition of Nursing Achievement (CRONA) will expire in 2025. SHC's agreement with California Nurses Association (CNA) will expire in 2024.

LITIGATION

The University, SHC and LPCH are defendants in a number of legal actions. While the final outcome cannot be determined at this time, management is of the opinion that the liability, if any, resulting from these legal actions will not have a material adverse effect on the consolidated financial position.

CONTRACTUAL COMMITMENTS

At August 31, 2023, the University had contractual obligations of approximately \$462.7 million in connection with major construction projects. Remaining expenditures on construction in progress are estimated to be \$1.3 billion, which will be financed with certain unexpended plant funds, gifts and debt. Commitments on construction contracts, including the construction and remodeling of Hospital facilities, were approximately \$143.5 million for SHC and \$119.9 million for LPCH at August 31, 2023. SHC had contractual obligations of approximately \$665.7 million to support SHC's operations, such as maintenance, food services, software subscription related services, valet services and other purchased services at August 31, 2023.

Over the course of the next several years, SHC will complete renovations to enable the relocation of inpatient units that remain in the 1959-era portion of the hospital, and fulfill the seismic safety mandate to have all inpatient beds located in compliant structures. As of August 31, 2023, \$438.0 million was recorded to property and equipment of which \$172.0 million was recorded to construction in progress and \$266.0 million was capitalized to property and equipment. Estimated cost of the renewal project is approximately \$1.6 billion.

The University executed two 25-year agreements with two solar electricity developers and operators in 2015 and 2018 to purchase the output from their solar photovoltaic facilities and battery storage. The first facility was placed in service in December 2016 and the second facility began operation in April 2022. The University's total unpaid commitment under the agreements over the life of the agreements, undiscounted, is \$300.4 million.

In addition, as described in *Note 6*, the University is obligated under certain alternative investment agreements to advance additional funding up to specified levels over a period of years.

COVID-19

On March 27, 2020 the Federal Government passed the Coronavirus Aid, Relief, and Economic Stimulus Act (CARES Act) which made funds available to Stanford through various provisions of the legislation. For the years ended August 31, 2023 and 2022, SHC received CARES Act provider relief funding of \$0 and \$202.9 million, respectively, and LPCH received \$0 and \$2.1 million, respectively, reported as "Special program fees and other income" on the *Consolidated Statements of Activities*. Stanford recognized revenue related to the CARES Act provider relief fund based on information contained in laws and regulations, as well as interpretations issued by the Department of Health and Human Services ("DHHS"), governing the funding that was publicly available at August 31, 2022. CARES Act provider relief funding is subject to future audit adjustments based on compliance audits and potential changes to statutes.

20. Subsequent Events

Stanford has evaluated subsequent events for the period from August 31, 2023 through December 6, 2023, the date the *Consolidated Financial Statements* were issued.



21. Consolidating Entity Statements

The pages which follow present consolidating statements of financial position as of August 31, 2023 and 2022 and consolidating statements of activities and cash flows for the years then ended, in thousands of dollars. The information has been prepared in a manner consistent with GAAP and was derived from and relates directly to the underlying accounting and other records used to prepare the *Consolidated Financial Statements*. The consolidating information is presented only for purposes of additional analysis and not as a presentation of the financial position and results of the individual entities.

CONSOLIDATING STATEMENTS OF FINANCIAL POSITION

At August 31, 2023 (in thousands of dollars)

| | UNIVERSITY | SHC | LPCH | ELIMINATIONS | CONSOLIDATED |
|---|----------------------|----------------------|---------------------|---------------------|----------------------|
| ASSETS | | | | | |
| Cash and cash equivalents | \$ 745,015 | \$ 611,592 | \$ 390,081 | \$ (7,744) | \$ 1,738,944 |
| Accounts receivable, net | 296,435 | 1,184,307 | 695,849 | — | 2,176,591 |
| Related party receivables | 263,761 | 204,041 | 79,138 | (546,940) | — |
| Prepaid expenses and other assets | 104,634 | 519,684 | 126,433 | (184,593) | 566,158 |
| Pledges receivable, net | 2,630,956 | 45,182 | 173,837 | (68,859) | 2,781,116 |
| Student loans receivable, net | 37,527 | — | — | — | 37,527 |
| Faculty and staff mortgages and other loans receivable, net | 1,084,897 | 9,453 | 4,501 | — | 1,098,851 |
| Assets limited as to use | 576,510 | — | 75,470 | — | 651,980 |
| Investments at fair value | 46,856,086 | 4,648,525 | 1,313,919 | 7,744 | 52,826,274 |
| Right-of-use assets | 656,197 | 318,150 | 206,915 | (116,838) | 1,064,424 |
| Plant facilities, net of accumulated depreciation | 8,558,837 | 3,875,677 | 1,749,527 | — | 14,184,041 |
| Works of art and special collections | — | — | — | — | — |
| TOTAL ASSETS | \$ 61,810,855 | \$ 11,416,611 | \$ 4,815,670 | \$ (917,230) | \$ 77,125,906 |
| LIABILITIES AND NET ASSETS | | | | | |
| LIABILITIES: | | | | | |
| Accounts payable and accrued expenses | \$ 1,028,884 | \$ 1,452,881 | \$ 373,730 | \$ — | \$ 2,855,495 |
| Liabilities associated with investments | 878,955 | — | — | — | 878,955 |
| Lease liabilities | 700,373 | 330,012 | 220,386 | (116,838) | 1,133,933 |
| Deferred income and other obligations | 1,766,039 | 196,159 | 55,813 | — | 2,018,011 |
| Related party liabilities | 267,074 | 238,778 | 44,251 | (550,103) | — |
| Accrued pension and postretirement benefit obligations | 460,731 | 91,501 | 30,251 | — | 582,483 |
| Notes and bonds payable | 5,470,495 | 2,270,445 | 810,203 | — | 8,551,143 |
| TOTAL LIABILITIES | 10,572,551 | 4,579,776 | 1,534,634 | (666,941) | 16,020,020 |
| NET ASSETS: | | | | | |
| Without donor restrictions | 27,193,858 | 6,698,906 | 2,426,559 | (236,176) | 36,083,147 |
| With donor restrictions | 24,044,446 | 137,929 | 854,477 | (14,113) | 25,022,739 |
| TOTAL NET ASSETS | 51,238,304 | 6,836,835 | 3,281,036 | (250,289) | 61,105,886 |
| TOTAL LIABILITIES AND NET ASSETS | \$ 61,810,855 | \$ 11,416,611 | \$ 4,815,670 | \$ (917,230) | \$ 77,125,906 |

CONSOLIDATING STATEMENTS OF FINANCIAL POSITION

At August 31, 2022 (in thousands of dollars)

| | UNIVERSITY | SHC | LPCH | ELIMINATIONS | CONSOLIDATED |
|---|----------------------|----------------------|---------------------|---------------------|----------------------|
| ASSETS | | | | | |
| Cash and cash equivalents | \$ 1,355,180 | \$ 536,803 | \$ 401,207 | \$ (7,425) | \$ 2,285,765 |
| Accounts receivable, net | 296,138 | 1,111,913 | 599,587 | — | 2,007,638 |
| Related party receivables | 255,516 | 149,627 | 74,400 | (479,543) | — |
| Prepaid expenses and other assets | 94,164 | 438,304 | 122,565 | (148,172) | 506,861 |
| Pledges receivable, net | 1,986,880 | 41,877 | 245,973 | (72,994) | 2,201,736 |
| Student loans receivable, net | 37,524 | — | — | — | 37,524 |
| Faculty and staff mortgages and other loans receivable, net | 984,106 | 8,903 | 4,567 | — | 997,576 |
| Assets limited as to use | 397,926 | — | 52,464 | — | 450,390 |
| Investments at fair value | 46,473,800 | 4,403,691 | 1,295,496 | 7,425 | 52,180,412 |
| Right of use assets | 713,251 | 247,572 | 207,491 | (129,930) | 1,038,384 |
| Plant facilities, net of accumulated depreciation | 7,903,923 | 3,725,488 | 1,748,023 | — | 13,377,434 |
| Works of art and special collections | — | — | — | — | — |
| TOTAL ASSETS | \$ 60,498,408 | \$ 10,664,178 | \$ 4,751,773 | \$ (830,639) | \$ 75,083,720 |
| LIABILITIES AND NET ASSETS | | | | | |
| LIABILITIES: | | | | | |
| Accounts payable and accrued expenses | \$ 983,033 | \$ 1,463,694 | \$ 359,030 | \$ — | \$ 2,805,757 |
| Liabilities associated with investments | 863,746 | — | — | — | \$ 863,746 |
| Lease liabilities | 743,180 | 261,334 | 219,402 | (129,930) | 1,093,986 |
| Deferred income and other obligations | 1,680,817 | 218,615 | 91,828 | — | 1,991,260 |
| Related party liabilities | 224,137 | 218,641 | 40,036 | (482,814) | — |
| Accrued pension and postretirement benefit obligations | 442,820 | 88,699 | 30,977 | — | 562,496 |
| Notes and bonds payable | 5,153,838 | 2,295,337 | 821,831 | — | 8,271,006 |
| TOTAL LIABILITIES | 10,091,571 | 4,546,320 | 1,563,104 | (612,744) | 15,588,251 |
| NET ASSETS: | | | | | |
| Without donor restrictions | 27,378,445 | 5,972,760 | 2,339,730 | (171,641) | 35,519,294 |
| With donor restrictions | 23,028,392 | 145,098 | 848,939 | (46,254) | 23,976,175 |
| TOTAL NET ASSETS | 50,406,837 | 6,117,858 | 3,188,669 | (217,895) | 59,495,469 |
| TOTAL LIABILITIES AND NET ASSETS | \$ 60,498,408 | \$ 10,664,178 | \$ 4,751,773 | \$ (830,639) | \$ 75,083,720 |



CONSOLIDATING STATEMENTS OF ACTIVITIES

For the year ended August 31, 2023 (in thousands of dollars)

| | UNIVERSITY | SHC | LPCH | ELIMINATIONS | CONSOLIDATED |
|---|---------------------|-------------------|------------------|--------------------|-------------------|
| NET ASSETS WITHOUT DONOR RESTRICTIONS | | | | | |
| OPERATING REVENUES: | | | | | |
| TOTAL STUDENT INCOME, NET | \$ 760,534 | \$ — | \$ — | \$ — | \$ 760,534 |
| Sponsored support: | | | | | |
| Direct costs - University | 1,059,200 | 32,029 | 2,835 | — | 1,094,064 |
| Direct costs - SLAC National Accelerator Laboratory | 571,654 | — | — | — | 571,654 |
| Indirect costs | 347,576 | — | — | — | 347,576 |
| TOTAL SPONSORED SUPPORT | 1,978,430 | 32,029 | 2,835 | — | 2,013,294 |
| Health care services: | | | | | |
| Net patient service revenue | — | 7,521,035 | 2,518,425 | (44,013) | 9,995,447 |
| Premium revenue | — | 65,386 | — | — | 65,386 |
| Physicians' services and support - SHC and LPCH, net | 1,577,976 | — | — | (1,577,976) | — |
| Physicians' services and support - other facilities, net | 47,419 | — | — | (7,682) | 39,737 |
| TOTAL HEALTH CARE SERVICES | 1,625,395 | 7,586,421 | 2,518,425 | (1,629,671) | 10,100,570 |
| TOTAL CURRENT YEAR GIFTS IN SUPPORT OF OPERATIONS | 269,096 | 506 | 6,028 | — | 275,630 |
| Net assets released from restrictions: | | | | | |
| Payments received on pledges | 226,255 | 462 | — | — | 226,717 |
| Prior year gifts released from donor restrictions | 137,256 | 6,554 | 4,594 | — | 148,404 |
| TOTAL NET ASSETS RELEASED FROM RESTRICTIONS | 363,511 | 7,016 | 4,594 | — | 375,121 |
| Investment income distributed for operations: | | | | | |
| Endowment | 1,736,346 | 1,063 | 12,174 | — | 1,749,583 |
| Expendable funds pools and other investment income | 142,156 | 2,628 | — | — | 144,784 |
| TOTAL INVESTMENT INCOME DISTRIBUTED FOR OPERATIONS | 1,878,502 | 3,691 | 12,174 | — | 1,894,367 |
| TOTAL SPECIAL PROGRAM FEES AND OTHER INCOME | 578,913 | 242,043 | 119,905 | (17,050) | 923,811 |
| TOTAL OPERATING REVENUES | 7,454,381 | 7,871,706 | 2,663,961 | (1,646,721) | 16,343,327 |
| OPERATING EXPENSES: | | | | | |
| Salaries and benefits | 4,887,095 | 3,575,799 | 1,298,188 | — | 9,761,082 |
| Depreciation | 502,091 | 262,712 | 89,018 | — | 853,821 |
| Other operating expenses | 2,270,698 | 3,618,329 | 1,196,153 | (1,646,721) | 5,438,459 |
| TOTAL OPERATING EXPENSES | 7,659,884 | 7,456,840 | 2,583,359 | (1,646,721) | 16,053,362 |
| CHANGE IN NET ASSETS FROM OPERATING ACTIVITIES | \$ (205,503) | \$ 414,866 | \$ 80,602 | \$ — | \$ 289,965 |



CONSOLIDATING STATEMENTS OF ACTIVITIES, Continued

For the year ended August 31, 2023 (in thousands of dollars)

| | UNIVERSITY | SHC | LPCH | ELIMINATIONS | CONSOLIDATED |
|--|----------------------|---------------------|---------------------|---------------------|----------------------|
| NET ASSETS WITHOUT DONOR RESTRICTIONS (continued) | | | | | |
| CHANGE IN NET ASSETS FROM OPERATING ACTIVITIES | \$ (205,503) | \$ 414,866 | \$ 80,602 | \$ — | \$ 289,965 |
| NON-OPERATING ACTIVITIES: | | | | | |
| Increase (decrease) in reinvested gains | (96,173) | 326,565 | 38,424 | — | 268,816 |
| Donor advised funds, net | (41,846) | — | — | — | (41,846) |
| Current year gifts not included in operations | 822 | — | — | — | 822 |
| Equity and fund transfers, net | 165,453 | (87,862) | (105,332) | 27,741 | — |
| Capital and other gifts released from restrictions | 12,249 | 20,281 | 16,269 | — | 48,799 |
| Pension and other postemployment benefit related changes other than service cost | (7,789) | (1,930) | 623 | — | (9,096) |
| Transfer from (to) net assets with donor restrictions, net | (57,781) | — | 55,747 | (55,747) | (57,781) |
| Swap interest and change in value of swap agreements | 8,454 | 55,155 | — | — | 63,609 |
| Other | 37,527 | (929) | 496 | (36,529) | 565 |
| NET CHANGE IN NET ASSETS WITHOUT DONOR RESTRICTIONS | (184,587) | 726,146 | 86,829 | (64,535) | 563,853 |
| NET ASSETS WITH DONOR RESTRICTIONS | | | | | |
| Gifts and pledges, net | 1,521,106 | 20,884 | 90,423 | 4,135 | 1,636,548 |
| Increase (decrease) in reinvested gains | (252,663) | 3,699 | 19,445 | — | (229,519) |
| Change in value of split-interest agreements, net | 29,596 | — | 1,562 | — | 31,158 |
| Net assets released to operations | (363,511) | (11,213) | (22,796) | — | (397,520) |
| Capital and other gifts released to net assets without donor restrictions | (12,249) | (20,281) | (16,269) | — | (48,799) |
| Gift transfers, net | 39,079 | (258) | (11,080) | (27,741) | — |
| Transfer from (to) net assets without donor restrictions, net | 57,781 | — | (55,747) | 55,747 | 57,781 |
| Other | (3,085) | — | — | — | (3,085) |
| NET CHANGE IN NET ASSETS WITH DONOR RESTRICTIONS | 1,016,054 | (7,169) | 5,538 | 32,141 | 1,046,564 |
| NET CHANGE IN TOTAL NET ASSETS | 831,467 | 718,977 | 92,367 | (32,394) | 1,610,417 |
| Total net assets, beginning of year | 50,406,837 | 6,117,858 | 3,188,669 | (217,895) | 59,495,469 |
| TOTAL NET ASSETS, END OF YEAR | \$ 51,238,304 | \$ 6,836,835 | \$ 3,281,036 | \$ (250,289) | \$ 61,105,886 |



CONSOLIDATING STATEMENTS OF ACTIVITIES

For the year ended August 31, 2022 (in thousands of dollars)

| | UNIVERSITY | SHC | LPCH | ELIMINATIONS | CONSOLIDATED |
|---|-------------------|-------------------|------------------|--------------------|-------------------|
| NET ASSETS WITHOUT DONOR RESTRICTIONS | | | | | |
| OPERATING REVENUES: | | | | | |
| Student income: | | | | | |
| Undergraduate programs | \$ 445,406 | \$ — | \$ — | \$ — | \$ 445,406 |
| Graduate programs | 404,204 | — | — | — | 404,204 |
| Room and board | 267,386 | — | — | — | 267,386 |
| Student financial aid | (401,531) | — | — | — | (401,531) |
| TOTAL STUDENT INCOME, NET | \$ 715,465 | \$ — | \$ — | \$ — | \$ 715,465 |
| Sponsored support: | | | | | |
| Direct costs - University | 959,202 | 12,051 | — | — | 971,253 |
| Direct costs - SLAC National Accelerator Laboratory | 524,943 | — | — | — | 524,943 |
| Indirect costs | 315,562 | — | — | — | 315,562 |
| TOTAL SPONSORED SUPPORT | 1,799,707 | 12,051 | — | — | 1,811,758 |
| Health care services: | | | | | |
| Net patient service revenue | — | 6,922,468 | 2,241,891 | (44,258) | 9,120,101 |
| Premium revenue | — | 75,310 | — | — | 75,310 |
| Physicians' services and support - SHC and LPCH, net | 1,440,263 | — | — | (1,440,263) | — |
| Physicians' services and support - other facilities, net | 45,924 | — | — | (9,306) | 36,618 |
| TOTAL HEALTH CARE SERVICES | 1,486,187 | 6,997,778 | 2,241,891 | (1,493,827) | 9,232,029 |
| TOTAL CURRENT YEAR GIFTS IN SUPPORT OF OPERATIONS | 272,812 | 247 | 5,442 | — | 278,501 |
| Net assets released from restrictions: | | | | | |
| Payments received on pledges | 223,148 | 1,029 | — | — | 224,177 |
| Prior year gifts released from donor restrictions | 71,514 | 5,138 | 4,750 | — | 81,402 |
| TOTAL NET ASSETS RELEASED FROM RESTRICTIONS | 294,662 | 6,167 | 4,750 | — | 305,579 |
| Investment income distributed for operations: | | | | | |
| Endowment | 1,465,657 | 384 | 9,370 | — | 1,475,411 |
| Expendable funds pools and other investment income | 276,518 | 222 | — | — | 276,740 |
| TOTAL INVESTMENT INCOME DISTRIBUTED FOR OPERATIONS | 1,742,175 | 606 | 9,370 | — | 1,752,151 |
| TOTAL SPECIAL PROGRAM FEES AND OTHER INCOME | 539,338 | 395,618 | 101,722 | — | 1,036,678 |
| TOTAL OPERATING REVENUES | 6,850,346 | 7,412,467 | 2,363,175 | (1,493,827) | 15,132,161 |
| OPERATING EXPENSES: | | | | | |
| Salaries and benefits | 4,373,184 | 3,344,920 | 1,163,765 | — | 8,881,869 |
| Depreciation | 487,509 | 269,883 | 94,426 | — | 851,818 |
| Other operating expenses | 1,978,379 | 3,279,571 | 1,099,632 | (1,493,827) | 4,863,755 |
| TOTAL OPERATING EXPENSES | 6,839,072 | 6,894,374 | 2,357,823 | (1,493,827) | 14,597,442 |
| CHANGE IN NET ASSETS FROM OPERATING ACTIVITIES | \$ 11,274 | \$ 518,093 | \$ 5,352 | \$ — | \$ 534,719 |



CONSOLIDATING STATEMENTS OF ACTIVITIES, Continued

For the year ended August 31, 2022 (in thousands of dollars)

| | UNIVERSITY | SHC | LPCH | ELIMINATIONS | CONSOLIDATED |
|--|----------------------|---------------------|---------------------|---------------------|----------------------|
| NET ASSETS WITHOUT DONOR RESTRICTIONS (continued) | | | | | |
| CHANGE IN NET ASSETS FROM OPERATING ACTIVITIES | \$ 11,274 | \$ 518,093 | \$ 5,352 | \$ — | \$ 534,719 |
| NON-OPERATING ACTIVITIES: | | | | | |
| Decrease in reinvested gains | (449,755) | (264,528) | (29,655) | — | (743,938) |
| Donor advised funds, net | 34,611 | — | — | — | 34,611 |
| Current year gifts not included in operations | 5,053 | — | — | — | 5,053 |
| Equity and fund transfers, net | 182,342 | (112,528) | (102,429) | 32,615 | — |
| Capital and other gifts released from restrictions | 30,230 | 11,759 | 29,111 | — | 71,100 |
| Pension and other postemployment benefit related changes other than service cost | 92,527 | (1,549) | (1,474) | — | 89,504 |
| Transfer from (to) net assets with donor restrictions, net | (70,233) | — | 60,531 | (60,531) | (70,233) |
| Swap interest and change in value of swap agreements | 18,542 | 120,324 | — | — | 138,866 |
| Other | 21,641 | 8,031 | 2,302 | (24,686) | 7,288 |
| NET CHANGE IN NET ASSETS WITHOUT DONOR RESTRICTIONS | (123,768) | 279,602 | (36,262) | (52,602) | 66,970 |
| NET ASSETS WITH DONOR RESTRICTIONS | | | | | |
| Gifts and pledges, net | 1,437,387 | 9,178 | 215,571 | 17,002 | 1,679,138 |
| Increase (decrease) in reinvested gains | (1,243,613) | 238 | (12,396) | — | (1,255,771) |
| Change in value of split-interest agreements, net | (59,444) | — | (3,867) | — | (63,311) |
| Net assets released to operations | (294,662) | (7,020) | (19,562) | — | (321,244) |
| Capital and other gifts released to net assets without donor restrictions | (30,230) | (11,759) | (29,111) | — | (71,100) |
| Gift transfers, net | 38,435 | 3,295 | (9,115) | (32,615) | — |
| Transfer from (to) net assets without donor restrictions, net | 70,233 | — | (60,531) | 60,531 | 70,233 |
| Other | (3,737) | (167) | — | — | (3,904) |
| NET CHANGE IN NET ASSETS WITH DONOR RESTRICTIONS | (85,631) | (6,235) | 80,989 | 44,918 | 34,041 |
| NET CHANGE IN TOTAL NET ASSETS | (209,399) | 273,367 | 44,727 | (7,684) | 101,011 |
| Total net assets, beginning of year | 50,616,236 | 5,844,491 | 3,143,942 | (210,211) | 59,394,458 |
| TOTAL NET ASSETS, END OF YEAR | \$ 50,406,837 | \$ 6,117,858 | \$ 3,188,669 | \$ (217,895) | \$ 59,495,469 |



CONSOLIDATING STATEMENTS OF CASH FLOWS

For the year ended August 31, 2023 (in thousands of dollars)

| | UNIVERSITY | SHC | LPCH | ELIMINATIONS | CONSOLIDATED |
|--|---------------------|-------------------|------------------|-------------------|---------------------|
| CASH FLOW FROM OPERATING ACTIVITIES | | | | | |
| Change in net assets | \$ 831,467 | \$ 718,977 | \$ 92,367 | \$ (32,394) | \$ 1,610,417 |
| Adjustments to reconcile change in net assets to net cash provided by (used for) operating activities: | | | | | |
| Depreciation | 502,091 | 262,712 | 89,018 | — | 853,821 |
| Amortization of bond premiums, discounts and other | 25,937 | (4,663) | (2,957) | — | 18,317 |
| Net gains on investments | (1,133,251) | (267,513) | (19,438) | — | (1,420,202) |
| Change in fair value of interest rate swaps | (9,117) | (59,644) | — | — | (68,761) |
| Change in split-interest agreements | 17,914 | — | (1,915) | — | 15,999 |
| Change in deferred tax asset and liability | 5,873 | — | — | — | 5,873 |
| Investment expense for restricted purposes | (15,841) | — | (7,078) | — | (22,919) |
| Gifts restricted for long-term investments | (980,249) | (11,491) | (15,884) | — | (1,007,624) |
| Equity and fund transfers, net | (204,532) | 88,120 | 60,665 | 55,747 | — |
| Gifts of securities and properties | (5,423) | — | — | — | (5,423) |
| Other | 88,402 | — | 181 | — | 88,583 |
| Premiums received from bond issuance | 58,451 | — | — | — | 58,451 |
| Changes in operating assets and liabilities: | | | | | |
| Accounts receivable | (4,011) | (72,394) | (96,262) | — | (172,667) |
| Related party receivable | (43,169) | 41,447 | 1,722 | — | — |
| Pledges receivable, net | (138,463) | (3,305) | 25,549 | (4,135) | (120,354) |
| Prepaid expenses and other assets | (10,307) | (62,393) | (3,702) | — | (76,402) |
| Accounts payable and accrued expenses | 16,272 | 47,707 | 21,556 | — | 85,535 |
| Accrued pension and postretirement benefit obligations | 17,911 | 2,802 | (726) | — | 19,987 |
| Lease liabilities | (23,840) | 68,691 | 1,560 | — | 46,411 |
| Deferred income and other obligations | 69,524 | (22,456) | (36,015) | — | 11,053 |
| NET CASH PROVIDED BY (USED FOR) OPERATING ACTIVITIES | (934,361) | 726,597 | 108,641 | 19,218 | (79,905) |
| CASH FLOW FROM INVESTING ACTIVITIES | | | | | |
| Additions to plant facilities, net | (1,120,237) | (411,295) | (90,151) | — | (1,621,683) |
| Faculty, student and other loans: new loans made | (157,419) | (46,968) | (11,177) | 58,195 | (157,369) |
| Faculty, student and other loans: principal collected | 63,333 | 7,172 | 3,782 | (10,946) | 63,341 |
| Purchases of investments | (15,139,671) | (277,162) | (11,099) | 36,210 | (15,391,722) |
| Sales and maturities of investments | 15,962,058 | 210,276 | 14,022 | — | 16,186,356 |
| Change associated with short term investments | (130,304) | — | — | — | (130,304) |
| Swap settlement payments, net | — | (5,095) | — | — | (5,095) |
| NET CASH PROVIDED BY (USED FOR) INVESTING ACTIVITIES | (522,240) | (523,072) | (94,623) | 83,459 | (1,056,476) |
| CASH FLOW FROM FINANCING ACTIVITIES | | | | | |
| Gifts and reinvested income for long-term purposes | 482,651 | 11,440 | 69,549 | — | 563,640 |
| Equity and fund transfers from Hospitals | 239,456 | (123,044) | (60,665) | (55,747) | — |
| Proceeds from related party housing loans | 58,195 | — | — | (58,195) | — |
| Repayments to related party housing loans | (10,946) | — | — | 10,946 | — |
| Proceeds from borrowing | 768,114 | — | — | — | 768,114 |
| Repayment of notes and bonds payable | (566,252) | (17,078) | (9,110) | — | (592,440) |
| Contributions received for split-interest agreements | 9,791 | — | — | — | 9,791 |
| Payments made under split-interest agreements | (56,651) | — | (803) | — | (57,454) |
| Commercial paper and variable rate debt proceeds (repayments), net | (12,299) | — | — | — | (12,299) |
| Securities lending collateral sold, net | (2,151) | — | — | — | (2,151) |
| Other | (13,446) | (54) | — | — | (13,500) |
| NET CASH PROVIDED BY (USED FOR) FINANCING ACTIVITIES | 896,462 | (128,736) | (1,029) | (102,996) | 663,701 |
| INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS | (560,139) | 74,789 | 12,989 | (319) | (472,680) |
| Cash and cash equivalents, beginning of year | 1,628,703 | 536,803 | 461,814 | (7,425) | 2,619,895 |
| CASH AND CASH EQUIVALENTS, END OF YEAR | \$ 1,068,564 | \$ 611,592 | \$474,803 | \$ (7,744) | \$ 2,147,215 |
| SUPPLEMENTAL DATA: | | | | | |
| Cash and cash equivalents as shown in the <i>Statements of Financial Position</i> | \$ 745,015 | \$ 611,592 | \$ 390,081 | \$ (7,744) | \$ 1,738,944 |
| Restricted cash included in assets limited as to use | 193,732 | — | 75,470 | — | 269,202 |
| Restricted cash included in other assets | 7,473 | — | 9,252 | — | 16,725 |
| Cash and restricted cash included in investments | 122,344 | — | — | — | 122,344 |
| TOTAL CASH AND CASH EQUIVALENTS AS SHOWN ON THE STATEMENTS OF CASH FLOWS | \$ 1,068,564 | \$ 611,592 | \$474,803 | \$ (7,744) | \$ 2,147,215 |
| Interest paid, net of capitalized interest | \$ 185,001 | \$ 81,573 | \$ 33,669 | \$ — | \$ 300,243 |
| Change in payables for plant facilities | \$ 36,265 | \$ 13,343 | \$ (380) | \$ — | \$ 49,228 |
| Right-of-use assets obtained in exchange for lease liabilities | \$ 1,061 | \$ 143,898 | \$ 33,370 | \$ — | \$ 178,329 |

CONSOLIDATING STATEMENTS OF CASH FLOWS

For the year ended August 31, 2022 (in thousands of dollars)

| | UNIVERSITY | SHC | LPCH | ELIMINATIONS | CONSOLIDATED |
|--|---------------------|-------------------|-------------------|-------------------|---------------------|
| CASH FLOW FROM OPERATING ACTIVITIES | | | | | |
| Change in net assets | \$ (209,399) | \$ 273,367 | \$ 44,727 | \$ (7,684) | \$ 101,011 |
| Adjustments to reconcile change in net assets to net cash provided by (used for) operating activities: | | | | | |
| Depreciation | 487,509 | 269,883 | 94,731 | — | 852,123 |
| Amortization of bond premiums, discounts and other | 39,453 | (7,934) | (2,882) | — | 28,637 |
| Net losses on investments | 438,840 | 377,508 | 67,881 | — | 884,229 |
| Change in fair value of interest rate swaps | (21,707) | (139,748) | — | — | (161,455) |
| Change in split-interest agreements | (32,199) | — | 4,026 | — | (28,173) |
| Change in deferred tax asset and liability | (23,182) | — | — | — | (23,182) |
| Investment expense for restricted purposes | (15,275) | (33) | (33,265) | — | (48,573) |
| Gifts restricted for long-term investments | (625,598) | (11,117) | (87,108) | — | (723,823) |
| Equity and fund transfers, net | (220,777) | 109,233 | 55,937 | 55,607 | — |
| Gifts of securities and properties | (22,698) | — | — | — | (22,698) |
| Other | 55,895 | — | (35,214) | — | 20,681 |
| Changes in operating assets and liabilities: | | | | | |
| Accounts receivable | (56,034) | (222,993) | (21,652) | 61,151 | (239,528) |
| Related party receivable | (26,999) | 33,435 | 54,715 | (61,151) | — |
| Pledges receivable, net | (338,686) | 6,983 | 2,819 | (17,002) | (345,886) |
| Prepaid expenses and other assets | (16,544) | (76,145) | 4,572 | — | (88,117) |
| Accounts payable and accrued expenses | 3,670 | 169,342 | 40,006 | — | 213,018 |
| Accrued pension and postretirement benefit obligations | (70,640) | 2,073 | 1,212 | — | (67,355) |
| Lease liabilities | (39,219) | (5,873) | 1,932 | — | (43,160) |
| Deferred income and other obligations | 23,367 | (26,462) | (30,307) | — | (33,402) |
| NET CASH PROVIDED BY (USED FOR) OPERATING ACTIVITIES | (670,223) | 751,519 | 162,130 | 30,921 | 274,347 |
| CASH FLOW FROM INVESTING ACTIVITIES | | | | | |
| Additions to plant facilities, net | (490,801) | (365,946) | (68,273) | — | (925,020) |
| Faculty, student and other loans: new loans made | (179,632) | (45,741) | (20,205) | 66,076 | (179,502) |
| Faculty, student and other loans: principal collected | 77,393 | 10,285 | 5,368 | (15,733) | 77,313 |
| Purchases of investments | (16,501,253) | (955,577) | (34,246) | 24,653 | (17,466,423) |
| Sales and maturities of investments | 17,444,318 | 861,076 | 31,422 | — | 18,336,816 |
| Change associated with short term investments | 111,202 | — | — | — | 111,202 |
| Swap settlement payments, net | — | (19,811) | — | — | (19,811) |
| NET CASH PROVIDED BY (USED FOR) INVESTING ACTIVITIES | 461,227 | (515,714) | (85,934) | 74,996 | (65,425) |
| CASH FLOW FROM FINANCING ACTIVITIES | | | | | |
| Gifts and reinvested income for long-term purposes | 531,865 | 10,272 | 52,970 | — | 595,107 |
| Equity and fund transfers from Hospitals | 212,307 | (100,733) | (55,967) | (55,607) | — |
| Proceeds from related party housing loans | 66,076 | — | — | (66,076) | — |
| Repayments to related party housing loans | (15,733) | — | — | 15,733 | — |
| Proceeds from borrowing | 37,953 | — | 230,594 | — | 268,547 |
| Repayment of notes and bonds payable | (7,898) | (15,581) | (239,898) | — | (263,377) |
| Contributions received for split-interest agreements | 17,676 | — | 2,726 | — | 20,402 |
| Payments made under split-interest agreements | (57,515) | — | (819) | — | (58,334) |
| Securities lending collateral sold, net | (7,696) | — | — | — | (7,696) |
| Other | (7,215) | (4) | (2,182) | — | (9,401) |
| NET CASH PROVIDED BY (USED FOR) FINANCING ACTIVITIES | 769,820 | (106,046) | (12,576) | (105,950) | 545,248 |
| INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS | 560,824 | 129,759 | 63,620 | (33) | 754,170 |
| Cash and cash equivalents, beginning of year | 1,067,879 | 407,044 | 398,194 | (7,392) | 1,865,725 |
| CASH AND CASH EQUIVALENTS, END OF YEAR | \$ 1,628,703 | \$ 536,803 | \$ 461,814 | \$ (7,425) | \$ 2,619,895 |
| SUPPLEMENTAL DATA: | | | | | |
| Cash and cash equivalents as shown in the <i>Statements of Financial Position</i> | \$ 1,355,180 | \$ 536,803 | \$ 401,202 | \$ (7,425) | \$ 2,285,760 |
| Restricted cash and cash equivalents included in assets limited as to use | 81,946 | — | 52,464 | — | 134,410 |
| Restricted cash included in other assets | 12,382 | — | 8,148 | — | 20,530 |
| Cash and restricted cash included in investments | 179,195 | — | — | — | 179,195 |
| TOTAL CASH AND CASH EQUIVALENTS AS SHOWN ON THE STATEMENTS OF CASH FLOWS | \$ 1,628,703 | \$ 536,803 | \$ 461,814 | \$ (7,425) | \$ 2,619,895 |
| Interest paid, net of capitalized interest | \$ 177,281 | \$ 79,701 | \$ 29,235 | \$ — | \$ 286,217 |
| Change in payables for plant facilities | \$ 17,556 | \$ 10,624 | \$ (2,880) | \$ — | \$ 25,300 |
| Right-of-use assets obtained in exchange for lease liabilities | \$ 135,465 | \$ 27,892 | \$ 9,479 | \$ — | \$ 172,836 |

**Schedule of Expenditures of Federal Awards
Part A, Award Expenditures by Federal Program**

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2023

| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass-through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|---|--|---|--|----------------------------|
| Research and Development Cluster | | | | | \$954,778,125 |
| Department of Agriculture | | | | | \$1,077,807 |
| 10.001 | Investigating Risk Factors of Rift Valley Fever Virus Direct Transmission in Kenya | | | \$15,000 | \$157,747 |
| 10.025 | Differential Phase Contrast X-ray Imaging for Automated Detection of Pests in Plants using Artificial Intelligence | | | | \$288,479 |
| 10.167 | A Comparative Analysis of the Performance of Benchmark Price Regulation for Agricultural Commodities | | | | \$63,689 |
| 10.310 | DSFAS: Stakeholder-engaged modeling, data science, and machine learning for more resilient and sustainable animal protein food systems | Colorado State University | G-40584-01 | | \$10,637 |
| 10.310 | Gut microbiota processing of dietary small molecules and impact on host biology | | | | \$348,495 |
| 10.310 | NRI: FND: COLLAB: Multi-Vehicle Systems for Collecting Shadow-Free Imagery in Precision Agriculture | | | | \$126 |
| 10.310 | Social Dimensions And Institutional Effectiveness Of Collaborative Stewardship With Native Nations Of A Forest Agroecosystem In California | | | | \$15,866 |
| 10.310 | Sustainability of Groundwater and Irrigated Agriculture in the Western United States under a Changing Climate | University of California, Davis | A22-1253-S003/2021-68012-35914 | | \$37,824 |
| 10.310 | Tobamovirus Delivered Pooled Perturbation Libraries For Single Cell Functional Genetics | | | | \$95,474 |
| 10.604 | Preserving Sulfuryl Fluoride for Durable Exports to the European Union | California Prune Board | PN 22-08 | | \$59,470 |
| Department of Commerce | | | | | \$301,964 |
| 11.417 | Advancing an early warning system for California beach water quality with forecasting and nowcasting at data poor beaches | University of Southern California | 129407615/PO10888075 | | \$29,560 |
| 11.472 | Emergent satellite technology-Block NOAA | | | \$2,506 | \$159,472 |
| 11.609 | Data Analytics for Additive Manufacturing | | | | \$112,032 |
| Department of Defense | | | | | \$86,507,508 |
| 12.300 | 20-00000470 HYPERVIPER: Broadband Hyperspectral Imaging System | | | | \$113,699 |
| 12.300 | A Collaborative System for Source Aggregation, Creation, and Dissemination | | | | \$167,117 |
| 12.300 | A CyberOctopus that Learns, Evolves, and Adapts | University of Illinois at Urbana Champaign | 095643-17469 | | \$441,390 |
| 12.300 | Accessible Machine Learning for Misinformation and Influence Operation Analysis | | | | \$233,280 |
| 12.300 | Achieving Thermal Management in IMPATT and CAVETS for RF Operations | | | | \$104,779 |
| 12.300 | AI Nets: Predicting Actions and Inferring Intentions of Groups of Targets with a Network of Surveillance Robots | | | \$153,507 | \$319,636 |
| 12.300 | Analysis and Design of Optical-Acoustic Techniques to Approach Fundamental Limits of Detection across Dynamic Air-Water Interfaces | | | | \$360,042 |
| 12.300 | Application of Macroscopic Forcing Method in quantification of Eddy Diffusivity fields in Subsurface and Near-surface Turbulent Wakes | | | | \$127,992 |
| 12.300 | Beyond Right and Wrong: Validity, Confidence, and Tradeoffs in the Modern Machine Learning Lifecycle | | | | \$115,887 |
| 12.300 | Center for Self-Assembled Organic Electronics | Pennsylvania State University | 6118-SU-ONR-2453 | | \$510,882 |
| 12.300 | Center for Turbulence Research Summer Program | | | | \$2,122 |
| 12.300 | Competing energy cascades associated with seasonally-varying subsurface turbulence in the North Pacific Subtropical Countercurrent | | | | \$153,070 |
| 12.300 | Complex Experiments for a Complex World | | | | \$246,239 |
| 12.300 | Compositional Scene Understanding with Self-Supervised Object-Centric Dorsal-Ventral Neural Networks | University of California, Berkeley | 00010802 / PO BB01667138 | | \$509,076 |
| 12.300 | Covid-19: ViroMeter: A portable health assessment device for viral transmission control | | | | \$23,037 |
| 12.300 | Data Geometry, Semantics, and Information | | | | \$194,246 |
| 12.300 | Data-Driven Input-Output Models for Reacting, High-Enthalpy Flows | | | | \$109,277 |
| 12.300 | Deep Signal Processing for Machine Learning Models | | | | \$65,682 |
| 12.300 | Determination of a RANS Model Form for Incompressible Wall-bounded Turbulent Flows using the Macroscopic Forcing Method and Validation on a Prolate Sphere | | | | \$155,222 |
| 12.300 | Developing next generation AI vision systems by characterizing and exploiting untapped primate visual processing circuit motifs | Massachusetts Institute of Technology | S5122/PO#496218 | | \$196,135 |
| 12.300 | Development of GaN and AlGaN growth platform for achieving 3.3-20kV power devices | | | | \$226,864 |
| 12.300 | Development of Multi-functional Composite UAV Structures for Urban Operations | | | | \$13,211 |
| 12.300 | Development of Validated Hypersonic Plasma Kinetics Models Including Atomic Excitation | University of Colorado, Boulder | 1563127/PO 1001800582 | | \$139,493 |
| 12.300 | Diffusion and Learning Models | | | | \$76,047 |
| 12.300 | Discovering and Modeling Turbulence and Chemistry Interactions in High Speed Reactive Flows | University of Michigan | SUBK00014012 / PO 3006515445 | | \$202,970 |
| 12.300 | Dissecting the Neural Circuit Basis for Volition: A New Framework for Brain-Machine Interfaces, Artificial Neural Networks, Robotics, and Shaping of Intentional and Habitual Actions | | | | \$104,096 |
| 12.300 | Dissipative quantum dynamics and error-correction with quantum acoustics | | | | \$316,307 |
| 12.300 | Emergent light-matter interactions through twisted atomic and photonic crystals | Vanderbilt University | OSAO0000256/PO P24005110 | | \$17,536 |
| 12.300 | Engineering and design to enhance heart rate detection in cetacean-borne tags | | | | \$35,699 |
| 12.300 | Enhancing Mechanical and Combustion Properties of Boron/Polymer Composites via Engineered Interfacial Chemistry | | | | \$147,105 |
| 12.300 | Establishing Gordian Knot Center at Stanford University | | | | \$1,280,185 |
| 12.300 | Examining Solar Flux Emergence to Search for Signatures of the Undular Instability and Interactions with Convection | | | | \$3,966 |
| 12.300 | Extraordinary Electronic Switching of Thermal Transport | University of Texas at Austin | UTA21-000335 | | \$259,494 |
| 12.300 | Facilities and Instrumentation for Study of Turbulence-Chemistry Interactions in High-Speed, Compressible Flows | | | | \$10,664 |
| 12.300 | Fast Re-routing Using Machine Learning | | | | \$94,605 |
| 12.300 | Flexible Vision-Based Robotic Manipulation via Meta Learning and Deep Reinforcement Learning | | | | \$188,260 |
| 12.300 | Flexible Vision-Based Robotic Manipulation via Meta-Learning and Deep Reinforcement Learning | | | | \$212,662 |
| 12.300 | Frugal, Lifelong-Learning Control Systems with Execution Guarantees | University of California, Berkeley | 00010920/N00014-22-1-2121 | | \$117,104 |
| 12.300 | Fundamental Studies and Applications of Spin-Orbit Interactions of Light | Boston University | 4500003519 | | \$256,274 |
| 12.300 | Game-theoretic mechanisms for group decision making | | | | -\$2,240 |
| 12.300 | Hacking for Defense 2.0 for ONR NEPTUNE and NURP Programs | | | | \$833,933 |
| 12.300 | Harnessing Human Intelligence for Adaptive Human-Robot Collaboration | | | \$178,148 | \$481,089 |
| 12.300 | High-Assurance Cryptography | | | -\$11,260 | -\$11,260 |
| 12.300 | High-fidelity numerical simulation to understand the physics of surface/internal gravity wave interactions | | | | \$100,111 |

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2023

| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass-through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|--|---|---|--|----------------------------|
| 12.300 | HPRM-Based Integrated Flight and Aeroelastic Control Technology (IFACT) for Carrier Landing | | | | \$59,522 |
| 12.300 | Identity Signals for Enabling Participatory Governance | | | \$13,533 | \$254,109 |
| 12.300 | Improving Neural Networks with (and for) Computational Physics | | | | \$145,741 |
| 12.300 | Inertial Sensors Using Optically Levitated Microscopic Objects | Yale University | CON-80004489 (GR120639) | | \$282,419 |
| 12.300 | Integrated Harvesting and Storage of Oxygen from Seawater Using Efficient Bipolar Membrane Electrolysis, Impurity Tolerant Electrocatalysts, and Designer Metal Organic Frameworks | University of Oregon | 234640A | | \$127,265 |
| 12.300 | Intentional multi-modal self-learning to perceive and understand the real world | Massachusetts Institute of Technology | S5847 PO #830483 | | \$402,153 |
| 12.300 | Interpretable End-to-End Streaming Inference in Multi-Agent Environments | | | | \$166,662 |
| 12.300 | Investigating Magnetic Flux Rope Emergence as the Source of Flaring Activity in Delta-Spot Active Regions | | | | \$954 |
| 12.300 | Investigation of Deep Learning for Solid and Fluid Simulations | | | | \$28,410 |
| 12.300 | JTO MRI: Power Scalable Electrically Driven Monolithic IR Surface Emitting Semiconductor Lasers | University of Texas at Arlington | 126060159062 | | \$55,197 |
| 12.300 | Learning for Dynamics, and Control (L4DC) | | | | -\$6,572 |
| 12.300 | Learning to Prevail: Communication in Contested and Adversarial Environments | Princeton University | PO#SUB0000618 | | \$86,727 |
| 12.300 | Learning, Leveraging, and Influencing Representations for Interactive Autonomy | | | | \$112,033 |
| 12.300 | Measuring heart rate to assess the stress response in large whales | | | \$51,940 | \$62,286 |
| 12.300 | Mechanically robust polymer encapsulation material for polymer electronics | | | | \$19,455 |
| 12.300 | Metal Organic Chemical Vapor Deposition of Group III - Nitrides at High Temperature and High Growth Rate | | | | \$443,886 |
| 12.300 | Millimeter-Wave Cavity-QED for Scalable Quantum Gates with Rydberg Atoms | | | | \$304,872 |
| 12.300 | Multi-channel spectrum analyzer for component characterization with fast and accurate noise figure measurements | | | | -\$12,931 |
| 12.300 | Multiphase Detonation of Liquid Aeropropulsion Fuels | | | \$288,327 | \$491,894 |
| 12.300 | Nacre-Like Energetic Polymer Composites with 2D Metallic Nanosheets | | | | \$192,238 |
| 12.300 | Nano Ceramic Additive Manufacturing of IR Sensor Domes | | | | \$18,449 |
| 12.300 | Navigating the Space of Chemical Reactions From First Principles | | | | \$191,815 |
| 12.300 | Next generation near infrared interference coatings with ultra-low stress and losses for deformable mirror applications | Colorado State University | G-01705-01 | | \$95,652 |
| 12.300 | Next-generation AI Vision SoCs for Spatially Aware Autonomous Naval Systems | | | | \$25,481 |
| 12.300 | Non-reciprocal photonic gauge potential and non-equilibrium thermal metaphotonics for the control of light and heat | | | | \$214,842 |
| 12.300 | N-Polar GaN CAVETs for higher power densities at mm-wave operations | | | | \$201,486 |
| 12.300 | N-Polar Nitride Vertical devices for RF application | | | | -\$33,598 |
| 12.300 | Numerical Simulation of Hypervelocity Impact Induced Phenomena | | | | \$47,503 |
| 12.300 | Photomechanical Material Systems: From Molecules to Devices | University of Massachusetts Amherst | 18-010467 D 04 | | \$146,522 |
| 12.300 | Physically Robust Metasurfaces for High Power Optoelectronics Applications | | | | \$198,198 |
| 12.300 | Qualifying the effect of anthropogenic noise sources on cetacean fine-scale diving biomechanics and its energetic and physiological implications | Kelp Marine Research | 22_2735_001/N00014-22-1-2735 | | \$22,203 |
| 12.300 | Rapid-Tuning Laser Systems for Spectrally-Resolved Diagnostics of High-Enthalpy Flows | | | | -\$19,868 |
| 12.300 | Refraction and Reflection of Nonlinear Internal Waves from Steep Topography | | | | \$54,276 |
| 12.300 | Robot Learning from Internet-Scale Data | | | | \$163,783 |
| 12.300 | ROXSI: ROcky shores eXperiments and Simulations | University of California, San Diego | KR 704624 | | \$47,374 |
| 12.300 | Scalable generation and control of large quantum states of light and matter in engineered semiconductor materials | | | | \$769,847 |
| 12.300 | Sensing quantum vacuum fluctuations from correlated materials (21-000000580) | | | | \$137,016 |
| 12.300 | Spectrally-Resolved Laser Diagnostics for High-Enthalpy Flow Measurements | | | | \$52,920 |
| 12.300 | Spectrally-Resolved Laser Diagnostics for High-Enthalpy Flow Sensing | | | | \$199,748 |
| 12.300 | Surface breakdown and plasma formation in cross-field high power microwave sources | | | | \$213,234 |
| 12.300 | Synthesis Planning and Reaction Discovery For Photochemistry and Chemistry in Novel Environments | | | \$484,810 | \$1,481,160 |
| 12.300 | Synthetic Nucleic Acid Nanoparticles for RNA Structural & Synthetic Biology | Massachusetts Institute of Technology | S4989 PO #429177/N000142012084 | | \$35,816 |
| 12.300 | The role of mesoscale strain in the near-surface decay and propagation of high-mode near-inertial wave energy | | | | \$104,754 |
| 12.300 | Top-Down And Bottom-Up Brain Mechanisms At Multiple Spatial And Temporal Scales: Experimental Investigation And Computational Modeling | | | -\$73 | -\$799 |
| 12.300 | Tracking, Diagnosing and Arresting Dielectric Breakdown Using Multiscale Characterization and Simulations | University of Connecticut | PO# 163166/KFS# 5641050 | | \$194,603 |
| 12.300 | Trusted Machine Learning: Statistical Tools for Making the Black Box Effective | | | | \$264,309 |
| 12.300 | Uncertainty quantification in high dimension: Sampling and noisy debiasing | | | | \$103,364 |
| 12.300 | Uncertainty-aware Learning with Generative Models | | | | \$82,617 |
| 12.300 | Understanding & Controlling Oxygen Release in Anionic Redox Cathodes | | | | \$137,044 |
| 12.300 | Understanding and Applying Non-Euclidean Geometry in Machine Learning | | | | \$103,934 |
| 12.300 | Visual Reasoning via Spatio-temporal Scene Graphs | | | | -\$1,011 |
| 12.300 | W-Band GaN IMPATT Devices | QuinStar Technology, Inc. | PO 61685 | | \$143,971 |
| 12.300 | XASEM for Surface Chemical Imaging Approaching Atomic-Scale Precision | | | | \$180,687 |
| 12.300 | YIP-DREAM: Dimension Reduction for Efficient Automated Machine Intelligence | | | | \$183,589 |
| 12.300 | Elements of Causal Learning: Basic Concepts, Theory, Methods, Algorithms and Applications | Temple University | 264443-SU P0592977 | | \$63,595 |
| 12.330 | 20-000000630: Enhancing STEM educational experience in marine science and technology with a novel at-sea program | | | \$185,362 | \$212,334 |
| 12.351 | A basic research pipeline for discovery and early preclinical development of host-targeted antiviral strategies to combat encephalitic alphaviruses | | | \$119,734 | \$402,588 |
| 12.351 | An integrated multi-scale camouflaging platform for cloaking immunogenicity and evading non-specific clearance of therapeutic proteins | Cornell University | 90425-22688 | | \$1,980 |
| 12.351 | Development of biologic countermeasures for saxitoxin (STX) poisoning | University of California, San Francisco | 12761sc | | \$405,154 |
| 12.351 | High-resolution characterization of saxitoxin (STX) recognition | University of California, San Francisco | 11791sc | | \$297,113 |
| 12.40 | Reprogramming the tumor microenvironment to enhance anti-tumor immunity and improve hearing in NF2 vestibular schwannoma | Massachusetts General Hospital | 236462 | | \$59,286 |
| 12.420 | A Comprehensive Approach to Whole Eye Transplantation: Building a Scientific Foundation for New Therapies in Vision Restoration | University of Colorado Denver | FY21.1065.003 // 2-5-A9627 | | \$53 |

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2023

| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass-through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|---|-------------------------------------|---|--|----------------------------|
| 12.420 | A HyTEC Implantable Device That Enables Personalized, Sustained Release of Bioagent for Large Bone Defect Reconstruction and Limb Salvage | | | \$52,789 | \$477,564 |
| 12.420 | A Modeling-Based Personalized Screening Strategy Combining Circulating Biomarker and Imaging Data for Breast Cancer Early Detection | | | | \$228,127 |
| 12.420 | A Phase IIB, randomized, placebo-controlled, multicenter study of the comparative efficacy and safety of transendocardial injection of allogeneic mesenchymal stem cells versus placebo in patients with non-ischemic dilated cardiomyopathy (DCM II Trial) | University of Miami | OS00000030 // PO SPC-002510 | | \$100,405 |
| 12.420 | Abnormal Dynamic Visual Function and Associated Symptomatology in Mild Traumatic Brain Injury | | | | \$500,086 |
| 12.420 | Aerosol Delivery of CPZEN-45 for Treatment of Nontuberculous Mycobacterial (NTMs) Infections | PAI Life Sciences Inc. | CPZEN-D-1_Stanford | | \$10,291 |
| 12.420 | An Integrative Radiogenomic Framework for Predicting Treatment Failure in Children, Adolescents, and Young Adults with Hodgkin Lymphoma | | | | \$484,919 |
| 12.420 | Analyzing EBV Genomes and Epigenomes and EBV-Dependent B Cell Proteomes to Identify Fundamental Viral Triggers of MS | | | | \$22,330 |
| 12.420 | Androgen Deprivation Therapy-Mediated Cardiovascular Disease and Vascular Aging in Men with Prostate Cancer: Racial Difference and Role of NAD | Augusta University | 38656-2 | | \$635 |
| 12.420 | Basis for Visual Impairment in Multiple Sclerosis: Beyond Retinal Ganglion Cells. | | | | \$46,050 |
| 12.420 | Biomarker driven targeted therapy for late-recurring ER-positive breast cancer. | | | \$191,733 | \$311,386 |
| 12.420 | Biomarker driven targeted therapy for late-recurring ER-positive breast cancer. | | | | \$340,663 |
| 12.420 | Brain neuropeptide signaling and autism spectrum disorder | | | | \$370,051 |
| 12.420 | Central lateral thalamic circuitry abnormalities in traumatic brain injury and Alzheimer's disease | | | | \$129,901 |
| 12.420 | Coaxing Senescence in Retroperitoneal Liposarcomas | | | | \$93,843 |
| 12.420 | Combination nitazoxanide and auranofin treatment for anaplastic thyroid cancer | | | | \$15,932 |
| 12.420 | Combining Radiotherapy and CD47 Blockade to Induce Macrophage-Mediated Abscopal Effects Against Lung Cancer | | | | \$273,749 |
| 12.420 | Defining the regulation of GD2 expression to enhance immunotherapy for neuroblastoma | | | \$70,542 | \$126,685 |
| 12.420 | Detecting Cartilage Surface Degeneration using Photon Counting CT and Solute Transport Modeling | | | | \$88,771 |
| 12.420 | Detecting Relapse Causing Populations at the time of Diagnosis in B-cell Progenitor Acute Lymphoblastic Leukemia | | | | \$120,232 |
| 12.420 | Determining the Predictive Value, Functional Role, and Mechanisms of Action of NUSAP1 in Clear Cell Renal Cell Carcinoma | | | | \$99,141 |
| 12.420 | Development of Non-Genotoxic Hematopoietic Stem Cell Transplantation Regimens for Fanconi Anemia | | | | \$246,733 |
| 12.420 | Development of novel cardiac myocyte-specific AAV capsids | | | | \$91,210 |
| 12.420 | Development of PROTAC Degradable for VHL Synthetic Lethal Partner FTO in Clear Cell Renal Cell Carcinoma | | | | \$70,351 |
| 12.420 | Elucidating early events in HGSC pathogenesis: A single cell multi-omics approach to robustly trace cell lineage, clonality and phenotypes of TP53-mutated cells | | | | \$156,891 |
| 12.420 | Exosomes as a Reliable Noninvasive Method for Monitoring VCA Graft Rejection | | | | \$190,292 |
| 12.420 | Exploring the role of Manganese and Mn-dependent Metabolic Pathways in Myalgic Encephalomyelitis/Chronic Fatigue Syndrome. | | | | \$581,939 |
| 12.420 | Hybrid bone-tendon grafts for enhanced tendon healing | | | \$113,413 | \$336,796 |
| 12.420 | Identification and Therapeutic Targeting of a Novel Cell Population in Rejection of Vascularized Composite Allotransplantation | | | | \$339,001 |
| 12.420 | Identification of Siglec-9 ligand for T cell immunoevasion in advanced prostate cancer | | | | \$168,990 |
| 12.420 | Identification, Characterization, and Correction of a Defect in Treg Function in SLE | | | | \$313,687 |
| 12.420 | Imaging and Exosomal Genomics as an Early Identifier of Lung Cancer | | | \$96,072 | \$521,237 |
| 12.420 | Improving Voluntary Engagement for PTSD Treatment Among Soldiers | University Of Washington | UWSC11285; BPO 41961 | | \$1,782 |
| 12.420 | Integrated Immunophenotypic, Transcriptomic, and Epigenomic Characterization of Uterine Mesenchymal Neoplasms with Expert Pathologist Panel Review | | | | \$13,459 |
| 12.420 | Intraocular Microdisplay Projection for Vision Restoration After Corneal Blindness | | | | \$109,090 |
| 12.420 | Intraoperative Imaging of Cavernous Nerves in Radical Prostatectomy for Prostate Cancer | Emory University | A755639 | | \$115,808 |
| 12.420 | Isolation and Engineering of Potent Anti-EBV Neutralizing Antibodies for the Treatment of MS | | | | \$15,168 |
| 12.420 | Just-in-Time, Single-Dose, Universal Anti-Influenza A Virus Therapeutic | | | | \$960,482 |
| 12.420 | Local and Systemic Analysis of Immune Responses in Pancreatitis Patients | | | \$25,036 | \$142,465 |
| 12.420 | Mechanisms and Treatment Development for Pancreatitis Resulting from Alcohol Abuse and Smoking | Cedars-Sinai Medical Center | 0001621388 | | \$279,252 |
| 12.420 | Miniature Intracochlear Imaging Probe Based on Micro Optical Coherence Tomography for Cellular-Level Diagnosis and Therapy of Hearing Loss | | | \$251,047 | \$419,762 |
| 12.420 | Multicenter Randomized Trial of Everolimus in Pediatric Heart Transplantation - CCC | Boston Children's Hospital | GENFD0001901925 | | \$201,396 |
| 12.420 | Multiplexed Imaging to Improve and Define Diagnosis and Subsequent Treatment for Patient Suffering from Gulf War Illness Using CyTOF and Codex | | | | \$30,312 |
| 12.420 | NAK Inhibitors for Combating Dengue, Ebola, COVID-19, and Other Emerging Viral Infections | | | \$103,412 | \$386,901 |
| 12.420 | Nasal Oxytocin for the Treatment of Post-TBI Chronic Headache: Influence of Estrogen | | | | \$128,446 |
| 12.420 | Novel Biomarkers to Direct Stereotactic Ablative Radiotherapy in Castration-Sensitive Oligometastatic Prostate Cancer | University of Maryland, Baltimore | 20937 PO #10000014916 | | \$4,008 |
| 12.420 | Novel Strategies to Combat Post-Traumatic Osteoarthritis (PTOA) | | | \$1,531,387 | \$2,803,775 |
| 12.420 | Optimizing a Novel Intraductal Delivery of Calcineurin Inhibitors as a Radiocontrast Infusion Formulation to Prevent Post-ERCP Pancreatitis | | | \$8,455 | \$553,884 |
| 12.420 | Photovoltaic Substitute for the Lost Photoreceptors in Retinal Injury or Degeneration | | | | \$544,135 |
| 12.420 | PROSPECTIVE, RANDOMIZED, PLACEBO-CONTROLLED PHASE II TRIAL OF ASPIRIN FOR VESTIBULAR SCHWANNOMAS | Massachusetts Eye and Ear Infirmary | 16-0231 / 2300179 | | \$3,226 |
| 12.420 | Randomized Controlled Trial of Telehealth-Enabled Versus In-Person Parent-Mediated Behavioral Treatment for Challenging Behaviors in Autism Spectrum Disorder | | | \$128,869 | \$459,827 |
| 12.420 | Relating the interplay of tumor function and host response to clinical outcome in triple negative breast cancer | | | | \$1,200,135 |
| 12.420 | Covid-19: Repurposing of Pan-ErbB Inhibitors to Protect from Coronavirus Infection, Inflammation and Lung Injury | | | \$19,789 | \$222,653 |
| 12.420 | Revealing and targeting lipidomic vulnerabilities to treat early-stage melanoma | | | | \$13 |
| 12.420 | Revealing the potential for mSWI/SNF as biomarkers in breast cancers | | | | \$139,971 |

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass-through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|---|---|---|--|----------------------------|
| 12.420 | RSK3-mAKAP Targeting as a New Therapeutic Strategy for Heart Failure with Preserved Ejection Fraction in Women | | | | \$1,319 |
| 12.420 | Selective inhibition of pathological mitochondrial fission to improve mitochondrial function and inhibit neurodegeneration and neuroinflammation in ALS | | | | \$560,551 |
| 12.420 | Targeting Circadian Control of Oligodendrocyte Lineage Cell Dynamics for Remyelination | | | | \$352,184 |
| 12.420 | Targeting Metastatic Breast Cancer with Copper Trap Assembled in Situ | | | | \$5,497 |
| 12.420 | Targeting the Plasmodium Proteasome for Prophylaxis and Treatment of Drug-Resistant Malaria in U.S. Military Personnel | | | \$147,702 | \$287,747 |
| 12.420 | Targeting Unusual Nutrient Acquisition Routes of Nutrient-Deprived Cancers | | | | \$3,032 |
| 12.420 | The Regenerative Medicine for EB and related Diseases at Stanford (REMEDIS) Center | | | | \$2,166,510 |
| 12.420 | Towards better understanding and predicting severe dengue. | | | | \$104,781 |
| 12.420 | Tracking sarcoma response and resistance to radiation therapy | | | | \$191,679 |
| 12.420 | Treatment Options for Metastatic Osteosarcoma | Dana-Farber Cancer Institute | 3092501 | | \$154,483 |
| 12.420 | Understanding and targeting pulmonary arteriovenous malformations using repurposed drugs | | | | -\$3,371 |
| 12.420 | Understanding the Prognostic Impact of NK Cell Heterogeneity in Melanoma | | | | \$226,605 |
| 12.431 | 3D Object and Scene Variation Synthesis for Learning Algorithms (Topic:k.Artificial Intelligence and Machine Learning) | | | | \$350,389 |
| 12.431 | A Multimodal Approach to Network Information Dynamics | University of Illinois at Urbana Champaign | 100440-17936 | | \$480,917 |
| 12.431 | Associative memory using glassy confocal cavity QED | | | | \$294,054 |
| 12.431 | Cavity Tweezer Arrays for Quantum Networking | | | | \$118,298 |
| 12.431 | Characterizing and Mitigating Phononic and Photonic Poisoning in Solid-State Qubits | Syracuse University | 33116-06386-S02 | | \$60,966 |
| 12.431 | CHARMME: Center for Harnessing Microbiota from Military Environments | Massachusetts Institute of Technology | s6005, PO #932546 | | \$20,661 |
| 12.431 | Collaborative Agreement: Collaborative for Hierarchical and Agile Resonant Materials (CHARM) | University of California, Berkeley | 00011223 // PO BBo1662340 | | \$150,021 |
| 12.431 | Critical Infrastructure Resilience: Define, Match, Measure, and Enforce | | | | \$21,784 |
| 12.431 | Efficient, Robust and Reliable Neural Networks for Multimodal and Synthetic Data: A Sparse Representation Perspective | | | | \$46,195 |
| 12.431 | Hardware-Efficient Computing with Quantum Acoustics | California Institute of Technology | S387326 | | \$60,067 |
| 12.431 | High Pressure Deformation Mechanisms in Lightweight Alloys | | | | \$126,857 |
| 12.431 | Impacts of Stress History on the Mechanical Properties of Sediment Beds | Yale University | CON-80004284(GR119104) | | \$22,579 |
| 12.431 | Integrated Quantum Optomechanical Transducers for Networking Microwave Quantum Machines | | | | \$32,416 |
| 12.431 | Interactive Human-AI Teaming for AI Model Development, Debugging and Repair | | | | \$675,835 |
| 12.431 | Ladderene-Based Polymechanophores: From Understanding Mechanotransduction to Developing Materials with Amplified Force-Response | | | | \$128,121 |
| 12.431 | Laser and Imaging Systems for the Study of High-Temperature Laminar Flames in Shock Tubes | | | | \$5,604 |
| 12.431 | Learning and Influencing Conventions in Human-Machine Collaboration | | | | \$75,950 |
| 12.431 | Learning Robust Classifiers from Small Data using Generative Models | | | | \$90,748 |
| 12.431 | MURI: Robust entanglement distribution in quantum networks - network science and architectures for novel quantum information processing | University of California, Los Angeles | 0160 G ZB340 | | \$49,038 |
| 12.431 | Near-Field Radiative Heat Transfer and Energy Conversion in Nanogaps of Nano- and Meta-Structured Materials | University of Michigan | SUBK00010159 / PO 3005531165 | | \$103,972 |
| 12.431 | Optimizing Range and Velocity Sensing with Computational Single-photon Imaging | | | | \$185,601 |
| 12.431 | PECASE W911NF-12-R-0012-04: Answering High-Level Questions on Low-Level Data | | | | \$206,992 |
| 12.431 | Quantum Simulation of Frustrated Magnets by Rydberg Dressing | | | | -\$3,531 |
| 12.431 | Quantum State Control of Molecular Collision Dynamics | University of Missouri | C00064278-5 | | \$99,865 |
| 12.431 | Reconfigurable functional materials | | | | \$168,005 |
| 12.431 | Regaining Control in Reinforcement Learning | | | \$47,470 | \$134,136 |
| 12.431 | Resource Allocation in Slow Growing Methanogenic Archaea | | | | \$119,395 |
| 12.431 | Robust Entanglement-Enhanced Metrology with Atoms and Solid-State Spins | | | \$964,920 | \$1,345,776 |
| 12.431 | SCAN: Socio-Cultural Attitudinal Networks | University of Maryland at College Park | 38796-Z8424103 | | \$50,507 |
| 12.431 | Semantic Information Pursuit for Multimodal Data Analysis | Johns Hopkins University | 2003514594 | | \$206,975 |
| 12.431 | Simultaneous Surface Color and Texture Changes Enabled by Liquid Crystal Elastomers | | | | \$33,342 |
| 12.431 | Synthesis of Novel Energetic Graphene-Stabilized-Metal Fluoropolymer Composites and Study of their Interfaces and Reactions | Rutgers, The State University of New Jersey | PO 25316867 / SUB00002601 | | \$29,810 |
| 12.431 | The Army Synthetic Biology Center for Predictive Materials Design (PreMaDe) | Northwestern University | 60063525 | | \$37,814 |
| 12.431 | W911NF-12-R-0011-04: Towards a process-based understanding of sediment degassing and ramifications for the mechanical stability of permafrost, Earth Material and Processes | | | | \$181,211 |
| 12.630 | Building a self-sustaining microgrid for remote communities and military bases | | | \$1,095,000 | \$1,406,468 |
| 12.630 | Internet of Battlefield Things (IoBT) | University of Illinois | 088831-18416 | | -\$32,241 |
| 12.750 | Center for Global Health Engagement Research: Comparing Hospital Hand Hygiene in Liberia: Soap, Alcohol & Hyochlorite | Henry M Jackson Foundation for the Advancement of Military Medicine | CON000573 // PO 1037020 | | -\$128 |
| 12.750 | Proj 6-Preclinical Validation of Photobiomodulation Therapy for Sensorineural Hearing Loss | Massachusetts General Hospital | 235508 | | \$439,994 |
| 12.800 | (DURIP) High Framing Rate Camera and Superconducting Magnet for the Study of Magnetized Plasmas | | | | \$172,510 |
| 12.800 | (YIP) Engineering Biomolecular Actuators from Ion-Responsive Repeat Proteins | | | | \$145,212 |
| 12.800 | 265604_AFOSR_R.Zhao - Pixelized Composites with Programable Stiffness | | | | \$38,846 |
| 12.800 | Distribution for Acoustic Wave Manipulation | | | | |
| 12.800 | A Robust Multi-Physics Design Analysis and Optimization Framework for Hypersonic Systems Grounded in Rigorous Model Reduction | | | \$863,797 | \$1,694,586 |
| 12.800 | A Theory-Based Concept Learning Framework for Perception, Reasoning, and Planning | | | | \$10,692 |
| 12.800 | Adaptive Conventions for Trustworthy Human-Robot Interaction | | | | \$141,189 |
| 12.800 | An Architecture for Normative, Explainable, and Justified Agency | | | | \$146,539 |
| 12.800 | ANSRE: ANalysis and Synthesis of Rare Events | | | \$962,339 | \$1,805,445 |

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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass-through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|---|--|---|--|----------------------------|
| 12.800 | Autonomous Distributed Angles-Only Orbit Determination using Multiple Observers | | | | \$95,682 |
| 12.800 | Brain-Inspired Networks for Multi-functional Intelligent Systems in Aerial Vehicles | University of California, Los Angeles | 0205 G XA211 | | \$126,947 |
| 12.800 | Cavity Tweezers for Quantum Information Science and Simulation | | | | \$409,092 |
| 12.800 | Complexity-theoretic foundations of quantum advantage experiments | | | | \$158,653 |
| 12.800 | Dilution Cryostat for quantum addressable memory | University of Chicago | AWD103310 | | \$472,120 |
| 12.800 | Dynamical optical lattices of dysprosium | | | | \$61,360 |
| 12.800 | Effects of disorder on electronic properties near nematic quantum phase transitions: model systems to explore fundamental physics relevant to the discovery of new superconducting phases | | | | \$288,129 |
| 12.800 | Embedded Boundary Methods with Stability, Accuracy, and Smoothness Guarantees for Multidisciplinary Design, Analysis and Optimization | | | | \$190,964 |
| 12.800 | Emergent Phenomena via Magnetism and Topology | | | | \$29,655 |
| 12.800 | Evaluation of Aerothermochemistry Models Through Sensitivity Analysis and LowUncertainty Experiments | University of Colorado, Boulder | 1560116 // PO 1001441567 | | \$83,233 |
| 12.800 | Exploiting Extreme Molecular-Confinement in Hybrids for Enhanced Mechanical and Thermal Behavior | | | | \$300,622 |
| 12.800 | ExPlor -Center of Excellence on Brain-Derived Neuromorphic Computing with Intelligent Photonic and Electronic Materials | University of California, Davis | A22-2094-S002 | | \$38,036 |
| 12.800 | Exploring Ultra-Narrow Photon Emission in the keV regime | | | | \$299,853 |
| 12.800 | Extrapolating ground test data of Hall effect thrusters to in-space operation | | | | \$161,142 |
| 12.800 | Field-Deployable Mid-Infrared TDLAS Sensor for NASA EAST | | | | \$93,126 |
| 12.800 | Foundations of Geometric Deep Learning | | | | \$60,296 |
| 12.800 | Fundamental Spectroscopy of Oxygen at High Temperatures and Pressures in Support of Quantitative Sensing for Hypersonic Air Flows | | | | \$233,816 |
| 12.800 | Hierarchical Strategy for Supporting Validation of Combustion Simulations | | | | \$112,765 |
| 12.800 | High Coherence Quantum Phononic Circuits | Yale University | CON-80004391(GR120271) | | \$2,238 |
| 12.800 | High-resolution 3-Dimensional Optoelectronic Neural Interface for Restoration of Sight | | | | \$110,679 |
| 12.800 | Hot Magnetized Plasma Acceleration Devices and Modes for Agile Plasma Thrusters | | | | \$229,324 |
| 12.800 | Hybrid-Materials Valley Optoelectronics for Photon Spin Communication | Cornell University | FA9550-18-1-0480 | | \$128,788 |
| 12.800 | Implementation of data assimilation strategies in modeling acoustically excited flames | Jacobs Technology Inc. | RAPT1-0000001326 | | \$7,875 |
| 12.800 | Information-Geometry of statistical manifolds and Data Assimilation | | | | \$257,574 |
| 12.800 | Internal Cooling of Fiber and Disc Lasers by Radiation Balancing and Other Optical or Phonon Processes | University of Illinois at Urbana Champaign | 084272-16070 | | \$7,557 |
| 12.800 | In-Vivo Validation of Analyte Partitioning Mechanisms for Peripheral Biochemical Monitoring | University of Cincinnati | 013176-00007 | | \$93,317 |
| 12.800 | Laser Systems for Fundamental Spectroscopy of Oxygen (O2) in Hypersonic Air Flows | | | | \$72,624 |
| 12.800 | Learning and Meta-Learning of Partial Differential Equations via Physics-Informed Neural Networks: Theory, Algorithms, and Applications | Brown University | 00001656 | | \$59,349 |
| 12.800 | Learning for Dynamics, and Control (L4DC) | | | | -\$1,864 |
| 12.800 | Low-Temperature Recondensing Magnet System with Dilution Refrigerator Insert for Research in Electronic Properties Near Quantum Phase Transitions and in Topological Materials. | | | | \$197,920 |
| 12.800 | Machine learning methods for imaging with applications to space surveillance | | | | \$53,590 |
| 12.800 | Magnet-Free Non-Reciprocal Metamaterials Based on Spatio-Temporal Modulation | Research Foundation, The City University of New York | CM00001531-00 | | \$603,181 |
| 12.800 | Mechanistic Studies of Microdroplet Chemistry | | | \$1,038,600 | \$2,042,022 |
| 12.800 | Mesoscopically Structured Ionic Materials: RTIL Thin Films and Perovskite White Light Emitters | | | | \$266,254 |
| 12.800 | Meta-imaging: Sensing, Processing and Computing with Dynamic Metasurfaces | Duke University | 313-1121 | | \$497,265 |
| 12.800 | Multiscale Stochastic Modeling, Conditioning, and Simulation of Rare Events | University of Southern California | 138557016 / PO-10936691 | | \$119,651 |
| 12.800 | MURI: Reimagining Atoms and Photons in SYnthetic, DYnamical, and INteracting Quantum matter (RAPSODY IN Q) | Pennsylvania State University | S003166-AFOSR | | \$257,285 |
| 12.800 | Nanophotonic neural networks with nonlinear, reconfigurable metasurfaces | | | | -\$17,761 |
| 12.800 | Optical Analog Computing and Communications with Configurable Nonlocal Photonics | | | | \$20,430 |
| 12.800 | Optophysiology: interferometric imaging of the intrinsic neural signaling | | | | \$241,012 |
| 12.800 | PECASE: New material and design approaches for integrated nano-optical systems | | | | \$374,984 |
| 12.800 | Quantum Codes, Tensor Networks, and Quantum Spacetime | University of California, Santa Barbara | KK2015 | | \$246,560 |
| 12.800 | Quantum Optimization with Rydberg Atoms | | | | \$365,142 |
| 12.800 | R&D to Improve the Integrity and Safety of the PNT Solution Using Current and Future SatNav signals | | | | \$369,603 |
| 12.800 | Real-Time Battery Health Monitoring with Built-in Ultrasonic Techniques for Electric Aerial Vehicles | | | | \$97,820 |
| 12.800 | Real-Time Coherent X-ray Imaging of Radiation-Sensitive Materials at Sub-10 nm Resolution | University of California, Los Angeles | 1000 G LF361 | | \$123,171 |
| 12.800 | Robustness, simulation and error correction for quantum dynamics | | | | \$22,676 |
| 12.800 | Sensitizing Reaction Chemistry in Detonation - Chemical Kinetics | | | | \$208,712 |
| 12.800 | Silicon carbide as a monolithic platform for integrated optoelectronics | | | | \$109,091 |
| 12.800 | Spectroscopic Measurements and Nonequilibrium Modeling for High-Enthalpy Air | California Institute of Technology | S437969 | | \$187,238 |
| 12.800 | Stretchable Polymer Semiconductors | | | | \$261,578 |
| 12.800 | Support for the American Conference on Theoretical Chemistry 2022 | | | | \$9,920 |
| 12.800 | TIMELIGHT: Explainability in Time Series | | | | \$131,313 |
| 12.800 | Topological Phenomena in Magnetized Plasma Structures and their Applications for Extreme Control of Electromagnetic Waves | | | \$486,079 | \$1,003,340 |
| 12.800 | Towards Dissipation-less Conduction in Oxide Topological Insulators | | | | \$100,743 |
| 12.800 | Towards Enhanced Seismic Monitoring with Distributed Acoustic Sensing (DAS) | | | \$131,425 | \$270,422 |
| 12.800 | Towards Robust Scalable Quantum Random Access Memories | University of Chicago | AWD102104 (SUB00000855) | | \$182,263 |
| 12.800 | Tunneling Phenomena in Interface Superconductors | Harvard University | 134400-5122157 | | \$294,188 |
| 12.800 | Ultralow power, Ultrafast, Integrated Nano-Optoelectronics | University of Texas at Austin | UTA16-001253 | | \$51,714 |
| 12.800 | UV AND IR LASER SYSTEMS FOR SPECTRALLY-RESOLVED REACTING FLOW DIAGNOSTICS | | | | \$7,364 |
| 12.800 | Variational Methods for Information Processing and Learning | | | | \$8,946 |
| 12.800 | Visualizing Ultrafast Plasticity with X-ray Diffraction Microscopes | | | | \$79,100 |
| 12.900 | STARTALK Integrative Leadership Development | | | | \$770 |

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass-through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|---|---|---|--|----------------------------|
| 12.901 | Extracting Information from Rich Video Streams: An Agile Software/Hardware Approach | | | | \$49,571 |
| 12.901 | Upscale: Scaling up formal tools for POSH Open Source Hardware | | | \$173,253 | \$170,264 |
| 12.910 | Biased agonists as rapidly acting neuropsychiatric drugs | University of North Carolina at Chapel Hill | 5124424 / HR00112020029 PHASE2 | | \$1,100,625 |
| 12.910 | Distributed cell-free manufacturing of biologics-based medical countermeasures | Northwestern University | 60064652 SU | | \$25,927 |
| 12.910 | Electrogenic Regulation of Sleep Biomolecules for Circadian Cycle Adjustment | | | \$708,938 | \$1,406,673 |
| 12.910 | Engineering native human skin commensals to eliminate attractants and introduce repellents and mosquito tracking using millisecond device apparatus | | | \$987,892 | \$2,077,444 |
| 12.910 | Excitonic circuitry enables nightglow upconversion | | | \$183,138 | \$728,032 |
| 12.910 | Floquet Phases - A New Resource for Quantum Devices | Princeton University | SUB0000345 | | \$1,581 |
| 12.910 | Multi-modal Open World Grounded Learning and Inference (MOWGLI) | University of Southern California | 125037483 | | \$438,731 |
| 12.910 | Nonlinear Nanophotonics for Visible-Emission Lasers (NOVEL) | University of Colorado, Boulder | 1559924 / PO # 1001522176 | | \$578,440 |
| 12.910 | OUTATIME: Ovenized Ultra-stable Tactical Timing with Mechanics | University of Illinois at Urbana Champaign | 112646-19456 | | \$191,690 |
| 12.910 | PIPES | University of Pennsylvania | Sub 577443/PO 4724447/583232 | | \$24,326 |
| 12.910 | Revolutionizing Computing Systems through Dense and Fine-grained Monolithic 3D Integration | Massachusetts Institute of Technology | S4632-007/PO216909 | | -\$10,436 |
| 12.910 | Rewriting the Rules of Thermal Emission via Parametric Microphotonic Design | University of Southern California | 108725131/PO10724755 | | \$31,492 |
| 12.910 | Structure-guided drug discovery of allosteric modulators for cannabinoid receptors with therapeutic efficacy for PTSD and traumatic neuronal injury | | | \$826,688 | \$2,093,659 |
| 12.910 | Systems Biological Assessment of the Durability of Vaccine Responses | | | | \$394,591 |
| 12.RD | Active Source Seeking in Multi-Robot Exploration Missions | Jet Propulsion Laboratory | 1677375 | | \$245,417 |
| 12.RD | Architecture and Analysis for High-Assurance Autonomy | Rockwell Collins | PO-4506642848 | | \$6,015 |
| 12.RD | ASCENT: Applications and Systems driven Center for Energy-Efficient Integrated NanoTechnologies | University of Notre Dame | 203278SU-POP | | \$34,076 |
| 12.RD | Building machine common sense the human way | International Business Machines Corporation | CW3013548 / PO #4700221071 | | \$87,815 |
| 12.RD | ComSenTer: A Center for Converged TeraHertz Communications and Sensing | University of California, Santa Barbara | KK1842 | | \$162,786 |
| 12.RD | Controlling Chemistry via Spin Injection Heterostructures | | | | \$71,637 |
| 12.RD | Deep Learning Probabilistic Regression for Onset Time Determination (PA-04) Task Order 01 | Applied Research Associates, Inc. | S-D00243-12-TO-01-STANFORD | | \$95,665 |
| 12.RD | Earthquake Signal Characterization Using Deep-Residual Convolutional-Recurrent Networks | | | | \$209,401 |
| 12.RD | End-to-end Machinery for Proving Highly Sensitive Application-oriented Statements In ZERo-knowledge (EMPHASIZE) | SRI International | 47137 | | \$192,967 |
| 12.RD | Entangled short wave infrared (En-SWIR) photon source | Sivananthan Laboratories | 0961-21-SSU-0001 | | \$51,839 |
| 12.RD | Exergy management strategies for ground vehicles efficiency maximization | National Center for Manufacturing Sciences | 2021108-142132 | | \$172,291 |
| 12.RD | Exploring new topological materials and interfaces for advanced SOT-MRAM | University of Notre Dame | 203278SU-Wang | | \$11,154 |
| 12.RD | High Performance Electronics for Quantum Systems: Analysis and Design (Sequential Phase II STTR) | Vector Atomic | SPO 174038 | | \$85,233 |
| 12.RD | High-Speed Aero-Propulsion Integration Technology Development | ARCTOS Technology Solutions, LLC | 212014.03.00.2019.00.05-C1 | | -\$19,090 |
| 12.RD | Human Intent Aware Decision- Making Planning | MIT Lincoln Laboratory | 7100441073/7000441073 | | \$32,212 |
| 12.RD | Humanitarian Notification Systems for Deconfliction: Stanford subaward (Phase 2, Part 2) | MIT Lincoln Laboratory | PO 7000557832 | | \$115,954 |
| 12.RD | Integrated and Rapid Bacterial Identification and Antimicrobial Susceptibility Testing using Digital High-Resolution Melt Analysis at the Point-of-Need | Johns Hopkins University | 12503 (PO: 2004336856) | | \$6,278 |
| 12.RD | Integrated quantum inspired photonic solver (i-QIPS) | University of Pennsylvania | 586124/PO 5062440 | | \$68,150 |
| 12.RD | Materials and Devices for achieving analog updates for online training and inferring | University of Notre Dame | 203278SU-Wong | | \$55,464 |
| 12.RD | MIDDAG: Modeling Influence Pathways with Multi-Dimensional DynAmic Graphs | University of California, Los Angeles | 0145 G LA220 | | \$101,436 |
| 12.RD | Multi-Component, Co-Deposition of Patterned Films and Nanoparticles | Surfx Technologies LLC | SFX-01-2021 | | \$17,080 |
| 12.RD | Network on Chip (NoC) Design For: DARPA's Fast Event-Based Neuromorphic Camera and Electronics (FENCE) Program | Northrop Grumman Systems Corporation | 5300027712 | | \$400,838 |
| 12.RD | Permanent Attachment of Supplementary Module to RSO Analysis (Phase I) | Kall Morris, Inc. | 255638 | | \$75,000 |
| 12.RD | Photon Counting in the Near-Infrared Band | Sivananthan Laboratories | 0014-22-SSU-0001 | | \$34,948 |
| 12.RD | Prevention of Sediment Recontamination by Improved BMPs to Remove Organic and Metal Contaminants from Stormwater Runoff | | | \$31,071 | \$37,931 |
| 12.RD | Reinforcement Learning for Temporal Graphs: Solving Combinatorial Optimization with Homomorphic MDP Networks | MIT Lincoln Laboratory | 7100538803 | | \$27,520 |
| 12.RD | Research Project in Applied Statistics | | | | \$81,633 |
| 12.RD | Scalable production of sequence-defined biopolymers containing multiple distinct non-canonical amino acids in recoded cell and cell-free systems | Pearl Bio, Inc. | 289338 | | \$3,533 |
| 12.RD | Securing our National Internet Infrastructure: Using measurement, control, and verification for closed-loop control networks | | | \$8,603,563 | \$9,783,882 |
| 12.RD | SMART | Systems & Technology Research, LLC | 2020-0072 / 2021-2011000004 | | \$254,200 |
| 12.RD | Stabilized Lasers for the Cesium Two-Photon Optical Clock (CTOC) | Northrop Grumman Systems Corporation | CTM-P-ST-004 / PO 5300053908 | | \$141,525 |
| 12.RD | Test & Evaluation of AI, Autonomy and Manned-Unmanned Teaming | GE Global Research | 401175445 | | \$126,462 |
| 12.RD | The Development of Best Practice Penetrating TBI Guidelines for Military and Civilian Patients | Henry M Jackson Foundation for the Advancement of Military Medicine | 1039446 | \$165,819 | \$322,800 |
| 12.RD | Towards Effective Regional Arrival Time Measurement and Phase Association (PA-04) (Task Order 02) | Applied Research Associates, Inc. | S-D00243-12-TO-02-STANFORD | | \$143,721 |
| Department of Education | | | | | \$2,983,914 |
| 84.022 | Coaching Aspiration - Educational Entrepreneurship and Social Mobility in India | | | | \$16,726 |

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PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass- through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|--|--|--|--|-------------------------------|
| 84.022 | Fulbright-Hays Doctoral Dissertation Research Grant Abroad Fellowship Title 'Black Youth Activism and Violence in Colombia's Paradise', Student Jameelah Morris | | | | \$100 |
| 84.022 | Fullbright-Hays Doctoral Dissertation Research Abroad Fellowship Student: Angela Leocata - 'Navigating Aspirational Trajectories - Underemployment in Minas Gerais' | | | | \$7,278 |
| 84.022A | Fictions of the Epistle--Letters Gender and Nation in Modern Japanese Literature | | | | \$27,468 |
| 84.022A | Fulbright-Hays Doctoral Dissertation Research Abroad Fellowship | | | | \$54,516 |
| 84.022A | W. Teska's Fulbright-Hays Doctoral Dissertation | | | | \$43,221 |
| 84.022A | When entrepreneurship becomes a national enterprise: the case of the Arab Gulf | | | | \$100 |
| 84.305 | Nudges to the Finish Line: Experimental Interventions to Prevent College Late Departure | University of Virginia | GM10155 PO #2108287 | | \$2,212 |
| 84.305A | Evaluating the Efficacy of the CLAVES Intervention: An Intervention Focused on Comprehension, Academic Language, and Vocabulary for English Learner Students | | | \$138,992 | \$834,320 |
| 84.305A | Linking Inequities in Educational Opportunities to Inequality in Educational Outcomes: An Exploratory Analysis in New York State | | | | \$187,210 |
| 84.305A | Peer-assisted writing strategies: Efficacy (PAWS: Efficacy). | Georgia State University | SP00013807-01 | | \$275,680 |
| 84.305B | Supporting Equity-Focused, Interdisciplinary, and Responsive Research in Early Childhood Care and Education: The Equity in Early Education (E3) Postdoctoral Fellowship Program | | | | \$5,891 |
| 84.305R | Using Text Messaging To Improve Kindergarten Readiness of Children in Rural New Mexico | University of New Mexico | 3RNF1 | | \$166,416 |
| 84.324A | An Efficacy Trial to Evaluate Supporting Paraprofessionals by Advancing Reading Intervention Knowledge and Skill (SPARK) | | | \$278,633 | \$365,461 |
| 84.325D | Leadership in Research and Teacher Preparation for System-wide Inclusive Education | | | \$264,134 | \$483,861 |
| 84.326M | A Design Thinking Approach to Enhance Educators Use of Data-Based Individualization (DBI) to Improve Literacy Skills of Student with Intellectual Disability | | | \$260,696 | \$418,463 |
| 84.367A | Stanford World Language Project ESSA 2021-22 | University of California Office of the President | ESSA22-CWLP-STANFORD | | \$94,991 |
| Department of Energy | | | | | \$31,383,099 |
| 81.000 | Automated Scenario Assessment of Groundwater Table & Salinity Response to Sea-Level Rise | Lawrence Berkeley National Laboratory | 7652262 | | \$102,303 |
| 81.000 | Center for Computational Study of Excited-State Phenomena in Energy Materials (C2SEPEM) | Lawrence Berkeley National Laboratory | 7581670 | | \$149,481 |
| 81.000 | Developing Structure-Property Relationships in Sterically Controlled Polypyrroles for Tunable and Colorless Electrochromic Devices | | | | \$27,537 |
| 81.000 | Multi-sensor Fusion for Nuclear Material Container Counting and Assay | Lawrence Berkeley National Laboratory | 7588724 | | \$348,176 |
| 81.000 | National Alliance for Water Innovation (NAWI) Lead Cartographer/National Alliance for Water Innovation (NAWI). | Lawrence Berkeley National Laboratory | 7539834 | | \$258,911 |
| 81.000 | Support Analyzing the Coal to Clean Swap for the Top 50 Coal Plants in India | Lawrence Berkeley National Laboratory | 7669586 | | \$42,099 |
| 81.049 | Superconducting Quantum Materials and Systems | Fermi National Accelerator Laboratory | 679371 | | \$342,808 |
| 81.049 | A Complete Machine-Learning-Based Workflow to Illuminate Earthquake Processes | | | | \$127,232 |
| 81.049 | A Multi-Model, Multi-Scale Research Program in Stressors, Responses, and Coupled Systems Dynamics at the Energy-Water-Land Nexus | | | \$1,666,789 | \$2,283,928 |
| 81.049 | Addressing Experimental Challenges in Probing Dark Energy with Accuracy and Precision with the Rubin Observatory Legacy Survey of Space & Time (LSST) | | | | \$231,628 |
| 81.049 | Anomalous Retrograde Drifts in Obstructed Magnetron Microdischarges: a Consequence of a Field Reversal in the Anode Sheath? | | | | \$66,836 |
| 81.049 | Applying Deep Learning Methods to Develop New Models of Charge Transfer, Nonadiabatic Dynamics, and Nonlinear Spectroscopy in the Condensed Phase Atom-defect Hybrid Quantum Systems | University of California, Merced | UCMP00023644 | | \$5,180 |
| 81.049 | Carbonate Management to Enable Energy- and Carbon-Efficient CO2 Electrolysis | University of California, Santa Barbara | KK2229 | | \$216,384 |
| 81.049 | Center for Mechanistic Control of Water-Hydrocarbon-Rock Interactions in Unconventional and Tight Oil Formations | | | \$299,537 | \$540,191 |
| 81.049 | Center for Soft PhotoElectroChemical Systems (SPECS) | University of Arizona | 3048840 | | \$49,704 |
| 81.049 | Characterizing the limits of nonequilibrium control for dissipative self-assembly | | | | \$213,256 |
| 81.049 | Collaborative Research: Unraveling the Physics Associated with the Production of Extremely Dense Plasma States of Microscale Nanosecond-pulsed Discharges | | | | \$72,509 |
| 81.049 | Complex quantum systems and the quantum universe | University of Pennsylvania | 578218 / PO 4746738 | | \$164,967 |
| 81.049 | Conformational and Chemical Dynamics of Single Proteins in Solution by Suppression of Brownian Motion | | | | \$215,642 |
| 81.049 | Deciphering controls on metal migration within floodplains: The critical role of redox environments on metal-organic complexes | | | \$51,717 | \$67,372 |
| 81.049 | Deformation of Nano-Metallic Glasses Made using Colloidal Synthesis | | | | \$136,196 |
| 81.049 | Design of Multifunctional Composites for Electrical Automobile Applications | Acellent Technologies Inc. | DE-SC0020714, 2021 | | \$137,860 |
| 81.049 | Development of a quantumoptimal bioimaging system for plantmicrobiome interactions | | | | \$381,196 |
| 81.049 | Development of high-throughput light-sheet fluorescence lifetime microscopy for 3D functional imaging of metabolic pathways in plants and microorganisms | | | | \$220,633 |
| 81.049 | Discovering innovations in stress tolerance through comparative gene regulatory network analysis and cell-type specific expression maps | | | \$291,056 | \$350,198 |
| 81.049 | DOE Phase II SBIR Topic 22(d) - Numerical Model Development for Supercritical CO2 Oxy- Combustion | Combustion Science & Engineering Inc | 173197 | | \$69,815 |
| 81.049 | Dynamics of electrified liquid surface during plasma-liquid interaction | | | | \$614 |
| 81.049 | EFRC for Regenerative Energy-Efficient Manufacturing of Thermoset Polymeric Materials (RE-MAT) | University of Illinois at Urbana Champaign | 110904-19217 | | \$118,423 |
| 81.049 | Experiment Study of Neutrino Properties | | | | \$560,708 |
| 81.049 | Frontiers in Quantum Metrology and Transduction | | | | \$14,482 |
| 81.049 | Fundamental aspects of Spacetime and Quantum Fields | | | | \$18,902 |
| 81.049 | Fundamental Mechanisms of Dislocation Dynamics and Metal Deformation at Elevated Temperatures | | | | \$109,941 |
| 81.049 | HEP Consortium for Advanced Training | University of California, Davis | A22-1532-S002 | | \$109,207 |
| 81.049 | HEP IC Design Apprenticeship Program | | | \$155,423 | \$314,551 |
| 81.049 | High-Power Photonics Using Adaptively Controlled Plasmas as Diffractive Optical Elements | | | | \$125,881 |

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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass-through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|---|---|---|--|----------------------------|
| 81.049 | Integrated Data-driven Methods for Scientific Discovery of Non-equilibrium Thermochemical Processes in Complex Environments from Ultrafast X-ray Measurements at LCLS | | | \$143,555 | \$913,193 |
| 81.049 | Integrated engineering of whole plant water use efficiency in Sorghum and Setaria | Donald Danforth Plant Science Center | 23217-S | | \$690,085 |
| 81.049 | Kinetic effects on self-organization in low-temperature magnetized plasmas | | | | \$211,524 |
| 81.049 | Light-matter interaction in nanoscale systems for energy applications | | | | \$296,191 |
| 81.049 | Linking drought response by ectomycorrhizal fungi to carbon cycling and forest productivity | | | | \$29,583 |
| 81.049 | Manipulation of Atomic Ordering for Manufacturing Semiconductors (mu-ATOMS) | University of Arkansas | UA2023-351/SPC-006513 | | \$71,610 |
| 81.049 | Mesoporous Materials: Dynamics, Structure, Interactions, and Processes | | | | \$92,620 |
| 81.049 | Metal Encapsulation Strategies to Optimize and Minimize PGE Use in Heterogeneous Catalysts | | | | \$356,472 |
| 81.049 | Moire excitons for quantum information science | | | \$95,116 | \$545,531 |
| 81.049 | Multiscale dynamics of reactive fronts in the subsurface | | | | \$78,327 |
| 81.049 | Non-destructive, three-dimensional imaging of processes in the rhizosphere utilizing high energy photons | University of California, Santa Cruz | A22-0274-S001 | | \$265,199 |
| 81.049 | Nonlinear X-ray Optics for Transition Metal Chemistry and Coherent X-ray Spectroscopy | University of Wisconsin | 000002951 | | \$19,426 |
| 81.049 | PhLLMs: Collaboratory on Mathematics and Physics-Informed Learning Machines for Multiscale and Multiphysics Problems | | | | \$139,031 |
| 81.049 | Photonics at Thermodynamic Limits | | | \$277,774 | \$967,315 |
| 81.049 | Probing Strong-field Effects in QED on FACET-II | | | | \$102,010 |
| 81.049 | Probing Supercritical Phase Transition using Ultrafast X-ray Diagnostics | | | | \$144,591 |
| 81.049 | Programmable quantum emitter arrays | | | \$123,401 | \$700,049 |
| 81.049 | Quantum Black Holes and Wormholes | | | | \$142,175 |
| 81.049 | RESPONSE OF SUBSURFACE NITROGEN-CYCLING MICROBIAL COMMUNITIES TO ENVIRONMENTAL FLUCTUATIONS | | | | \$115,570 |
| 81.049 | SEA-CROGS: Scalable, Efficient and Accelerated Causal Reasoning Operators, Graphs and Spikes for Earth and Embedded Systems | | | \$17,266 | \$71,891 |
| 81.049 | Searching for Strongly Interacting Dark Sectors with Electron Beams | | | | \$136,883 |
| 81.049 | Simulations of Hypervelocity Impact Plasmas | | | | \$27,024 |
| 81.049 | Single-electron transistor microscopy of synthetic correlated quantum materials | | | | \$181,612 |
| 81.049 | Spin Functionality through Complex Oxide Heteroepitaxy | | | | \$260,561 |
| 81.049 | Studies of High Energy Density Discharge and Laser-Driven Deflagrating Plasma Stagnations | | | | \$265,791 |
| 81.049 | Sustainable Ironmaking: Using Photons to Understand & Drive the Mechanism of H2-Based Direct Iron Reduction | | | | \$55,253 |
| 81.049 | The Center for Enhanced Nanofluidic Transport - Phase 2 (CENT2) | Massachusetts Institute of Technology | S5866 PO# 832586 | | \$309,410 |
| 81.049 | The Geometry and Flow of Quantum Information: From Quantum Gravity to Quantum Technology | University of California, Berkeley | 00010057; DE-SC0019380 | | \$169,703 |
| 81.049 | The Non-Equilibrium Quantum Frontier. | | | | \$165,839 |
| 81.049 | Tough Errors Are no Match (TEAM): Optimizing the quantum compiler for noise resilience | | | | \$211,953 |
| 81.049 | Ultra Materials for a Resilient, Smart Electricity Grid | Arizona State University | ASUB00000682 | | \$17,074 |
| 81.049 | Understanding and Controlling Nucleation in Atomic Layer Deposition for Materials Synthesis | | | | \$352,785 |
| 81.049 | Understanding Multi-Stressor and Multi-Scale Drivers of Feedbacks, Cascading Failures, and Risk Management Pathways within Complex MSD Systems | Pennsylvania State University | S002350-USDOE | | \$213,969 |
| 81.049 | Understanding the Structure-Property Relationships and Unusual Aging Behavior of Microporous CANAL Polymer Membranes for Gas Separation | | | \$14,442 | \$201,819 |
| 81.049 | Unraveling the links between molecular structure, microstructure, delocalization and charge transport in new high-performance semiconducting polymers | University Of Washington | UWSC11264 / BPO #41613 | | \$64,447 |
| 81.049 | Using an evolutionary perspective to discover and predict stress-associated gene functions | | | \$200,050 | \$764,949 |
| 81.049 | Using Systems Approaches to Improve Photosynthesis and Water Use Efficiency in Sorghum | Donald Danforth Plant Science Center | 23207-S | | \$122,572 |
| 81.057 | TRACE ELEMENT SAMPLING AND PARTITIONING MODELING TO ESTIMATE WASTEWATER COMPOSITION AND TREATMENT EFFICACY AT COAL GENERATORS | | | | \$164,940 |
| 81.086 | Development of High-Fidelity and Efficient Modeling Capabilities for Enabling Co-Optimization of Fuels and Multi-Mode Engines | | | \$75,290 | \$258,070 |
| 81.086 | DOE "Next Generation Power Electronics Manufacturing Innovation Institute" (NGPEMI) - "PowerAmerica" Automated Tool to measure soft switching Cross Losses in Wide Band Gap Power Devices | North Carolina State University | 2014-0654-97 | | \$73,490 |
| 81.086 | ENERGY Services for INtegrated FLExible Operation of Wastewater Systems | | | | \$250,433 |
| 81.086 | Scalable High-Throughput Open-Air Spray-Plasma Manufacturing of Solid-State Lithium Batteries | | | | \$454,078 |
| 81.086 | Toward Drilling a Perfect Geothermal Well | Oregon State University | G0182A-D | | -\$3,531 |
| 81.087 | Accelerated Scaling to Rapid Open-Air Fabrication of Durable Perovskite Solar Modules | | | | -\$113 |
| 81.087 | Low Cost Desalination Using Nanophotonics Enhanced Direct Solar Membrane Distillation | Rice University | R1A124 | | \$48,470 |
| 81.087 | Machine Learning Accelerates Innovation in Perovskite Manufacturing Scale-up | Massachusetts Institute of Technology | 55419, PO #631651 | | \$8,368 |
| 81.087 | Machine-Learning-Based Mapping and Modeling of Solar Energy with Ultra-High Spatiotemporal Granularity | | | | \$350,215 |
| 81.087 | Open-Air Manufacturing of Efficient Large-Area Perovskite Solar Cells to Meet Stability and Cost Targets | | | | \$531,637 |
| 81.087 | Wellbore Fracture Imaging Using Inflow Detection Measurements | University of Utah | 10039612-Stanford-3-2418-AF1 | \$253,000 | \$594,830 |
| 81.089 | AOI-2a: A Modular System for Direct Conversion of Methane into Methanol via Photocatalysis | | | \$202,629 | \$365,285 |
| 81.089 | Carbon Utilization and Storage Partnership of the Western United States | New Mexico Institute of Mining and Technology | P0019857- 01 | | \$186,949 |
| 81.089 | CarbonSAFE Illinois Corridor Phase III | University of Illinois at Urbana Champaign | 101914-18189 | | \$111,449 |
| 81.112 | New Operando X-ray Microscope for Movies Resolving the Nanoscale Origins of Defects in Metal Additive Manufacturing | | | | \$247,846 |
| 81.122 | TrustDER: Trusted, Private and Scalable Coordination of Distributed Energy Resources | | | | \$624,585 |
| 81.124 | CENTER FOR MICROMORPHIC MULTIPHYSICS PORUS AND PARTICULATE MATERIALS SIMULATIONS WITH EXASCALE COMPUTING WORKFLOWS | University of Colorado, Boulder | 1559907/PO1001466527 | | \$176,417 |

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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass- through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|---|--|--|--|-------------------------------|
| 81.124 | INSIEME: Integrated Simulations using Exascale Multiphysics Ensembles | | | \$409,914 | \$2,857,197 |
| 81.135 | 20 KV Gallium Nitride PN Diode Electro-Magnetic Pulse Arrestor for Grid Reliability | | | | \$92,490 |
| 81.135 | Additive Manufacturing of Amorphous Metal Soft Magnetic Composites | | | \$113,690 | \$514,182 |
| 81.135 | CARBONHOUSE: A SCALABLE ALL-CARBON BUILDING LOGIC DERIVED FROM HYDROCARBON RESOURCES | Massachusetts Institute of Technology | S5082 - PO486618 | | \$46,256 |
| 81.135 | Co-synthesis of Hydrogen and High-value Carbon Products from Methane Pyrolysis | | | \$37,118 | \$208,242 |
| 81.135 | Disruptive Technology for Carbon Negative Commodity Biochemicals | | | \$466,306 | \$1,353,890 |
| 81.135 | Energy efficient integrated photonic systems based on inverse design | | | \$70,000 | \$167,472 |
| 81.135 | Exploring the Limits of Cooling for Extreme Heat Flux Applications:Data Centers and Power Electronics | | | \$53,141 | \$89,820 |
| 81.135 | Open and Scalable Distributed Energy Resource Networks | | | | \$66,882 |
| 81.135 | PERFORMANCE ENHANCEMENT OF HYDROKINETIC ARRAYS USING RELIABLE, LOW-COST DYNAMIC COMPONENTS | Emrgy Inc. | SPO 201927 | | \$111,843 |
| 81.135 | Robust Multifunctional Battery Chassis System | | | | \$431,544 |
| 81.250 | An Unsolicited Request by the Energy Modeling Forum for Funding to the Department of Energy Energy Information Administration | | | | \$40,371 |
| 81.RD | A diamond nanolaser quantum sensor with near-unity contrast and collection efficiency | | | | \$2,520 |
| 81.RD | All services to conduct experimental measurements of Kelvin-Helmholtz instabilities with high viscosity ratios | Triad National Security, LLC | 536415 / PO EP67976 | | \$24,292 |
| 81.RD | BP1-2: CFD modeling and operando measurements of multiscale heat and mass transfer for membrane module customization | Lawrence Berkeley National Laboratory | Subcontract No.7610479 | | \$116,935 |
| 81.RD | Causal machine learning for drug repurposing to impact ALS treatment | Lawrence Livermore National Laboratory - Lawrence Livermore National Security, LLC | B647765 | | \$10,398 |
| 81.RD | Center for High Precision Patterning Science (CHiPPS) | Lawrence Berkeley National Laboratory | 7668571 | | \$71,212 |
| 81.RD | Characterization of turbulence in the ocean atmospheric boundary layer for offshore wind energy production | Lawrence Livermore National Laboratory - Lawrence Livermore National Security, LLC | B643364 | | \$71,287 |
| 81.RD | Continuation of nEXO R&D by the Stanford Physics Dept. Group | Lawrence Livermore National Laboratory - Lawrence Livermore National Security, LLC | B654218 | | \$49,560 |
| 81.RD | Continuous Calculation of Wind Plant Performance for Design and Control | National Renewable Energy Laboratory | SUB-2023-10101 | | \$77,260 |
| 81.RD | Determining Exact RANS Operators with the Macroscopic Forcing Method | Lawrence Livermore National Laboratory - Lawrence Livermore National Security, LLC | B645258 | | \$185,995 |
| 81.RD | Development and Implementation of Eulerian Strength Model for Multi-Material Elastic-Plastic Flow | Lawrence Livermore National Laboratory - Lawrence Livermore National Security, LLC | B625957 | | \$67,190 |
| 81.RD | Discovering metastable infinite-layered nickelate phases through electrochemical ion-insertion (Plus-up to Project No. 21-222297) | Sandia National Laboratories | PO# 2434727 // Master 1918121 | | \$45,757 |
| 81.RD | DOE's Exascale Computing Project (ECP) | Triad National Security, LLC | 626908 | | \$448,310 |
| 81.RD | Efficient sequential data assimilation and parameter estimation for complex nonlinear systems | Pacific Northwest National Laboratory | 621012 | | \$63,498 |
| 81.RD | Exascale Computing Project (ECP) ExaSGD: Optimizing Stochastic Grid Dynamics at Exascale. | Pacific Northwest National Laboratory | 500958 | | \$41,971 |
| 81.RD | Fundamental physics of hypersonic laminar-turbulent transition | Sandia National Laboratories | PO 1987733 // Master 1918121 | | -\$3,678 |
| 81.RD | High-fluence and radiation-resistant gaseous optics for high-power lasers and IFE applications | Lawrence Livermore National Laboratory - Lawrence Livermore National Security, LLC | B655873 | | \$59,999 |
| 81.RD | Large Scale Two-Photon 3D Printing Enabled by Metaoptics | Lawrence Livermore National Laboratory - Lawrence Livermore National Security, LLC | B649819 | | \$222,615 |
| 81.RD | Laser exfoliation scale-up | National Renewable Energy Laboratory | UGA-0-41028-11 | | \$89,590 |
| 81.RD | Legion Applications | Triad National Security, LLC | 502266 | | \$156,783 |
| 81.RD | Low-Cost High-Reliability Thermoelectrics for Waste Heat Conversion | Lawrence Berkeley National Laboratory | 7466483 | | \$37,294 |
| 81.RD | Measuring Toxin Activity and Pathogens in Unknown Samples | Pacific Northwest National Laboratory | 543042 | | \$176,451 |
| 81.RD | Microstructurally-Inspired Strategies to Print Tantalum and Tantalum-Tungsten Alloys | Lawrence Livermore National Laboratory - Lawrence Livermore National Security, LLC | B654014 | | \$220,781 |
| 81.RD | Mission Execution and Strategic Analysis Support | KeyLogic Systems, Inc. | 5000-410-001 | | \$1,285 |
| 81.RD | NAWI Task 6.8 techno-economic modeling of electrochemical oxyanion treatment | Lawrence Berkeley National Laboratory | 7631032 | | \$18,140 |
| 81.RD | Near Field Photonic Crystal Optical Readout of MEMS gyroscopes: Experiments and Modeling | Sandia National Laboratories | 2446342 | | \$55,011 |
| 81.RD | Plasma Diagnostics for Dense Plasmas: Optical Spectroscopy and X-ray Imaging | Lawrence Livermore National Laboratory - Lawrence Livermore National Security, LLC | B653347 | | \$52,303 |
| 81.RD | Radiation defect engineering in two-dimensional nanomembranes | Lawrence Livermore National Laboratory - Lawrence Livermore National Security, LLC | B658335 | | \$22,342 |
| 81.RD | Super Emitters of Methane detection using Aircraft, Towers, and In situ Observational Network (SUMMATION) | Lawrence Berkeley National Laboratory | 7532774 | | \$153,523 |
| 81.RD | Ultra-efficient desalination with flow electrode capacitive deionization, LDRD DR 22-DR-011 | | | | \$124,137 |

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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass-through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|--|--|--|---|--|----------------------------|
| 81.RD | Uncommon Dialogue Phase II-US Hydropower: Climate Solution and Conservation Challenge | Battelle Memorial Institute | 574972 | | \$117,298 |
| 81.RD | Understanding and Controlling Microstructure in Additively Manufactured Refractory Alloys for Geometry and Property Control | Lawrence Livermore National Laboratory - Lawrence Livermore National Security, LLC | B654297 | | \$84,223 |
| 81.RD | Variable Property Rayleigh-Taylor Instability | Los Alamos National Laboratories, University of California | CW26045 / 451912 // PO EP88398 | | \$81,334 |
| Department of Health and Human Services | | | | | \$724,158,837 |
| 93.853 | MRI-Derived Neuromuscular Signatures to Predict Surgical Response in Degenerative Cervical Myelopathy | | | | \$57,080 |
| 93.865 | Donor-Derived Cell-Free DNA in Allorecognition and Heart Transplant Rejection | | | | \$119,663 |
| 93.958 | California Early Psychosis Training and Technical Assistance Project | University of California, Davis | A22-3745-S001 | | \$87,135 |
| 93.073 | CALIFORNIA CENTER OF BD-STEPS II - FINDING CAUSES AND PREVENTIVES OF BIRTH DEFECTS | | | | \$790,019 |
| 93.077 | American Heart Association Tobacco Regulatory Science Center (A-TRAC 2.0) // Toxicogenetic Effects of E-cigarette Exposure Using human iPSC-derived Organoids | Boston University | 4500004655 | | \$44,153 |
| 93.077 | Countering E-cigarette Marketing in the Retail Environment among Adolescents and Young Adults | | | | \$176,532 |
| 93.077 | Integrated Health, Behavioral and Economic Research on Current and Emerging Tobacco Products | University of California, San Francisco | 10984sc / U54 HL147127 | | \$461 |
| 93.080 | Public Health Surveillance for the Prevention of Complications of Bleeding Disorders | Center for Inherited Blood Disorders (CIBD) | CIBDIX2020CDC-STAN-02 | | \$25,635 |
| 93.103 | Enhancing FDA's opioids systems modeling efforts to more comprehensively address fentanyl, stimulants, polysubstance use, and associated outcomes | Massachusetts General Hospital | Subaward 239789 | | \$10,435 |
| 93.103 | Ethnically Diverse iPSC Kit for Accurate Assessment of Drug-induced Vascular Toxicity | Health and Environmental Sciences Institute | 3U01FD006676-03S1 | | \$315,713 |
| 93.103 | Phase 1 Study of Autologous CD4LVFOXP3 in Participants with IPEX Syndrome [revised IND and clinical protocol to be submitted to FDA by 10/11/2021] | | | | \$653,373 |
| 93.103 | Phase 3 Trial of DCA in PDC Deficiency IND 028,625 (02/04/2015) | University of Florida | SUB00003307 | | \$26,667 |
| 93.103 | Phase II Study of Ad/PNP(IND14271.1/19/10)for HNSCC(OrphanDrugDes.14-4438.6/8/15) | Emory University | A707495 | | \$30,922 |
| 93.103 | UCSF-Stanford Center of Excellence in Regulatory Science and Innovation | University of California, San Francisco | 13068sc | | \$3,338,159 |
| 93.103 | UCSF-Stanford Pediatric Device Consortium | University of California, San Francisco | 11168sc / P50 FD006424 | | \$259,217 |
| 93.103 | Utilizing a Lupus Clinical Trials Network to Advance Diversity and Representation in Clinical Trials: Perspectives, Preferences, and Unmet Needs of Patients, Providers, and Stakeholder Agencies | University of North Carolina at Chapel Hill | 5126260 | | \$18,388 |
| 93.107 | California Area Health Education Center (Federal AHEC) | University of California, San Francisco | 13960sc | | \$37,788 |
| 93.110 | Alliance for Innovation in Maternal Health (AIM) ACOG | American College of Obstetricians and Gynecologists | 140935/UC4MC28042 | | \$8,772 |
| 93.110 | California Severe Combined Immunodeficiency Disease Consortium Long-term Follow-up Program (CaSCID) | University of California, San Francisco | 13131sc | | \$35,341 |
| 93.110 | Developmental Behavioral Pediatrics Training Program | | | | \$111,303 |
| 93.110 | Hemophilia Treatment Centers (SPRANS) | Center for Inherited Blood Disorders (CIBD) | CIBDIX2012HRSA - STAN - 11 | | \$28,336 |
| 93.110 | Regional Pediatric Pandemic Network | University of California, San Francisco | 13309sc | | \$51,621 |
| 93.113 | Data science tools to identify robust environmental exposure-phenotype associations for precision medicine | Harvard University | 150620.5116041.0003 | | \$127,871 |
| 93.113 | Early life exposure to agricultural pesticides and functional brain imaging in young adults | University of California, Berkeley | 00010760/R21ES032592 | | \$91,753 |
| 93.113 | Immune Tolerance Dysfunction in Pregnancy due to Ambient Air Pollution Exposure | | | \$54,406 | \$22,182 |
| 93.113 | Integrating the Exposome into Longitudinal Multiomics Profiling | | | | \$126,115 |
| 93.113 | Covid-19: Interaction between genetic, lifestyle and environmental factors determining circulating angiotensin-converting enzyme 2 protein expression: implications for the severity of COVID-19 infection | | | \$22,543 | \$109,486 |
| 93.113 | Interdisciplinary approaches for understanding how arsenic and micronutrients affect the epigenome to influence spina bifida risk | Boston Children's Hospital | GENFD0002359398 | | \$40,755 |
| 93.113 | Prenatal and lifetime exposure to pesticides and particulate matter and respiratory health in young adults from the CHAMACOS birth | University of California, Berkeley | 00011261/R01ES032871BBo 1704430 | | \$7,202 |
| 93.113 | Prenatal and Postnatal Exposure to Environmental Mixtures: Neurodevelopment and DNA Methylation Biomarkers | | | \$24,383 | \$283,689 |
| 93.113 | Regulation of the DNA damage Response | | | | \$339,616 |
| 93.113 | The Impact of Drought on Arsenic Exposure and Cardiometabolic Outcomes in a Rural Aging Population | University of Colorado Denver | FY22.659.005/FY23.659.004_AMD1 | | \$207,828 |
| 93.113 | Wildfires and intentional biomass burning in California and Preterm Birth | University of California, San Francisco | 13010sc | | \$32,867 |
| 93.121 | Candida Genome Database | | | | \$646,198 |
| 93.121 | Center for Dental, Oral, and Craniofacial Tissue and Organ Regeneration (C-DOCTOR) | University of Southern California | 132136667 / SCON-00003590 | | \$515,428 |
| 93.121 | Characterizing head and neck tumor neoantigens and T cells: looking beyond the usual suspects | | | \$208,742 | \$491,639 |
| 93.121 | Dissecting motor cortex circuits underlying chronic pain relief | | | | \$2,334 |
| 93.121 | Dissecting motor cortex modulation of nociception during chronic pain | | | | \$134,051 |
| 93.121 | Drug loaded, bioprinted fibrin scaffolds for use during cranial nerve repair surgery | University of Southern California | SCON-00004637 | | \$90,911 |
| 93.121 | Emotion Dysregulation and Sleep-Time Masticatory Muscle Activity in Sleep Bruxism | | | | \$307,335 |
| 93.121 | Genetic Predictors of Ameloblastoma Behavior | | | \$2,703 | \$157,032 |
| 93.121 | Identifying the human skeletal stem cell | | | | \$370,594 |
| 93.121 | Irradiated head and neck cancer soft tissue reconstruction by fat transfer. | | | | \$259,937 |
| 93.121 | Local and Systemic Multi-omics of TMJ disorders | University of California, Los Angeles | 1350 G LB391 | | \$73,662 |
| 93.121 | Mapping and prediction of quantitative transcription factor dosage effects to understand variation in craniofacial morphology and disease | | | | \$23,697 |

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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass-through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|---|---|---|--|----------------------------|
| 93.121 | Mechanisms of Regeneration: Facial Nerve Injury and Repair | | | | \$153,660 |
| 93.121 | Microribbon scaffold-mediated Immunomodulation for Cranial Bone Repair | | | | \$418,997 |
| 93.121 | Molecular mechanisms mediating the soft tissue attachment to teeth | | | | \$342,104 |
| 93.121 | Novel OrganoPET Assay for Precision Therapy of Head and Neck Cancer | | | | \$9,756 |
| 93.121 | Precision imaging for risk stratification and personalized therapy of oropharyngeal cancer | | | | \$417,929 |
| 93.121 | Reprogramming fibroblasts embryonic origins to overcome skin fibrosis and scarring. | | | | \$87,299 |
| 93.121 | Reprogramming the Tumor-Immune Interface in Oral Cancer | | | | \$1,149,714 |
| 93.121 | Salivary gland response to Desert hedgehog signaling as an antidote to damage from therapeutic radiation | | | | \$619,403 |
| 93.121 | The Genetic Architecture of Human Facial Morphology | University of Pittsburgh | CNVA00055576 (134310-4) | | \$213,448 |
| 93.121 | The role of Galectin-1 in shaping the immune suppressive landscape in head and neck cancer | | | | \$469,035 |
| 93.143 | Toxic substances in the environment | University of California, Berkeley | P42ES004705/00011247BB 01676353/1673009 | | \$88,372 |
| 93.143 | UNM Metal Exposure Toxicity Assessment on Tribal Lands in the Southwest (METALS) Superfund Research Program | University of New Mexico | 3RNC1 | | \$37,340 |
| 93.157 | Centers of Excellence | | | | \$53,424 |
| 93.172 | A Comprehensive Genomic Community Resource of Transcriptional Regulation | University of Massachusetts Worcester | PO #WA01279714.SUB00000155 | | \$365,321 |
| 93.172 | A Data and Administrative Coordinating Center for the Impact of Genomic Variation on Function Consortium | | | \$357,440 | \$5,011,445 |
| 93.172 | A Data Coordinating Center for ENCODE | | | | \$359,379 |
| 93.172 | A Pharmacogenomics Annotation Toolkit: PharmCAT | University of Pennsylvania | 4957378 / U24 HG010862 | | \$254,656 |
| 93.172 | Alliance Central: A Platform for Sustainable development of next generation genome knowledgebases | California Institute of Technology | S454390 | | \$745,999 |
| 93.172 | Atlas of Regulatory Variants in Diseases (ARVID) | | | | \$694,449 |
| 93.172 | Center for Multi and Trans-ethnic Mapping of Mendelian and Complex Disease | Icahn School of Medicine at Mount Sinai | 0255-C681-4609 / U01 HG009080 | | -\$9,210 |
| 93.172 | Center for Personal Dynamic Regulomes | | | | \$2,722,323 |
| 93.172 | Center for Sub-Cellular Genomics | University of Pennsylvania | 577453 / Prime #RM1 HG010023 | | \$158,772 |
| 93.172 | Clinical Genome Resource (CLINGEN) | Baylor College of Medicine | PO7000001534 / U24 HG009649-06 | | \$2,472,684 |
| 93.172 | Clinical Implementation Resources for Pharmacogenomics (CIRP) | | | | \$121,437 |
| 93.172 | Clinical Pharmacogenetics Implementation Consortium (CPIC) | St. Jude Children's Research Hospital | 11235005A-8106941 | | \$396,435 |
| 93.172 | Comparative Functional Genomics of Yeast | | | \$165,505 | \$480,452 |
| 93.172 | Decoding the regulatory architecture of the human genome across cell types, individuals and disease | | | | -\$1,836 |
| 93.172 | Deep tensor genomic imputation | University Of Washington | UWSC12630 BPO55233 | | \$139,608 |
| 93.172 | Development and application of new tools to identify repeat expansions in human diseases | | | | \$175,258 |
| 93.172 | Development of multi-color 3D super-localization LiveFISH and LiveFISH PAINT to investigate the chromatin dynamics at any genomic scale | | | | \$1,296 |
| 93.172 | Developmental GTEx Laboratory, Data Analysis and Coordination Center | Broad Institute, Inc. | 5001259-5500001635 | | \$117,949 |
| 93.172 | EDGE CMT: Dissecting complex traits in wild isolates of yeast by high-throughput genome editing | | | | \$502,485 |
| 93.172 | ELSIHub/ Center for ELSI Resources and Analysis (CERA) Accessibility Upgrades | | | \$934,586 | \$1,538,612 |
| 93.172 | Enhancing open data sharing for functional genomics experiments: Measures to quantify genomic information leakage & file formats for privacy preservation | Yale University | GR111094 (CON-80002636) | | \$93,945 |
| 93.172 | Function-based exploration of genetic variation at genome-scale | | | | \$782,912 |
| 93.172 | GENCODE: comprehensive reference genome annotation for human and mouse | European Molecular Biology Laboratory - European Bioinformatics Institute | Stanford-4559-06 | | \$183,657 |
| 93.172 | Gene Ontology Consortium and Knowledgebase | University of Southern California | SCON-00003901 | | \$324,946 |
| 93.172 | Genome wide identification and functional analysis of chromatin regulatory RNAs | | | | \$352 |
| 93.172 | Genomic Resource for the Yeast Saccharomyces | | | | \$1,487,600 |
| 93.172 | Genomics Diversity Summer Program (GDSP) at Stanford | | | | \$181,148 |
| 93.172 | High-throughput development and characterization of compact tools for transcriptional and chromatin perturbations | | | | \$1,072,912 |
| 93.172 | High-throughput engineering of combinatorial chromatin signals and epigenetic cellular memory | | | | \$10,671 |
| 93.172 | Institutional Training Grant in Genome Science | | | | \$1,036,248 |
| 93.172 | Integrated Clinical and Transcriptomic Profiling to Characterize Disease Phenotype | | | | \$131,473 |
| 93.172 | Integrating Ethics into Machine Learning for Precision Medicine | | | \$44,772 | \$362,899 |
| 93.172 | Integration of functional data and GWAS to elucidate genetic basis of diseases | | | \$74,354 | \$605,153 |
| 93.172 | Investigating human cis-regulatory evolution with hybrid iPSCs | | | | \$752,357 |
| 93.172 | K-mer indexing for pan-genome reference annotation | | | | \$347,166 |
| 93.172 | Mapping enhancer-gene regulation in single cells to connect genetic variants to target genes and cell types | | | | \$820,641 |
| 93.172 | Mechanisms of Action of Natural Genetic Variation | | | | \$45,245 |
| 93.172 | Methods for charting somatic evolution via multimodal single-cell genomics | | | | \$122,450 |
| 93.172 | Multiplexed In Vivo DNA Assembly | | | | \$1,169,510 |
| 93.172 | New methods for constructing and evaluating polygenic scores | | | \$419,574 | \$1,108,990 |
| 93.172 | Omics information maximization in single-cell sequencing with hybrid molecular and computational approaches | | | | \$503,796 |
| 93.172 | PharmGKB: A Critical Knowledgebase for Personalized Medicine | | | | \$1,190,448 |
| 93.172 | Piloting a standardized psychosocial assessment tool (BATHE) in genetic counseling | | | | \$149,535 |
| 93.172 | Population genetics for large-scale sequencing studies of diverse populations | | | \$201,863 | \$390,564 |
| 93.172 | Predicting context-specific molecular and phenotypic effects of genetic variation through the lens of the cis-regulatory code | | | \$98,250 | \$607,720 |
| 93.172 | Quantitative and functional analysis platform for repetitive genes and gene isoforms in pluripotency regulation and differentiations | Ohio State University | SPC # 1000006103 / GR #124697 | | \$21,727 |
| 93.172 | RegulomeDB: A Resource for the Human Regulome | | | \$335,341 | \$656,380 |
| 93.172 | Single Cell Transcriptomic and Genetic Diversity by Single Molecule Long Read Sequencing | University of Pennsylvania | 580616 | | \$135,762 |
| 93.172 | Single-cell Mapping Center for Human Regulatory Elements and Gene Activity | | | \$627,367 | \$2,303,030 |

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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass-through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|---|---|---|--|----------------------------|
| 93.172 | SOFTWARE FOR LARGE-SCALE INFERENCE OF THE GENETICS OF LIFESTYLE MEASURES, BIOMARKERS, AND COMMON AND RARE DISEASES | | | | \$336,645 |
| 93.172 | Spatial multiomic mapping of gene function and genetic interactions with CRISPRoff | University of California, San Francisco | 13881sc | | \$489,232 |
| 93.172 | Stanford Center for Connecting DNA Variants to Function and Phenotype | | | | \$2,104,077 |
| 93.172 | Stanford Mendelian Genomics Research Center | | | \$15,544 | \$2,558,255 |
| 93.172 | Statistical methods for gene regulatory analysis and single cell genomics | | | | \$193,603 |
| 93.172 | Surfacing values in the economic evaluation of genomic sequencing for diagnosis of children with rare diseases | | | | \$202,743 |
| 93.172 | Systematic identification of RNA sequences and protein components regulating circular RNA translation | | | | \$88,487 |
| 93.172 | Systematic mapping and prediction of gene-enhancer connections | | | | \$105,171 |
| 93.172 | The Ethics of Inclusion: Diversity in Precision Medicine Research | Columbia University | 3(GG014890-01) / SAPO# G16722 | | \$18,695 |
| 93.172 | The pursuit of genetic causal mechanisms | | | \$38,735 | \$325,769 |
| 93.172 | The Stanford Training Program in ELSI Research | | | | \$210,801 |
| 93.172 | Towards Robust Multiplex Genome Engineering Beyond CRISPR-Cas9 | | | | \$190,146 |
| 93.172 | Understanding the "flattening" of gene contributions to human complex traitability | | | | \$40,981 |
| 93.173 | AI-based genetic discovery for hearing loss | | | | \$101,455 |
| 93.173 | Assembly of the Central Olfactory Networks in Drosophila | | | | \$267,077 |
| 93.173 | ARCNS: US-Israeli Research Proposal: Deciphering reorganization of multi-regional activity following category learning | | | | \$247,583 |
| 93.173 | Diversification of the mechanotransduction complex in vestibular hair cells | | | | \$13,128 |
| 93.173 | Engaging new cognitive and motor signals to improve communication prostheses | | | \$227,286 | \$783,848 |
| 93.173 | Evaluating the role of epithelial basal cells in laryngeal homeostasis and disease | | | | \$385,700 |
| 93.173 | Function of LOXHD1 in mechanosensory hair cells | | | | \$316,603 |
| 93.173 | Genetic Regulation of Cochlear Development | Baylor College of Medicine | 7000000816 | | \$62,177 |
| 93.173 | Hedgehog signaling in taste cell maintenance and regeneration | | | | \$124,979 |
| 93.173 | High efficient AAV-transducible transgenic quails | | | | \$129,573 |
| 93.173 | High-resolution localization of the hair cell mechanotransduction channel components by immunogold-scanning electronic microscopy | | | | \$107,686 |
| 93.173 | Human Ear Cellular Atlas | | | | \$662,302 |
| 93.173 | Identifying new sensors for in vivo cochlear imaging | | | | \$346,727 |
| 93.173 | Intuitive, complete neural control of tablet computers for communication | Brown University | 00001517 | | \$15,568 |
| 93.173 | Investigating the role of lipid membrane in the cochlear hair cell mechanotransduction | | | | \$69,407 |
| 93.173 | Investigating the role of mechanotransduction machinery and the rootlet in modulating stereocilia motion | | | | \$14,544 |
| 93.173 | Mechanisms of Mammalian genetic hearing loss | Indiana University | 9676-SJU / PO# (PO0655981) | | \$25,108 |
| 93.173 | Mentoring Patient Oriented Research in sensory disorders | | | | \$49,948 |
| 93.173 | Molecular Analysis of Tmie in sensory hair cells | | | | \$351,558 |
| 93.173 | Molecular basis of mammalian cochlear regeneration | | | | \$105,759 |
| 93.173 | Molecular etiology of virus-induced sensorineural hearing loss | | | | \$146,952 |
| 93.173 | Molecules and Mechanisms of Mammalian Hair Cell Mechanotransduction | | | | \$180,706 |
| 93.173 | Mouse vestibular regeneration and function | | | | \$548,910 |
| 93.173 | Neural defects in zebrafish auditory/vestibular mutants | | | | \$2,683 |
| 93.173 | Neuroimaging Predictors of Pivotal Response Treatment in Young Children with Autism | | | | -\$5,040 |
| 93.173 | Otic Guidance | | | | \$99,417 |
| 93.173 | Regenerative pathways in the avian cochlea | | | | \$669,168 |
| 93.173 | Signal transformations in the vestibulo-ocular circuit | | | | \$15,577 |
| 93.173 | Single-neuron population dynamics in human speech motor cortex for a speech prosthesis | | | \$244,305 | \$830,791 |
| 93.173 | Speaker-Listener Coupling and Brain Dynamics During Naturalistic Verbal Communication in Alzheimer's Disease | | | | \$158,294 |
| 93.173 | Stanford Clinician Scientist Training Program | | | | \$346,482 |
| 93.173 | Synthetic Antimicrobial Peptoids for Treatment of Chronic Suppurative Otitis Media | Maxwell Biosciences, Inc. | 223697 | | \$132,842 |
| 93.173 | The role of macrophages in chronic suppurative otitis media associated sensory hearing loss | | | | \$903,957 |
| 93.173 | Vestibular and Visual Control of Eye Movement | | | \$200,891 | \$646,185 |
| 93.213 | A Clinical Study of Latiglutenase as a Treatment for Symptom Reduction for Celiac Disease | ImmunogenX | SPO 242695 | | \$67,292 |
| 93.213 | A Feasibility Trial of a Group-Based Yoga Intervention for Chronic Pelvic Pain in Women | University of California, San Francisco | 12407sc | | -\$4,791 |
| 93.213 | Defining and Reconstructing the Human Ancestral Microbiome | | | | \$665,218 |
| 93.213 | Engineering Yeast for High Titer Production of Monoterpene Indole Alkaloid Natural Products | University of California, Los Angeles | 0130 G WA210 | | \$154,833 |
| 93.213 | HEAL Collaboratory Resource Coordinating Center: PRISM (U24) | Duke University | A03-2243 | | \$10,287 |
| 93.213 | Innate Immune Mechanisms Contributing to Cancer Growth in Obesity | | | | \$481,206 |
| 93.213 | Microbiota-based probiotics to treat inborn errors in metabolism | | | | \$831,420 |
| 93.213 | Multioomic Signatures of Microbial Metabolites Following Prebiotic Fiber Supplementation | | | | \$16,623 |
| 93.213 | NIH Health Care Systems Research Collaboratory - Coordinating Center (U24) | Duke University | 303000825 | | \$7,997 |
| 93.213 | Ovarian Cancer Survival in African-American Women | Emory University | A359283 / Ro1 CA237318 | | \$47,095 |
| 93.213 | Single Session Pain Catastrophizing Treatment: Comparative Efficacy & Mechanisms | | | | \$120,722 |
| 93.213 | Synthetic biology tools for scalable production of medicinal plant terpenes | | | \$974,289 | \$1,106,855 |
| 93.213 | Trial to Assess Chelation Therapy 2 | Duke Clinical Research Institute | 303000307 | | \$33,984 |
| 93.225 | Reducing Racial Disparities in Advance Care Planning within Neuro-Oncology | | | | \$77,974 |
| 93.225 | Stanford Health Services Research Training Program | | | | \$514,549 |
| 93.226 | Covid-19: A Multi-Site Evaluation of Primary Care Accessibility and Utilization during COVID-19 | MedStar Health Research Institute, Inc. | 5002254336 | | \$50,867 |
| 93.226 | Adaptation and pilot implementation of a validated, electronic real time clinical decision support tool for care of Pneumonia patients in 12 Utah Urgent Care Centers | Intermountain Healthcare | 2020361 / R18 HSo26886 | | \$104,409 |
| 93.226 | Applying Human Factors Science, Design Thinking and Systems Engineering to Mitigate Threats to Neonates Undergoing Resuscitation and Stabilization | | | \$22,518 | \$225,631 |
| 93.226 | Deriving an Evidence Base for Emergency Management in U.S. Hospitals | Harvard School of Public Health | 115424-5119153 | | \$26,875 |
| 93.226 | Development and Validation of a Prediction Model to Address Physician Burnout | | | | \$169,431 |
| 93.226 | Diagnosis and management of pediatric tracheostomy-associated infections | | | | \$12,991 |

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SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass-through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|---|--|---|--|----------------------------|
| 93.226 | Drug interactions and opioid-related emergency room visits and hospitalizations among older adults | Brigham and Women's Hospital | 124148 | | \$8,072 |
| 93.226 | Effect of Bypass Policies on Stroke Treatment in a National Sample of Medicare Beneficiaries | | | | \$328,582 |
| 93.226 | Identifying Optimal Pain Management for Elders | | | | \$463,731 |
| 93.226 | Implementation and Evaluation of a Video-based Prospective Feedback Intervention to Improve Antimicrobial Stewardship in Neonatal Intensive Care Units | Rand Corporation | SCON-00000225 | | \$5,945 |
| 93.226 | Integrating real-time clinical activity and behavioral responses for characterizing cognitive load and errors (IGNITE) | Washington University in St. Louis | WU-23-0300 // PO ST00015875 | | \$13,865 |
| 93.226 | Measuring and Understanding Diagnostic Quality from Large-Scale Data | | | \$11,847 | \$324,571 |
| 93.226 | Physician Organization and the Use, Cost and Outcomes of Care | | | | -\$19 |
| 93.226 | Precision Emergency Medicine: Setting a Research Agenda | | | | \$7,199 |
| 93.226 | Prescribing of opioids at hospital discharge and associated adverse patient outcomes | Harvard University | 153487.5122957.0006 | | \$33,716 |
| 93.226 | Quantification of neonatal transport networks through network analysis: a new approach to studying neonatal regionalization | Beth Israel Deaconess Medical Center | 01060852 | | \$9,118 |
| 93.226 | Safe and Equitable Telehealth for Chronic Conditions (Safe-T C2) Learning Lab | MedStar Health Research Institute, Inc. | 5003108268 | | \$20,610 |
| 93.226 | The Causes and Consequences of the Diffusion of Precision Medicine Evidence from Innovations in Breast Cancer Medicine | | | | \$30,423 |
| 93.226 | Transfusion Recommendations Implemented in the PICU (TRIP) | | | | \$44,177 |
| 93.233 | Arousal circuitry and opiate-associated memories | | | | -\$20,932 |
| 93.233 | Fluorescent polysomnography and MCH neurogenetics | | | | \$508,474 |
| 93.233 | Multi-Institutional Training in Genetic/Genomic Approaches to Sleep Disorders | University of Pennsylvania | 585077 | | \$140,970 |
| 93.279 | The Emergency Department Longitudinal Integrated Care (ED-LINC) Effectiveness Randomized Trial Targeting Opioid Use and Related Comorbidity from the ED | University Of Washington | UWSC13413/BPO 62461 | | \$5,494 |
| 93.242 | 1/2 Genetics at an extreme: an efficient genomic study of individuals with clinically severe major depression receiving ECT | National Network of Depression Centers | 180107 | | \$11,530 |
| 93.242 | 2/2-Mechanism of Antidepressant-Related Dysfunctional Arousal in High-Risk Youth | | | | -\$1,154 |
| 93.242 | A Big Data Approach Toward the Development of a New Quantitative Measure of Restricted and Repetitive Behaviors | | | | \$33,882 |
| 93.242 | A Big Data Approach Toward the Development of New Quantitative Autism Severity Scores from Existing Instruments | John Carroll University | R15-001 | | \$29,232 |
| 93.242 | A Biobehavioral research Training Program | | | | \$376,540 |
| 93.242 | A community-driven development of the brain imaging data standard (BIDS) to describe macroscopic brain connections | University of Texas at Austin | UT AUS-SUB00000386AM2 | | \$82,157 |
| 93.242 | A Latin American biobank for large-scale genetics research on severe mental illness | University of California, Los Angeles | 2000 G YF850 / R01 MH123157 | | \$174,760 |
| 93.242 | A Mobile Intervention for Suicide Prevention For Middle-aged And Older Adults After a Suicide-Related Hospitalization | Weill Medical College of Cornell University - New York | 213492-2 | | \$16,170 |
| 93.242 | A novel method to resolve the complex genome rearrangements of the large copy number variants (CNVs) associated with psychiatric disorders | | | | \$147,849 |
| 93.242 | A Novel Neuromonitoring Guided Cognitive Intervention for Targeted Enhancement of Working Memory | | | | -\$639 |
| 93.242 | A Novel Role of Fragile-X Mental Retardation Protein in Mitochondrial Calcium Homeostasis | | | | \$253,455 |
| 93.242 | A Novel Use of a Sleep Intervention to Target the Emotion Regulation Brain Network and Treat Depression and Anxiety | | | \$5,322 | \$575,518 |
| 93.242 | A Pilot Effectiveness Trial of Cognitive Processing Therapy Augmented with Suicide Risk Management for Individuals with Comorbid PTSD and Borderline Personality Disorder | Palo Alto University | JK-NIMH-SC-Stanford | | \$46,332 |
| 93.242 | A Portable PET Insert System for Simultaneous TOF-PET and MR Brain Imaging | PETcoil, Inc. | 002 | | \$114,927 |
| 93.242 | A Pragmatic Latent Variable Learning Approach Aligned with Clinical Practice | | | \$25,839 | \$435,044 |
| 93.242 | A ribosome interactome that regulates local translation and neural function | | | | \$338,439 |
| 93.242 | A translational approach for novel mechanisms of epigenetic regulation in treatment responses: toward a precision medicine model | New York University | 22-A0-00-1008079 | | \$244,258 |
| 93.242 | A Wearable Optical Imaging System for Daily Monitoring of Prefrontal Activity in ADHD | | | \$5,139 | \$27,293 |
| 93.242 | Advanced Assessment of Auditory-Vocal Affect in Autism with Speech and Music | | | | \$126,557 |
| 93.242 | An integrative framework of cognitive control and reward modulation in children with ADHD: from brain dynamics to clinical symptoms | | | \$23,438 | \$719,107 |
| 93.242 | Anti-interneuron antibodies in rapid-onset pediatric OCD: clinical generalization and target identification | Yale University | CON-80004001 (GR117735) | | \$28,783 |
| 93.242 | BCI-DEF: Brain Computer Interfaces and Disability: Developing an Inclusive Ethical Framework | | | | \$297,605 |
| 93.242 | BRAIN INITIATIVE RESOURCE: Development of a human NeuroElectroMagnetic data Archive and tools Resource (NEMAR) | University of California, San Diego | 122375137,MP PO S9002551 | | \$153,182 |
| 93.242 | Brain-spanning and scale-crossing circuitry mediating drive function and dysfunction | | | | \$308,982 |
| 93.242 | Channel structure-based tools for precise interrogation of circuitry and behavior | | | | \$604,518 |
| 93.242 | Characterizing cognitive control networks using a precision neuroscience approach | | | | \$456,860 |
| 93.242 | Characterizing Cognitive Decline in Late Life Depression: The ADNII-D Project | University of California, San Francisco | 14309sc | | \$3,979 |
| 93.242 | Chronic Axon Hypofunction in Maternal Immune Activation Models of Neurodevelopmental Disorders | | | | \$547,047 |
| 93.242 | Circuit Mechanisms Governing the Default Mode Network | University of North Carolina at Chapel Hill | 5120592 | | \$273,232 |
| 93.242 | Cognitive Restoration: Neuroethics and Disability Rights | Weill Medical College of Cornell University - New York | 226874 | | \$32,225 |
| 93.242 | Combined Dialectical Behavior Therapy and Digital Cognitive Behavioral Therapy for Insomnia for Adolescents at High Risk for Suicide: A Pilot RCT | | | | \$6,165 |
| 93.242 | Computational and brain predictors of emotion cue integration | | | \$30,561 | \$155,942 |
| 93.242 | Confirming the effectiveness and efficacy of Guided Self-Help Family-based Treatment for adolescent Anorexia Nervosa | | | | \$359,817 |
| 93.242 | Confirming the Efficacy/Mechanism of an Adaptive Treatment for Adolescent Anorexia Nervosa | | | \$95,435 | \$396,316 |
| 93.242 | Confirming the Efficacy/Mechanism of Family Therapy for Children with Low Weight Avoidant/Restrictive Food Intake Disorder (ARFID) | | | | \$593,986 |
| 93.242 | CRCNS US-France Research Proposal: Probing the Dorsolateral Prefrontal Cortex and Central Executive Network for Improving Neuromodulation in Depression | | | | \$247,497 |
| 93.242 | Cross modal integration of molecular and physiological networks in ASD (2/2) | | | | \$131,581 |

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SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass- through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|--|---|--|--|-------------------------------|
| 93.242 | Data-driven validation of cognitive RDoC dimensions using deep phenotyping | | | | \$381,319 |
| 93.242 | Determining structure and organization of neurofilaments in situ using cryo- electron tomography | | | | \$250,256 |
| 93.242 | Developing a Quantitative Assessment Tool for Characterizing Social Domains | | | | \$471,141 |
| 93.242 | Developmental trajectory of anxiety, avoidance, and arousal in girls with the FMR1 full mutation | | | | \$314,963 |
| 93.242 | Efficacy of biomarker-guided rTMS for treatment-resistant depression | Weill Cornell Medical College | 225169 / 227203 | | \$851,295 |
| 93.242 | Efficacy of digital cognitive behavior therapy for insomnia for the prevention of perinatal depression | University of California, San Francisco | 13691sc | | \$74,460 |
| 93.242 | Engineered AAV identification, validation, and dissemination pipeline for brain cell type-specific manipulation across species | California Institute of Technology | S539154 | | \$15,931 |
| 93.242 | Ethical, Legal and Social Implications in the Use of Digital Technology for Mental Health Applications | | | | \$137,473 |
| 93.242 | Examining the hierarchical structure of the RDoC framework using large-scale data-driven computational approaches | | | | \$747,455 |
| 93.242 | Function of Neurexins | | | | \$774,190 |
| 93.242 | Functional Heterogeneity of Hypocretin Neurons | | | \$130,120 | \$538,025 |
| 93.242 | Gaining insight into psychiatric disease by engineering piece by piece the human brain in vitro | | | | \$393,280 |
| 93.242 | Gene expression profiling of iPSC derived neurons in Autism Spectrum Disorder | | | \$255,221 | \$353,720 |
| 93.242 | Genetics of Severe Mental Illness | University of California, Los Angeles | 2000 G VF036 / R01 MH113078 | | \$76,918 |
| 93.242 | How is anxiety-related information relayed across hippocampal-prefrontal circuits | University of California, San Francisco | 11465sc | | \$105,517 |
| 93.242 | Identification of Epigenetics Correlates between Brain and Peripheral Tissues | | | \$57,951 | \$468,947 |
| 93.242 | Identification of metabolic alterations during cortical development in a human cellular model for 22q11.2 deletion syndrome | | | | \$1,038,537 |
| 93.242 | Identifying causal genetic variants and molecular mechanisms impacting mental health | | | | \$466,327 |
| 93.242 | Identifying mediators of sex hormone uptake and signaling | | | | \$6,351 |
| 93.242 | Identifying prefrontal signatures of successful and dysfunctional attention | | | | \$46,460 |
| 93.242 | Implementation Support for Prevention Program Delivery by College Peer Educators | | | \$288,241 | \$447,009 |
| 93.242 | Implementing Family-Based Treatment for Adolescent Anorexia Nervosa for Providers in Private Practice: A Feasibility Study | | | \$97,421 | \$243,765 |
| 93.242 | Improving Access and Treatment for Co-occurring Opioid Use Disorders and Mental Illness (3UF1MH121954-01S1) | Rand Corporation | SCON-00000415 | | \$47,878 |
| 93.242 | Improving Cognition via Exercise in Schizophrenia | Icahn School of Medicine at Mount Sinai | 0255-3351-4609 | | \$44,496 |
| 93.242 | Induced neuronal cells: A novel tool to study neuropsychiatric diseases | | | | \$688,361 |
| 93.242 | In-Home Sleep Monitoring to Detect Suicide Risk in Veterans | Palo Alto Veterans Institute for Research | WOS0023-02 | | \$31,210 |
| 93.242 | Integrated, cell type specific functional genomics analyses of regulatory sequence elements and their dynamic interaction networks in neuropsychiatric brain tissues | | | | \$1,728,194 |
| 93.242 | Integration of markers across physiologic, behavioral, and self-report levels at baseline and in response to treatment to characterize novel subtypes in youth with ADHD | | | | \$187,873 |
| 93.242 | Integrative computational models of latent behavioral and neural constructs in children: a longitudinal developmental big-data approach | | | \$19,813 | \$784,714 |
| 93.242 | Interrogation of network-wide neuronal dynamics during fear memory in mouse default mode network | | | | \$157,492 |
| 93.242 | In-utero exposure to psychotropic medications and the risk of neurodevelopmental disorders | Brigham and Women's Hospital | 119487 | | \$23,541 |
| 93.242 | Investigating the neural mechanisms of repetitive brain stimulation with invasive and noninvasive electrophysiology in humans | | | | \$32,978 |
| 93.242 | Large-scale image-based meta-analysis of functional MRI data | University of Texas at Austin | UTA19-000290 | | \$148,881 |
| 93.242 | Latrophilin Function in Synapse Formation | | | | \$749,549 |
| 93.242 | Learning and brain plasticity in children with autism: relation to cognitive inflexibility and restricted-repetitive behaviors | | | | \$275,822 |
| 93.242 | Ligand-Receptor Dynamics and Cellular Responses Studied In Situ Using Venturi Easy Ambient Sonic-Spray Ionization Mass Spectrometry | | | | -\$2,898 |
| 93.242 | Machine learning to distinguish HAND from Alzheimer's disease in HIV over age 60 | University of California, San Francisco | 11254sc | | \$304,910 |
| 93.242 | Mapping Neural Circuit Activity Mediating MDMA's Prosocial Effect | | | | \$220,071 |
| 93.242 | Maternal hair cortisol concentrations, perinatal psychopathology, and offspring behavioral phenotypes | Harvard University | 117369-5122227 | | \$33,885 |
| 93.242 | Mechanistic circuit markers of transcranial magnetic stimulation outcomes in pharmacoresistant depression | | | \$292,708 | \$1,058,795 |
| 93.242 | microRNA tuning of gregarious versus antisocial behavior in juveniles | | | | \$41,518 |
| 93.242 | Molecular Logic Sculpting Cell-Specific Contributions of Neurexin-1 at the Tripartite Synapse | | | | \$169,977 |
| 93.242 | Molecular mechanisms of synaptic neurotransmitter release | | | | \$562,812 |
| 93.242 | Molecular tools for labeling and manipulating functional brain circuits | | | | \$1,223,438 |
| 93.242 | Neural circuits of frustration | | | | \$221,967 |
| 93.242 | Neural Mechanisms of Navigational Decision Making | | | | \$15,404 |
| 93.242 | Neurobehavioral Trajectories of Pediatric Depression and Insulin Sensitivity | | | | -\$56 |
| 93.242 | Neuropeptide S and arousal | | | | \$858,133 |
| 93.242 | Next generation in-vivo diffusion imaging at submillimeter resolution | | | \$619,229 | \$833,686 |
| 93.242 | NIPreps: integrating neuroimaging preprocessing workflows across modalities, populations, and species | | | \$240,512 | \$453,525 |
| 93.242 | NMDAR Modulation As A Therapeutic Target and Probe of Neural Dysfunction in OCD | | | \$13,623 | \$173,909 |
| 93.242 | Novel Quality Measures for Primary Care Management of Attention-Deficit/Hyperactivity Disorder | | | | \$161,892 |
| 93.242 | Only time will tell: a computational psychiatry approach to model temporal transitions in brain activity as a lens towards developing better diagnostic nosology for psychiatric illness | | | | \$551,998 |
| 93.242 | OpenNeuro: An open archive for analysis and sharing of BRAIN Initiative data | | | | \$974,637 |
| 93.242 | Precise neuromodulation for encoding reward in the hippocampus | | | | \$297,422 |
| 93.242 | Predictive Functions and Neural Mechanisms of Spontaneous Cortical Activity | | | | \$26,955 |
| 93.242 | Probing synaptic and circuit mechanisms of hippocampal plasticity with all-optical electrophysiology | | | | \$42,933 |

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SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass-through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|---|--|---|--|----------------------------|
| 93.242 | Psychobiological Mechanisms Underlying the Association Between Early Life Stress and Depression Across Adolescence | | | | \$915,129 |
| 93.242 | Psychosis Risk Evaluation, Data Integration and Computational Technologies (PREDICT): Data Processing, Analysis, and Coordination Center | Brigham and Women's Hospital | 124050 | | \$163,848 |
| 93.242 | Research Career Development Institute for Psychiatry (R25) | University of Pittsburgh | AWD00005793 (138047-2) | | \$21,224 |
| 93.242 | Research Training for Child Psychiatry and Neurodevelopment | | | | \$376,134 |
| 93.242 | Role of L-type Calcium Channels in Human Interneuron Migration and Integration | | | | \$388,224 |
| 93.242 | SCH: Advancing Language-based Analyses of Social Media to Reliably Monitor Variation in Population Mental Health | Stony Brook University, State University of New York | 90077/2/1165626 | | \$84,691 |
| 93.242 | Sex Chromosome GWAS of Post-Traumatic Stress Disorder (PTSD) | | | \$112,261 | \$282,271 |
| 93.242 | Sex hormone effects on neurodevelopment: Controlled puberty in transgender adolescents | | | \$3,978 | \$622,797 |
| 93.242 | Sex hormones and post-traumatic stress disorder (PTSD) | | | \$105,899 | \$435,189 |
| 93.242 | Sleep Disturbance and Emotion Regulation Brain Dysfunction as Mechanisms of Neuropsychiatric Symptoms in Alzheimer's Dementia | | | | \$1,087,847 |
| 93.242 | Small molecule regulation of endogenous transcription factors for circuit-specific neuromodulation | | | | \$678,763 |
| 93.242 | Social factors in the mental health of young adults: Bridging psychological and network analysis | | | | \$984,349 |
| 93.242 | STudents RIsing abOVE: Offsetting the health and mental health costs of resilience | University of California, Los Angeles | 0875 G LA505 | | \$31,680 |
| 93.242 | Study of a PST-Trained Voice-Enabled Artificial Intelligence Counselor (SPEAC) for Adults with Emotional Distress | University of Illinois at Chicago | 19127 | | \$15,840 |
| 93.242 | Target Engagement of a Novel Dissonance-Based Treatment for DSM-5 Eating Disorders R33 Phase | | | \$117,111 | \$325,468 |
| 93.242 | Telehealth 2.0: Evaluating effectiveness and engagement strategies for asynchronous text-based trauma focused therapy for PTSD | | | \$282,991 | \$499,560 |
| 93.242 | Teneurin-3 and Latrophilin-2 in circuit-wide topographic target selection of the extended hippocampal network | | | | \$35,828 |
| 93.242 | TESTING A COMPUTATIONAL MODEL OF NEURAL RESPONSES IN AUTISM | University Of Washington | UWSC12592; BPO 54858 | | -\$183 |
| 93.242 | Thalamic Circuits for Prosocial Behaviors in Mice | | | | \$584,680 |
| 93.242 | The Dynamics of Neural Representations for Distinct Spatial Contexts and Memory Episodes | | | | \$129,451 |
| 93.242 | The Effects of Early Life Stress on the Development of Brain Networks: Predicting Risk for Depression and Suicidal Ideation in Adolescence | | | | \$455 |
| 93.242 | The role of Myt1l in the developing and adult mouse brain | | | | \$786,257 |
| 93.242 | The role of the septum in social memory | | | | \$6,982 |
| 93.242 | Towards elucidating PTSD pathogenesis with ultra-portable and low-cost neuroimaging | | | | \$25,449 |
| 93.242 | Training Program in Basic Neuroscience | | | | \$690,409 |
| 93.242 | Trans-synaptic bidirectional tracing tools for imaging and omics analysis | | | | \$3,870 |
| 93.242 | Utilizing changes in human brain connectivity to establish a dose-response relationship involved in the therapeutic actions of prefrontal brain stimulation on depression symptoms | | | | \$503,694 |
| 93.242 | What are we stimulating with transcranial ultrasound in Mice? | | | | \$166,067 |
| 93.243 | Chekws: Hope for Tomorrow | Two Feathers Native American Family Services | 158007 | | \$59,662 |
| 93.243 | Mental Health Technology Transfer Center (MHTTC) National Coordinating Center (NCC) | | | \$184,217 | \$852,411 |
| 93.243 | Rates of substance use in a homeless health care setting. | American Academy of Addiction Psychiatry | MFG-2021-5 | | \$2,020 |
| 93.262 | Occupational Exposure to PM2.5 and Cardiovascular Disease(CVD) | | | \$7,199 | \$5,940 |
| 93.273 | 3/3 COMpAAAS Tripartite: ART-CC, KP, and VA | Yale University | CON-80003259 (GR114482) | | \$981 |
| 93.273 | A Pilot Trial to Prevent Intoxicated and Impaired Driving Among Adolescents | | | \$8,836 | \$54,631 |
| 93.273 | A SMART evaluation of an adaptive web-based AUD intervention for service members and their partners | | | \$28,165 | \$220,600 |
| 93.273 | A Telehealth Intervention to Increase Screening and Treatment for Alcohol Use Disorder | Ria Technology Management Inc. | SPO 251736 | | \$69,498 |
| 93.273 | Alcohol: A Modifiable Risk Factor for Ataxia and Decline in MCI | | | \$320,218 | \$739,649 |
| 93.273 | Alcohol-related sleep disturbances and circuit dynamics of arousal neuropeptides | | | | \$329,454 |
| 93.273 | CNS Deficits: Interaction of Age and Alcoholism | SRI International | PO61769 | | \$263,874 |
| 93.273 | Compounded Neuronal Damage in Comorbid Cigarette Smoking and Addiction | Indiana University | IN4687305SU / PO0511706 | | \$215,133 |
| 93.273 | Defining Phenotypes of Alcohol-Associated Liver Disease with Acute Hepatic Decompensation | | | | \$235,110 |
| 93.273 | Effects of GABA Co-Release on Alcohol-Induced Synaptic Plasticity | | | | \$18,893 |
| 93.273 | Ethanol and aldehyde dehydrogenases in health and disease | | | | \$701,579 |
| 93.273 | HIV & Alcohol Research center focused on Polypharmacy (HARP) | Yale University | CON-80003832 (GR117457) | | \$173,853 |
| 93.273 | Improving alcohol and substance use care access, outcomes, and equity during the reproductive years: A Type 1 Hybrid Trial in Family Planning Clinics | Columbia University | 2(GG013892-01) | | \$72,603 |
| 93.273 | Longitudinal Analysis of Diffusion Tensor Imaging to Discover Adolescent Alcohol Use Effect | | | | \$99,871 |
| 93.273 | Longitudinal Study of Recovery: Psychosocial Functioning, Relapse, and Neuro-Behavioral Markers | Virginia Tech | 412710-19751 | | \$20,249 |
| 93.273 | NCANDA: Data Analysis Resource -Uploading Legacy Data to NDAR | | | \$564,096 | \$957,961 |
| 93.273 | Neural Basis of alcohol/substance use disorders and suicide in American Indians | Scripps Research Institute | 5-53951 | | \$29,611 |
| 93.273 | Personalized Integrated Alcohol and Sexual Assault Prevention among College Students | Georgia State University | SP00015075-03 | | \$31,863 |
| 93.273 | Smartphone sensors to detect shifts toward healthy behavior during alcohol treatment | Rutgers, The State University of New Jersey | SUB00002523 | | \$40,461 |
| 93.273 | Testing the efficacy of a CBT-enhanced text message intervention to reduce symptom burden in individuals with post-traumatic stress disorder symptoms and co-occurring hazardous drinking | University Of Washington | UWSC13328,BPO 61190 | | \$33,222 |
| 93.273 | The trajectory of fetal alcohol spectrum disorders (FASD) across the Life Span: Continuing Prevention and longitudinal epidemiology | University of North Carolina at Chapel Hill | 5114785 | | \$9,516 |
| 93.273 | Tracking HIV Infection and Alcohol Abuse CNS Comorbidity with Neuroimaging | SRI International | PO32128 | | \$409,541 |
| 93.273 | Understanding and testing recovery processes for PTSD and alcohol use following sexual assault | University Of Washington | UWSC11653; BPO 45799 | | \$44,289 |
| 93.279 | A comprehensive dissection of cell types, circuits and molecular adaptations during opioid use | University of North Carolina at Chapel Hill | 5121156 | | \$485,557 |

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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass- through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|--|---|--|--|-------------------------------|
| 93.279 | A patch versus matrix circuit dissection of opioid abuse | | | | \$89,491 |
| 93.279 | A Preliminary Investigation of Pre-Frontal repetitive Transcranial Magnetic Stimulation (rTMS) for the Treatment of Cannabis Use Disorder | | | | \$58,506 |
| 93.279 | A Social Network AOD Intervention for Homeless Youth Transitioning to Housing | Rand Corporation | SCON-00000412 | | \$15,142 |
| 93.279 | Advanced Nucleation Technologies for Membrane Protein Crystallization to Accelerate Structure-Based Drug Design for Substance Use Disorders | DeNovX | SPO 250820/2R44DA047146-02 | | \$126,926 |
| 93.279 | Alaska Native Family-Based, Financial Incentives Intervention for Smoking Cessation: an RCT | Mayo Clinic | BOA-297565/PO #68714504 | | \$27,804 |
| 93.279 | Allosteric modulation of the mu-opioid receptor | University of Michigan | SUBK00011171 // 3006153540 | | \$81,866 |
| 93.279 | Applying novel technologies and methods to inform the ontology of self-regulation | Dartmouth College | R1075 | | -\$5,315 |
| 93.279 | Cannabis, Depression and Neurobiological Function in Transition-Age Youth | | | \$879,878 | \$14,477 |
| 93.279 | Center for Dissemination and Implementation At Stanford (C-DIAS) | | | | \$2,112,028 |
| 93.279 | Characterizing the role of fronto-striatal connectivity in value-based decision-making | | | | \$60,213 |
| 93.279 | Collegiate recovery programming in the U.S.: An implementation science and mixed methods study | | | | \$1,147 |
| 93.279 | Computational Methods for Identification of Genetic Factors Affecting the Response to Drug Abuse | | | | -\$45,225 |
| 93.279 | Effect of pain catastrophizing on prescription opioid craving | | | | \$175,136 |
| 93.279 | Examining patterns of opioid overdose hotspots and opioid treatment deserts in California | | | | \$21,572 |
| 93.279 | Feasibility, Acceptability, and Efficacy of the Cannabis Awareness and Prevention Toolkit | | | | \$275,930 |
| 93.279 | HD2A Research Adoption Support Center (RASC) | | | \$441,368 | \$1,284,449 |
| 93.279 | HEAL Data2Action Modeling and Economic Resource Center | Weill Cornell Medical College | 222892-1 | | \$18,302 |
| 93.279 | Identifying and Disseminating Substance, Treatment, Strategy (STS) recommendations to AIDS Service Organizations | Ohio State University | GR128886 | | \$28,227 |
| 93.279 | Improving the Measurement of Brain-Behavior Associations in Adolescence_46843172 | | | | \$70,731 |
| 93.279 | Inhibitory synaptic transmission, stress, and drugs of abuse | | | \$127,697 | \$442,738 |
| 93.279 | Interdisciplinary Research Training in Pain and/or Substance Use Disorders | | | | \$405,246 |
| 93.279 | Interpretable Deep Forecasting of Hazardous Substance Use during High School | | | \$30,241 | \$208,933 |
| 93.279 | Interrogation of dopaminergic activity using non-invasive ultrasound | | | | \$279,023 |
| 93.279 | Making Better Decisions: Policy Modeling for AIDS and Drug Abuse | | | \$99,411 | \$830,278 |
| 93.279 | Medication for Opioid Use Disorder, Predictability of Retention vs Attrition | Oregon Health & Science University | 1017225- 005_STANFORD_C4 | | \$274,882 |
| 93.279 | Modulation of protracted opioid withdrawal by dorsal raphe dynorphin neurons | | | | \$157,076 |
| 93.279 | Multivariate Machine Learning to Characterize Opioid-induced Alterations in the Brain in Chronic Pain | | | | \$179,640 |
| 93.279 | Neural circuit dynamics of drug action:revealing, uncoupling, and restoring altered brain states | | | | \$1,269,583 |
| 93.279 | Neural circuit mechanisms of drug-context associations in the hippocampus | | | | \$13,232 |
| 93.279 | Participatory System Dynamics vs Audit and Feedback: A Cluster Randomized Trial of Mechanisms of Implementation Change to Expand Reach of Evidence-based Addiction and Mental Health Care | Palo Alto Veterans Institute for Research | ZIM0002-01 | | \$5,587 |
| 93.279 | Prevention Research Center: Parenting Among Women Who Are Opioid Users | University of Oregon | 217300F | | \$184,046 |
| 93.279 | Prospects for hepatitis C elimination in networks of people who inject drugs through improvements in the care continuum | | | | \$74,468 |
| 93.279 | Psychological Risk Factors for Persistent Opioid Use and Prevention of Chronic Opioid Use and Misuse After Surgery: Postoperative Motivational Interviewing and Guided Opioid Weaning | | | | \$461,117 |
| 93.279 | Reducing racial disparities in the treatment of opioid use disorder using machine learning-based causal analysis | | | | \$238,270 |
| 93.279 | Research and Mentoring in Innovative Patient Oriented Pain and Opioid Science | | | | \$205,938 |
| 93.279 | RTC of Woebot for Treating Substance Use Disorders | Woebot Health | SPO#138716-3 | | \$77,612 |
| 93.279 | Single Session Pain Catastrophizing Class: Efficacy & Mechanisms for Reducing Opioid Use Among Chronic Pain Patients | | | | \$190,285 |
| 93.279 | Stagewise Implementation-To-Target- Medications for Addiction Treatment (SITT-MAT) | | | \$284,834 | \$576,442 |
| 93.279 | Structural and molecular identification of circuitry underlying joint processing of motivation and aversion | | | | \$622,625 |
| 93.279 | Substance use and DNA methylation at the intersection of sex and gender. | University of California, San Francisco | 128028c | | \$115,933 |
| 93.279 | Targeting natural killer cells to HIV in intravenous drug users | | | | \$723,610 |
| 93.279 | Telemedicine for Treatment of Opioid Use Disorder | Harvard University | 153367.5117905.0003 | | -\$2 |
| 93.279 | Thalamic Circuits Underlying Opioid Seeking | | | | \$397,104 |
| 93.279 | The Comparative Effectiveness and Safety of Pharmacotherapies for the Treatment of Opioid Use Disorder in Pregnancy | Brigham and Women's Hospital | 123125 | | \$96,852 |
| 93.279 | The Epidemiology and Economics of Chronic Back Pain | | | | \$185,853 |
| 93.279 | Tracking the opioid epidemic with social media: an early warning system | | | | \$117,661 |
| 93.279 | Understanding the Mechanistic Interrelationship Between Sleep, Co-Occurring Cannabis and Alcohol Use Disorder, and Neurocircuit Dysfunction during Early Abstinence | Palo Alto Veterans Institute for Research | PAD0006-01 | | \$139,265 |
| 93.279 | Validation and pharmacological profiling of a non-psychoactive THC analog, a novel and selective CB2 receptor agonist, in proof of concept studies using rodent models of heroin addiction | | | | -\$4,269 |
| 93.279 | Western States Node of the National Drug Abuse Treatment Clinical Trial Network | Oregon Health & Science University | 1017225_STANFORD | | \$168,779 |
| 93.286 | "Array-Compressed Parallel Transmission for High Resolution Neuroimaging at 7T" | Vanderbilt University | 62239AM1/PO P22009266 | | -\$16 |
| 93.286 | A machine learning ultrasound beamformer based on realistic wave physics for high body mass index imaging | University of North Carolina at Chapel Hill | 5121302 / R01 EBO2919 | | \$257,674 |
| 93.286 | A Wireless, Implantable Microdevice for Closed-Loop Drug Delivery to Prevent the Morbidity of Diabetes Therapy-Induced Hypoglycemia | | | | -\$9,701 |
| 93.286 | Accessing the Neuronal Scale: Designing the Next Generation of Compact Ultra High Field MRI Technology for Order-of-Magnitude Sensitivity Increase in Non-Invasive Human Brain Mapping | | | | -\$11,304 |
| 93.286 | An acquisition and reconstruction framework to enable mesoscale human fMRI on clinical 3 Tesla scanners | | | | \$225,025 |
| 93.286 | Anatomically Guided Sodium MRI: Accurately Monitoring Chronic Ion Pump Dysfunction in the Human Brain | | | | \$523,590 |
| 93.286 | B7-H3 Targeted Ultrasound Molecular Imaging System for Early Breast Cancer and Metastatic Detection | | | | \$167,931 |

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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass-through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|--|--|---|--|----------------------------|
| 93.286 | Cancer Classifiers Based on RNA Sensors in Living Cells | | | | \$175,161 |
| 93.286 | Center for Advanced Imaging Innovation and Research (CAI2R) Sub ID 8315, TR&D 3:Enriching the Data Stream: MR and PET in Concert | New York University | PO #M240697902/19-A0-00-000454 | | \$36,313 |
| 93.286 | Center for Mesoscale Mapping Project 2: Acquisition technology for in vivo functional and structural MR imaging at the mesoscopic scale | Massachusetts General Hospital | 237185 / P41 EBO30006 | | \$162,113 |
| 93.286 | Cerebrovascular Reserve Imaging with Simultaneous PET/MRI Using Arterial Spin Labeling and Deep Learning | | | | \$105,756 |
| 93.286 | Clutter Suppression in Echocardiography Using Short-Lag Spatial Coherence Imaging | | | | \$128,370 |
| 93.286 | CRCONS: Crossbeam Transcranial Ultrasound Technology to Stimulate the Deep Brain | | | | \$255,730 |
| 93.286 | CRCONS: US-France-Israel Research Proposal: A personalized approach to brains stimulation | | | | \$290,051 |
| 93.286 | Development and Translation of High Performance Receive Arrays for Pediatric MRI | | | -\$2,403 | -\$2,403 |
| 93.286 | Development and Translation of Hyperpolarized C-13 Prostate Cancer MRI Methods | University of California, San Francisco | 11361sc | | \$107,447 |
| 93.286 | Development and Validation of Radiation-Free Pediatric Renal Function Quantification | | | \$4,033 | \$139,778 |
| 93.286 | Development of Imaging Probes for Risk Assessment of Alzheimer's Disease using Phage Display | | | | \$211,702 |
| 93.286 | Development of Molecular Microbubble Probes and Ultrasound-Guidance in Immunotherapeutic Strategies | | | | \$100,575 |
| 93.286 | Dissecting distributed representations by advanced population activity analysis methods and modeling | | | | \$86,619 |
| 93.286 | Dual layer x-ray detector for coronary artery calcium scoring | University of California, Santa Cruz | A22-0655-S001 | | \$177,499 |
| 93.286 | Dual orthogonal fluorescent protease sensors for image guided surgery | | | | \$227,498 |
| 93.286 | Elementary Neuronal Ensembles to Whole Brain Networks: Ultrahigh Resolution Imaging of Function and Connectivity in Humans | University Of Minnesota | N006269301 / U01 EBO25144 | | \$148,362 |
| 93.286 | Enabling the Next Generation of High Performance Pediatric Whole Body MR Imaging | | | \$211,979 | \$738,133 |
| 93.286 | Endovascular Interventional MRI: Optimizing Tools and Techniques at 3T | University of California, San Francisco | 11070sc | | \$98,559 |
| 93.286 | Engineered biomaterials to modulate cell-cell signaling for the robust expansion of stem cells | | | | \$204,193 |
| 93.286 | Enhanced MR for morphological characterization of ligaments, tendons and bone | State University of New York at Buffalo | R1334075 | | \$74,231 |
| 93.286 | Exosome separation and digital resolution detection of blood-based nucleic acid biomarkers for noninvasive therapeutic diagnostics in cancer | University of Illinois at Urbana Champaign | 100817-18111 / R01 EBO29805 | | \$45,442 |
| 93.286 | Exploring concepts in nanophotonics and metamaterials to create a 'super-scintillator' for time-of-flight positron emission tomography | | | | \$227,422 |
| 93.286 | Fingerprinting-Based Neuronal Fiber Identification in Brain Surgery | New York University | 19-A0-00-1002836/PO M230653585 | | \$12,206 |
| 93.286 | Flexible and Wireless Bioelectronics for Continuous Monitoring of Intracranial Pressure | | | | \$3,132 |
| 93.286 | fMRI Technologies for Imaging at the Limit of Biological Spatiotemporal Resolution | Massachusetts General Hospital | 236792 / R01 EBO19437 | | \$124,244 |
| 93.286 | Focused kV X-ray Modulated Conformal Radiotherapy for Small Targets | | | | \$435,985 |
| 93.286 | Hatching Organoids for Continuous Tissue Production Pipelines | | | | \$370,830 |
| 93.286 | High-Resolution Breast MRI at 3.0T | | | | \$646,763 |
| 93.286 | Imaging human brain oxygenation and oxygen metabolism dynamics | University of California, Davis | A22-0970-S001 | | \$27,628 |
| 93.286 | Imaging of Metabolic Bone Response due to Localized Mechanical Loading | | | | \$312,996 |
| 93.286 | Improving Liver Ultrasound Image Quality in Difficult-to-Image Patients | | | \$21,259 | \$766,221 |
| 93.286 | In vivo PET imaging of novel engineered AAVs informs capsid design | | | \$483,085 | \$1,155,341 |
| 93.286 | Injectable Hydrogels to Protect Transplanted Cells from Hypoxia | | | \$26,330 | \$81,989 |
| 93.286 | Investigation of nanobubble nucleation during radiation therapy | | | | \$16,846 |
| 93.286 | Low-cost, handheld light sheet microscope for guiding anal cancer diagnosis | University of Arizona | 610659 | | \$57,851 |
| 93.286 | Mobilize Center Supplement: Integrating OpenCap and SimTK to Enhance Data-Sharing | | | | \$941,268 |
| 93.286 | Molecular Imaging of Pyruvate Kinase M2 | | | | \$264,620 |
| 93.286 | MR/PET Motion Correction from Coil Fingerprints | | | | \$154,685 |
| 93.286 | MRI Corticography: Developing Next Generation Microscale Human Cortex MRI Scanner | University of California, Berkeley | 00010552; PO# BBO1635407 | | \$59,252 |
| 93.286 | Multi-Disciplinary Training Program in Cardiovascular Imaging at Stanford | | | | \$298,951 |
| 93.286 | New Statistical Methods for Medical Signals and Images | | | | \$412,534 |
| 93.286 | New tools for tracking single cells in vivo | | | \$55,837 | \$664,521 |
| 93.286 | Novel Transducer Technology for Transcranial Ultrasound | | | | \$54,644 |
| 93.286 | Osteoarthritis: Quantitative Evaluation of Whole Joint Disease with MRI | | | \$195,604 | \$608,367 |
| 93.286 | Pediatric volumetric ultrasound scanner | | | | \$30,760 |
| 93.286 | PET tracer for imaging senescence | | | | \$3,712 |
| 93.286 | Probing basophil function in microfluidic systems for allergic disease diagnosis | | | | \$263,678 |
| 93.286 | Quantitative Assessment of Early Metabolic and Biochemical Changes in Osteoarthritis | | | | \$102,832 |
| 93.286 | Rapid MRI Acquisition for Pediatric Low-grade Gliomas | | | | -\$1 |
| 93.286 | Rapid Robust Pediatric MRI | | | \$60,100 | \$130,166 |
| 93.286 | Real time non-invasive monitoring of endotracheal tube placement and 3D lung monitoring in infants using electrical impedance tomography | Colorado State University | G-70007-02 | | \$36,280 |
| 93.286 | SCH: INT: A Virtual Surgery Simulator to Accelerate Medical Training in Cardiovascular Disease | | | | \$477,364 |
| 93.286 | Single-Shot Quantitative X-ray Imaging for Interventional Procedures | | | | \$113,223 |
| 93.286 | Skin-like wearable biosensors for multimodal mental health biomarker monitoring | | | | \$10,092 |
| 93.286 | Stanford Biodesign/Bioengineering Clinical Need Identification Bootcamp for Undergraduates | | | | \$25,870 |
| 93.286 | Staphylococcus serine hydrolases as targets for therapeutic and imaging contrast agents | | | | \$83,866 |
| 93.286 | Sub-Millimeter PET System Design | University of California, Santa Cruz | A20-0581-S002 / R01 EBO28091 | | -\$110 |
| 93.286 | Synthetic DNA-free Circuits for "Scarless" Programming of Mammalian Cells | | | | \$229,901 |
| 93.286 | Translation and Validation of a Radiofrequency-Penetrable PET insert for Simultaneous PET/MRI imaging of Neurological Disorders | | | \$132,628 | \$682,500 |
| 93.286 | Tumor-targeted delivery and cell internalization of theranostic gadolinium | | | \$539 | \$108,093 |

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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass- through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|---|--|--|--|-------------------------------|
| 93.286 | Ultra-precision Positron Emission Tomography (PET) via Picosecond Optical Detection | | | | \$31,455 |
| 93.286 | VINE Catheter: Soft, Tip-extending, Robotic Catheters with Shape Control for Endovascular Surgery | University of California, San Diego | 705614/PO# KR705614 | | \$69,385 |
| 93.307 | A Promotora-centric Community Collaborative to Improve Connections to Mental Health Services | | | \$68,588 | \$963,677 |
| 93.307 | Common and Distinct Influences of Prenatal and Postnatal Early-Life Adversity on Epigenomic Trajectories in Mexican American Children | University of California, Berkeley | 00011196/R01MD016595BB 01687814 | | \$94,110 |
| 93.307 | Development and Cross-Validation of a Hospital Risk Screening Tool for Posttraumatic Psychological Disorder | Palo Alto Veterans Institute for Research | CAS0012-02 | | \$31,484 |
| 93.307 | Elucidating lung cancer etiology among Asian American female never smokers | University of California, San Francisco | 119848c | | \$14,704 |
| 93.307 | Epigenomic mechanisms of risk and resilience: The role of parenting | Emma Pendleton Bradley Hospital aka Bradley Hospital | 712-7665 / R01 MD015401 | | \$34,165 |
| 93.307 | Hospital quality, Medicaid expansion and racial/ethnic disparities in maternal mortality and morbidity | University Of South Carolina | 21-4270 | | \$21,851 |
| 93.307 | Identifying, refining, and testing sexual orientation and gender identity measures to detect and delineate sexual and gender minority populations for population research | | | | \$40,783 |
| 93.307 | Immigrant Families and Children's Health: The Intergenerational Health Impact of Federal and State Immigration Policy | | | \$128,222 | \$836,763 |
| 93.307 | Increasing Medicaid Acquisition and Sustainment among the Uninsured | | | | \$28,262 |
| 93.307 | Machine Learning Models of Appropriate Medevac Utilization in Rural Alaska | | | | \$206,955 |
| 93.307 | Preventing HIV among Native Americans through the treatment PTSD & substance use | University Of Washington | UWSC11400 // PO-0100022140 | | \$37,040 |
| 93.307 | Quantifying patient-specific tumor evolutionary dynamics and resistance mechanisms in HER2-positive breast cancers treated with targeted therapy | | | | \$6,459 |
| 93.307 | Race/Ethnicity, DNA Methylation, and Disparities in Cardiovascular Mortality: NHANES 1999-2002 | University of Michigan | 3004739345 / R01 MD011721 | | \$118,951 |
| 93.307 | Reducing Disparities for the Uninsured: Identifying Opportunities for Improved Coverage Through Emergency Medicaid Programs | | | | \$159,342 |
| 93.307 | Stanford Precision Health for Ethnic and Racial Equity (SPHERE) Transdisciplinary Collaborative Center | | | -\$138,126 | \$120,856 |
| 93.307 | The ADELANTE Trial: Testing a multi-level approach for improving household food insecurity and glycemic control among Latinos with diabetes | | | \$63,986 | \$477,471 |
| 93.307 | Using census data linkages to study long-term impacts on disparities in DNA methylation | | | | \$21,985 |
| 93.310 | 4DN Interrogation of T Cell Exhaustion in Cancer | | | | \$503,081 |
| 93.310 | A Framework for the Social Impact of Algorithms in Health Care | | | | \$377,409 |
| 93.310 | A Global Map of Interactions Among All Human Cell Surface Proteins and Secreted Ligands | California Institute of Technology | \$586569 | | \$153,449 |
| 93.310 | A single cell pooling framework for deciphering the regulatory wiring of allergy in pathophysiologic contexts | | | | \$354,676 |
| 93.310 | Blood bank community-listening sessions | Scripps Research Institute | 5-54734 | | \$42,072 |
| 93.310 | Brain-wide screen for a neural pacemaker of aging | | | | \$2,188,514 |
| 93.310 | Building the foundations of commensal vaccines | | | | \$747,288 |
| 93.310 | Center for Undiagnosed Diseases at Stanford | | | | \$560,217 |
| 93.310 | Closing the loop: development of real-time, personalized brain stimulation | | | | \$598,021 |
| 93.310 | Comprehensive Structural and Functional Mapping of Mammalian Colonic Nervous System | University of California, Los Angeles | 1556 G WA054 | | -\$252 |
| 93.310 | Creating a Catalog of Cancer Clonotype Drug Sensitivities with Single-Cell Genome Sequencing | | | | \$169,471 |
| 93.310 | Creating high-resolution, epitope-focused vaccines | | | \$142,122 | \$998,087 |
| 93.310 | Developing approaches for universal organ transplantation | | | | \$185,757 |
| 93.310 | Engineering and Imaging 3D genome structure-function dynamics across time scales | University of Pennsylvania | 5-U01-DK-127405-03/ PO 4885094 | | \$207,044 |
| 93.310 | Enhancing the RADx Data Hub for Data FAIRness | | | \$2,084,643 | \$3,806,217 |
| 93.310 | Forecasting tumor evolution: can the past reveal the future? | | | | \$934,691 |
| 93.310 | From Optogenetic Functional MRI to Mechanogenetic Functional Ultrasound | | | | \$2,021,124 |
| 93.310 | Glioma Circuitry: Bridging Systems Neuroscience and Cancer | | | | \$884,150 |
| 93.310 | Harnessing the chromatin conformational code for epigenetic regulation | | | | \$356,499 |
| 93.310 | High dimensional atlas of circulating neutrophils as reporters of solid organ functional status | | | | \$719,186 |
| 93.310 | Hijacking the T cell machinery for logic-gated CAR T cell control | | | | \$359,330 |
| 93.310 | In Vivo Control and Functional Visualization of Stem Cell-Driven CNS Regeneration | | | | -\$9 |
| 93.310 | Innovations and mechanisms in tumor subcellular metabolism | | | | \$563,127 |
| 93.310 | Live-cell multiplex super-resolution imaging of chromatin state transitions | | | | \$882,237 |
| 93.310 | Midwest Murine-Tissue Mapping Center (MM-TMC) - DATA ANALYSIS CORE | University Of Minnesota | P010409604 | | \$1,675 |
| 93.310 | Multimodal histologic atlas of human bone marrow | | | \$152,207 | \$1,578,422 |
| 93.310 | Covid-19: Multi-Modal Wireless COVID Monitoring & Infection Alerts for Concentrated Populations | | | \$79,465 | \$1,385,267 |
| 93.310 | Next-Generation Genomic Imaging Technology | | | | \$126,981 |
| 93.310 | OCT as a Platform for Non-Invasive Virtual H&E Biopsy | | | | \$301,498 |
| 93.310 | PRIDENet for the All of Us Research Program | | | \$365,676 | \$2,735,971 |
| 93.310 | Real-time biosensor for mapping the function of the pancreas | | | \$51,065 | \$50,623 |
| 93.310 | Role of Innate Immune Dysregulation in the Etiology of Dementia | | | | \$1,139,878 |
| 93.310 | Stanford MoTrPAC Bioinformatics Center | | | | \$2,553,160 |
| 93.310 | Covid-19: Stanford Precision Health for Ethnic and Racial Equity (SPHERE) Transdisciplinary Collaborative Center | | | \$189,890 | \$454,567 |
| 93.310 | Stanford Tissue Mapping Center | | | \$61,430 | \$100,692 |
| 93.310 | Stanford Tissue Mapping Center - STELLAR | | | \$95,916 | \$2,078,753 |
| 93.310 | Stanford/Salk MoTrPAC Site for Genomes, Epigenomes and Transcriptomes | | | \$232,756 | \$2,924,045 |
| 93.310 | Stanford-SLAC CryoET Specimen Preparation Service Center (SCSC) | | | | \$1,384,365 |
| 93.310 | Structure and Pharmacologic Modulation of the Mitotic Chromosome's Central Axis | | | | \$282,911 |
| 93.310 | Targeted Advertising for Cancer Prevention | | | | -\$10,540 |
| 93.310 | The Stanford-SLAC CryoEM Center | | | | \$13,316,715 |
| 93.310 | Trillion cell culture to fuel organ biofabrication | | | | \$618,108 |
| 93.310 | Unraveling neuronal circuits and causal underpinnings of long time-scale social strategic behaviors | | | | \$642,317 |
| 93.323 | Covid-19: CA-FACTS: Solano and Santa Clara County | Public Health Foundation Enterprises, Inc. | SPO 219313 | | \$7,657 |

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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass-through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|--|---|---|--|----------------------------|
| 93.323 | Covid-19: CALSCOPE: Seroepidemiology survey for COVID with CDPH | Public Health Foundation Enterprises, Inc. | 0187.1170 | | \$68,028 |
| 93.349 | Packaging and Spreading the Stanford Pediatric Weight Control Program - A Family-Based, Group, Behavioral Weight Control Program for Children with Obesity and their Families | | | | \$710,419 |
| 93.350 | An automated system to differentiate Kawasaki disease from febrile illness with real life clinical datasets in New York City | HBI Solutions, Inc. | 168393 | | \$167,573 |
| 93.350 | Collaborative care teams for hospitalized patients with opioid use disorders: Translating evidence into practice (START) | Cedars-Sinai Medical Center | 0002074888 | | \$25,100 |
| 93.350 | Effect of Microgravity on Drug Responses Using Engineered Heart Tissues | | | \$314,245 | \$520,426 |
| 93.350 | Institutional Career Development Core (KL2) | | | | \$1,890,005 |
| 93.350 | Joint Pain on a Chip: Mechanistic Analysis, Therapeutic Targets, and an Empirical Strategy for Personalized Pain Management | University of Pittsburgh | AWD00004800 (136874-2) | | \$122,912 |
| 93.350 | Stakeholder Guidance to Anticipate and Address Ethical Challenges in Applications of Machine Learning and Artificial Intelligence in Algorithmic Medicine: a Novel Empirical Approach | | | | \$536,376 |
| 93.350 | Stanford Center for Clinical & Translational Education and Research (Spectrum) | | | \$285,962 | \$8,609,734 |
| 93.350 | Tissue Chip Modeling of Synovial Joint Pathologies: Effects of Inflammation and Adipose-Mediated Diabetic Complications | University of Pittsburgh | CNVA00056727 (136357-2) | | \$47,943 |
| 93.350 | Understudied GPCRs connecting signaling in primary cilia to obesity and metabolic disease | | | | \$157,763 |
| 93.351 | A suite of conditional mouse models for secretome labeling | | | | \$12,893 |
| 93.351 | Abberior Infinity Line Upright 3D STED/Confocal Microscope | | | | \$727,370 |
| 93.351 | Agilent 6495 Triple Quadrupole Mass Spectrometer for Targeted Quantitation | | | | \$569,654 |
| 93.351 | Animal Research Equipment, Digital Cages & Metabolic, Avoidance, Fear Conditioning, Place Preference, Self-Administration, Open Field & Microdialysis Systems for Translational Neuroscience | | | | \$67,613 |
| 93.351 | Bellymount: A platform for ultra-long term imaging of abdominal organs in live adult Drosophila | | | | -\$2,223 |
| 93.351 | Comparative Medicine Biosciences Training Program | | | | \$186,980 |
| 93.351 | Enabling AI-based Mouse Genetic Discovery | | | | \$19,702 |
| 93.351 | Frequent concatemeric insertions during AAV6/Cas9-mediated genome editing: Detection and Prevention | | | | \$271,912 |
| 93.351 | Immunogenomics of susceptibility to tuberculosis (TB) among nonhuman primate species | | | | \$135,382 |
| 93.351 | Kinetic Imaging Cytometer (KIC) for High Throughput Studies of Cellular Physiology | | | | \$368,128 |
| 93.351 | Multiparametric, deep tissue microscope for in vivo and in vitro imaging | | | | \$600,000 |
| 93.351 | Research Opportunities in Comparative Medicine | | | | \$3,308 |
| 93.351 | Understanding SHRF, an RNA exosome-linked disease with multi-organ involvement | | | | \$98,193 |
| 93.353 | A population-based virtual solution to reduce gaps in genetic risk evaluation and management in families at high risk for hereditary cancer syndromes: The Georgia-California GeneLINK Trial | University of Michigan | SUBK00012496,PO:300722 2548 | | \$205,779 |
| 93.353 | BAY AREA & ANDERSON TEAM AGAINST ACQUIRED RESISTANCE - U54 PROGRAM (BAATAAR-UP) | University of California, San Francisco | 12033sc | | \$111,659 |
| 93.353 | Breast Pre-Cancer Atlas Center | Duke University | A030739, A030743 / U2C CA233254, A032658 | | \$388,563 |
| 93.353 | Cancer Immunotherapy Trials Network Central Operations and Statistical Center | Fred Hutchinson Cancer Center | 0001110501 | | \$8,232 |
| 93.353 | CD22 and CD19/22 CAR immunotherapies for childhood leukemia | Children's Hospital of Philadelphia | 3201380619 / PO 20031486-RSUB | | \$379,953 |
| 93.353 | Center for therapeutic targeting of the Fusion Oncoprotein of Fibrolamellar Hepatocellular Carcinoma | Rockefeller University | 1U54CA243126-01 PI Dr. Simon | | \$585,396 |
| 93.353 | Discovery and Development of Optimal Immunotherapeutic Strategies for Childhood Cancers (Admin Core) | Children's Hospital of Philadelphia | Sub3201380619 PO20031499-RSUB | | \$4,445 |
| 93.353 | Discovery and Development of Optimal Immunotherapeutic Strategies for Childhood Cancers (Project 1) | Children's Hospital of Philadelphia | 3201380619 PO 20028638-RSUB | | \$42,723 |
| 93.353 | Discovery and Development of Optimal Immunotherapeutic Strategies for Childhood Cancers (Project 3) | Children's Hospital of Philadelphia | PO 20031487-RSUB / 3201380619 | | \$4,111 |
| 93.353 | Engineering the next generation of T cells | University of Pennsylvania | 578222 PO 4789738 | | \$181,142 |
| 93.353 | Human Tumor Atlas Network: Data Coordinating Center | Dana-Farber Cancer Institute | 1288405 | | \$119,720 |
| 93.353 | Humoral Immunity after CAR-T cell therapy for B cell malignancies: The HICAR Study | Fred Hutchinson Cancer Center | 0001141213 | | \$25,375 |
| 93.353 | Precancer Atlas of Familial Adenomatous Polyposis | | | | \$674,674 |
| 93.353 | Protein Kinase Therapeutic Targets for Non-Small Cell Lung Carcinoma (P01) | Dana-Farber Cancer Institute | 1244109 | | -\$33,140 |
| 93.353 | Stanford Cancer Immune Monitoring and Analysis Center (CIMAC) | | | | \$1,754,142 |
| 93.353 | The Cellular Geography of Therapeutic Resistance in Cancer | Dana-Farber Cancer Institute (505) | 1206304 | | \$170,512 |
| 93.353 | The Center for Therapeutic Targeting of EWS-oncoproteins | Dana-Farber Cancer Institute | 1207105 | | \$453,061 |
| 93.353 | The Lung PCA: A Multi-Dimensional Atlas of Pulmonary Premalignancy | Boston University | 4500003003 | | \$166,184 |
| 93.361 | A mixed-methods study of the nature, extent and consequences of artificial intelligence (AI) for individualized treatment planning in end-of-life and palliative care (EOLPC) | University of Colorado Denver | FY23.1160.002 | | \$18,280 |
| 93.361 | Aspiration in Acute Respiratory Failure Survivors | University of Colorado | FY22.342.005-FY23.342.013 | | \$26,216 |
| 93.361 | Building a causal pathway framework to identify interventions to eliminate racial/ethnic disparities in severe maternal morbidity | | | \$91,400 | \$819,693 |
| 93.361 | More than a Movement Disorder: Applying Palliative Care to Parkinson's Disease | University Of Rochester | SUB00000258 / URFAO: GR532709 | | \$2,480 |
| 93.361 | NIH/NINR R01 NRO15452B Targeting Autonomic Flexibility to Enhance Cognitive Training Outcomes in Older Adults with Mild Cognitive Impairment | University Of Rochester | SUB00000132/UR FAO GR531705 | | \$133,307 |
| 93.361 | Severe Maternal Morbidity: An Investigation of Racial-Ethnic Disparities, Social Disadvantage & Maternal Weight | | | \$64,164 | \$179,567 |
| 93.361 | Covid-19: Transcending COVID-19 barriers to pain care in rural America: Pragmatic comparative effectiveness trial of evidence-based, on-demand, digital behavioral treatments for chronic pain | Cedars-Sinai Medical Center | 0001896816 | | \$8,730 |
| 93.365 | Sickle Cell Treatment Demonstration Program | Center for Inherited Blood Disorders (CIBD) | CIBDIX2014HRSA-STAN-09 | | \$26,352 |

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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass-through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|---|---|---|--|----------------------------|
| 93.386 | Role of the microenvironment in ovarian cancer metastasis | University of California, San Francisco | 14150sc | | \$104,873 |
| 93.393 | (PQ1) Identifying and targeting human glioblastoma migrating in the peritumoral niche | | | | \$19,901 |
| 93.393 | Advancing Science & Policy in the Retail Environment (ASPIRE) | University of North Carolina at Chapel Hill | 5112337 | \$105,912 | \$693,798 |
| 93.393 | AGA/CISNET Blood Biomarker Analyses | Memorial Sloan Kettering Cancer Center | PO C22296148 | | \$12,372 |
| 93.393 | An integrative omics approach to investigate gene-environment interaction in colorectal cancer risk | Fred Hutchinson Cancer Research Center | 0001153565 | | \$3,829 |
| 93.393 | Biological and cancer-associated role of epitranscriptomic gene expression regulation | | | | \$63,595 |
| 93.393 | Breast Cancer Family Registry Cohort | Columbia University | 5(GG013725-08)/PO#G15627 | | \$272,694 |
| 93.393 | Breast Pre-Cancer Atlas Center | Duke University | A030740 | \$885,589 | \$667,324 |
| 93.393 | Characterizing germline and somatic alterations by glioma subtypes and clinical outcome | | | | \$1,265,585 |
| 93.393 | CIPN RoI: Leveraging machine learning to improve risk prediction for chemotherapy induced neuropathy | | | \$384,764 | \$537,451 |
| 93.393 | Comparative Modeling of Effective Policies for Colorectal Cancer Control | Memorial Sloan Kettering Cancer Center | MSKSUB00000141/POC22283120A | | \$7,939 |
| 93.393 | Comparative modeling of gastric cancer disparities and prevention in the US and globally | Columbia University | GG015389-02/SAPO G17113 | | \$79,153 |
| 93.393 | Comparative Modeling of Lung Cancer Prevention, Early Detection and Treatment Interventions | University of Michigan | SUBK00012359 / PO #3006744964 | | \$41,377 |
| 93.393 | Comparative Modeling of Precision Breast Cancer Control Across the Translational Continuum: Supplement to Study Treatment Dissemination from Insurance Claims | University of Wisconsin-Madison | 0000001488 / U01 CA253911 | | \$372,862 |
| 93.393 | Comprehensive profiling of the tumor microenvironment to predict patient response to immunotherapy | | | | \$34,826 |
| 93.393 | Defining the Mechanism of Genome Rearrangements in Ph-Like ALL to Determine Predictive Markers in High-Risk Hispanic Populations | University of California, Irvine | 2022-1669 / R37 CA266042 | | \$55,536 |
| 93.393 | Development and clinical evaluation of the CapScan gastrointestinal sampling device for metabolomics monitoring | Envivo Bio Inc. | Stanford Subaward 1 | | \$5,155 |
| 93.393 | Discovery, Biology and Risk of Inherited Variants in Glioma | | | \$415,572 | \$730,160 |
| 93.393 | Epigenetic drivers of cancer progression | Johns Hopkins University | 2004395797 | | \$76,811 |
| 93.393 | Evaluation of genetic, clinical, and environmental risk factors to establish effective screening strategies for second primary lung cancer | | | \$45,074 | \$665,211 |
| 93.393 | Evaluation of the Be Vape Free Curriculum of the Tobacco Prevention Toolkit | | | | \$632,179 |
| 93.393 | Feasibility Study of a Country-Wide Colorectal Cancer Screening Program in Chile | Memorial Sloan Kettering Cancer Center | PO #C22402301 | | \$15,702 |
| 93.393 | Flexible NLP toolkit for automatic curation of outcomes for breast cancer | Mayo Clinic - Arizona | LSJ-303290; PO#68962847 | | \$47,774 |
| 93.393 | Functional and Translational Epigenomics of Acute Lymphoblastic Leukemia | | | | \$414,791 |
| 93.393 | Genetic testing, treatment use, and mortality after diagnosis of breast and ovarian cancer: The Georgia-California GeneLINK Initiative | | | \$16,186 | \$29,388 |
| 93.393 | Genomic and Morphologic Predictor of High-Risk DCIS | | | -\$334 | -\$334 |
| 93.393 | Histone deacetylation signaling in aging and cancer pathways | Palo Alto Veterans Institute for Research | CUA0006-01 | | \$134,939 |
| 93.393 | Insights from Asian populations into disparities in breast cancer prognosis and outcomes | University of California, San Francisco | 12260sc | | \$96,437 |
| 93.393 | Integrating Multiple Electronic Health Records Systems to Improve Lung Cancer Outcomes | | | | \$25,607 |
| 93.393 | Integrative approaches to elucidate p53 transcriptional networks during carcinogenesis | | | | \$950,289 |
| 93.393 | Leveraging Diversity in Cancer Epidemiology Cohorts and Novel Methods to Improve Polygenic Risk Scores | University of Southern California | SCON-00003762 / U01 CA261339 | | \$174,891 |
| 93.393 | Leveraging gnotobiotic models to study the gut microbiota and anti-tumor immunity | | | | \$86,086 |
| 93.393 | Leveraging Implementation Science to Promote Behavior Change and Reduce Cancer Health Disparities among American Indian and Alaska Native Older Adults | | | | \$89,024 |
| 93.393 | LncRNA mechanisms in cancer | | | | \$830,416 |
| 93.393 | Local Flavor Policies to Enhance Equity in Tobacco | University of Kentucky Research Foundation, The | PO: 7800006031 | | \$74,026 |
| 93.393 | Mechanism of Action of the TBX3 Gene in Breast Cancer | | | | \$85,523 |
| 93.393 | Molecular mechanisms of SCLC initiation and detection in mice and humans | | | \$10,035 | \$479,561 |
| 93.393 | Molecular Pathoepidemiology of Contralateral Breast Cancer | Fred Hutchinson Cancer Center | 0001124481 | | \$13,702 |
| 93.393 | Molecular Pathoepidemiology of Contralateral Breast Cancer | Sloan Kettering Institute for Cancer Research | SUB00000131AM5 BD526393B | | \$4,843 |
| 93.393 | Multicenter Randomized Controlled Trial of Brief Behavioral Therapy for Cancer Related Insomnia | Virginia Commonwealth University | FP00017971_SA002 | | \$143,361 |
| 93.393 | Multilevel Determinants of Racial/Ethnic Disparities in Lung Cancer Screening Utilization | Kaiser Foundation Research Institute | RNG211988-Stanford | | \$21,940 |
| 93.393 | NGTC - STANFORD (Developing next generation cell therapies for children with solid tumors) | | | | \$362,073 |
| 93.393 | Organoid-Based Discovery of Oncogenic Drivers and Treatment Resistance Mechanisms | | | | \$48,202 |
| 93.393 | Pancreatic cancer stem cells: PD2-mediated novel mechanistic link and metabolomic alterations | | | | \$92,821 |
| 93.393 | Population Modeling of Bladder Cancer Detection and Control | Brown University | 00002241 | | \$43,571 |
| 93.393 | Precision Prostate Cancer Screening with Genetically Adjusted Prostate-Specific Antigen Levels | | | \$242,579 | \$448,477 |
| 93.393 | Project RESIST - Increasing Resistance to Tobacco Marketing Among Young Adult Sexual Minority Women Using Inoculation Message Approaches | University of Pennsylvania | PO #4793972 / 580371 | | \$32,726 |
| 93.393 | Regulatory Impact on Vape Shops and Young Adults' Use of ENDS | George Washington University | 19-M72 | | \$71,091 |
| 93.393 | Retail Environment for Tobacco and Marijuana in California: Impact on College Student Use | | | | \$165,190 |
| 93.393 | Reversing Cellular immortality in cancer | | | | \$173,673 |
| 93.393 | Role of NSD3 in regulation of cancer pathogenesis | University of Texas MD Anderson Cancer Center | 3002170957 | | \$97,114 |

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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass-through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|--|---|---|--|----------------------------|
| 93.393 | Role of SETD5 in Chromatin Regulation and Tumorigenesis | University of Texas MD Anderson Cancer Center | 3001326346 | | \$116,259 |
| 93.393 | Structural Cell Biology of DNA Repair Machines (Project 4 Fork Repair: Mechanisms and consequences of stalled replication fork processing) | Lawrence Berkeley National Laboratory | Subcontract No.7615089 | | \$54,150 |
| 93.393 | Symptom Screening Linked to Care Pathways for Children with Cancer: a Cluster Randomized Trial (Aims 1 & 3) | Hospital for Sick Children | 6610100234 | | \$46,612 |
| 93.393 | The mechanistic basis for constitutional MLH1 methylation (epimutation) | Cedars-Sinai Medical Center | 0001625789 | | \$113,578 |
| 93.393 | The regulation of innate immune sensors to control GVHD and GVL after allogeneic hematopoietic stem cell transplantation | | | | \$88,760 |
| 93.393 | Theory and methods for mediation and interaction | Harvard University | 117202-5120557 | | \$13,761 |
| 93.393 | Tobacco Retail Policy Innovation to Reduce Health Disparities | University of California, San Francisco | 11572sc | \$15,080 | \$61,577 |
| 93.393 | Unraveling mechanisms of tumor suppression in lung cancer | | | | \$498,264 |
| 93.393 | Very-long term neurocognitive outcomes in breast cancer survivors | Virginia Commonwealth University | FP00018011_SA002 | | \$60,559 |
| 93.393 | Very-long term neurocognitive outcomes in breast cancer survivors | | | | -\$16 |
| 93.393 | Virally-induced tumorigenesis controlled by the microbiota | University of Chicago | Sub FP068995-02-4 | | \$93,010 |
| 93.394 | A Genomic Framework for Molecular Risk Prediction & Individualized Lymphoma Therapy | | | | \$561,874 |
| 93.394 | A Noninvasive Integrated Genomic Approach for Early Cancer Detection and Risk Stratification after Transplantation | | | \$4,066 | \$602,301 |
| 93.394 | A prospective, multi-center pivotal study of the LUM Imaging System for real-time, in vivo margin assessment in breast conserving surgery | Massachusetts General Hospital | 231701 | | \$112,777 |
| 93.394 | Abbreviated Non-Contrast-Enhanced MRI for Breast Cancer Screening | | | | \$505,968 |
| 93.394 | Advanced Development of the MasSpec Pen for Cancer Diagnosis and Surgical Margin Evaluation | Baylor College of Medicine | 7000001687 / R33 CA229068 | | \$32,181 |
| 93.394 | Advanced Imaging Tools to Assess Cancer Therapeutics in Pediatric Patients | | | | \$453,825 |
| 93.394 | An integrated microtechnology platform for spatially resolved mass spectrometry-based proteomics | | | | \$129,764 |
| 93.394 | Analysis of urine tumor nucleic acids for detection and personalized surveillance of bladder cancer | | | | \$567,776 |
| 93.394 | Automated Volumetric Molecular Ultrasound for Breast Cancer Imaging | | | | \$301,640 |
| 93.394 | Changing brachytherapy with MRI remnant-tumor segmentation and active-catheter placement | Johns Hopkins University | PO #2004786918 | | \$21,568 |
| 93.394 | Chemical Glycoproteomics | | | | \$461,857 |
| 93.394 | Circulating Genomic Determinants of Treatment Failure in Hodgkin Lymphoma | | | \$5,080 | \$915,780 |
| 93.394 | Clinical Validation of Metabolic Markers Detected by Mass Spectrometry Imaging for Diagnosis of Thyroid Fine Needle Aspiration Biopsies | Baylor College of Medicine | P700000211 | | \$11,856 |
| 93.394 | Co-Clinical Research Resource for Imaging Tumor Associated Macrophages | | | | \$597,634 |
| 93.394 | Computational analysis of tumor ecosystems and their regulation and association with outcomes | | | | \$118,603 |
| 93.394 | Computational imaging approaches to personalized gastric cancer treatment | | | | \$139,612 |
| 93.394 | Copper-depleting nanotheranostics for treating triple negative breast cancer | | | \$71,668 | \$531,416 |
| 93.394 | DESI-MS detection of positive surgical margins in kidney cancer | | | | -\$29,255 |
| 93.394 | Distributed Learning of Deep Learning Models for Cancer Research | | | \$51,288 | \$52,637 |
| 93.394 | Dual Modality X-ray Luminescence CT for in vivo Cancer Imaging | | | | \$516,941 |
| 93.394 | Early therapeutic monitoring of response to therapy with serial ultrasound in metastatic RCC | | | | \$39,570 |
| 93.394 | Enhanced Deuterium Metabolic Imaging (DMI) of Metabolic Reprogramming in Brain Tumors | | | | \$418,446 |
| 93.394 | Evaluation of Patients with Low-Risk and Intermediate-Risk Prostate Cancer Scheduled for High-Dose Rate Brachytherapy Using 68Ga-RM2 PET, 68Ga-PSMA-11PET and Multi Parametric MRI | | | | \$80,154 |
| 93.394 | Exploring a promising design for the next generation time-of-flight PET detector | | | | \$441,376 |
| 93.394 | Glycosylation and Immune Evasion in Urologic Tumors | | | | \$552,763 |
| 93.394 | HIFU-immunotherapy in pancreatic cancer | | | | \$656,326 |
| 93.394 | High Resolution Ultrasound in Interventional Radiology | | | \$199,740 | \$451,630 |
| 93.394 | Highly Sensitive Detection of Occult Pancreatic Cancer Using Intraoperative Molecular Imaging | | | | \$76,217 |
| 93.394 | Identification of serum protein biomarkers by profiling N-glycoproteomes of patient-derived xenografts of clear cell renal cell carcinoma | | | | \$133,540 |
| 93.394 | Image Analysis Tools for mpMRI Prostate Cancer Diagnosis Using PI-RADS | Eigen | SPO 162975 | | \$35,788 |
| 93.394 | Imaging and circulating DNA markers to assess early response and predict treatment failure patterns in lung cancer | | | | \$516,185 |
| 93.394 | Imaging Biomarkers for Glioma Treatment Response | | | | \$157,917 |
| 93.394 | Imaging Modulation of Immune Phenotype | | | \$53,536 | \$653,152 |
| 93.394 | Improving diagnostic US for reduction of benign breast biopsies using US-guided Optical Tomography | Washington University in St. Louis | WU-21-40-MOD-2 / PO ST00000058 | | \$44,081 |
| 93.394 | Insonation of ultrasound microbubbles at low frequency to enhance image-guided therapy | | | | \$376,868 |
| 93.394 | Intraoperative integration of artificial intelligence during cystoscopic surgery | | | | \$475,760 |
| 93.394 | Large aperture and wideband modular ultrasound arrays for the diagnosis of liver cancer | | | \$103,842 | \$178,499 |
| 93.394 | Leveraging deep learning for markerless motion management in radiation therapy | | | | \$334,412 |
| 93.394 | Mechanisms and Duration of Immunity to SARS-CoV-2 | | | \$37,242 | \$1,994,534 |
| 93.394 | Molecular Imaging Methods for the Detection of Pancreatic Ductal Adenocarcinoma | | | | \$230,717 |
| 93.394 | Molecularly-Targeted Ultrasound in Ovarian Cancer | | | | \$147,032 |
| 93.394 | MR-Guided Focused Ultrasound Combined with Immunotherapy to Treat Malignant Brain Tumors | | | | -\$120,631 |
| 93.394 | Multimodal iterative sequencing of cancer genomes and single tumor cells | | | | \$314,177 |
| 93.394 | Multi-modal machine learning to guide adjuvant therapy in surgically resectable colorectal cancer | | | | \$40,323 |
| 93.394 | Multiregional imaging phenotypes and molecular correlates of aggressive versus indolent breast cancer | | | | \$338,504 |
| 93.394 | Multi-scale modeling of glioma for the prediction of treatment response, treatment monitoring and treatment allocation | | | | \$776,057 |
| 93.394 | Nanoparticle-based Triple Modality Imaging and Photothermal Therapy of Brain Tumors | | | | \$1,570 |
| 93.394 | Optical Imaging to Improve Surgery & Targeted Therapy in Brain Tumors | | | \$12,072 | \$476,463 |
| 93.394 | Outcomes for CLL patients treated with novel therapy | Mayo Clinic | LSJ-287002-01; PO# 68952769 | | \$36,086 |

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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass-through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|--|--|---|--|----------------------------|
| 93-394 | Pancreatic Cancer Imaging Repository | University of Texas MD Anderson Cancer Center | 3001529436 | | -\$473 |
| 93-394 | Pathomic Predictors of Prostate Cancer Progression | | | \$365,594 | \$833,063 |
| 93-394 | Preclinical microphysiological tumor models for nuclear medicine | | | | \$152,220 |
| 93-394 | Predicting Relapse at the Time of Diagnosis in Acute Lymphoblastic Leukemia | | | | \$723,159 |
| 93-394 | Prognostic Metabolic Signatures of Cancers through Mass Spectrometry Imaging | | | | -\$3,930 |
| 93-394 | Prostate Cancer Active Surveillance Study (PASS) Cohort: Infrastructure Support for Cancer Research | Fred Hutchinson Cancer Center | #0001110246 | | \$23,177 |
| 93-394 | Quantitative volumetric ultrasonic and photoacoustic tomography | | | | \$442,253 |
| 93-394 | Rad-pathomic deep learning models to assist radiologists in differentiating aggressive from indolent prostate cancer on MRI | | | | \$598,806 |
| 93-394 | Rapid and affordable magneto-nanosensors for ctDNA-guided lung cancer management | | | \$128,812 | \$488,568 |
| 93-394 | Serial Ultrasound to Detect Early Response to Immunotherapy in Metastatic RCC | | | | \$192,660 |
| 93-394 | The Impact of FUS-Mediated Brain Cancer Therapy on BBB Transport, Cytokines, and Immocyte Trafficking | | | | \$284,496 |
| 93-394 | The Prognostic Significance and Mechanistic Determination of Chromatin Remodeling Biomarkers in Non-Functional Pancreatic Neuroendocrine Tumor | University of Pittsburgh | AWD00004384 (136403-1) | | \$102,774 |
| 93-394 | Therapeutic miRNA Modulation of Hepatocellular Carcinoma Using Ultrasound Guided Drug Delivery | | | | \$70,610 |
| 93-394 | Three-Dimensional Multi-Parametric Ultrasound for Monitoring Therapy of Liver Metastasis | | | | \$419,479 |
| 93-394 | Treatment Resistance in Breast Cancer: Cellular-to-Molecular Profiling | University of California, Berkeley | 00010696 BB01464994 | | \$12,295 |
| 93-394 | Ultrabright Theranostic SERRS Nanoparticles for Gastrointestinal Endoscopy | | | | \$868,723 |
| 93-394 | Ultrasound-enhanced drug penetration for treatment of pancreatic cancer | | | \$105,958 | \$297,110 |
| 93-394 | Validation of Biomarkers for Early Diagnosis and Risk Prediction of Pancreatic Neoplasms | University of Pittsburgh | CNVA00047829 (133836-4) | | \$18 |
| 93-395 | 3' tsRNAs: biologic function and pre-clinical targeting for treating human disease | | | | \$44,216 |
| 93-395 | A Cas13d-based screening approach to engineer exhaustion-resistant CAR T cells | | | | \$94,884 |
| 93-395 | A micro-dissection platform for generating uniform-sized patient-derived tumor organoids (PDOs) for personalized cancer therapy | | | | \$193,613 |
| 93-395 | A Novel Paradigm for the Development of a Peptide Vaccine to Treat KRAS Mutant Cancers | | | | \$163,864 |
| 93-395 | An artificial intelligence-driven distributed stereotactic radiosurgery strategy for multiple brain metastases management | University of Texas Southwestern Medical Center Dallas | GMO210506 PO 0000002339 | | \$82,618 |
| 93-395 | Bone Marrow Grafting and Cellular Therapy for Leukemia and Lymphoma | | | | \$2,939,105 |
| 93-395 | Chemical manipulation of creatine kinases to treat acute myeloid leukemia | Dana-Farber Cancer Institute | 1318701 | | \$118,179 |
| 93-395 | Circadian regulation of cancer therapy-associated neuroinflammation | | | | \$187,396 |
| 93-395 | COG NCTN Committee Leadership - Kimberly Pyke-Grimm | Public Health Institute | AR10369/PO# 0000003600 | | \$9,052 |
| 93-395 | Comprehensive Investigation of Multiple Myeloma Genetic Susceptibility in African Americans | | | | \$152,767 |
| 93-395 | Degrading therapeutically important kinases using small molecules | | | \$304,153 | \$362,725 |
| 93-395 | Developing Safe and Effective GD2-CAR T Cell Therapy for Diffuse Midline Gliomas | | | \$42,450 | \$762,157 |
| 93-395 | Development of AI-Augmented quality assurance tools for radiation therapy | | | \$11,118 | \$48,118 |
| 93-395 | Development of novel protein-based therapeutics for lung cancer | University of California, San Francisco | 10698sc | | \$180,804 |
| 93-395 | Diagnostic Imaging Reviewer Study ID: AEWS1221 (AR61597) | Public Health Institute | AR61597/0000004532 | | \$3,749 |
| 93-395 | Discovering and exploiting mechanisms of neuroblastoma therapy resistance | Children's Hospital of Philadelphia | GRT-00000636 / PO# 20213670 | | -\$83 |
| 93-395 | Discovery and optimization of novel mutant-selective allosteric inhibitors of EGFR T790M | Dana-Farber Cancer Institute | 1273107 | | \$439,554 |
| 93-395 | ECOG-ACRIN Operations Center - Administrative | ECOG-ACRIN Medical Research Foundation, Inc. | U10CA180820-06-STU1A | | \$10,303 |
| 93-395 | Effects of FLASH Radiation on Cancer and the Immune Response | | | | \$546,661 |
| 93-395 | Elucidating the role of cancer-associated FGL1 in tumor immunity and developing FGL1-guided anti-LAG-3 cancer immunotherapy | New York University | 22-A0-00-1007872 / M230686511 | | \$24,217 |
| 93-395 | Engineering 3D Osteosarcoma Models to Elucidate Biology and Inform Drug Discovery | | | | \$114,067 |
| 93-395 | Enhancing Cancer Immunotherapy: Targeting the Tumor and Targeting the Host | | | | \$807,214 |
| 93-395 | Generating a Systemic Immune Response Using Localized Delivery of Chemotherapy in Brain Tumors | | | \$110,571 | \$273,045 |
| 93-395 | Harnessing Continuous Liquid Interface 3D Printing to Improve Tumor-homing Stem Cell Therapy for Post-surgical Brain Cancer | University of North Carolina at Chapel Hill | 5123951 | | \$99,308 |
| 93-395 | HIJACKING CANCER DRIVERS TO ACTIVATE PROAPOPTOTIC GENES IN DLBCL | | | | \$341,689 |
| 93-395 | Identification of serum protein biomarkers by profiling N-glycoproteomes of patient-derived xenografts of neuroendocrine prostate cancer | | | | \$134,435 |
| 93-395 | Immunotherapy Modeling in Organoids Co-preserving Tumor and Infiltrating Immune Compartments | | | | \$788,225 |
| 93-395 | Improving the Safety and Quality of Eye Plaque Brachytherapy by Assembly with Intensity Modulated Loading | | | | \$23,897 |
| 93-395 | Increasing the therapeutic index of brain tumor treatment through innovative FLASH radiotherapy | University of California, Irvine | 2020-1309 / P01 CA244091 | | \$655,456 |
| 93-395 | Innovative Cell Therapy for Pediatric Acute Myeloid Leukemia | | | | \$1 |
| 93-395 | Integrated ligand and target discovery by chemical proteomics for glioblastoma treatment. | | | \$290,633 | \$598,475 |
| 93-395 | Molecular basis of tumor suppression by Cdk4/6 inhibition | University of California, Santa Cruz | A19-0344-S001-PO700755 | | \$96,588 |
| 93-395 | Molecular Strategies to Widen the Therapeutic Index of Radiotherapy | | | \$65,375 | \$1,489,345 |
| 93-395 | Molecularly-based outcome and toxicity prediction after radiotherapy for lung cancer | | | \$7,476 | \$516,078 |
| 93-395 | New Materials to Deliver mRNA: Applications in Cancer Immunotherapy | | | | \$504,348 |
| 93-395 | NIH National Clinical Trials Network (NCTN) | Public Health Institute | AR61845 PO:0000004611 | | \$16,446 |
| 93-395 | NK cells, their receptors, and cancer therapy | University Of Minnesota | P008703403 | | \$32,904 |
| 93-395 | Non-genomic resistance mechanisms in EGFR-mutant lung cancer | Massachusetts General Hospital | 241302 | | \$50,332 |

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| 93.395 | Novel Intervention Approaches to Alleviate Allogeneic Transplant-Related Morbidity & Mortality | Fred Hutchinson Cancer Center | 0001110489/0001142854 | | \$19,254 |
| 93.395 | Novel Mechano-Acoustic Enhancement of Immunotherapy | | | | \$112,330 |
| 93.395 | Novel therapeutic approaches for enhancing anti-tumor immunity in SCLC (00005748) | University of Texas MD Anderson Cancer Center | 3001826340 | | -\$7 |
| 93.395 | NRG Oncology Network Group Operations Center | NRG Oncology Foundation, Inc. | NRG-Le-GY6 / U10 CA180868 | | \$105,488 |
| 93.395 | Pathology Review: NIH National Clinical Trials Network (NCTN) Grant (2U10CA180886) | Public Health Institute | AR61846 PO:0000004610 | | \$46,466 |
| 93.395 | Patient- and tumor-specific biomarkers and mechanisms that predict irAEs resulting from checkpoint inhibition | Vanderbilt University Medical Center | VUMC74848 | | \$144,565 |
| 93.395 | Pediatric Brain Tumor Consortium | St. Jude Children's Research Hospital | 11006823I-8080815, 11006824I-8143163 | | \$52,506 |
| 93.395 | Phase 1 and 2 Molecular and Clinical Pharmacodynamic Trials ETCN | Beckman Research Institute Of The City Of Hope | 61984.2008185.669303 | | \$95,848 |
| 93.395 | Phase one clinical trial of a novel small molecule EBNA1 inhibitor, VK-2019, in patients with Epstein- Barr positive nasopharyngeal cancer, with pharmacokinetic and pharmacodynamic correlative studies | | | \$133,841 | \$839,232 |
| 93.395 | Preclinical optimization of ultra-high dose rate (FLASH) radiotherapy parameters for translational relevance | University of Texas MD Anderson Cancer Center | 3002038840 | | \$208,975 |
| 93.395 | Preserving Erectile Function by Quantifying the Nerve-Sparing step of the Robotic Prostatectomy | University of Southern California | SCON-00003680 | | \$34,213 |
| 93.395 | QBS10072S for the Treatment of Brain Metastatic Triple-Negative Breast Cancer | Quadriga Biosciences, Inc. | SPO 183921 | | \$200,375 |
| 93.395 | Radioluminescence dosimetry solution for precision radiation therapy | | | \$187,989 | \$343,789 |
| 93.395 | Randomized Controlled Trial of Virtual Reality for GI Cancer Pain to Improve Patient Reported Outcomes | Cedars-Sinai Medical Center | 0001900521 | | \$8,770 |
| 93.395 | Strategies for Receptor inhibition in immunotherapy | | | \$79,078 | \$324,223 |
| 93.395 | Synthetic IL9R signaling to rewire T cells for adoptive cell therapy of cancer | | | | \$309,024 |
| 93.395 | Synthetic Studies Related to Cancer Research/Treatment | | | | \$454,761 |
| 93.395 | Targeting ALK through Degradation and Allosteric Inhibitors | | | \$195,743 | \$368,089 |
| 93.395 | Targeting apoptotic cells to enhance radiotherapy | | | | \$344,171 |
| 93.395 | Targeting CDK7 in CCNE1-amplified Ovarian Cancer | | | \$669,573 | \$900,188 |
| 93.395 | Targeting colorectal cancer stem cells with ALDH1B1 antagonists | | | | \$444,382 |
| 93.395 | Targeting Dectin-2 on Tumor-associated Macrophages for the Treatment of Cancer | | | | \$396,418 |
| 93.395 | Targeting Ferroptosis in BRAF (V600E) Mutant Anaplastic Thyroid Cancer | | | | \$16,527 |
| 93.395 | Targeting the transcriptional and epigenetic landscape in chemo-refractory Small-Cell Lung Cancer | New York University | 17-A0-00-008395 M220526771 | | -\$1 |
| 93.395 | The molecular basis of IMiD induced neo-substrate recruitment to the CRL4CRBN ubiquitin E3 ligase | Dana-Farber Cancer Institute | 1300006 | | \$125,003 |
| 93.395 | The TOPAS Monte Carlo simulation toolkit for physics, biology and clinical research in radiotherapy | University of California, San Francisco | 10824sc / U24CA215123-05 | | \$279,209 |
| 93.395 | Therapeutic targeting of NSD2 in lung adenocarcinoma | University of Texas MD Anderson Cancer Center | 3002200065 | | \$3,972 |
| 93.395 | TOPAS - nBIO, a Monte Carlo Tool for Radiation Biology Research | Massachusetts General Hospital | 236149 / R01 CA187003 | | \$105,030 |
| 93.395 | Tumor Hypoxia: Molecular Studies & Clinical Exploitation | | | -\$3,466 | -\$3,466 |
| 93.396 | (#6) A novel animal model for determining the role of circadian timing in breast cancer development | | | | \$533,080 |
| 93.396 | (PQ4) Quantitative and multiplexed analysis of gene function in cancer in vivo | | | | \$323,481 |
| 93.396 | A Novel Assay to Individualize Resensitization of Iodine-Refractory Thyroid Cancer | | | | \$10,601 |
| 93.396 | A robust platform for multiplexed, subcellular proteomic imaging in human tissue | | | | \$196 |
| 93.396 | Adipocytes are Important Players in the Acute Lymphoblastic Leukemia Microenvironment | University of California, Los Angeles | 1645 G VA145 | | -\$11,649 |
| 93.396 | ATP-Dependent Chromatin Remodeling in Human Malignancy | | | | \$259,579 |
| 93.396 | Cellular Senescence Network: New Imaging Tools for Arthritis Imaging | | | \$50,000 | \$737,737 |
| 93.396 | Delineating developmental programs driving tumorigenesis in triple-negative breast cancer | | | | \$486,368 |
| 93.396 | Determining and targeting mechanisms controlling cancer cell division | | | \$242,734 | \$1,040,270 |
| 93.396 | Dissecting the interplay between aging, genotype and the microenvironment in lung cancer | | | | \$471,150 |
| 93.396 | Effect of radiotherapy on dendritic cell subsets: implications for immunotherapy | | | | \$156,075 |
| 93.396 | Elucidating the Role of Trop2 in Prostate Cancer | | | \$32,512 | \$143,057 |
| 93.396 | Elucidating the Role of UCHL1 in Aggressive Prostate Cancer | | | \$9,670 | \$94,224 |
| 93.396 | Genetic Determinants of Tumor Growth and Drug Sensitivity in EGFR Mutant Lung Cancer | Yale University | CON-80003286(GR113944) | | \$219,424 |
| 93.396 | Genetic dissection of oncogenic Kras signaling | | | | \$496,683 |
| 93.396 | High resolution dissection of oncogene enhancer networks via CRISPR screening and live-cell imaging. | | | | \$331,547 |
| 93.396 | Human Acute Myeloid Leukemia Stem Cells | | | | \$375,994 |
| 93.396 | Identifying and Targeting Mechanisms for Membrane Signaling in Human Cancer | University of California, San Francisco | 12578sc | | \$193,601 |
| 93.396 | Inferring the roots of metastases and their effects on patient survival | | | | -\$10,731 |
| 93.396 | Integrating cancer genomics and spatial architecture of tumor infiltrating lymphocytes | | | | \$94,529 |
| 93.396 | INTEGRATING OMICS AND QUANTITATIVE IMAGING DATA IN CO-CLINICAL TRIALS TO PREDICT TREATMENT RESPONSE IN TRIPLE NEGATIVE BREAST CANCER | Baylor College of Medicine | PO #7000001081 / U24 CA226110 | | \$181,302 |
| 93.396 | Investigating molecular and cellular mechanisms of SCLC development to identify novel therapeutic strategies | | | | \$940,553 |
| 93.396 | Investigating the roles of extracellular cGAMP and harnessing it for cancer treatment | | | | \$122,710 |
| 93.396 | Macrophage phenotype polarization in clinical neoplasia | | | | \$320,389 |
| 93.396 | Matrix in pre-cirrhotic HCC | | | | \$297,528 |
| 93.396 | Measuring and Modulating DNA Damage Surveillance Pathways | | | | \$466,527 |
| 93.396 | Mechanisms of autoimmune endocrine diseases in patients receiving checkpoint inhibitors (Sponsor award: 5 R01CA227473-04) | Yale University | CON-80003987 (GR118421) | | \$260,894 |
| 93.396 | Mechanisms of Lymphomagenesis of Skin-Resident gamma delta T cells | Northwestern University | 60061607 STAN | | \$40,205 |
| 93.396 | Molecular dissection of Lkb1-mediated tumor suppression | | | | \$301,942 |

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass-through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|--|--|---|--|----------------------------|
| 93.396 | Neural Niche in Promoting Brain Metastatic Tumor Progression | University of Texas Southwestern Medical Center Dallas | GMO 220809 PO 0000002740 | | \$153,081 |
| 93.396 | Neuronal Regulation of Low-Grade Gliomagenesis | | | \$407,349 | \$1,014,443 |
| 93.396 | Novel Therapeutics for Adult Glioblastoma (Project 3) | Brigham and Women's Hospital | 126696 | | \$124,660 |
| 93.396 | Novel Therapeutics for Adult Glioblastoma (U19 Admin Core) | Brigham and Women's Hospital | 126686 | | \$18,423 |
| 93.396 | Pancreatic Cancer Development: Genetic and Immune Regulation | | | \$80,828 | \$2,076,565 |
| 93.396 | Program the Immune System against RAS-driven Cancer | | | | \$41,431 |
| 93.396 | Proliferation and Differentiation of Bladder Epithelial Cells in Regeneration and malignancy | | | | \$205,161 |
| 93.396 | Regulators of Tumorigenesis | | | | -\$111 |
| 93.396 | Role of extracellular matrix malleability in mediating breast cancer cell invasion and migration | | | \$13,011 | \$332,835 |
| 93.396 | Role of the METTL13 Lysine Methyltransferase in Signaling and Cancer | | | \$111,344 | \$461,533 |
| 93.396 | Single cell modeling of cancer mutations | | | | \$23,860 |
| 93.396 | Software and algorithms for elucidating the structure, function, and evolution of extrachromosomal DNA | University of California, San Diego | 704826 | | \$76,700 |
| 93.396 | Stem Cell Biology, Cancer Stem Cell Biology, and Cancer Immunotherapy | | | | \$1,082,490 |
| 93.396 | Systems analysis of mechanisms driving response to immunotherapy in clear cell cancers | | | | \$463,073 |
| 93.396 | Targeting Lymph Node Dependent Immune Tolerance in Cancer | | | | \$489,021 |
| 93.396 | Targeting the cancer glycocalyx | | | \$114,370 | \$444,048 |
| 93.396 | Targeting the MYC Pathway for the Treatment of Cancer | | | | \$928,843 |
| 93.396 | The Impact of Mitochondrial Repression and Lipid Accumulation by HIF on Tumor Growth | | | | -\$138,082 |
| 93.396 | The role of the RNA demethylase FTO in metabolic reprogramming of renal cell carcinoma | | | | \$176,724 |
| 93.396 | Triggering a New Cancer Cell Death Mechanism in Sarcoma | | | | \$35,416 |
| 93.397 | Center for Cancer Nanotechnology Excellence for Translational Diagnostics (CCNE-TD) | | | | -\$3,133 |
| 93.397 | Dana Farber/ Harvard Cancer Center SPORE in Gastrointestinal Cancer (SPORE FGFR degrader-Wolpin) | Dana-Farber Cancer Institute | 1220614 | | \$30,743 |
| 93.397 | Deconvolution and interruption of the cancer-neuro-immune axis facilitating brain metastases | | | | \$1,531,246 |
| 93.397 | Evolutionary dynamics and microenvironmental determinants of metastatic breast cancer | | | \$41,717 | \$2,056,358 |
| 93.397 | Phenotype Heterogeneity and Dynamics in SCLC | Vanderbilt University | UNIV60169; P22052363 | | \$52,209 |
| 93.397 | Project 3: Deciphering Germline and Somatic Genomic Landscape of Gliomas in Black and Hispanic Minority Groups (SPORE in Brain Cancer) | University of Texas MD Anderson Cancer Center | 3001851301 / P50 CA127001 | | \$21,980 |
| 93.397 | Shaping of the Microenvironment in Colonic Pre-Cancer by Epithelia and Microbiota | Vanderbilt University Medical Center | VUMC106012 | | \$11,997 |
| 93.397 | Spatial-Genomic Integrative Multi-Species Analysis of Lymphnode Metastasis | | | | \$175,297 |
| 93.397 | SPORE in Multiple Myeloma | Dana-Farber Cancer Institute | 1224819 | | \$19,783 |
| 93.397 | Stanford Cancer Institute | | | | \$3,813,417 |
| 93.397 | Targeting microenvironmental dependencies for glioblastoma therapy (Project 4) | Brigham and Women's Hospital | 122260 | | \$199,111 |
| 93.397 | The Cancer Cell Map Initiative v2.0 - Project 1 | University of California, San Francisco | 13934sc | | \$70,970 |
| 93.397 | The Cancer Cell Map Initiative v2.0 - Project 3 | University of California, San Francisco | 13935sc | | \$8,496 |
| 93.397 | The Upstream Center: Income Interventions to Address the Fundamental Causes of cancer Inequities | | | | \$65,460 |
| 93.398 | 253729 Ko8 Kinase 1-alpha -Targeting casein kinase 1-alpha for cancer therapy | | | | \$270,193 |
| 93.398 | Bioengineering programmable and drug-controllable synthetic receptors for tunable CAR-T cell behaviors | | | | \$58,016 |
| 93.398 | Canary Cancer Research Education Summer Training (Canary Crest) Program | | | | \$136,329 |
| 93.398 | Cancer immunotherapy using injectable hydrogels for precise and tunable multidrug delivery | | | | \$33,228 |
| 93.398 | Defining Pre-treatment Correlates of Patient GD2 CAR T Cell Exhaustion and Memory Using Multi-Dimensional Immune Profiling | | | | \$182,054 |
| 93.398 | Defining the Role of Senescence in Limiting Therapeutic Efficacy of CAR T Cells | | | | \$39,536 |
| 93.398 | Determinants of resistance to engineered T-cell therapies targeting CD19 in lymphoma | | | | \$15,355 |
| 93.398 | Dissecting reciprocal interactions between cancer cells and endothelial cells in SCLCliver metastasis. | | | | \$137,650 |
| 93.398 | Dissecting the Mechanism of Acute Myeloid Leukemia Induced Bone Marrow Failure to Identify Therapeutic Interventions | | | | \$187,126 |
| 93.398 | Dissecting the Mechanism of Polycomb Eviction by the BAF Complex | | | | \$25,963 |
| 93.398 | Dissecting the Roles and Requirements for RBM39 in Acute Myeloid Leukemia and Normal Hematopoiesis | | | | \$307,898 |
| 93.398 | Do Tumor-Immune Interactions Prime Systemic Tolerance of Triple-Negative Breast Cancer Brain Metastases? | | | | \$148,464 |
| 93.398 | Engineering Brain Cancer in a Dish: Hydrogel-based 3D in vitro Models for Pediatric Brain Tumor | | | | \$37,719 |
| 93.398 | Exploring O-glycoproteomics to prevent metabolic radioresistance in the tumor microenvironment | | | | \$134,927 |
| 93.398 | Family-building After Cancer: Preferences, Decisions, and Planning for Young Female Survivors | | | | \$114,515 |
| 93.398 | Functional characterization of novel oncogenic loci driving progression and immune response in gastrointestinal cancer | | | | \$110,742 |
| 93.398 | Functional Proteomic Analysis and Biomarker Identification in a Novel Mouse Model of Metastatic Hepatocellular Carcinoma (HCC) | | | | \$158,846 |
| 93.398 | High resolution profiling of cellular communities in the tumor microenvironment | | | | \$65,191 |
| 93.398 | Hijacking cancer driver to activate cell death by chemically induced proximity | | | | \$38,510 |
| 93.398 | Identifying Mechanisms of Paracrine cGAMP Signaling in the Tumor Microenvironment | | | | \$10,119 |
| 93.398 | Immune Targeting of non-Hodgkin Lymphoma through Integrative Antigen Presentation Profiling | | | | \$137,499 |
| 93.398 | Integrating Spatial Omics and Drug Imaging to Dissect the Role of Pancreatic Tumor Microenvironment in Drug Resistance | | | | \$123,282 |

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SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass- through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|---|---|--|--|-------------------------------|
| 93.398 | Integrative subtyping to improve therapeutic options for metastatic hormone receptor-positive breast cancer | | | | \$225,286 |
| 93.398 | Leveraging innovative technologies in basic and clinical cancer research | | | | \$500,762 |
| 93.398 | Lymphoma Antigen Density and Circulating Tumor DNA Profiling As Determinants of Novel CAR Therapies | | | | \$205,448 |
| 93.398 | Magnetic Particle Imaging (MPI) for Imaging and Magnetothermal Therapy of Brain Tumors | | | | -\$3,846 |
| 93.398 | Mechanistic insights into lysosomal nutrient efflux in cancer | | | | \$296,094 |
| 93.398 | Molecular Characterization and Personalized Approaches to Non-Hodgkin Lymphoma from Circulating Tumor DNA | | | | \$184,616 |
| 93.398 | Molecular dissection of extrachromosomal DNA formation, development, and evolution | | | | \$6,984 |
| 93.398 | Molecular mechanisms of NFIB in small cell lung cancer metastasis | | | | \$6,550 |
| 93.398 | Non-invasive characterization of human soft tissue sarcoma response to radiation therapy | | | | \$278,907 |
| 93.398 | Noninvasive Risk Stratification of Prostate Cancer Using Cell-Free Nucleic Acids | | | | \$278,780 |
| 93.398 | PRECISE - a Personalized Risk Score for gastric Cancer | | | | \$180,942 |
| 93.398 | Psychobiological stress vulnerability, executive control, and emotion regulation in children and adolescents with cancer | | | | \$289,430 |
| 93.398 | Raf-1 As a Regulator of Glutamine Metabolism | | | | \$34,544 |
| 93.398 | Real-Time Freehand Ultrasound Molecular Imaging with Deep Learning | | | | \$75,879 |
| 93.398 | Regulation and retention of extrachromosomal oncogene amplifications in cancer | | | | \$35,165 |
| 93.398 | Repurposing systemic therapies to improve clinical outcomes in advanced basal cell cancer | | | | \$73,584 |
| 93.398 | Role of novel cis-acting long non-coding RNAs in DNA replication timing and chromosome stability in cancer | | | | \$81,352 |
| 93.398 | Role of the candidate protein methyltransferase METTL18 in cancer biology | | | | \$32,985 |
| 93.398 | Simultaneous Multi-Tracer Positron Emission Tomography for Interrogating Molecular Pathways of Neurological Disorders | | | | \$30,128 |
| 93.398 | Single cell characterization of human acute myeloid leukemia | | | | \$75,056 |
| 93.398 | Stanford Cancer Imaging Training (SCIT) Program | | | | \$449,615 |
| 93.398 | Stanford Molecular Imaging Scholars (SMIS) Program | | | | \$408,636 |
| 93.398 | Systematic Discovery and Characterization of Novel Cancer Anti-Phagocytic Mechanisms | | | | \$80,316 |
| 93.398 | Targeting Radiation-Induced Myeloid Cells to Promote T cell Immunity in Undifferentiated Pleomorphic Sarcoma | | | | \$74,057 |
| 93.398 | The role of DNMT3A in gene regulation and stem cell expansion | | | | \$92,583 |
| 93.398 | The role of fallopian tube microbiome in ovarian carcinogenesis | | | | \$199,411 |
| 93.398 | The role of membrane lipid remodeling in cancer cell ferroptosis sensitivity | | | | \$39,327 |
| 93.398 | Uniting Mass Spectrometry and Glycoscience to Investigate Cancer Biology | | | | \$3,479 |
| 93.399 | AALL1131 Supplemental PCR | Children's Hospital of Philadelphia | FP00034095_SUB17_01 | | -\$2 |
| 93.399 | COG NCTN Per Case Reimbursement | Public Health Institute | U10CA180886; AR65898 | | \$19,531 |
| 93.732 | Addiction Medicine Fellowship | | | | \$108,993 |
| 93.788 | Medication Assisted Treatment (MAT) Expansion Project: CA Hub & Spoke System Training and Learning Collaborative | University of California, Los Angeles | No. 2000 S YF 767,A-1 | | \$3,882 |
| 93.837 | 4D Multimodal Image-Based Modeling for Bicuspid Aortic Valve Repair Surgery | University of Pennsylvania | 585280 // PO 4965013 | | \$45,153 |
| 93.837 | A Critical Role for Leukotriene B4 in Lymphedema | Palo Alto Veterans Institute for Research | NIM0013-02 | | \$23,430 |
| 93.837 | A Meta-Epidemiological Assessment of the Role of Pilot Studies in the Design of Well-Powered Trials - The Pilot Project | University Of South Carolina | 20-3899 PO#2000048662 | | \$66,598 |
| 93.837 | A protein traffic control system that regulates left-right patterning and heart development | | | \$322,295 | \$723,637 |
| 93.837 | A transcriptional network which governs smooth muscle transition is mediated by causal coronary artery disease gene PDGFD | | | | \$110,331 |
| 93.837 | ADAR mediated RNA editing is a causal mechanism in coronary artery disease | | | | \$11,583 |
| 93.837 | AIM-AHEAD Coordinating Center Data Infrastructure Core | National Alliance Against Disparities in Patient Health | 2021-AA-004 | | \$1,013 |
| 93.837 | ALDH Activation to treat Fanconi Anemia | | | | \$1,352 |
| 93.837 | Aligned Nanofibrillar Scaffolds Enhance Angiogenesis and Viability in Ischemia | | | | \$79,971 |
| 93.837 | Alpha-catenin function in cardiomyocyte adhesion and cytoskeletal organization | University of Pittsburgh | AWD00004587 (136701-1) | | \$102,812 |
| 93.837 | American Heart Association Tobacco Center for Regulatory Science (A-TRAC) 2.0 | American Heart Association | FX-ATRAC-5U54HL120163-SU-09 | | \$31,329 |
| 93.837 | An automated system to interpret echocardiography to predict adverse outcomes in patients with right ventricular dysfunction in daily hospital practice | mProbe Inc. | 214447 / R41 HL160362 | | \$27,774 |
| 93.837 | An electrophysiology platform that enables robust, scalable and long-term intracellular recording of cardiomyocytes | | | \$101,750 | \$483,932 |
| 93.837 | An evaluation of insomnia treatment to reduce cardiovascular risk in patients with posttraumatic stress disorder | Duke University | 303002351 | | \$8,513 |
| 93.837 | Anastrozole in Pulmonary Arterial Hypertension: ALPH2 | University of Pennsylvania | 581275/PO# 4820971 | | \$16,840 |
| 93.837 | Angiogenic Bioengineered Systems to Optimize Post-Infarction Myocardial Recovery | | | | \$880,653 |
| 93.837 | Applying statistical learning tools to personalize cardiovascular treatment | | | | \$547,487 |
| 93.837 | Asian American Prevention Research: A Populomics Epidemiology Cohort (ARISE) | | | | \$10,183 |
| 93.837 | Biomechanical Optimization of Cardiac Valve Repair Operations | | | | \$640,285 |
| 93.837 | Biomechanical Optimization of Mitral Valve Repair Operations for Mitral Regurgitation | | | | -\$7,881 |
| 93.837 | Blood Stem Cell Transplantation as Immunotherapy | | | | \$57,174 |
| 93.837 | Bridging the gap between mutation & cellular effects: Defining the mechanisms of hypertrophic cardiomyopathy | | | | \$139,954 |
| 93.837 | Calcineurin compartmentation and regulation of pathological cardiac remodeling | | | \$20,859 | \$671,907 |
| 93.837 | Cardiomyocyte phenotype and mechanotransduction in Filamin C gene variants causing arrhythmogenic cardiomyopathy | University of Colorado Denver | FY20.217.001/25A8857 | | \$69,117 |
| 93.837 | Cardioprotective Therapy for Doxorubicin Using iPSC Microtissue and CRISPR Screening | | | | \$305,141 |
| 93.837 | Cardiovascular and Chronic Disease Prevention Training Program | | | | \$298,513 |
| 93.837 | Catheter-injectable system for local drug delivery after myocardial infarct | | | | \$11,259 |
| 93.837 | Causal variant association mechanisms in TCF21 binding coronary disease loci | | | | \$554,307 |
| 93.837 | Cavopulmonary Assist to Reverse the Fontan | Indiana University | Sub 8777; PO0511131 | | \$77,434 |
| 93.837 | Clinical Microfluidic Assessment of Red Blood Cell Adhesion, Deformability, Density, Cellular Hemoglobin Expression, and Blood Rheology for Curative Therapies in Sickle Cell Disease | Case Western Reserve University | RES515113 | | -\$16 |
| 93.837 | Clonal expansion, resistance to efferocytosis and innate immunity in atherosclerosis | | | | \$1,007,750 |

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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass-through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|--|--|---|--|----------------------------|
| 93.837 | Comprehensive CT Guided Coronary Artery Bypass Graft Surgery | | | \$131,139 | \$652,027 |
| 93.837 | Computational model-driven design to mitigate vein graft failure after coronary artery bypass | | | | \$332,575 |
| 93.837 | Computational Stability Analysis to Predict Heart Failure after Myocardial Infarction | | | | \$147,950 |
| 93.837 | CORD-CHD: Clamp OR Delay among neonates with Congenital Heart Disease | Research Institute at Nationwide Children's Hospital | 700312-0324; PO 4610223-0-46 | | \$2,539 |
| 93.837 | Coronary Magnetic Resonance Angiography | | | | \$360,332 |
| 93.837 | Cryo-electron tomography to determine crosstalk mechanisms of calcium channels in cardiomyocytes | | | | \$103,332 |
| 93.837 | Deciphering the Endothelial Cell-Cardiomyocyte Crosstalk in LMNA Cardiomyopathy | | | | \$415,812 |
| 93.837 | Deep Neural Networks To Treat Atrial Fibrillation | | | | \$155,470 |
| 93.837 | Delineating the Genetic Susceptibility of Smoking-Induced Vascular Dysfunction | | | | \$44,175 |
| 93.837 | Developing and Evaluating Health and Environmental Messages to Improve Diet in Emerging Adults | | | | \$123,943 |
| 93.837 | Developmental basis for vascular smooth muscle cell dysfunction in Marfan syndrome aortic aneurysm | | | | \$2,129 |
| 93.837 | Dynamic Biomaterial Design to Probe the Cellular Response to Fibrotic Stiffening | | | | \$363,188 |
| 93.837 | E-cigarette aerosol effects on the cardiovascular system in rodents | | | | \$71,957 |
| 93.837 | Electrical Mapping Signatures of Adverse Structural and Functional Remodeling in Ventricular Arrhythmia | | | | \$102,322 |
| 93.837 | Elucidating anti-angiogenic tyrosine kinase inhibitor-induced vascular dysfunction | | | | \$42,096 |
| 93.837 | Elucidating CHD in Down Syndrome with Cardiac Organoids and 3D Genome Architecture | | | | \$438,307 |
| 93.837 | Elucidating ECM Signaling in Cardiac Organoids with Machine Learning and Single-cell Multiomics | | | | \$798,134 |
| 93.837 | Elucidating Electro-Mechanical Dysfunction in Heart Failure with Human Stem Cell Models | | | \$1,222,444 | \$2,304,728 |
| 93.837 | Elucidating Genotype-Phenotype Relationship of Polygenic Dilated Cardiomyopathies: Administrative Supplement (INCLUDE) | | | | \$512,796 |
| 93.837 | Elucidating the Biology of Cardiovascular Risk in Hemodialysis Patients Using Proteomics | University of Texas Southwestern Medical Center Dallas | GMO 230908 - PO 0000002761 | | \$111,088 |
| 93.837 | Elucidating the Role of Microenvironment Mechanics in Regulating Cardiac Fibroblast Plasticity | | | | \$17,200 |
| 93.837 | Elucidation of the Development and Function of the Cardiac Conduction System | | | | \$155,101 |
| 93.837 | Engineered matrix microarrays to enhance the regenerative potential of iPSC-derived endothelial cells | | | | \$125,739 |
| 93.837 | Escalating Proportion of Weight-Loss Maintainers Via Modules Prior to Weight Loss | | | | -\$97 |
| 93.837 | Evidence Based Evaluation and Acceptance of Donor Hearts for Transplantation | | | \$2,818 | \$57,317 |
| 93.837 | Exercise-induced cardiac adaptation in hypertrophic cardiomyopathy | | | | \$103,310 |
| 93.837 | Extracellular Matrix Biomechanical Properties Contribute to Aneurysm Formation in Marfan Syndrome | | | | \$75,690 |
| 93.837 | Covid-19: Genome Editing of Human iPSCs to Study Inherited Hypertrophic Cardiomyopathy | | | | \$205,977 |
| 93.837 | Genome-wide association study of coronary artery disease in individuals of African ancestry | Vanderbilt University Medical Center | 1152170-100-DHDAM | | -\$63,056 |
| 93.837 | Gut Microbiota and Cardiometabolic Diseases/ Project 3: Discovery, enzymatic source and characterization of novel microbiota-derived metabolites in cardiometabolic diseases | Cleveland Clinic Foundation | 1393-SUB | | \$687,308 |
| 93.837 | Harnessing Big Data to Identify Effective Peripheral Artery Disease Treatments in Chronic Kidney Disease | | | | \$337,000 |
| 93.837 | Harnessing Dynamic Cardiac Parameters to Optimize Donor Heart Utilization | | | | \$62,427 |
| 93.837 | High-Resolution Whole Heart Quantitative CMR Perfusion Imaging in Ischemic Heart Disease | | | | \$345,071 |
| 93.837 | High-throughput cellular genetics to connect noncoding variants to coronary artery disease genes | Broad Institute, Inc. | 5001797-5500001920 | | \$188,617 |
| 93.837 | hiPSC Modeling of Restrictive Cardiomyopathy for Drug Testing | | | | \$22,093 |
| 93.837 | Human Induced Pluripotent Stem Cells for Cardiovascular Disease Modeling | | | | \$448,525 |
| 93.837 | Human iPSC Model to Elucidate Metabolic Interplay in Diabetic Cardiomyopathy | | | | \$567,291 |
| 93.837 | Identification of Causal T-Cell Mechanisms in Immune Checkpoint Inhibitor Induced Myocarditis | | | | \$208,645 |
| 93.837 | Identifying Angiocrine Factors for Cardiomyocyte Maturation Using Single-Cell Sequencing | | | | \$44,433 |
| 93.837 | Identifying Proteomic Markers of Exercise Training in Heart Failure | | | | \$58,205 |
| 93.837 | Identifying tobacco-genetic interactions through study of the aryl hydrocarbon receptor pathway | | | | \$580,012 |
| 93.837 | Improving Tissue Engineered Vascular Graft Performance via Computational Modeling | Research Institute at Nationwide Children's Hospital | 700284-0323-00/PO:4608967-0-46 | | \$142,230 |
| 93.837 | Injectable Hydrogels to Deliver Gene Therapy for Myocardial Infarct | | | | \$441,683 |
| 93.837 | Integrating Volumetric Light-Field with Computational Fluid Dynamics to Study Myocardial Trabeculation and Function | University of California, Los Angeles | 1564 G ZA140 | | \$305,712 |
| 93.837 | International Consortium for Multimodality Phenotyping in Adults with Non-compaction | | | \$229,593 | \$607,898 |
| 93.837 | Investigating the Pathological Features of Clonal Hematopoiesis-derived Macrophages | | | | \$89,367 |
| 93.837 | Investigating the Role of Dach1 in Artery Specification and Collateral Artery Development | | | | \$4,747 |
| 93.837 | ISCHEMIA Trial | New York University | 10-01073 | | \$286,241 |
| 93.837 | Leveraging a Natural Experiment to Estimate the Effects of School Racial Segregation on Cardiovascular Risk Factors among Youth and Young Adults | University of California, San Francisco | 12218sc | | \$19,586 |
| 93.837 | Leveraging Spatial Epidemiology to Reduce Hypertension Disparities | | | | \$164,466 |
| 93.837 | Lipid Peroxidation-Induced Mitochondrial Injury Inhibits Vascular Function in Single Ventricle Congenital Heart Disease | | | | \$19,438 |
| 93.837 | LncRNA Transcriptional Mechanisms of Coronary Artery Disease Risk | | | \$3,974 | \$311,463 |
| 93.837 | Machine Learning for Ventricular Arrhythmias | | | | \$3,391 |
| 93.837 | Machine Learning in Atrial Fibrillation | | | \$289,748 | \$889,090 |
| 93.837 | Mapping, modeling, and manipulating 3D contacts in vascular cells to connect risk variants to disease genes | | | \$209,749 | \$735,793 |
| 93.837 | Marfan Aortic Embryologic Origin Influences Aneurysm Formation | | | | \$725,631 |
| 93.837 | Mechanotransduction and transcriptional regulation during artery development | | | | \$518,345 |

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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass-through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|--|--|---|--|----------------------------|
| 93.837 | Mediators of Systemic Inflammation and Heart Failure Risk in the Community | Cedars-Sinai Medical Center | 1572381 | | \$49,992 |
| 93.837 | META - Mentor, Educate, Train, Advocate: Patient Oriented Researchers inCardiometabolic Disease | | | | \$133,707 |
| 93.837 | Mitochondrial health, cardiovascular risk, and blood pressure targets in hypertensive adults | Northern California Institute for Research and Education | JOTV2359-03 / R01HL151564 | | \$179,659 |
| 93.837 | Mitochondria-rich microvesicles for restoration of intracellular bioenergetics | | | | \$92,099 |
| 93.837 | Modeling Anthracycline-Induced Cognitive Impairment Using iPSC-Derived Brain-On-Chips | | | -\$84 | \$922,197 |
| 93.837 | Modeling Endothelial Dysfunction in LMNA-related Dilated Cardiomyopathy | | | | \$33,673 |
| 93.837 | Modeling myosin mechanobiology towards understanding the mechanisms of hypertrophic cardiomyopathy | | | | \$53,072 |
| 93.837 | Modeling Tyrosine Kinase Inhibitor-Induced Vascular Dysfunction Using Human iPSCs | | | \$8,743 | \$387,047 |
| 93.837 | Molecular Characterization of Cardiomyopathy Mutations in Human Cardiac Myosin | University of Colorado | RHL117138C/1556322/1001023086 | | \$112,254 |
| 93.837 | Molecular mechanisms of vascular calcification and their connection to coronary disease risk | | | | \$441,924 |
| 93.837 | Molecular phenotyping for autopsy-defined sudden cardiac death | University of California, San Francisco | 12636sc | | \$59,449 |
| 93.837 | Motivational Determinants of Postpartum Lifestyle Behaviors, Weight Retention, and Metabolic Syndrome | University of California, Davis | A20-3069-S003 | | \$18,821 |
| 93.837 | Mulan: a novel regulator of mitochondrial dynamics, mitophagy and heart function | | | | \$1,843 |
| 93.837 | Multicenter International Durability and Safety of Sirolimus in LAM Trial (MIDAS) Clinical Study | LAM Foundation | MIDAS Site Agreement - 1 | | \$19,342 |
| 93.837 | Multi-Institutional Neurocognitive Discovery Study (MINDS) in Adult Congenital Heart Disease (ACHD): MINDS-ACHD Study | New England Research Institute, Inc. | 150312 MINDS-ACHD Study | | \$11,202 |
| 93.837 | Multilevel Mobile Health Program to Improve Rural Hypertension | University of Pittsburgh | AWD00005950 (138426-1) | | \$18,270 |
| 93.837 | Multimodality Molecular Imaging of Stem Cell Therapy for Ischemic Cardiomyopathy | | | | \$216,545 |
| 93.837 | Neurometabolic Outcomes of Different Cardiopulmonary Bypass Strategies | | | | \$772,004 |
| 93.837 | Objective Physical Activity and Cardiovascular Health in Older Women: OPACH2 | University of California, San Diego | 705688 | | \$39,844 |
| 93.837 | Parallel Characterization of Genetic Variants in Chemotherapy-Induced Cardiotoxicity Using iPSCs | | | | \$13,380 |
| 93.837 | Pathogenic hotspots illuminate mechanism and therapeutic potential in arrhythmogenic cardiomyopathy | | | | \$188,292 |
| 93.837 | Patient Specific Induced Pluripotent Stem Cell Derived Cardiomyocytes to Define Mechanisms of Electrical-Mechanical Dysfunction in DilatedCardiomyopathy | | | | \$85,899 |
| 93.837 | Patient-Directed Computational Analysis of Atrial Fibrillation | University of California, San Diego | 131549675 PO S9002618 | | \$254,026 |
| 93.837 | PCSK9 Inhibition after Heart Transplantation | | | | \$403,587 |
| 93.837 | PDGFD regulates a transcriptional network to modulate smooth muscle cell transition and coronary artery disease risk | | | | \$563,519 |
| 93.837 | Perinuclear Signaling and Cardiac Hypertrophy | University of Connecticut | UCHC7-144253015 | | \$409,771 |
| 93.837 | Physical Activity to Improve CV Health in Older Women: A Pragmatic Trial | Fred Hutchinson Cancer Center | 0001129277 | | \$974,567 |
| 93.837 | Precision Medicine by Harmonizing Real World Evidence and RCT Data | | | \$117,812 | \$424,567 |
| 93.837 | Preclinical testing of a 3D printed external scaffold device to prevent vein graft failure after coronary bypass graft surgery | BioGraft Inc. | 2022-162397-2 | | \$46,554 |
| 93.837 | Preeclampsia to cardiovascular disease: Life course analysis of biomarkers and risk | | | \$84,537 | \$1,960,463 |
| 93.837 | Pregnancy as a Window to the Future: Outcomes of Antihypertensive Therapy and Superimposed Preeclampsia in Pregnant Women with Mild Chronic Hypertension (CHAP Maternal Follow-up Study) | University of Alabama at Birmingham | 000530812-SC023 | | \$34,360 |
| 93.837 | Protein Kinase C Isozymes in Ischemic Heart | | | | \$209,573 |
| 93.837 | R38 Stanford Integrated Cardiovascular/Pulmonary Residency Research Training Program | | | | \$394,010 |
| 93.837 | Radiomics approach to engineering an artificial intelligence based echocardiography platform to predict cardiovascular surgery and heart failure outcomes. | | | | \$601,681 |
| 93.837 | Rapid Free-Breathing Self-Gated Spiral Pulse Sequences for Simultaneous Cine and T1 mapping | | | | \$362,737 |
| 93.837 | RE-ENERGIZE FONTAN - RandomizEd Exercise INtErvention desiGned to MaximIZe Fitness in Pediatric FONTAN patients | | | \$43,355 | \$709,071 |
| 93.837 | Regulation of Histone Deacetylases by mAKAP Signalosomes | | | \$282,794 | \$379,083 |
| 93.837 | Regulation of Inflammation and Atherosclerosis by TCF21 | | | | -\$40,393 |
| 93.837 | Rhythm Evaluation for Anticoagulation with Continuous monitoring of Atrial Fibrillation (REACT AF) | Northwestern University | 60062965 STAN | | \$1,000,265 |
| 93.837 | Covid-19: Share, Trust, Organize, Partner: The COVID-19 California Alliance (STOP COVID-19 CA) Phase 3 | University of California, Los Angeles | 1790GZA118 / OT2HL158287 | | \$488,287 |
| 93.837 | Shear stress and light-field to elucidate the initiation of cardiac outflow tract | University of California, Los Angeles | 1564 G YA759 | | \$67,071 |
| 93.837 | Single-cell Multi-omic Profiling of Drug Responses Using Pooled iPSC-CM Differentiation | | | | \$621,260 |
| 93.837 | Single-cell splicing analysis of the heart in myotonic dystrophy | | | | -\$26,680 |
| 93.837 | Small Molecule NOTCH Inhibitors for the treatment of pulmonary hypertension | | | | -\$2,735 |
| 93.837 | Spatiotemporal visualization of adenylyl cyclase signaling | | | | \$45,363 |
| 93.837 | Stanford BSSR Pre-Doctoral Training Program at the Intersection of Data Sciences with Behavioral, Social, and Population Health Research | | | | \$283,322 |
| 93.837 | Stanford Cardiovascular Summer Research Training Program for Medical Students | | | | \$77,217 |
| 93.837 | Stanford Undergraduate URM Summer Cardiovascular Research Program | | | | \$104,430 |
| 93.837 | Structure function relationships from deep mutational scanning in human cardiomyopathy | | | | \$519,880 |
| 93.837 | Studying guinea pig development to discover how natural collateral arteries form | | | | \$222,056 |
| 93.837 | SURPASS: (Statin Use and Risk Prediction of Atherosclerotic Cardiovascular Disease in minority Subgroups) | | | | \$153,817 |
| 93.837 | Systematically mapping variant effects for cardiovascular genes | Vanderbilt University | VUMC105689 | | \$172,619 |
| 93.837 | T32 Training Program in Mechanisms and Innovation in Vascular Disease | | | | \$362,821 |
| 93.837 | Targeting the genotype to phenotype link in HCM as a therapeutic strategy | | | \$92,882 | \$581,113 |
| 93.837 | TCF21 is a causal coronary artery disease gene that modulates coronary smooth muscle phenotypic transition via epigenetic mechanisms | | | | \$59,606 |
| 93.837 | Teen screen diets and their relationships with dietary intake: setting the stage for precision interventions and evidence-based policies | | | | \$45,895 |

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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass-through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|---|--|---|--|----------------------------|
| 93.837 | The 3E study: Economic and Educational Contributions to Emerging Adult Cardiometabolic Health | Fordham University | FORD0087-30387 | | \$10,060 |
| 93.837 | The Dynamics of Human Atrial Fibrillation | | | \$112,091 | \$690,344 |
| 93.837 | The Effect of Estrogen on Cardiac Arrhythmic Propensity | | | | -\$42 |
| 93.837 | The Effect of Value-based Payment on Heart Failure Quality of Care (Value-HF) | | | | \$234,695 |
| 93.837 | The Epigenetic Regulator Prdm16 Controls Smooth Muscle Phenotypic Modulation and Atherosclerosis Risk | | | | \$39,691 |
| 93.837 | The Impact of School Water Access on Child Food and Beverage Intake and Obesity | | | \$59,832 | \$115,885 |
| 93.837 | The International Study of Comparative Health Effectiveness with Medical and Invasive Approaches (ISCHEMIA) trial EXTENDED Follow-up (EXTEND) | New York University | 20-00-00-1002596 // 116454 | | \$53,998 |
| 93.837 | The LIMITing AAA with meTformin (LIMIT) Trial | | | \$21,933 | \$1,160,609 |
| 93.837 | The Role of 3-Dimensional Genome Integrity In Cardiac Laminopathies | | | | \$573,434 |
| 93.837 | The Role of RBM20 Sequence and Expression in Dilated Cardiomyopathies | | | | \$133,919 |
| 93.837 | The SMAD3 signaling network in coronary artery disease risk | | | | \$39,463 |
| 93.837 | The Vascular Common Coordinate Framework of the Human Heart | | | | \$148,476 |
| 93.837 | The WHI Strong and Healthy SilenT Atrial fibrillation Recording study (WHISH STAR) | | | \$20,523 | -\$41,444 |
| 93.837 | Training in Myocardial Biology at Stanford | | | | \$201,302 |
| 93.837 | Tweet4Wellness: Development and RCT of Mobile Social Support Groups for Sedentary Behavior Reduction | | | | \$153,222 |
| 93.837 | Uncertainty aware virtual treatment planning for peripheral pulmonary artery stenosis | | | | \$16,174 |
| 93.837 | Unraveling Adverse Effects of Checkpoint Inhibitors Using iPSC-derived Cardiac Organoids | | | | \$57,336 |
| 93.837 | Unraveling the pathogenesis of familial dilated cardiomyopathy towards precision medicine | | | | \$571,417 |
| 93.837 | Unraveling the role of endothelium in chemotherapy-induced cardiotoxicity | | | | \$445,192 |
| 93.837 | Using artificial intelligence to enable early identification and treatment of peripheral artery disease | | | | \$152,159 |
| 93.837 | Using Atrial Mechanics To Identify Fibrosis In Patients with Atrial Fibrillation | | | \$335,820 | \$783,273 |
| 93.837 | Using Deep Learning to Predict Induced Pluripotent Stem Cell-Derived Cardiomyocyte (iPSC-CM) Differentiation Outcomes | | | | \$39,303 |
| 93.837 | Using miRNA to identify new therapeutic pathways for dilated cardiomyopathy | | | | \$27,426 |
| 93.837 | Using Modern Data Science Methods and Advanced Analytics to Improve the Efficiency, Reliability, and Timeliness of Surgical Quality Data | Emory University | A632369 | | \$369,146 |
| 93.837 | Vaccine Induced Immune-Inflammatory Response and Cardiovascular Risk | Cedars-Sinai Medical Center | 1891939 | | \$25,503 |
| 93.837 | Validating Cardiac MRI Biomarkers and Genotype-Phenotype Correlations for DMD | | | | -\$1,817 |
| 93.837 | Validation of Cancer Prevention and Control Using Smartphones, Cognitive Computing & Family Social Support. | Vignet Inc. | HHSN261201700003C | | \$1 |
| 93.837 | Whole-genome sequencing analysis of coronary atherosclerosis and related traits | University of Texas Health Science Center at Houston | SA0000633 | | \$33,123 |
| 93.838 | 1/1: ARREST RESPIRATORY FAILURE DUE TO PNEUMONIA (ARREST PNEUMONIA) | | | \$670,492 | \$1,393,581 |
| 93.838 | 2/1 Arrest Respiratory Failure due to Pneumonia (ARREST PNEUMONIA) | | | | \$260,186 |
| 93.838 | A critical role for macrophage ferroptosis in promoting fungal invasion in lung transplant recipients | | | | \$650,379 |
| 93.838 | A Mechanistic Clinical Trial of JAK Inhibition to Prevent Ventilator-induced Diaphragm Dysfunction | | | | \$410,198 |
| 93.838 | A novel microfluidic platform to study exosome biology in PAH. | | | | \$173,844 |
| 93.838 | A universal genome editing strategy to develop an airway stem cell therapy for cystic fibrosis | | | | \$6,642 |
| 93.838 | Air pollution disrupts Inflammasome Regulation in HEart And Lung Total Health (AIRHEALTH) | | | \$339,729 | \$1,080,239 |
| 93.838 | ASSESSMENT OF IMPLEMENTATION METHODS IN SEPSIS AND RESPIRATORY FAILURE | Society of Critical Care Medicine | SPO 282979 | | \$12,470 |
| 93.838 | Case-Control Study of Methamphetamine in Pulmonary Arterial Hypertension | University of Pennsylvania | 583172 / PO# 4954746 | | \$102,646 |
| 93.838 | Cause and effect of transient changes in stress, gene expression, and RV fiber orientation during RV remodeling, and its impact on RV function and inter-ventricular coupling in pulmonary hypertension | University of Colorado Denver | FY22.864.001/PO 1001650710 | | \$133,037 |
| 93.838 | Cellular and molecular mechanisms of alveolar repair | | | | \$195,512 |
| 93.838 | Covid-19: Characterization of Autoantibodies in PASC | NYU Langone Health System | PATHO-PH2-SUB_16_23 | | \$116,445 |
| 93.838 | Complement Mediated Remodeling in Pulmonary Vascular Disease | University of Colorado Denver | FY21.032.003/PO #1001417854 | | \$79,471 |
| 93.838 | Covid-19: California Alliance (STOP COVID-19 CA) | University of California, Los Angeles | 1790 G YA230 / OT2 HL156812 | | -\$229 |
| 93.838 | Defining optimal tacrolimus dosing and concentrations in the early post-lung transplant period based on short- and long-term clinical impacts | University of Pennsylvania | Subaward 586182 | | \$47,600 |
| 93.838 | Defining the cellular and molecular mechanisms driving neointimal lesion growth in pulmonary hypertension | | | | \$635,559 |
| 93.838 | Developmental Heterogeneity of Pulmonary Endothelial Phenotype at Single Cell Resolution | | | \$27,252 | \$713,654 |
| 93.838 | Dissecting the cell autonomous and non-cell autonomous of TBX1 in the human Pharyngeal Endoderm | | | | \$464,608 |
| 93.838 | Diverse Homeostatic Roles for Distinct Macrophages in the Developing Lung Vasculature | | | \$39,011 | \$856,537 |
| 93.838 | Elafin Therapy for Pulmonary Arterial Hypertension | | | | \$906,167 |
| 93.838 | Eliminating Monitor Overuse (EMO) Hybrid Effectiveness-Deimplementation Trial | Children's Hospital of Philadelphia | GRT-00001474/U01 HL159880 | | \$3,985 |
| 93.838 | Endothelial toll-like receptor 3 in the pathogenesis and therapy of pulmonary arterial hypertension | Ohio State University | GR118945 / PO# SPC-1000004075 | | \$7,124 |
| 93.838 | Endothelial-pericyte interactions in the pathogenesis of pulmonary arterial hypertension | | | \$15,686 | \$596,784 |
| 93.838 | Genetic Disorder of Mucociliary Clearance | University of North Carolina at Chapel Hill | 5122013 | | \$42,931 |
| 93.838 | High Shear Stress Alters Gene Regulation in Pulmonary Arterial Hypertension | | | | \$798,092 |
| 93.838 | Hydrocortisone for BPD Respiratory and Development Outcomes Study (HYBRID Outcomes Study): Clinical Coordinating Center | Children's Hospital of Philadelphia | 3200930822/PO#20306796 | | \$20,558 |
| 93.838 | Identifying niche factors regulating distinct properties of AT2 stem cells | | | | \$309,971 |

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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass-through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|---|---|---|--|----------------------------|
| 93.838 | Immune Checkpoints in Acute Respiratory Distress Syndrome (IC-ARDS) | Benaroya Research Institute at Virginia Mason | 064102s03-A04 | | \$7,509 |
| 93.838 | Immunometabolic phenotypes in adult severe asthma and disease progression | Brigham and Women's Hospital | 122869 | | \$97,855 |
| 93.838 | Impact of Early-in-life Disruption of Lung Development on Adult Lung Progenitor Function | University of California, San Diego | KR 703867 | | \$158,133 |
| 93.838 | Integrated Health, Behavioral and Economic Research on Current and Emerging Tobacco Products | University of California, San Francisco | 10984sc / U54 HL147127 | | \$147,979 |
| 93.838 | Covid-19: International Coordinating Center for ACTIV-3 Trial Initiative VATICO Pathway | Massachusetts General Hospital | 239574 | | \$12,440 |
| 93.838 | Long Term Follow up of the Lung Transplant Outcomes Group Cohort | University of Pennsylvania | PO# 4699778 | | \$51,167 |
| 93.838 | Longitudinal Impact of Respiratory Viruses and Lung Infections on Bronchiolitis Obliterans Syndrome in Allogeneic Hematopoietic Cell Transplant Recipients | Fred Hutchinson Cancer Research Center | 0001102471 | | \$29,674 |
| 93.838 | Molecular characterization of pulmonary edema: a window to an injured lung | | | \$356,219 | \$606,954 |
| 93.838 | Covid-19: NIH RECOVER: Research on Pathobiological Mechanisms Underpinning the Clinical Phenotypes, Symptomatic Manifestations, and Multi-tissue/organ Pathology of Post-Acute Sequelae of SARS-CoV-2 | NYU Langone Health System | PO# M230598292 | | \$11,825 |
| 93.838 | Novel Molecular Mechanisms Promote GPCR-Induced Bronchodilation in Asthma | Thomas Jefferson University | PO 2000139768/080-02000-Z69104 | | \$85,729 |
| 93.838 | Optimizing Surgical Transplant of CFTR Gene-Corrected Human Basal Stem Cells to the Upper Airway | | | | \$445,322 |
| 93.838 | Parametric Response Mapping (PRM) for the detection of chronic lung injury in hematopoietic cell transplant recipients | University of Michigan | SUBK00015625/PO #3007299371 | | \$30,250 |
| 93.838 | Pathogenesis of Pf Bacteriophages in Pseudomonas Cystic Fibrosis lung Infections | | | | \$378,551 |
| 93.838 | Patient-Reported Outcomes for Acute Asthma Care and Treatment (PROAACT) | | | | \$164,796 |
| 93.838 | Pericytes and postnatal neovascularization: Role of hypoxia inducible factors | | | | \$680,539 |
| 93.838 | Covid-19: PETAL Network CCC, Lead CRC position | Massachusetts General Hospital | 224404 | | \$20,531 |
| 93.838 | Phenotypic and biological features of mucus plugs in asthma | University of California, San Francisco | 13678sc | | \$58,792 |
| 93.838 | Population-level Pulmonary Embolism Outcome Prediction with Imaging and Clinical Data: A Multi-Center Study | | | \$216,673 | \$557,505 |
| 93.838 | Probing the mechanisms of epithelial barrier restoration in the distal lung | | | | \$32,806 |
| 93.838 | Proteomic and Transcriptomic Biomarkers of Circadian Timing | | | \$585,845 | \$1,131,827 |
| 93.838 | Pulmonary Complications in a Birth Cohort after a Randomized Trial of Antenatal Corticosteroids ("ALPS Follow-Up") Capitation Contract | George Washington University | Clinical Center 32 | | \$313 |
| 93.838 | Pulmonary Complications in a Birth Cohort after a Randomized Trial of Exposure to Antenatal Corticosteroids: the ALPS Follow-Up Study | George Washington University | S-ALP2122-CF32 PO 1000238024 | | -\$268 |
| 93.838 | Pulmonary Hypertension in Genetically Modified Mice | | | | \$452,598 |
| 93.838 | Reclassifying Pulmonary Arterial Hypertension Into Immune Phenotypes Using Machine Learning | | | | \$183,291 |
| 93.838 | Regulatory T Cells and Pulmonary Hypertension | Palo Alto Veterans Institute for Research | NIM0015-01 | | \$21,502 |
| 93.838 | Covid-19: Researching COVID to Enhance Recovery (RECOVER) Initiative: A multi-site Observational Study of Post-Acute Sequelae of SARS-CoV-2 Infection in Adults. | New York University Grossman School of Medicine | PATHO-PH2-SUB_15_23 | | \$26,956 |
| 93.838 | Covid-19: Role of adipose tissue in post-acute sequelae of COVID-19 | NYU Langone Health System | PATHO-PH2-SUB_18_23 | | \$153,714 |
| 93.838 | Role of Cardiac Dysfunction and Injury in High-Risk Acute Respiratory Distress Syndrome Subphenotypes | | | | \$55,681 |
| 93.838 | Sequencing B cell repertoires to elucidate autoantibodies and the role of EBV in PASC | NYU Langone Health System | PATHO-PH2-SUB_17_23 | | \$106,469 |
| 93.838 | Stanford Training Program in Lung Biology | | | | \$254,540 |
| 93.838 | T Regulatory Cells in Pulmonary Arterial Hypertension | Palo Alto Veterans Institute for Research | NIM0015-02 | | \$26,230 |
| 93.838 | The ALOHA trial: Addressing Quality of Life, Clinical Outcomes, and Mechanisms in Adults with Uncontrolled Asthma Following the DASH Dietary Pattern | University of Illinois at Chicago | 18723 / R61 HL155160 | | \$32,926 |
| 93.838 | The BMP-PPARy Axis and Pulmonary Hypertension | | | | \$386,229 |
| 93.838 | The Wnt7a/ROR2 axis in the pathogenesis of pulmonary arterial hypertension | | | \$38,925 | \$723,903 |
| 93.838 | Therapeutic Rescue of a Deficient BMPR2 Hypoxic Response in Pulmonary Arterial Hypertension | | | | -\$225 |
| 93.838 | Covid-19: Understanding Adaptive and Innate Immune Cell Dysfunction in Patients With PASC | NYU Langone Health System | PATHO-PH2-SUB_14_23 | | \$171,024 |
| 93.838 | Understanding and targeting molecular as well as structural events governing right ventricular adaptation, failure and recovery in pulmonary hypertension using repurposed drugs | | | \$36,974 | \$412,914 |
| 93.838 | Vaccination responses in lung transplant recipients | | | | \$241,893 |
| 93.839 | Adenylate Kinase 2 Deficiency and the Failure of Myelopoiesis | | | \$10,332 | \$648,524 |
| 93.839 | Biochemistry of Platelet Desialylation | | | | \$41,730 |
| 93.839 | BMT Clinical Trial Network at Stanford | | | | \$126,469 |
| 93.839 | Clonal hematopoiesis in human aging and disease | | | | \$448,229 |
| 93.839 | Clonal hematopoiesis in the Women's Health Initiative | Fred Hutchinson Cancer Center | 0001134400 | | \$103,953 |
| 93.839 | Elucidating the functions of red blood cell factors in malaria parasite invasion | | | | \$27,531 |
| 93.839 | Epigenetic, Transcriptional, and Microenvironmental Determinants of Human HSC Self-Renewal | | | | \$220,332 |
| 93.839 | Hepatic Gene Transfer for Treatment of Hemophilias A & B | | | | \$742,412 |
| 93.839 | Innate cellular responses against Adeno-associated virus in hematopoietic stem and progenitor cells influence cell survival and repopulation capacity | | | | \$63,440 |
| 93.839 | Investigating immunophenotype and metabolism of TCR KO donor and third-party CD19-targeted chimeric antigen receptor T cells | | | | \$155,237 |
| 93.839 | Modulating HSC-niche interactions to understand aging and improve transplantation | | | | \$2,589 |
| 93.839 | Molecular targeting of erythroid progenitor cells in normal and disordered human erythropoiesis | Feinstein Institute for Medical Research | GRT1900016;AWD0000100 8-Stanford | | \$28,421 |
| 93.839 | Program in Translational and Experimental Hematology | | | | \$301,087 |
| 93.839 | Transfusion of Prematurity Early School Age Follow up (TOP 5) CCC | University of Iowa | S00706-05 | | \$38,133 |
| 93.846 | "Lnc"ing XIST Ribonucleoprotein Particles to Female Sex-Attributed Biases in Autoimmunity | | | | \$86,178 |
| 93.846 | A Superiority Trial of Radiofrequency Ablation for Low Back Pain (ASTRAL) | University Of Washington | UWSC13927 BPO 67983 | | \$17,767 |
| 93.846 | Advanced MR Imaging of Early Osteoarthritis | | | | \$127,824 |

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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass- through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|--|--|--|--|-------------------------------|
| 93.846 | Agile Development of a Digital Exposure Treatment for Youth with Chronic Musculoskeletal Pain | | | | \$152,221 |
| 93.846 | Back Pain Consortium (BACPAC) Research Program Data Integration, Algorithm Development and Operations Management Center | University of California, San Francisco | 14410sc | | \$34,349 |
| 93.846 | Back Pain Consortium (BACPAC) Research Program Data Integration, Algorithm Development and Operations Management Center | University of North Carolina at Chapel Hill | 5123299 | | \$641,342 |
| 93.846 | BEG4/MIM Function in Epithelial Neoplasia | | | -\$9,270 | -\$9,270 |
| 93.846 | Can hydroxychloroquine prevent preeclampsia and preterm delivery in lupus pregnancy? | | | \$252,459 | \$643,441 |
| 93.846 | Characterization of Chronic Pain and its Biopsychosocial Mechanisms in Lupus using Electronic Health Records | | | | \$138,373 |
| 93.846 | Chromatin Dynamics During Epithelial Commitment | | | | \$323,076 |
| 93.846 | Customized MSCs to Enhance Healing of Bone Defects | | | | -\$55 |
| 93.846 | Defining the role of mechanoresponsive adipocyte-to-fibroblast transition in wound fibrosis. | | | | \$98,716 |
| 93.846 | Determining how cell growth triggers cell division in epidermal stem cells | | | | \$232,784 |
| 93.846 | Developing and Testing a Tool for Preference Elicitation in Carpal Tunnel Syndrome | | | | \$150,198 |
| 93.846 | Development of Sodium Fluoride PET-MRI for Quantitative Assessment of Knee Osteoarthritis | | | \$46,927 | \$252,045 |
| 93.846 | Digital Biomarkers of Post-traumatic Osteoarthritis: Toward Precision Rehabilitation | Carnegie Mellon University | 1090749-465054 | | \$59,386 |
| 93.846 | Enhanced Bone Healing Around Implants by Transplanted NF-kB Driven Immunomodulating MSCs | | | | \$29,317 |
| 93.846 | Epidermal Signaling Regulators | | | | \$54,351 |
| 93.846 | Epigenetic determinants influencing development and evolution of chronic post-surgical pain in children undergoing musculoskeletal surgery | Cincinnati Children's Hospital Medical Center | 308702 (PO #3100774972) | | \$54,726 |
| 93.846 | Establishing a Single-Cell Proteomic Atlas for Normal and Osteoarthritic Articular Cartilage | | | | \$481,456 |
| 93.846 | Evaluating the potential of human induced pluripotent stem cells (hiPSC) for Cartilage Repair | | | | \$94,020 |
| 93.846 | Examining Skeletal Stem Cell Diversity and its Role in Intervertebral Disc Regeneration | | | | \$34,786 |
| 93.846 | Get moving, GET living: Graded exposure treatment for adolescents with chronic musculoskeletal pain. | | | | -\$55 |
| 93.846 | HEAL Initiative: Back Pain Consortium (BACPAC) Research Program Technology Research Sites | University of North Carolina at Chapel Hill | 5126160 | | \$43,907 |
| 93.846 | Imaging of Joint Response to Physiological Stress with Age, Sex and in Osteoarthritis | | | | \$246,245 |
| 93.846 | IMPACCT: Infrastructure for Musculoskeletal Pediatric Acute Care Clinical Trials | Ann & Robert H. Lurie Children's Hospital of Chicago | 901634-Stanford | | \$3,776 |
| 93.846 | Improved Diagnostic MRI around Metallic Implants | University of Southern California | SCON-00003334 | | \$135,718 |
| 93.846 | Instant Stem Cell Labeling with a new Microfluidic Device | | | | \$94,771 |
| 93.846 | Interactions of PTH and Wnt signaling in bone formation | | | \$15,587 | \$189,035 |
| 93.846 | Investigating Isthmin as an adipose-to-muscle messenger that promotes muscle protein synthesis | | | | \$28,021 |
| 93.846 | Mechanisms of Epidermal Homeostasis and Early Neoplasia | | | | \$539,161 |
| 93.846 | Mentoring and Research in Biobehavioral Aspects of Pediatric Pain | | | | \$187,634 |
| 93.846 | Mitochondrial inner membrane architecture in skeletal muscle pathophysiology | | | | \$438,721 |
| 93.846 | Monitoring of Stem Cell Engraftment in Arthritic Joints with MR Imaging | | | | \$323,963 |
| 93.846 | Mucosal Breaks in the Initiation and Progression of Rheumatoid Arthritis | | | \$434,249 | \$978,124 |
| 93.846 | Novel digital tools for home-based monitoring of skin disease | | | | \$60,805 |
| 93.846 | Novel PET/MR Imaging Approach for Persistent Postsurgical Pain Following Joint Replacement | | | | \$108,832 |
| 93.846 | Pain Rehabilitation Virtual Reality (PR-VR): Innovations to enhance mobility in the presence of pain | | | | \$155,626 |
| 93.846 | Patient Oriented Research in Vulnerable Populations with Skin Disease | | | | \$170,582 |
| 93.846 | Postgraduate Training in Epithelial Biology | | | | \$261,496 |
| 93.846 | Rapid Low-Cost Quantitative 3D MRI and Gait Assessment of the Knee | | | | \$491,559 |
| 93.846 | Regulating Gli Function in Hair Follicle Progenitors | | | | \$308,290 |
| 93.846 | REGULATION OF SKIN HOMEOSTASIS BY RNA-BINDING PROTEINS | | | | \$43,678 |
| 93.846 | REGULATORS OF EPIDERMAL GENE EXPRESSION | | | | \$325,496 |
| 93.846 | Regulatory Variants in HUMAN SKIN DISEASES | | | | \$490,591 |
| 93.846 | Sliding hydrogels for accelerating cartilage regeneration | | | | \$410,152 |
| 93.846 | STABILITY 2: ACL Reconstruction +/- Lateral Tenodesis with Patellar vs. Quad Tendon | University of Pittsburgh | AWD0001277 (139333-20) | | \$8,839 |
| 93.846 | Stromal Regulation of Basal Cell Carcinoma Formation | | | | \$497,517 |
| 93.846 | Systems Modeling Guided Bone regeneration | University of Texas Health Science Center at Houston | SA0000046 | | \$1,898 |
| 93.846 | Targeted therapeutic modulation of inflammatory cytokines through manipulation of non coding RNA regulation of innate immunity in atopic dermatitis | | | | \$196,059 |
| 93.846 | Targeting DNA Demethylation Regulators in Osteoarthritis | | | | \$12,660 |
| 93.846 | The BEST Trial: Biomarkers for Evaluating Spine Treatments Study (Part of HEAL Initiative: Back Pain Consortium (BACPAC) Research Program Technology Research Sites) | University of California, San Francisco | 11817sc | | \$128,908 |
| 93.846 | Tissue Engineering Approaches for Improved Treatment of Early Stage Osteonecrosis of the Hip | | | | \$330,925 |
| 93.846 | Training Program in Adult and Pediatric Rheumatology | | | | \$374,079 |
| 93.846 | Transcriptional Regulatory Complexes in Epidermal Differentiation | | | | \$6,127 |
| 93.846 | Urine cadmium and risk of fracture and bone loss | Stony Brook University, State University of New York | 1171294/2/92721 | | \$33,871 |
| 93.846 | Vascularization in bone tissue engineering constructs | | | | \$349,467 |
| 93.846 | Vesicle Trafficking and Osteoblast Function | | | | \$152,188 |
| 93.847 | 226534 DREAMS CDTR | Kaiser Permanente ImmunogenX | RNG211603-01 138618 | | \$62,355 |
| 93.847 | A Clinical Study of Latiglutenase as a Treatment for Type 1 Diabetics with Celiac Disease | | | | \$107,853 |
| 93.847 | A Model for Human Liver Fibrosis | | | | \$462,803 |
| 93.847 | A Multi-Level Intervention to Promote Healthy Beverage Intake through Childcare | | | \$148,888 | \$688,979 |
| 93.847 | A novel approach for treating diabetes using pulsed focused ultrasound and intra-arterial delivery of mesenchymal stem cell based therapies directly into the pancreas | | | \$28,630 | \$523,424 |
| 93.847 | A Randomized Controlled Trial of a Group-Based Therapeutic Yoga Intervention for Urinary Incontinence in Ambulatory Older Women | University of California, San Francisco | 11117sc | | \$73,694 |

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass-through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|--|---|---|--|----------------------------|
| 93.847 | A stem cell activated cryogel bioscaffold that restores islet bioenergetics while providing oxygen and nutrients at extravascular sites of transplantation | | | \$17,603 | \$550,189 |
| 93.847 | Adult and Pediatric Nephrology and Urology Research Training Program | | | | \$340,723 |
| 93.847 | An Encyclopedia of the Adipose Tissue Secretome to Identify Mediators of Health and Disease | Rockefeller University | 1RC2DK129961-01 Dr. Paul Cohen | | \$135,294 |
| 93.847 | An Integrated and Non-invasive Wearable Platform and Analytical Framework for Precision Nutrition and Personalized Medicine. | University of California, Los Angeles | 0160 G ZC116 | | \$38,118 |
| 93.847 | Assessment of eligibility for kidney donation among potential living donors | University of California, San Francisco | 11918sc | | \$6,260 |
| 93.847 | BMP5 cells and signaling in BPH pathogenesis | | | | \$131,617 |
| 93.847 | Bone Health in Patients with Urinary Stone Disease | | | | \$156,332 |
| 93.847 | Bridging the gap between type 2 diabetes GWAS and therapeutic targets | University of North Carolina at Chapel Hill | 5125106 | | \$614,998 |
| 93.847 | Calcineurin in pancreatitis | | | | \$14,562 |
| 93.847 | Cellular and molecular analyses of hematopoietic stem cell [HSC] interactions with bone marrow niches to improve HSC engraftment for transplantation and tolerance induction | | | | \$104,163 |
| 93.847 | CFTR-Independent Bicarbonate Secretion is a Novel CF Therapeutic Target | | | | \$189,878 |
| 93.847 | Characterization of novel insulin resistance genes by gene editing, high-throughput phenotyping and in vivo studies | | | | \$267,781 |
| 93.847 | Characterization of the Role of Nemo-like Kinase in Normal and Diamond Blackfan Anemia Models of Erythropoiesis. | | | | \$154,286 |
| 93.847 | Chemical control of energy metabolism by N-acyl amino acids | | | | \$407,153 |
| 93.847 | Chemical interrogation of metabolic tissue crosstalk | | | | \$759,649 |
| 93.847 | Chronic kidney disease of unknown etiology: applying a multidisciplinary approach to investigate the world's most common tubulointerstitial kidney disease | | | \$79,129 | \$334,364 |
| 93.847 | Chronic Kidney Diseases of Uncertain Etiology (CKDu) in Agricultural Communities (CURE) Research Consortium - Scientific Data Coordinating Center (SDCC) (U24) | RTI International | 3-312-0218210-66575L | | \$44,032 |
| 93.847 | Co-Formulations of Amylin Analogues with Insulin Analogues for Treatment of Diabetes | | | | \$1,126,258 |
| 93.847 | Continuation of the Coordinating Center for the Chronic Renal Insufficiency Cohort (CRIC) Study | University of Pennsylvania | 582534 / PO#: 4944805 | | \$38,706 |
| 93.847 | Continuation of the Scientific Data Research Center (SDRC) of the Gastroparesis Clinical Research Consortium (GpCRC) 4 | Johns Hopkins University | 2005830964 | | \$20,327 |
| 93.847 | Control of glucose homeostasis through the insulin-independent Isthmin pathway | | | | \$378,694 |
| 93.847 | Data Coordinating Center for the Type 1 Diabetes in Acute Pancreatitis Consortium (T1DAPC) | Penn State College of Medicine | STUDK127384-SUP | | \$202,615 |
| 93.847 | Data Coordinating Center for Type 1 Diabetes TrialNet | University of South Florida | 6163-1082-30-BN | | \$243,734 |
| 93.847 | Defining Small Intestinal Microbial Landscapes To Improve Therapeutics For Gastrointestinal Disease | | | | \$41,988 |
| 93.847 | Determining the mechanisms linking cell growth to the cell cycle in the liver | | | | \$341,685 |
| 93.847 | Developing A Platform Technology For -Cell-Targeted Drug Delivery | | | | \$39,509 |
| 93.847 | Development of Beta-Cell-Targeted Regenerative Therapeutics Using A Novel Prodrug Strategy | | | | \$357,834 |
| 93.847 | DEVELOPMENT OF CONCENTRATED, STABLE ULTRA FAST-ACTING INSULIN FORMULATION | | | \$12,074 | \$282,814 |
| 93.847 | Development of long-acting glucose-responsive insulin formulations | | | \$97,829 | \$722,402 |
| 93.847 | Diabetes and extracellular matrix in NASH | | | | \$303,388 |
| 93.847 | Diabetes, Endocrinology and Metabolism Training Grant | | | | \$200,218 |
| 93.847 | Diabetes-Docs: Physician-Scientist Career Development Program (DiabDocs) | | | \$256,179 | \$425,008 |
| 93.847 | Dietary and Microbial Reprogramming of Intestinal Microbiota-Produced Metabolites | | | \$70,637 | \$461,890 |
| 93.847 | Direct conversion of fibroblasts to urothelial stem cells | | | | \$188,615 |
| 93.847 | Discovering genetic and hormonal mechanisms underlying diabetes risk from flies to humans | | | | \$177,468 |
| 93.847 | Discovery Science Collaborative for CKDu | | | \$82,684 | \$178,912 |
| 93.847 | Covid-19: Effect of obesity on HIV pathogenesis, antiretroviral therapy, and metabolic comorbidities | Oregon Health & Science University | 1015566-002_Stanford | | \$16,389 |
| 93.847 | Elucidating the role of mechanical forces in diabetic wound healing | | | | \$23,175 |
| 93.847 | Engineered Immune Cells for T1D | | | | \$994,635 |
| 93.847 | Epigenetic and functional determination of colon organoids as a patient-specific preclinical model of ulcerative colitis | | | \$35,807 | \$201,924 |
| 93.847 | Family Matters: Optimizing Family-Based Interventions for Adolescents with Type 1 Diabetes | | | | \$149,267 |
| 93.847 | Fatty Acid Signaling via GPCRs in Primary Cilia Controls Adipogenesis and Insulin Secretion, Regulating Obesity and Diabetes | | | | \$35,564 |
| 93.847 | From stomach tissue to cellular mechanisms: unraveling the role of mononuclear phagocytes in the pathophysiology of gastroparesis | | | | \$428,377 |
| 93.847 | Gene Therapy for Diabetes | Oregon Health & Science University | 1015967_STANFORD | | \$190,035 |
| 93.847 | Genetic and physiologic regulation of pig islet development and function | | | \$206,331 | \$507,353 |
| 93.847 | Gluten peptide presentation in celiac disease: investigating the role of transglutaminase 2 using novel chemical probes | | | | \$39,564 |
| 93.847 | Gut Bacteriophage Correspondence with Inflammation and Clinical Dietary Interventions | | | | \$64,208 |
| 93.847 | Hepatitis B Research Network (HBRN): Natural History and Treatment Studies | University of California, San Francisco | 11506sc | | \$82,247 |
| 93.847 | High School Program in Biomedical and Health Sciences | | | | \$178,567 |
| 93.847 | Human Pancreas Analysis Program-T2D | Vanderbilt University Medical Center | VUMC81249 | | \$374,512 |
| 93.847 | Immune Checkpoints for Intestinal Innate Lymphoid Cells | | | | \$233,835 |
| 93.847 | Impact of Diet on Intestinal Microbiota-Host Dynamics | | | | \$325,685 |
| 93.847 | Impact of symbiotic protists on intestinal T cell homeostasis and inflammation. | | | | \$514,668 |
| 93.847 | Impaired Autophagy, Mitochondrial Dysfunction, and Inflammation in Pancreatitis | University of California, Los Angeles | 1564 G ZA709 | | \$221,456 |
| 93.847 | Improving Glycemia & Reducing Diabetes Distress in Adolescents & Young Adults with T1D | Joslin Diabetes Center | 003423-2150168 | | \$396,168 |
| 93.847 | Improving Overactive Bladder Treatment Access and Adherence Through Personalized Behavioral Modifications and Mobile Technology-Based Interventions | | | | \$160,659 |
| 93.847 | In vivo systems to discover mechanisms regulating human islet alpha cell function | | | \$308,627 | \$514,145 |
| 93.847 | Increasing Diversity in Hematology: Training for URM Students | | | | \$99,875 |

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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass-through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|---|---|---|--|----------------------------|
| 93.847 | Insights into pancreatic beta-cell development from a novel mouse model of neonatal diabetes | | | | \$168,576 |
| 93.847 | Integrated Islet Distribution Program (U24) - 2021 | City of Hope National Medical Center | PO# 3000238805 | | \$183,064 |
| 93.847 | Covid-19: Intestinal organoid modeling of SARS-CoV-2-stimulated innate and adaptive immunity | | | | \$252,184 |
| 93.847 | Investigating the effects of aerobic and resistance training in vivo on skeletal muscle metabolism in vitro in primary human muscle cells (MoTrMyo) | Adventist Health System/Sunbelt, Inc. | 1329760-Stanford | | \$1,487 |
| 93.847 | Investigation and Translation of the Intestinal Stem Cell Niche | | | | \$398,392 |
| 93.847 | Leveraging the Uniquely High Beta-Cell Zinc Content for Targeted Drug Delivery | | | \$220,530 | \$554,701 |
| 93.847 | Localizing Pathogenically Relevant Transglutaminase 2 in Celiac Disease | | | | \$361,653 |
| 93.847 | Longitudinal Multi-Omic Profiles to Reveal Mechanisms of Obesity-Mediated Insulin Resistance | | | | \$87,426 |
| 93.847 | Long-term effectiveness of BPH/LUTS pharmacological therapies and using machine learning based predictive analytics to tailor treatment. | | | \$28,340 | \$149,481 |
| 93.847 | Lymph Node Extracellular Matrix in Antigen Presentation and Immune Regulation | | | \$50,179 | \$155,218 |
| 93.847 | MagStoNE - a magnetic system for kidney stone fragment elimination | | | | \$240,792 |
| 93.847 | Mapping Protein Communication Between Organs in Homeostasis and Disease | Harvard University | 153277.5107753.0004 | | \$123,065 |
| 93.847 | Maximizing Geographic and Scientific Reach Through a Northern California Apollo Network: Application for Clinical Center | University of California, San Francisco | 10942sc | | \$13,359 |
| 93.847 | Mechanisms and Consequences of Defective Flow-Induced Potassium Secretion in the Metabolic Syndrome | | | \$9,953 | \$88,858 |
| 93.847 | Mechanisms of NAT2 Regulation of Insulin Resistance and Mitochondrial Dysfunction | | | | \$452,145 |
| 93.847 | Mechanisms of Physiological Organ Shrinkage | | | | \$510,097 |
| 93.847 | Mechanistic Basis of Calcium Sensing Receptor Signaling | | | | \$650,201 |
| 93.847 | Mentoring Patient-Oriented Clinical Investigators in Nephrology | | | | \$164,906 |
| 93.847 | MRI-based Quantitative Susceptibility Mapping of Hepatic Iron Overload | University of Wisconsin-Madison | 813K923 / Ro1 DK117354 | | \$64,545 |
| 93.847 | Multidisciplinary K12 Urologic Research at Stanford (KUREs) Career Development Program | | | | \$2,078 |
| 93.847 | NADPH oxidase inhibition in NASH | | | | \$223 |
| 93.847 | ONBOARD: Overcoming Barriers & Obstacles to Adopting Diabetes Devices | | | | \$222,386 |
| 93.847 | Optimizing a scalable intervention to maximize guideline-recommended diabetes testing after GDM | University of California, Davis | A21-1599-S002 | | \$12,660 |
| 93.847 | Optimizing self-monitoring in a digital health intervention for weight loss | | | | \$163,907 |
| 93.847 | Patient-Derived Kidney Organoids For Modeling Kidney Injury | | | | \$70,112 |
| 93.847 | Peer Support for Weight Loss Maintenance | University of Connecticut | 163965176 PO# 505015 | | \$9,730 |
| 93.847 | Polarizing T Cell Responses in vivo With Dendritic Cells | | | | -\$47,900 |
| 93.847 | Porphyrias Consortium | Icahn School of Medicine at Mount Sinai | 0255-B226-4609 | | \$38,780 |
| 93.847 | Post-Surgical Predictors of Depression and Weight Regain After Bariatric Surgery | Sanford Research North | SR-2019-209 | | \$3,419 |
| 93.847 | Primary Outcomes in Glomerulonephritis Study (PROGRESS) | University of Pennsylvania | 582484 PO: 4722611 | | \$4,544 |
| 93.847 | Proteomic determinants of direct measures of insulin sensitivity | | | | \$1,139,965 |
| 93.847 | Pumps for Kids, Infants, and Neonates (PumpKIN) Clinical Trial | New England Research Institute, Inc. | Task Order 6 | | \$4,381 |
| 93.847 | Quantifying the Metrics of Surgical Mastery: An Exploration in Data Science | | | \$281,450 | \$719,155 |
| 93.847 | Reaching Equity in ACESS to Home Dialysis And Re-Transplantation (REACH-DART) | University of California, San Francisco | 13676sc | | \$20,785 |
| 93.847 | Reducing Disparities in Pediatric Diabetes: Building the Evidence Base to Inform Effective Diabetes Technology Interventions in Underrepresented Minorities | | | | \$153,455 |
| 93.847 | Refining repeat screening for coronary artery disease in kidney transplant candidates | | | | \$165,295 |
| 93.847 | Regulation of gastrointestinal hormone signaling and metabolism by Neuromedin U | | | \$186,516 | \$44,110 |
| 93.847 | Response Training for Obesity Treatment: Translational Neuroscience | | | | \$483,854 |
| 93.847 | Robust Statistical Methods to Identify and Use Surrogate Markers in Diabetes | University of Texas | UTAUS-SUB00000526 | | \$60,344 |
| 93.847 | Role of a lactate-derived signaling metabolite in tissue crosstalk and energy balance | | | | \$12,145 |
| 93.847 | Role of Transglutaminase 2 in Celiac Sprue | | | \$215,383 | \$575,154 |
| 93.847 | Signal integration by specialized mesenchyme in urothelial homeostasis and Interstitial Cystitis / Bladder Pain Syndrome | | | | \$515,162 |
| 93.847 | Signaling Pathways in MDS | | | | \$70,063 |
| 93.847 | Sit Less, Interact and Move More (SLIMM) 2 Study | University of Utah | 10057603-01 / U000338299 | | \$106,976 |
| 93.847 | Spring Mediated Enterogenesis | | | | \$383,311 |
| 93.847 | Stanford Diabetes Research Center | | | \$24,917 | \$1,652,749 |
| 93.847 | Stanford O'Brien Urology Research Center | | | \$6,116 | \$1,058,874 |
| 93.847 | Stratification of Non-alcoholic Fatty Liver Disease using the SAFE Score | | | | \$692,547 |
| 93.847 | Structural Insights to Insulin Receptor Ligands | University of Utah | 10059395-01; PO# U000343539 | | \$81,321 |
| 93.847 | Structure/Function Correlations Over Copper Enzymes | | | | \$469,207 |
| 93.847 | Covid-19: Structure-based Bioengineering of Wnt Surrogates for Intestinal Stem Cell Biology and Therapy | | | | \$496,558 |
| 93.847 | Structure-based strategy for developing inhibitors of the kidney chloride channel CLC-Ka | | | \$39,856 | \$482,858 |
| 93.847 | Targeting bacterial proteases involved in PAR signaling to treat inflammatory bowel diseases | | | \$39,207 | \$243,545 |
| 93.847 | Teamwork, Targets, Technology, and Tight Control in Newly Diagnosed Pediatric T1D:4T Study | | | | \$709,716 |
| 93.847 | The Atrial Fibrillation - Factor Identification to Risk Modification Study in CKD/ESRD | Baylor College of Medicine | P700000377 | | \$87,507 |
| 93.847 | The Effects of Telemedicine on Health Outcomes, Costs, and Perceptions of Care Delivery in In-Center Hemodialysis | Baylor College of Medicine | 7000001789 | | \$16,338 |
| 93.847 | The impact of glomerular disorders on bone quality and strength | Columbia University | 5(GG015009-01); G13413 | | \$4,109 |
| 93.847 | The Optimal Pathway to Implanted Autonomous Insulin Delivery | | | | \$234,151 |
| 93.847 | The Role of Hyaluronan and CD44 in the Pathogenesis of Type 2 Diabetes | | | | \$336,444 |
| 93.847 | The Role of Pretransplant Services on Outcomes and Costs in Kidney Transplantation | | | | \$28,869 |
| 93.847 | The role of SPRY2 in the colonic epithelial response to inflammation | Children's Hospital Los Angeles | RGF011923-B | | \$43,998 |
| 93.847 | The Stanford Clinical Center for the Study of Chronic Pancreatitis, Diabetes, and Pancreatic Cancer | | | | \$608,171 |

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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass-through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|--|---|---|--|----------------------------|
| 93.847 | The Stanford Clinical Center for the Study of Type 1 Diabetes in Acute Pancreatitis | | | | \$258,861 |
| 93.847 | The Stanford Pre-Renal Initiative: Undergraduate Training in Kidney Health | | | | \$110,316 |
| 93.847 | Therapeutic targeting of human islets with recombinant regulatory T cells | | | \$130,406 | \$726,382 |
| 93.847 | Towards a mechanistic understanding of the role of gut microbiota in postnatal growth impairment | | | | \$53,496 |
| 93.847 | Training Grant in Academic Gastroenterology | | | | -\$2,746 |
| 93.847 | Training in Pediatric Nonmalignant Hematology and Stem Cell Biology | | | | \$320,973 |
| 93.847 | Training Research Leaders in Type 1 Diabetes | | | | \$202,112 |
| 93.847 | Translation of the UVA Advanced Automated Insulin Delivery Systems to Clinical Care in Young Children: Glycemic Control, Regulatory Acceptance, and Optimization of Day to Day Use | University of Virginia | AWD-001440.SUB00000463 | | \$169,200 |
| 93.847 | Treating Kidney Injury by Modulating Heat Shock Proteins Using Soundwaves Combined with Mesenchymal Stem Cells and Their Extracellular Vesicles | | | | \$454,858 |
| 93.847 | Type 2 cytokines and innate lymphoid cells in pediatric ulcerative colitis | | | | \$472,378 |
| 93.847 | Understanding mechanisms by which microbial strains and metabolites in fermented foods decrease systemic inflammation | | | | \$78,085 |
| 93.847 | Understanding the developmental xenobarrier | | | | \$247,099 |
| 93.847 | Understanding tissue selective phenotypes in ribosomopathies with new technologies | | | | \$359,714 |
| 93.847 | United States Renal Data System (USRDS) | Hennepin Healthcare Research Institute | 75N94019C00006_Option Period 3 | | \$5,418 |
| 93.847 | Validation of a Neurogenic Bladder Management Solution to Promote Independence and Reduce Long-Term Morbidity for Patients Unable to Perform Intermittent Catheterization | CRM Medical Devices, Inc. | SPO 250052 | | \$4,933 |
| 93.847 | Valine as a Metabolic Modulator of Hematopoiesis | | | | \$92,092 |
| 93.847 | Virtually Supervised Exercise for Kidney Transplant candidates | Palo Alto Veterans Institute for Research | LIC0001-01 | | \$41,485 |
| 93.847 | Whole blood gene expression to identify biomarkers of disease risk, progression and response to therapy in Type 1 diabetes | | | | \$82,251 |
| 93.847 | Wise Social Psychological Interventions to Improve Outcomes of Behavioral Weight Control in Children with Obesity | | | | \$749,997 |
| 93.847 | Wnt4(+) Cell Fate Mapping and ENaC Activity in Furosemide-treated Mice | University of Pittsburgh | CNVA00060589 (131753-2) | | -\$3,371 |
| 93.853 | "NIH StrokeNet National Coordinating Center" - Administrative Consulting Agreement - Albers | University of Cincinnati | 011414-Adm-Albers | | \$7,467 |
| 93.853 | A Brain Circuit Program for Understanding the Sensorimotor Basis of Behavior | California Institute of Technology | S399719 | | \$134,089 |
| 93.853 | A Brain Circuit Program for Understanding the Sensorimotor Basis of Behavior | Harvard University | 149420.5104941.0503- 7 | | \$216,455 |
| 93.853 | A Brain Circuit Program for Understanding the Sensorimotor Basis of Behavior | University of Washington | UWSC10311/BPO40343-5 | | \$60,478 |
| 93.853 | A molecular investigation of retinoic acid-dependent homeostatic synaptic plasticity | | | | \$449,572 |
| 93.853 | A Novel Genome-Wide Screen to Identify and Characterize Regulators of ALS Disease Modifier Gene Ataxin-2 | | | | \$6,918 |
| 93.853 | A RIPK2-Targeting Apoptosis-Inducing Small Molecule for the Treatment of Glioblastoma | Scripps Research Institute | 5-54490 | | \$127,424 |
| 93.853 | A robotic multi-armed two-photon microscope for imaging neural interactions across multiple brain areas | | | | \$623,113 |
| 93.853 | A Shared Neuroscience Platform for National Dissemination and Training in Brain Organogenesis, Behavioral and Brain Disease Models, Viral Vectors, and Imaging Technologies | | | | \$1,648,946 |
| 93.853 | A youth-specific helmet for preventing traumatic brain injury | Savior Brain Inc. | RNS119134A | | -\$13,810 |
| 93.853 | Activity-dependent endocannabinoid control in epilepsy | | | \$51,191 | \$238,889 |
| 93.853 | Adaptive Neurostimulation to Restore Sleep in Parkinson's Disease: An Investigation of STN LFP Biomarkers In Sleep Dysregulation and Repair | University of Nebraska | 34-5385-2100-203 | | \$71,713 |
| 93.853 | An Engineered Hydrogel Platform to Improve Neural Organoid Reproducibility for a Multi-Organoid Disease Model of 22q11.2 Deletion Syndrome | | | | \$8,989 |
| 93.853 | An Open Source Simulator for Multi Degree of Freedom Brain-Machine Interfaces | University of California, Los Angeles | 0160 G ZB833 | | \$15,658 |
| 93.853 | ARCADIA CSI (Cognition and Silent Infarcts) | | | \$924,109 | \$1,099,831 |
| 93.853 | Automated Phenotyping in Epilepsy | | | \$349,619 | \$660,877 |
| 93.853 | Axonal myelination of interneurons in cortex: functional significance and plasticity | | | | \$450,809 |
| 93.853 | B Lymphocyte-Mediated Autoimmunity in Pain after Trauma | Palo Alto Veterans Institute for Research | CLA0042-01 | | \$122,384 |
| 93.853 | BBB dysfunction in post-stroke dementia | | | \$57,197 | \$492,603 |
| 93.853 | Bilateral Closed Loop Deep Brain Stimulation for Freezing of Gait using Neural and Kinematic Feedback | | | | \$836,251 |
| 93.853 | Biologically plausible computational models of Perirhinal Cortex | | | | \$35,952 |
| 93.853 | Bioluminescent indicators for noninvasive imaging of acetylcholine release | | | | \$29,266 |
| 93.853 | Biophysical Characterization of Subthalamic Local Field Potentials in Parkinson's Disease | Duke University | 303-000093 | | \$93,891 |
| 93.853 | Biophysical Society Meeting on Molecular Biophysics of Membranes | | | | \$15,000 |
| 93.853 | Brainwide Computations Underlying Future Action Plans | | | | \$20,535 |
| 93.853 | Cannabinoid control of epilepsy | | | -\$735 | \$58,329 |
| 93.853 | CDKN2A couples lipid metabolism to Ferroptosis in Glioblastoma | University of California, Los Angeles | PO 1490GZA883 | | \$65,290 |
| 93.853 | Cell-cell communications in neural circuit assembly | | | | \$422,951 |
| 93.853 | Center for Undiagnosed Diseases at Stanford | | | | \$188,405 |
| 93.853 | Central Thalamic Stimulation for Traumatic Brain Injury | Weill Cornell Medical College | 225831-3 | | \$218,534 |
| 93.853 | Characterization of central pain mechanisms using simultaneous spinal cord-brain functional imaging | | | | \$680,285 |
| 93.853 | Characterization of sexual dimorphism in the brain | | | | \$533,218 |
| 93.853 | CHILD NEUROLOGIST CAREER DEVELOPMENT PROGRAM (CNCDP) | Kennedy Krieger Institute | CNCDP/PO9000099 | | \$15,060 |
| 93.853 | Circadian mechanisms of myelination | | | | \$179,517 |
| 93.853 | Circuit mechanisms for encoding naturalistic motion in the mammalian retina | University of Chicago | FP069821-01 | | \$50,956 |
| 93.853 | Circuitry and Molecular Mechanisms for Descending Pain Facilitation | | | | \$130,409 |
| 93.853 | CLC-2 voltage-gated chloride channel structure and ligand recognition | | | | \$110,997 |
| 93.853 | Clinical Translation of Targeted and Noninvasive Ultrasonic Propofol Uncaging | | | | \$1,318,837 |
| 93.853 | Clinical Translation of Ultrasonic Ketamine Uncaging for Non-Opioid Therapy of Chronic Pain | | | \$235,947 | \$381,458 |
| 93.853 | Clinical Trial Readiness for SCA1 and SCA3 | Houston Methodist Research Institute | AGMT00004435AM3 | | \$100 |
| 93.853 | Close-loop, spatially addressable multiphoton functional imaging | Cornell University | 88390-11314 | | \$93,565 |
| 93.853 | Cofilin signaling in Hemorrhagic Stroke | University of Toledo | N-2023-25 | | \$1,770 |

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|---|--|---|---|--|----------------------------|
| 93.853 | Combinatorial matrix-mimetic recombinant proteins as engineered nerve guidance conduits | | | | -\$5,365 |
| 93.853 | Computational modeling of dynamic causal brain circuits underlying cognitive dysfunction in Alzheimer's disease | | | \$38,139 | \$476,703 |
| 93.853 | Control of Axon Initial Segment in Epilepsy | | | \$416,832 | \$899,355 |
| 93.853 | Correction of Mucopolysaccharidosis type 1: Targeting safe harbor loci using genome editing | | | | \$14,422 |
| 93.853 | Cortical basis of complex motor sequences in humans for neural interfaces | | | \$518,495 | \$1,086,199 |
| 93.853 | CRCNS: Deconstructing dynamics of motor cortex in freely moving behavior | | | | \$297,447 |
| 93.853 | CT Perfusion to Predict Response to Recanalization in Ischemic Stroke Project 2(CRISP 2) | | | \$11,750 | \$390,040 |
| 93.853 | Deconstructing the serotonin system in the mouse brain | | | | \$45,300 |
| 93.853 | Defining and perturbing gene regulatory dynamics in the developing human brain | | | | \$103,004 |
| 93.853 | Dermatomal Mapping with Spinal Cord Functional Magnetic Resonance Imaging | | | | \$54,048 |
| 93.853 | Development of A Novel Imaging Strategy for Evaluation of CAR T-Cell Therapy in glioblastoma | | | | \$135,808 |
| 93.853 | Development of selective cannabinoid receptor 2 agonists for treatment of addiction | | | | \$705,152 |
| 93.853 | Developmental Synaptopathies Associated with TSC, PTEN and SHANK3 Mutations | Boston Children's Hospital | GENFD0002117034 | | \$58,034 |
| 93.853 | Developmental Synaptopathies Associated with TSC, PTEN, and SHANK3 Mutations (CT Pilot) | Boston Children's Hospital | GENFD0002117097 | | \$41,999 |
| 93.853 | Diagnosing the Unknown for Care and Advancing Science (DUCAS) | Harvard University | 151858.5124925.0105 | | \$60,650 |
| 93.853 | Discovery and validation of novel biomarker signature of peripheral painful neuropathy | LASMED, LLC | 199665 | | \$43,260 |
| 93.853 | Discovery of novel TDP-43 splicing targets: the Achilles heel for FTD and towards sensitive biomarkers and therapeutic targets | | | \$384,294 | \$809,943 |
| 93.853 | Dissecting hypothalamic pathways for seizure control | | | | \$172,282 |
| 93.853 | Dissecting neocortical field potential dynamics using optical voltage imaging in genetically targeted cell-types | | | | \$203,577 |
| 93.853 | Dissecting neuronal lipid metabolism | | | | \$238,121 |
| 93.853 | Dissecting the Cognitive Roles of Hippocampus and Other Temporal Lobe Structures in Patients Undergoing Epilepsy Surgery | Emory University | A510155 | | \$3,863 |
| 93.853 | Disseminating a validated mouthguard sensor to investigate the effect of head impacts on brain health | | | | \$90,102 |
| 93.853 | Dopamine Degradation Pathway and Alpha-synuclein Aggregation | | | \$446 | \$12,675 |
| 93.853 | Dopamine modulation of synaptic plasticity and integration in the striatum | | | | \$588,311 |
| 93.853 | Effects of TrkB Activation on Abnormalities in Neocortical FS interneuron | | | | \$198,640 |
| 93.853 | ENIGMA Parkinson's Initiative: A Global Initiative for Parkinson's Disease | University of Southern California | SCON-00002524 | | \$176,299 |
| 93.853 | Epilepsy Training Grant | | | | -\$1,105 |
| 93.853 | Establishing and benchmarking advanced methods to comprehensively characterize somatic genome variation in single human cells | | | | \$28,035 |
| 93.853 | Excitatory neurotransmission in the ventral tegmental area following neuropathic injury | | | | \$75,270 |
| 93.853 | Experimental Study of Goal-Directed Behavior and Memory During Temporal Lobe Epileptic Activity | | | | \$45,625 |
| 93.853 | Extramural Research Programs in the Neurosciences and Neurological Disorders | Wake Forest University | 1319-45205-1100000737 | | \$80,934 |
| 93.853 | Feasibility, Acceptability, and Pilot Testing of a Behavioral Intervention for Chronic Migraine | | | | \$231,646 |
| 93.853 | Focal Sustained Release Chemotherapy-Loaded Biomaterials at Tumor Sites | Tufts University | HH4218; PO# EP0173100 | | -\$30,634 |
| 93.853 | Free water imaging in PD | | | | \$18,694 |
| 93.853 | G Protein Coupled Receptor Structure, Dynamics and Signaling | | | | \$251,746 |
| 93.853 | Genetic and cellular analysis of glial development and function in vertebrates | | | | \$642,318 |
| 93.853 | Genetic control of neural stem cell homeostasis | | | | \$346,001 |
| 93.853 | HEAL Study (High-dose Erythropoietin for Asphyxia and Encephalopathy) | University of California, San Francisco | 9681sc | | \$590 |
| 93.853 | How do neurons coordinate alternative energy sources to meet the demands of computation? | | | \$56,853 | \$279,009 |
| 93.853 | How Does 3' UTR Secondary Structure Program mRNA Transport in Myelination? | | | | \$156,421 |
| 93.853 | How Does Actin Disassembly Drive Myelin Wrapping? | | | | \$370,418 |
| 93.853 | Human Infrared Vision at Molecular and Cellular Scale | | | | \$1,457,691 |
| 93.853 | Imaging B cells in the brain and beyond: developing an immuno-PET toolbox to improve understanding and treatment of multiple sclerosis | | | | \$287,395 |
| 93.853 | Imaging inflammation in the whole body and brain of ME/CFS patients | | | | \$19,499 |
| 93.853 | Impact of actin binding protein Coronin 1C in the pathogenesis of Parkinson's disease | | | | \$218,091 |
| 93.853 | Impact of sleep-wake circuits on cortical synapse plasticity during motor learning | | | \$78,681 | \$279,778 |
| 93.853 | Inflammatory injury-mediated synaptic plasticity in the periaqueductal gray | | | | \$78,273 |
| 93.853 | Inhibitory Controls of Thalamic Neurons | | | | \$141,429 |
| 93.853 | Injectable drug-delivery system to repair the blood-brain-barrier after ischemic stroke | | | | \$51,819 |
| 93.853 | Innovating Yeast and Human Genetics Approaches to Define Mechanisms of Neurodegenerative Disease | | | | \$1,451,287 |
| 93.853 | Instructive Signals for Motor Learning | | | | \$577,679 |
| 93.853 | Integrating Pragmatic Comparative Effectiveness Research into a Tertiary Pain Management Center | | | | \$185,943 |
| 93.853 | Integration of Advanced Diffusion MRI and 3D Histology for Improved Neurosurgical Targeting | | | | \$38,497 |
| 93.853 | Interaction of external inputs with internal dynamics: influence of brain states on neural computation and behavior | | | \$308,157 | \$5,454,454 |
| 93.853 | Interneuron-based mechanisms of temporal lobe epilepsy | | | | \$597,377 |
| 93.853 | Investigating the pathogenesis of Moyamoya Disease using patient derived induced pluripotent stem cells | | | | \$257,097 |
| 93.853 | INVESTIGATING THE ROLE OF NLRP3 INFLAMMASOME IN CEREBRAL ADRENOLEUKODYSTROPHY | Children's Hospital of Philadelphia | 3202030623-XX/PO 20399991 | | \$56,414 |
| 93.853 | Ischemic Brain Damage and Single Quantum Sodium MRI | | | | \$242,066 |
| 93.853 | KIR and HLA effects in CNS paraneoplastic syndromes and related neuroimmune conditions | | | \$108,160 | \$552,119 |
| 93.853 | Label-free Optical Recording of Neuroelectric Activities | | | \$128,821 | \$362,268 |
| 93.853 | Large-scale recordings in Primate Prefrontal Cortex: Mechanisms of Value and Attention | | | \$278,368 | \$661,043 |
| 93.853 | Maladaptive Myelination in Pediatric Epilepsy | | | | \$233,718 |
| 93.853 | Maternal Outcomes and Neurodevelopmental Effects of Antiepileptic Drugs (MONEAD) | | | \$1,266,917 | \$1,715,891 |

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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass-through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|--|--|---|--|----------------------------|
| 93.853 | Mechanisms and Control of Thalamocortical Synchrony in Absence Epilepsy | | | | \$44,690 |
| 93.853 | Mechanisms and Therapeutic Options of Hypersomnia in Myotonic Dystrophy | | | | \$50,627 |
| 93.853 | Mechanisms of Presynaptic Maintenance in C. elegans | | | | \$37,811 |
| 93.853 | Mechanistic and Therapeutic Studies of GPR124/RECK/WNT7-Regulated Blood-Brain Barrier Function | | | | \$163,529 |
| 93.853 | Mentoring in Discovery and Validation of Clinical Chronic Pain Biomarkers | | | | \$75,507 |
| 93.853 | Mesh electronics for understanding space encoding in the amphibian brain | | | | \$244,525 |
| 93.853 | Modulating miR-218 in human motor neurons using assembloids | | | | \$163,938 |
| 93.853 | Molecular Genetic Analysis of TORC1 and TORC2 Signaling in Neuronal Maintenance | | | | \$406,210 |
| 93.853 | Molecular Mechanisms of Pathogenesis in Huntingtons disease | University of California, Irvine | 2020-1730 | | \$59,541 |
| 93.853 | Molecular Mechanisms of Pathogenesis in Huntington's disease | University of California, Irvine | 2022-1729 | | \$62,924 |
| 93.853 | Molecular Mechanisms Regulating Inhibitory Circuitry in the Spinal Cord | | | | \$375,837 |
| 93.853 | Molecular Regulations of Mitochondrial Structure in Neuronal Homeostasis and Survival | | | | \$535,961 |
| 93.853 | Motor neural dynamics of free behavior enabled through 3D computer vision | | | | \$233,102 |
| 93.853 | Multi-Arm Optimization of Stroke Thrombolysis (MOST) Stroke Trial | Washington University in St. Louis | WU-22-0055,PO ST00002693 | | -\$6 |
| 93.853 | Multi-color optical voltage imaging of neural activity in behaving animals | | | \$71,931 | \$523,677 |
| 93.853 | Multimodal approach investigating the immunomodulatory effect of neural stem cells in stroke recovery | | | | \$665,920 |
| 93.853 | Multi-regional neural circuit dynamics underlying short-term memory | Baylor College of Medicine | 7000001047 | | \$71,724 |
| 93.853 | Nanocage-based systemic delivery of TGFb trap for immunomodulation of brain neoplasms | Johns Hopkins University | 2005153819 | | \$108,090 |
| 93.853 | Network mechanisms of delayed, immune-dependent hippocampal dysfunction after juvenile stroke | Kennedy Krieger Institute | 113126-0722-25B | | \$184,214 |
| 93.853 | Neural circuit mechanisms controlling seizures | | | | \$75,013 |
| 93.853 | Neural computations underlying vocal sensorimotor transformations | New York University | 19-A0-00-1002501/PO#M200283440 | | \$32,524 |
| 93.853 | Neural representation of mating partners by male C. elegans. | California Institute of Technology | S447445 / 1222148-1-DDLEH | | \$122,633 |
| 93.853 | Neuroimaging-Based Brain and Spinal Cord Biomarkers for Cervical Radiculopathy | | | | \$197,286 |
| 93.853 | Neuromodulation of Brain States | | | | \$595,200 |
| 93.853 | Neuronal activity-regulated mechanisms of glioma growth | | | | -\$7,082 |
| 93.853 | Neuronal and behavioral responses to spinal cord injury | | | | \$698,757 |
| 93.853 | Neurostimulation by Ultrasound: Physical Biophysical and Neural Mechanisms | | | | \$1,279,208 |
| 93.853 | Neurostimulation of the Nucleus Basalis of Meynert for the cognitive-motor syndrome in Parkinson's disease | | | | \$868,343 |
| 93.853 | New cell biology tools to study myelin development, dynamics, and disease | | | | \$35,287 |
| 93.853 | Next Generation Brain PET Imaging | | | | \$667,423 |
| 93.853 | NIH StrokeNet National Data Management Center (NDMC) | Medical University of South Carolina | A00-1427-S001 | | -\$445 |
| 93.853 | Non-coding RNA regulation of sex differences in stroke | | | | \$382,613 |
| 93.853 | Noninvasive Optogenetic Interventions for Epilepsy | | | | \$90,447 |
| 93.853 | NORthern California Acute care REsearch (NORCARES) Hub | University of California Davis Comprehensive Cancer Center | A23-0751-S001 | | \$49,441 |
| 93.853 | Novel AAV vector generation methods to prevent immunogenic unmethylated CpGsthat trigger efficacy-limiting CTLs in human gene therapy | | | | \$156,683 |
| 93.853 | Novel fluorescent sensors for imaging neuromodulation | University of California, Berkeley | 00010178 / BB01634635 | | \$228,702 |
| 93.853 | NRSA application: Characterizing acetylcholine, noradrenaline, and dopamine diffusion through the extracellular space in three subregions of macaque neocortex | | | | \$57,118 |
| 93.853 | Optimization of flexible neural probe arrays for multi-region recordings in rodents and nonhuman primates | University of Southern California | SCON-00004138 | | \$121,667 |
| 93.853 | Optogenetic approaches to study post-stroke recovery mechanisms | | | | \$764,387 |
| 93.853 | Optogenetics to improve hand function after spinal cord injury. | University Of Washington | UWSC13153 / BPO No. 73765 | | \$118,197 |
| 93.853 | Pathways to Neurosciences | | | \$32,346 | \$171,013 |
| 93.853 | Patterning dendritic branches with environmental and neuronal surface molecules | | | | \$378,990 |
| 93.853 | Peizot1 in neural stem cell mechanoregulation | University of California, Irvine | 2018-3650 | | \$32,995 |
| 93.853 | Perisomatic inhibition in epilepsy | | | | -\$991 |
| 93.853 | Population Neural Activity Mediating Sensory Perception Across Modalities | | | \$285,262 | \$751,945 |
| 93.853 | PRECISE (PeRfusion imaging to identify postErior CIrculation candidateS for thrombectomy) | | | \$91,155 | \$896,201 |
| 93.853 | PRECision Care In Cardiac ArrEst - ICECAP (PRECICECAP) | | | \$512,363 | \$1,349,580 |
| 93.853 | Preventing Epilepsy Using Vigabatrin in Infants with Tuberous Sclerosis Complex | University Of Alabama In Birmingham | 000510297-SC002 | | \$808 |
| 93.853 | Prognostic biomarkers for high-impact chronic pain: Development and validation | | | \$42,289 | \$1,406,322 |
| 93.853 | Rapid brain-wide optogenetic screening with a noninvasive, dynamically programmable in vivo light source | | | | \$458,784 |
| 93.853 | Recombinant Immunolabels for Nanoprecise Brain Mapping Across Scales | University of California, Davis | A19-1044-S003 | | \$88,576 |
| 93.853 | Responsive Neurostimulation for Loss of Control Eating | University of Pennsylvania | 583688 PO# 4914157 | | \$42,992 |
| 93.853 | Small-molecule probes for study of CLC-2 chloride-channel function in the central nervous system | | | | \$545,597 |
| 93.853 | Spatial and temporal regulation of synapse formation through phase separation | | | | \$123,306 |
| 93.853 | Spatial Regulators of Skeletal Muscle Regeneration and Disease | | | | -\$16,638 |
| 93.853 | Speaking of Spikes: Connectivity and Language in Benign Epilepsy with Centrottemporal Spikes | | | | \$222,054 |
| 93.853 | SPRINT: Signature for Pain Recovery IN Teens | | | \$712,166 | \$1,671,482 |
| 93.853 | Stanford Neurosurgery and Neurology Resident Research Education Program | | | | \$103,173 |
| 93.853 | Stanford University Regional Coordinating Stroke Center for the NIH Stroke Trials Network | | | | \$264,785 |
| 93.853 | State-dependent Decision-making in Brainwide Neural Circuits | Columbia University | 7(GG017143-07) | | \$27,642 |
| 93.853 | Statistical Models and Mechanisms Linking Biomarkers of Aging to Cognitive-Physical Decline and Dementia | University of Maryland | 20709 Request:2683PO1000013468 | | \$26,714 |
| 93.853 | Structural Basis of Signal Instigation Through Family C GPCRs | | | \$15,074 | \$744,528 |
| 93.853 | Structure and function of spontaneous network activity during circuit formation | | | | \$114,549 |

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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass-through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|--|---|---|--|----------------------------|
| 93.853 | Synthesis of peripherally active CB1 agonists as analgesics | University of Health Sciences and Pharmacy in St. Louis | 827-1-01 | | \$255,466 |
| 93.853 | Targeting GPCRs in amygdalar and cortical neural ensembles to treat pain aversion | University of North Carolina at Chapel Hill | 5119107 | | \$363,167 |
| 93.853 | Targeting Lag-3 and PD-1 in Myeloid Cells of GBM | | | \$15,800 | \$353,722 |
| 93.853 | The biophysics of skin-neuron sensory tactile organs and their sensitivity to mechanical and chemical stress | | | \$58,091 | \$663,845 |
| 93.853 | The Global Leukodystrophy Initiative Clinical Trials Network (GLIA-CTN) | Children's Hospital of Philadelphia | 3202030623-XX/PO# 20423285 | | \$49,633 |
| 93.853 | The impact of early Tau pathology on cognitive progression and neuropsychiatric symptoms in Parkinson's disease | | | | \$1,012,442 |
| 93.853 | The power of positivity: a novel class of voltage indicators for high-fidelity brain activity imaging | | | \$94,600 | \$1,712,501 |
| 93.853 | The role of mTORC2 in cancer cell metabolism | | | | \$63,994 |
| 93.853 | The Role of Purinergic Signaling in Microglia Birth and Maturation in the Adult Brain | | | | \$35,134 |
| 93.853 | The Vascular effects of Infection in Pediatric Stroke (VIPS II) Study | University of California, San Francisco | 11261sc | | -\$2,473 |
| 93.853 | Towards a Complete Description of the Circuitry Underlying Sharp Wave-Mediated Memory Replay | | | \$348,621 | \$604,282 |
| 93.853 | Towards a unified framework for dopamine signaling in the striatum | Harvard University | 153407.5111713.0410 | | \$243,353 |
| 93.853 | Tracking pre-seizure dynamics to predict and control seizures | | | | \$400,728 |
| 93.853 | Transgenic mice and multiplexed, multi-beam instrumentation for large-scale optical experiments on brain states and ensemble cellular dynamics in behaving animals | | | | \$49,418 |
| 93.853 | Using brain lesions and deep brain stimulation to identify an epilepsy circuit | Brigham and Women's Hospital | 127390 | | \$17,052 |
| 93.853 | Utilizing a Conductive Polymer- Stem Cell System to Augment Endogenous Stroke Repair Mechanisms and Improve Functional Recovery | | | | \$250,256 |
| 93.855 | A "Culture" Shift: Integrated Bacterial Screening and Antibacterial Susceptibility Test on Microfluidic Digital Array for Bloodstream Infections | Johns Hopkins University | 2003726059 | | \$125,912 |
| 93.855 | A genomic tool for identifying pathogenic circulating vaccine-derived polioviruses | | | | \$12,002 |
| 93.855 | A modular cell therapy platform for controlling immunological tolerance | | | | \$5,218 |
| 93.855 | A vaccine design to induce protective B and T cell immunity against hepatitis C virus | | | \$1,395,905 | \$2,687,247 |
| 93.855 | AAV capsid engineering for enhancing gene transfer | | | | \$796,055 |
| 93.855 | Accelerated dissociation of IgE receptor complexes | | | | \$345 |
| 93.855 | Covid-19: ACTIV2b: AIDS Clinical Trials Group for Research on Therapeutics for HIV and Related Infections [A5405 ACTG CF TSG CR] | University of California, Los Angeles | 1560 G ZB033 | | \$56,760 |
| 93.855 | Acute/chronic limitations to transcriptional RNAi therapies for infectious and other liver diseases | | | | \$1,001,470 |
| 93.855 | Advancing a broad-spectrum anti-influenza A virus RNA packaging inhibitor to an IND | | | | \$542,732 |
| 93.855 | Covid-19: Advancing the development of a novel class of small molecules for treating pan-coronavirus infections | | | \$176,272 | \$717,860 |
| 93.855 | Covid-19: AIDS Clinical Trials Group for Research on Therapeutics for HIV and Related Infections [ACTG LOC: COVID A5401] | University of California, Los Angeles | 1560 G ZB549 | | \$13,917 |
| 93.855 | Aire-dependent thymic B-1a cells play a key role in neonatal tolerance induction | | | | \$119,478 |
| 93.855 | Airway Inflammation and Airway Remodeling in Severe Asthma | University of California, San Diego | 705514 | | \$96,005 |
| 93.855 | An Integrated Micro-Basophil Activation Test for Rapid Food Allergy Diagnostics | | | | \$17,099 |
| 93.855 | Antimicrobial resistance and horizontal gene transfer in the human gut microbiome in response to an antibiotic | Palo Alto Veterans Institute for Research | REL0028-03 | | \$113,418 |
| 93.855 | Applied Genomics in Infectious Diseases | | | | \$331,711 |
| 93.855 | Arbovirus Prediction and Mitigation in the Indo-Pacific | | | | \$161,651 |
| 93.855 | B and T Cell Biology of Protection from and Eradication of SIV/SHIV Infection | Emory University | A679561 | | \$402,350 |
| 93.855 | Big Data Analysis of HIV Risk and Epidemiology in Sub-Saharan Africa | | | \$3,369 | \$3,369 |
| 93.855 | Cellular & Molecular Defects in Human B Cell Development | Icahn School of Medicine at Mount Sinai | 0254-4124-4609 | | \$328,087 |
| 93.855 | Center for Expanded Data Annotation and Retrieval (CEDAR) | | | -\$2 | -\$2 |
| 93.855 | Center For The Structural Biology of Cellular Host Elements In Egress, Trafficking, and Assembly of HIV (Cheetah Center) | University of Utah | 10062103-10-LS | | \$20,158 |
| 93.855 | Changes in Bone Quality, Sarcopenia and Fat Distribution in HIV/HCV Patients after HCV Therapy | University of Pennsylvania | # 573221; PO 4831918 | | \$5,415 |
| 93.855 | Changing Cultures in Sepsis: Rapid single-cell pathogen identification and antibiotic susceptibility testing directly from whole blood | | | \$356,856 | \$836,409 |
| 93.855 | Characterization of degranulation regulators in human mast cells | | | | \$155,822 |
| 93.855 | Characterization of encystation pathways in Entamoeba histolytica | | | | \$5,454 |
| 93.855 | Characterization of innate and IgE-mediated mast cell functions in honeybee venom allergy using Collaborative Cross mice | | | | \$526,172 |
| 93.855 | Characterization of the human antibody response to a novel neutralizing HIV-1 epitope | | | | \$35,504 |
| 93.855 | Characterizing infectiousness of subclinical TB and identifying novel early diagnostic strategies for preventing transmission | | | | \$341,630 |
| 93.855 | CHEETAH Center for the Structural Biology of HIV Infection, Restriction, and Viral Dynamics | University of Utah | 10062103-17-LS,PO-U000434580 | | \$1,478 |
| 93.855 | Chemical Mycobacteriology | | | | \$473,891 |
| 93.855 | Clinical Epidemiology of Infectious Diseases | | | | \$22,732 |
| 93.855 | Commercialization of New Filter Paper Technology for stabilization of Dried Blood Spot viral Samples for Collection, Shipping and Analysis | GenTegra LLC. | SPO136126 | | \$242,459 |
| 93.855 | Computational models of naturally acquired immunity to falciparum malaria | University of California, San Francisco | 12040sc | | \$518,184 |
| 93.855 | Covid-19: Computational models of naturally acquired immunity to falciparum malaria | University of California, San Francisco | 12300sc | | \$44 |
| 93.855 | Consortium for HIV/AIDS Vaccine Development (CHAVID)-Scripps | Scripps Research Institute | 5-54887 | | \$71,878 |
| 93.855 | Contrasting biotic and abiotic drivers of adaptive evolution in a host-pathogen conflict | | | | \$5,513 |
| 93.855 | Covid-19: Covalent inhibitors of host cell entry by SARS-CoV-2 for treatment of COVID-19 | | | | \$180,545 |
| 93.855 | Cryo-ET Structural Biology of Herpesvirus Infection and Morphogenesis In Situ. | | | | \$79,780 |
| 93.855 | Culture-free pathogen tracking in hospitalized patients | | | | \$803,966 |

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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass-through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|--|---|---|--|----------------------------|
| 93.855 | CXLD PTA - Delivery Technologies for In Vivo Genome Editing | Beth Israel Deaconess Medical Center | CXLD PTA | | \$334 |
| 93.855 | Deciphering the inositol phosphate code in viral pathogenesis and immunity | | | | \$299,821 |
| 93.855 | Deciphering the Role of Epstein-Barr Virus Molecular Mimicry and B cell Transformation in Multiple Sclerosis | | | | \$160,985 |
| 93.855 | Defining the Role of Host Hsp70 Subnetworks in Dengue Virus Replication | | | | \$1,428 |
| 93.855 | Covid-19: Defining the role of natural killer cells in COVID-19 | | | | \$43,895 |
| 93.855 | Delivery Technologies for In Vivo Genome Editing | Beth Israel Deaconess Medical Center | 01062663 | | -\$2 |
| 93.855 | Detection of asymptomatic Salmonella enterica serotype Typhi and Paratyphi A carriage by serum antibodies targeting YncE | Massachusetts General Hospital | 233137 | | \$74,868 |
| 93.855 | Developing CRISPR genome editing technology for Entamoeba | | | | \$2,880 |
| 93.855 | Development of outpatient antiviral cocktails against SARS-CoV-2 and other potential pandemic RNA viruses. | | | \$173,743 | \$13,376,688 |
| 93.855 | Differentially Culturable Tubercle Bacteria - The missing link in TB Transmission | Wits Health Consortium (Pty) Ltd | D181140-05 | | \$51,930 |
| 93.855 | Discovery and engineering of novel anti-IgE disruptive inhibitors | | | | \$271,615 |
| 93.855 | Disentangling the human vector relationship to disrupt dengue and chikungunyavirus outbreaks in Kenya | | | \$34,646 | \$694,801 |
| 93.855 | Dissecting Mechanisms of Granuloma Macrophage Polarization and Granuloma Formation in Chronic Salmonella Infection | | | | \$195,167 |
| 93.855 | DIVINCI: Dissection of Influenza Vaccination and Infection for Childhood Immunity | St. Jude Children's Research Hospital | 112525040-8077030 | | \$350,063 |
| 93.855 | Drivers of strain-specific and strain-transcendent antimalarial immunity in childhood | University of California, San Francisco | 12219sc | | \$21,208 |
| 93.855 | Drug Development against Entamoeba Histolytica | | | | \$107,195 |
| 93.855 | Effects of aging on primary and secondary vaccine responses in a 15-year longitudinal cohort | | | | \$211,582 |
| 93.855 | Emerging novel mechanisms of antibiotic resistance in the prevalent foodborne pathogen, Salmonella | | | | \$357,500 |
| 93.855 | Engineered Regulatory T cells with Enhanced Stability and Suppression for Autoimmunity | | | | \$8,745 |
| 93.855 | Enhancing immunity to malaria in young children with effective chemoprevention | | | \$982,116 | \$1,537,608 |
| 93.855 | Enhancing surveillance systems to slow the spread of antimicrobial-resistant gonorrhea in the United States | Yale University | GR109896 (CON-80002439) | | \$33,923 |
| 93.855 | Epigenetic Histone Landscape Profiles in HIV | | | \$24,265 | \$131,288 |
| 93.855 | Establishing ferret models to optimize new influenza vaccines that replace original antigenic sin with initial blessings of induced immunity | University of Pennsylvania | 580222; PO # 4573875 | | \$45,390 |
| 93.855 | Evaluating the role of allergen dose and duration in the safety and efficacy of multi-allergen oral immunotherapy with Omalizumab | | | | \$221,616 |
| 93.855 | Evaluation of a point-of-care immunochromatographic assay for enteric fever | Massachusetts General Hospital | Subaward 238674 | | \$19,865 |
| 93.855 | Evolution of drug resistance in Candida glabrata | | | \$228,851 | \$534,373 |
| 93.855 | Covid-19: Exosomes and the Immune Response in Allograft Outcomes in Pediatric Transplant Recipients | | | \$690,006 | \$1,222,018 |
| 93.855 | Exploiting and enhancing the IgE-binding epitopes of the 2S albumins of peanuts and tree nuts | University of Colorado Denver | PO1001584844:FY22.141.004 | | \$45,634 |
| 93.855 | Exploring MetAp2 as a viable drug target for Entamoeba and Naegleria | | | | -\$4,773 |
| 93.855 | Focal mass drug administration (fMDA) to reduce Plasmodium vivax transmission, a pragmatic cluster randomized controlled trial in Peru | University of California, San Francisco | 13866sc / U01 AI157962-01 | | \$29,724 |
| 93.855 | FUNCTIONAL ANALYSIS OF PATHOGENIC AND PROTECTIVE PEANUT ALLERGEN-SPECIFIC HUMAN ANTIBODIES | | | | \$196,512 |
| 93.855 | Functional genetics of human innate immunity in the bimodal gamma delta T cell response to Epstein-Barr Virus and in education of NK cells and their re-education to respond to autologous cells | | | | \$372,741 |
| 93.855 | Giant MagnetoResistive (GMR) Sensors for Measuring Influenza Vaccine | | | | \$8,238 |
| 93.855 | Glycan-Lectin Receptor Regulation of Macrophage Maturation and Lung Innate Defenses in the Fetus and Newborn Infant | | | \$69,479 | \$75,209 |
| 93.855 | Gut Microbiota Modulation of Chikungunya Virus infection and Pathogenesis | Washington University in St. Louis | WU-22-0325/ PO#ST0006053 | | \$28,080 |
| 93.855 | Harnessing the Unique Biogenesis of the Apicomplexan plastid organelle for Antimalarial Targets | | | | \$500,887 |
| 93.855 | High resolution longitudinal immune monitoring for elucidating immune aging dynamics | | | \$912,774 | \$2,560,922 |
| 93.855 | HIV Drug Resistance Database | | | | \$770,820 |
| 93.855 | HIV Latency Reversal Through Novel, Potent PKC Modulators | University of California, Los Angeles | 2301 G ZC969 | | \$7,566 |
| 93.855 | Host blood biomarkers for the diagnosis, prognosis and treatment response of childhood TB | University of Cape Town | ERA28691,UCT00035673 | | \$20,116 |
| 93.855 | Host Determinants of Adeno-Associated Virus Entry and Trafficking | | | | \$283,584 |
| 93.855 | Host determinants of enterovirus RNA replication and in vivo neuropathogenesis | | | \$201,232 | \$454,563 |
| 93.855 | Host Genes Critical for Flavivirus Infection | | | | \$326,655 |
| 93.855 | Household transmission of the human gut microbiota after antibiotic exposure | | | | \$82,008 |
| 93.855 | How Hepatitis C Virus Regulates Desmosterol to Affect RNA Replication: A New Virus-Host Interaction | | | | \$61,602 |
| 93.855 | Human 3D neuro-muscular assembloids to study cell tropism and host factor utilization of divergent neuropathogenic enteroviruses | | | | \$911,076 |
| 93.855 | Human Cytomegalovirus Entry into Cells Mediated by Pentamer and Trimer Complexes | Oregon Health & Science University | 1018176_STANFORD | | \$608,927 |
| 93.855 | Identifying The Machinery That Translocates Toxoplasma Effectors Into The Host Cell | | | | \$301,712 |
| 93.855 | Immune Tolerance Network | Benaroya Research Institute at Virginia Mason | FY22ITN357 | | \$28,275 |
| 93.855 | Immunization against filamentous bacteriophages to prevent bacterial infection | University of Montana | PG18-61062-01 | | \$298,851 |
| 93.855 | Impact of HIV exposure, feeding status, and microbiome on immune ontogeny and vaccine responses in infants | | | \$48,978 | \$50,418 |
| 93.855 | Implicit Bias in the Evidence: An Evaluation of Female-Predominant Disease | | | | \$531,478 |
| 93.855 | In vivo Wireless Sensors for Gut Redox Monitoring to Understand Host and Microbe Physiology | | | | \$165,822 |
| 93.855 | Influenza responses and repertoire in vaccination, infection and tonsil organoids | | | \$178,883 | \$2,707,966 |
| 93.855 | Covid-19: Influenza responses and repertoire in vaccination, infection and tonsil organoids | | | | \$338,005 |
| 93.855 | Innovative Technologies to Transform Antibiotic Discovery | Broad Institute, Inc. | 5001434-5500001961 | | \$152,318 |

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass-through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|---|---|---|--|----------------------------|
| 93.855 | Insights into immune-related disease born from population genomics | University of Colorado Denver | FY21.1050.001/#25M9382 | | \$100,037 |
| 93.855 | Integrated Genomic and Functional Studies of Immunotherapy for Multi-Food Allergy | | | | \$1,131,295 |
| 93.855 | Integrating genomic and spatial approaches for targeted control of HIV-associated tuberculosis epidemics | Yale University | GR110924 (CON-80002720) | | \$30,875 |
| 93.855 | Integrating innate and adaptive pathways in vaccine responses | Rockefeller University | SUB00000257 | | \$639,434 |
| 93.855 | Investigating the latent HIV-1 reservoir in lymphoid tissue using multiplexed imaging and spatial transcriptomics | | | | \$45,348 |
| 93.855 | Investigation of Epigenetic Dysregulation in Lupus NK Cells | | | | \$231,976 |
| 93.855 | Long-term health and socioeconomic impact of interventions targeting low-density malaria infection (LMI) among children in Tanzania | University of California, San Francisco | 13585sc / U01 AI155315 | | \$10,939 |
| 93.855 | Macrophage Immunosuppression by Quorum-Induced Streptococcus pyogenes | University of Illinois at Chicago | 19038 | | \$104,973 |
| 93.855 | Malaria Evolution in South Asia | University Of Washington | UWSC9949/BPO65702 | | \$30,943 |
| 93.855 | Measuring and Predicting Appropriate Antibiotic Use to Combat Resistant Bacteria | | | | \$24,369 |
| 93.855 | Measuring spillover effects of reactive, focal malaria elimination interventions | | | | \$100,445 |
| 93.855 | Mechanisms of Diet-Induced Pathogen Expansion in the Gut | | | | \$318,124 |
| 93.855 | Mechanisms of persistent Salmonella infection | | | | \$697,537 |
| 93.855 | Mechanisms of Tissue and Organ Specific Human B Cell Immunity - IOFM Core: Infrastructure and Opportunity Fund Management Core (*SubProject*) | University of Alabama at Birmingham | 000520244-SP008-SC017 | | \$107,723 |
| 93.855 | Mechanistic studies to assess the effect of omalizumab on immune cells in conjunction with randomized, controlled rapid multifood OIT (CoFAR11) trial | Johns Hopkins University | 2004200730 | | \$215,215 |
| 93.855 | METABOLIC ALDEHYDES AS IMMUNE EFFECTORS AGAINST TUBERCULOSIS | New York University | 20-00-00-1003829/POM200367614 | | \$10,679 |
| 93.855 | Metabolic imprinting of dendritic cell fate and function in tissues | | | | \$706,610 |
| 93.855 | Metagenomic shotgun microbial sequencing in post-transplant lymphoproliferative disorders (PTLD-MSMS) | Washington University in St. Louis | WU-19-427-MOD5// PO ST00000416 | | \$48,096 |
| 93.855 | MHC & KIR Sequencing and Association Analyses in the iGeneTRiN Studies | University of Pennsylvania | 582580,A-2 | | \$27,438 |
| 93.855 | Covid-19: MHC Variation in Host Response to SARS-CoV2 and COVID-19 Outcomes | University of California, San Francisco | 13394sc | | \$177,049 |
| 93.855 | Covid-19: Modeling early SARS-CoV-2 pathogenesis in human lung organoids and slice cultures | | | | \$177,165 |
| 93.855 | Modeling the influence of temperature on the evolution of vector-virus interactions | Health Research, Inc. | 7058-01 | | \$66,886 |
| 93.855 | Modulation of the B cell response to dengue virus infection by Plasmodium falciparum co-infection | | | | \$159,918 |
| 93.855 | Molecular and Cellular Analysis of Allograft Loss in Kidney Transplant Biopsies | Hennepin Healthcare Research Institute | 15416-04 | | \$6,983 |
| 93.855 | Molecular and Cellular Immunobiology | | | | \$474,816 |
| 93.855 | Molecular and single-cell immunology of myalgic encephalomyelitis/chronic fatigue syndrome | | | | \$433,150 |
| 93.855 | Molecular Basis of Host Parasite Interaction | | | | \$444,343 |
| 93.855 | Molecular interactions of HIV-1 with the Nuclear Pore Complex | Emory University | A791126, formerlyA237546 | | \$140,846 |
| 93.855 | Multi-omic Biomarker Discovery and Validation in Heart Transplant Patient Populations | University of Pennsylvania | 579036 PO 4881220 | | \$202,169 |
| 93.855 | Nano-optical reporters of dynamic mechanotransduction in the immune system | | | | \$535,066 |
| 93.855 | Natural killer cell engineering to target the HIV reservoir | University of California, Los Angeles | 2301 G YG461 | | \$340,184 |
| 93.855 | Covid-19: Natural Killer cells and the immunogenetics of COVID-19 | University of Colorado Denver | FY22.1050.004 | | \$53,621 |
| 93.855 | NEW HORIZONS IN THE PREVENTION AND TREATMENT OF FOOD ALLERGY-Outmatch | Johns Hopkins University Hospital | 2004474750 | | \$333,773 |
| 93.855 | New Therapeutics for Post-Transplant Lymphoproliferative Disorder | | | | \$309,022 |
| 93.855 | Novel transcription factors modulating the development and function of pDCs and pDC-related cells | | | | \$199,072 |
| 93.855 | Obesity and COVID-19: Role of Adipose Tissue | | | | \$185,635 |
| 93.855 | Optimal targeting for individual and population-level TB prevention | Harvard School of Public Health | 117164-5113037 | | \$26,697 |
| 93.855 | Covid-19: Optimizing a small molecule inhibitor of SARS-CoV-2 replication and associated cytokine storm | | | \$64,256 | \$829,487 |
| 93.855 | Pandemrix and T Cell Immunology in Narcolepsy | | | | \$668,557 |
| 93.855 | Parasite-specific proteasome inhibitors to combat multi-drug resistant malaria | | | \$34,172 | \$136,838 |
| 93.855 | Plasmodium Protein Kinase Focused Antimalarials Discovery | University of Central Florida | GR107045 | | \$356,903 |
| 93.855 | Point-of-care pharmacogenomic testing to optimize isoniazid dosing for tuberculosis prevention | | | \$79,086 | \$201,637 |
| 93.855 | PPISeq: High-Throughput Protein-Protein Interaction Sequencing | | | | \$566,030 |
| 93.855 | Primary Immune Deficiency Treatment Consortium | University of California, San Francisco | 12053sc | | \$20,474 |
| 93.855 | Programmed Cell Removal (PrCR) by Macrophages: recognition and phagocytosis of target cells | | | | \$557,597 |
| 93.855 | Covid-19: Project 1: Antiviral targeting to suppress drug resistance | Sloan Kettering Institute for Cancer Research | MSKSUB00000094 / C22066756 | | \$369,896 |
| 93.855 | Project 3: Fragment-to-lead and target validation | Sloan Kettering Institute for Cancer Research | MSKSUB00000099 / C22066734 | | \$20,564 |
| 93.855 | Project 4: Covalent targeting strategies | Sloan Kettering Institute for Cancer Research | MSKSUB00000102; PO C22069257 | | \$148,488 |
| 93.855 | Prospective epidemiologic study of novel etiologic agents of pelvic inflammatory disease | University of Pittsburgh | AWD00002682 (134944-3) | | \$64,335 |
| 93.855 | Rapid Research for Diagnostics Development in TB Network (R2D2 TB Network) | University of California, San Francisco | 12362sc | | \$236,845 |
| 93.855 | Real-time predictive modeling for public health departments to control infectious diseases | | | | \$49,739 |
| 93.855 | Regulation of the IgG Fc domain repertoire | | | | \$610,802 |
| 93.855 | Regulatory control of inflammatory cytokine production by a linear ubiquitin-binding protein | | | | -\$2,547 |
| 93.855 | Repertoire studies of human antibodies to RSV and MPV F | | | \$303,954 | \$306,927 |
| 93.855 | Role of eosinophils during bacterial infection | | | | \$5,488 |

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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass-through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|--|---|---|--|----------------------------|
| 93.855 | Role of nociceptive sensory neuron/mast cell interactions in cutaneous allergic inflammation | | | | \$125,655 |
| 93.855 | Roles for hepatitis C virus-derived circular RNAs in infected cells | | | | \$104,329 |
| 93.855 | Roles for microRNA-122 and circular RNAs in flavivirus RNA amplification | | | | \$199,305 |
| 93.855 | Sample-to-Answer Rapid, Multiplexed and PCR-Free Detection of Arboviral Fever Diseases in Resource Limited Settings | University of California, Santa Cruz | A21-0230-S001/P0754618 | | \$314,709 |
| 93.855 | SARS-COV-2 Screening in Dialysis Facilities: Building an Optimal Strategy to Protect High Risk Populations | | | | \$1,048,027 |
| 93.855 | SEAL (Stopping Atopic dermatitis and ALlergy) Study: Prevent allergy by enhancing the skin barrier | | | \$699,942 | \$1,330,991 |
| 93.855 | Small molecule degraders of HIV-1 Nef | | | | \$146,297 |
| 93.855 | Small molecule-induced degradation of dengue proteins as an antiviral strategy | | | | \$1,196,064 |
| 93.855 | Stanford TRANSFORM I2T Program | | | | \$309,374 |
| 93.855 | Stanford/UNC Biomimetic U19 Research Center | | | \$446,698 | \$1,611,719 |
| 93.855 | Storage and recall of human B cell memory of influenza over tissues and time | | | | \$47,101 |
| 93.855 | Strategies for tuberculosis control in prisons | | | \$133,983 | \$347,643 |
| 93.855 | Structural Biology Center for HIV/Host Interaction in Trafficking and Assembly | University of Utah | 10062103-09-LS | | \$79,705 |
| 93.855 | Structural correlates of T cell receptor signaling | | | | \$433,004 |
| 93.855 | Structural interrogation of the HIV-1 5' leader RNA by multidimensional chemical mapping and cryoelectron microscopy | | | | \$25,875 |
| 93.855 | Structure and function of EBV protein complexes that trigger epithelial cell entry. | Northwestern University | 60049111SU | | \$152,519 |
| 93.855 | Structure-based engineering of immune cytokine signaling | | | | \$407,646 |
| 93.855 | Studies on bacteriophages in respiratory diseases | | | | \$225,620 |
| 93.855 | Supplement Prepare Data Assets- Holden Maecker | | | \$224,978 | \$2,840,883 |
| 93.855 | SYK and ZAP70 kinases in lymphocyte selection | Yale University | CON-80003970 (GR118387) | | \$141,483 |
| 93.855 | Covid-19: Systemic Allergic Reactions to SARS-COV-2 Vaccination (SARS Vaccination) | Benaroya Research Institute at Virginia Mason | FY21ITN458 | | -\$7,747 |
| 93.855 | Systems Approach to Immunity and Inflammation Core E - CvTOF Flow Cytometry (Highly- scalable multiplexed serology testing for COVID-19) | Scripps Research Institute | 5-54605, 5-54606 | | -\$4,848 |
| 93.855 | Covid-19: Systems Approach to Immunity and Inflammation Core E - CvTOF Flow Cytometry (Highly- scalable multiplexed serology testing for COVID-19) | Scripps Research Institute | 5-54612, 5-54629 | | \$509,034 |
| 93.855 | Systems biological assessment of vaccination-induced protective immunity in African children | | | \$264,922 | \$349,322 |
| 93.855 | Systems Biology of Early Atopy (SUNBEAM) | Johns Hopkins University | 2004813184 | | \$683,213 |
| 93.855 | T Cell Reagent Research for Monitoring T Cell in Food Allergy | | | | \$50,153 |
| 93.855 | Targeting Inflammation and Alloimmunity in Heart Transplant Recipients with Tocilizumab | Massachusetts General Hospital | 232560 | | \$20,287 |
| 93.855 | Technology development for point-of-care detection and antimicrobial susceptibility testing of Neisseria gonorrhoeae | Johns Hopkins University | 2004139484 | | -\$788 |
| 93.855 | The impact of clinical interventions for sepsis in routine care and among detailed patient subgroups: A novel approach for causal effect estimation in electronic health record data | | | | \$432,661 |
| 93.855 | The Impact of Epstein Barr Virus Infection on the Immune Response in Pediatric Transplant Recipients | | | | \$48,863 |
| 93.855 | Covid-19: The Impact of Epstein Barr Virus Infection on the Immune Response in Pediatric Transplant Recipients | | | | \$505,449 |
| 93.855 | Tomotherapy and Hematopoietic Stem Cells for Tolerance to MHC Disparate Kidney | University of Wisconsin | Sub 0000001548 | | \$2,666 |
| 93.855 | Towards HIV eradication: New concepts and potent compounds for PKC-mediated latency reversal | University of California, Los Angeles | 2301 G LB846 | | \$14,247 |
| 93.855 | Transitional dendritic cells: identifying the origin and role of a novel innate immune population during viral infection | | | \$8,762 | \$534,381 |
| 93.855 | Tuft cell regulation of Peyer's patch composition and organization | | | | \$250,485 |
| 93.855 | Ultrasensitive HIV viral load quantitation using designer DNA nanostructure capture probes and photonic resonator interference scattering microscopy | | | \$489,556 | \$924,497 |
| 93.855 | Understanding and targeting non-genetic mechanisms of drug resistance | | | | \$28,060 |
| 93.855 | Unravelling disease tolerance and host resistance in afebrile P. falciparum infections: a prospective study in Mozambican adults | Manhiça Health Research Center | 1201158-100-DHBIV | | \$21,778 |
| 93.855 | Vaccine Induced Immunity in the Young and Aged | Emory University | A679715 (A594635) | | \$153,423 |
| 93.855 | Vaccine-Induced Immunity in the Young and Aged PROJECT 2 | Emory University | A673047 (formerly A489727) | | \$417,428 |
| 93.855 | Validating the Flavivirus Envelope Protein as an Antiviral Target | | | \$68,472 | \$1,409,804 |
| 93.855 | Varicella-Zoster Virus: T Cell/Skin Tropism & Immunity | | | | \$471,805 |
| 93.855 | Viral use and mimicry of autophagy pathway and components | | | | -\$179,314 |
| 93.855 | Yellow fever in Brazil: new insights on an old disease | | | | \$42,217 |
| 93.859 | A control center for mitochondrial navigation in neurons | | | | \$368,619 |
| 93.859 | A nanophotonic approach to building DNA using enzymatic synthesis | | | | \$558,224 |
| 93.859 | A Synchrotron Radiation Structural Biology Resource | | | \$59,810 | \$6,153,396 |
| 93.859 | A universal pipeline for functional characterization of the human microbiota at a massive scale | Massachusetts Institute of Technology | S5065 - PO 473143 | | \$888,501 |
| 93.859 | Administrative supplement application for equipment purchase | | | | \$874,608 |
| 93.859 | Bacterial Cell Wall Composition and the Influence of Antibiotics | | | | \$209,623 |
| 93.859 | Biophysical studies of macromolecules and molecular assemblies | | | | \$821,768 |
| 93.859 | BioPortal: An Expansive Knowledgebase of Biomedical Entities and Relations | | | \$367,964 | \$1,094,260 |
| 93.859 | Bistability and trigger waves in cell signaling | | | | \$553,715 |
| 93.859 | Capturing the Holistic Glyco-code through Systems Glycobiology | | | | \$101,499 |
| 93.859 | Capturing the phenotypic landscape of single-nucleotide variation via systematic genome editing | | | | -\$6 |
| 93.859 | Cellular and Molecular Biology Training Program | | | | \$1,200,909 |
| 93.859 | Cellular regulation of viscosity | | | | \$225,837 |
| 93.859 | Cellular Response to Genetic Change | | | | \$578,172 |
| 93.859 | Center For The Structural Biology of Cellular Host Elements In Egress, Trafficking, and Assembly of HIV (Cheetah Center) | University of Utah | 10062103-10-LS; PO# U000385704 | | \$75,913 |
| 93.859 | Characterizing the Regulation of Ferroptosis | | | | \$158,088 |
| 93.859 | Chemical Glycobiology Tool Development: LYTACs | | | | \$582,675 |
| 93.859 | Chemical tools for developmental biology | | | | \$419,586 |
| 93.859 | Chemogenetic control of kinase and phosphatase activity by modulating autoinhibition | | | | \$89,813 |
| 93.859 | Circulating Bacteriophages for the Diagnosis of Sepsis | | | | \$231,006 |
| 93.859 | Combining systems biology and structural biology to find new therapeutics | | | | \$188,898 |
| 93.859 | Comparative systems biology defines regulatory mechanisms in whole-body regeneration | | | | \$300,743 |

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SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass- through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|---|---|--|--|-------------------------------|
| 93.859 | Computational- and experimental- driven discovery of splicing regulation and circRNA function | | | | \$604,544 |
| 93.859 | Covalent Profiling of RNA Targets and Off-targets | | | | \$20,799 |
| 93.859 | Data-Rich Strategies for Programming Ligand-Responsive RNA Regulatory Systems | | | | \$223,094 |
| 93.859 | Deciphering the molecular mechanisms of sterol lipid trafficking in bacteria | | | | \$47,444 |
| 93.859 | Delineation of genetic architecture underlying complex traits at molecular, individual and population levels | | | | \$215,338 |
| 93.859 | Determine how protein synthesis is regulated during cell growth and division | | | | \$91,263 |
| 93.859 | Determining how cell growth triggers cell division | | | | \$688,021 |
| 93.859 | Determining the molecular mechanism controlling cell size in mammalian epithelia | | | | \$26,705 |
| 93.859 | Developing nanoparticle optical reporters of compressive, tensile, and shear forces for use in living cells and tissues. | | | | \$799 |
| 93.859 | Discovering the mechanism of GPCR-mediated arrestin stimulation to enable effective drug therapies | | | | \$104,498 |
| 93.859 | Discovery and Engineering of Plant Natural Product Pathways | | | | \$340,516 |
| 93.859 | Discovery of Pharmacogenomic Biomarkers for OATP1B1 and OATP1B3 | University of California, San Francisco | 13058sc / R01 GM117163 | | \$37,750 |
| 93.859 | Dynamic interplay of eukaryotic translation and mRNA decay | | | | \$91,529 |
| 93.859 | Dynamics of Translation | | | | \$883,567 |
| 93.859 | Emergent Properties of Complex Systems: From Atoms to Macromolecules; from Humans to Societies | | | | \$253,130 |
| 93.859 | Engineering Cytoskeletal Motors | | | \$21,926 | \$40,111 |
| 93.859 | Evolutionary Genomics of Yeast | | | | \$89,193 |
| 93.859 | Extending the temporal and spatial capabilities of single-molecule methods | | | | \$442,075 |
| 93.859 | Fibroblast lineage mechanisms of scarless skin healing | | | | \$90,502 |
| 93.859 | Fitness Effects of Beneficial Mutations | | | | \$447,582 |
| 93.859 | FLWSHIP N.Till, PI C.Bertozzi-A Metabolic Engineering Strategy to Map Sialyltransferase Glycosites | | | | \$67,860 |
| 93.859 | From one end to the other: dynamics of human translation initiation and its control | | | | \$105,242 |
| 93.859 | From proteins to cells to tissues: A multi-scale assessment of biomechanical regulation by the myosin molecular motor | | | \$1,050,339 | \$1,903,184 |
| 93.859 | Function of Protein Methylation in Chromatin and Signaling Regulation | | | | \$784,618 |
| 93.859 | Fundamental Studies of RNA Conformational Thermodynamics | | | \$96,563 | \$412,565 |
| 93.859 | Generative neural networks for structure-based antibody design | | | | \$352,147 |
| 93.859 | Genetics and Developmental Biology Training Program | | | | \$495,362 |
| 93.859 | Genetics of adaptation to toxic environments | | | | \$91,335 |
| 93.859 | Genomics of rapid adaptation in the lab and in the wild | | | | \$1,291,978 |
| 93.859 | Graduate Training in Stem Cell Biology and Regenerative Medicine | | | | \$49,385 |
| 93.859 | Graduate Training Program in Biotechnology | | | | \$337,689 |
| 93.859 | Guanidinium Toxins as Molecular Probes for NaV Study | | | \$117,896 | \$260,270 |
| 93.859 | Harnessing the human monocyte system to improve surgical recovery | | | | \$262,449 |
| 93.859 | High resolution imaging of genome structure and gene regulation in development | | | | \$594,753 |
| 93.859 | High-throughput precision genome editing to characterize natural genetic variants | | | | \$280,068 |
| 93.859 | In vivo characterization of CNE/SNPs and identification of cis (dys)regulated genes | | | \$398,566 | \$703,063 |
| 93.859 | Induction of Cell Death by Dietary Fatty Acids | Washington State University | 135103 SPC001412 | | \$47,055 |
| 93.859 | Investigating the establishment, structure, and function of microtubule organizing centers in differentiated cells in vivo | | | | \$311,459 |
| 93.859 | Investigating the molecular details of assembly, disassembly and trafficking of GPCR-arrestin complexes | | | | \$101,038 |
| 93.859 | Ion Channels and Signaling Mechanisms in T Lymphocytes | | | | \$416,690 |
| 93.859 | Leveraging environmental drivers to predict vector-borne disease transmission | | | \$87,179 | \$312,707 |
| 93.859 | Machine Learning for Integrative Modeling of the Immune System in Clinical Settings | | | | \$327,890 |
| 93.859 | Mechanism of the Eukaryotic Chaperonin TRiC/CCT | | | | \$621,568 |
| 93.859 | Mechanisms and Evolution of Assembly-Line Polyketide Synthases | | | | \$299,903 |
| 93.859 | Mechanisms controlling the inactivation of microtubule organizing center function at the centrosome | | | | \$390,652 |
| 93.859 | Mechanisms of Ciliary Signaling Controlling Obesity and Metabolic Disease | | | | \$793,194 |
| 93.859 | Mechanisms of CLC Transporters and Channels | | | \$17,249 | \$651,769 |
| 93.859 | Mechanisms of Kinetochore Assembly | | | | \$36,466 |
| 93.859 | Mechanisms of Mechanotransduction by LIM Domain Proteins | University of Chicago | AWD103166 (SUB00000787) | | \$65,170 |
| 93.859 | Mechanisms of R-loop-Associated Genome Instability | | | | \$407,759 |
| 93.859 | Mechanisms of Smoothed Activation in Hedgehog Signaling | University of California, San Francisco | 13354sc | | \$72,259 |
| 93.859 | Mechanistic models for predicting the dynamics of microbial communities | | | | \$48,032 |
| 93.859 | Mechanistic Studies of Polyketide Synthases Enabled by Unnatural Amino Acids and Antibody Fragment Structural Tools | | | | \$63,213 |
| 93.859 | Mechanoresponsive Engrailed-1-negative fibroblasts activate Engrailed-1 to promote fibrosis in wound healing | | | | \$346,715 |
| 93.859 | Medical Scientist Training Program | | | | \$1,704,709 |
| 93.859 | Meiotic Chromosome Inheritance in C. elegans | | | | \$692,329 |
| 93.859 | Modular Reagents for Programmable RNA Manipulation by Endogenous Proteins | | | | \$36,713 |
| 93.859 | Molecular and cellular mechanisms of store-operated calcium channels | | | | \$145,719 |
| 93.859 | Molecular Biophysics Training Program at Stanford | | | | \$594,432 |
| 93.859 | Molecular Mechanism of Mitochondrial Membrane Transport | | | \$34,974 | \$420,278 |
| 93.859 | Molecular mechanisms of alkane hydroxylase (AlkB) selectivity and reactivity | Barnard College | SU-1R01GM130989-01A1 | | \$134,322 |
| 93.859 | Molecular mechanisms of Wnt and mechanical signaling through -catenin | | | | \$723,420 |
| 93.859 | Molecular mechanisms underlying force transduction at cellular adhesion complexes | | | | \$472,944 |
| 93.859 | Molecular Pharmacology Training Program | | | | \$384,442 |
| 93.859 | mRNA Template-free Protein Elongation: a New Paradigm for Quality Control at the Ribosome | | | | \$328,768 |
| 93.859 | Multimodal Single-molecule Analysis of DNA Interrogation by Cas9 and Cas12a: Examining the relationship between mismatches, DNA supercoiling, and conformational dynamics | | | | \$41,849 |
| 93.859 | Multiplexed Nucleation Approaches for Enhanced High Throughput Screening of Co-Crystals | DeNovX | 174038 / R44 GM116285 | | \$77,738 |
| 93.859 | Multi-scale, model-driven exploration of sub-generational gene expression in bacteria: individual consequences, population benefits | | | \$46,222 | \$471,680 |
| 93.859 | Myeloid lineage targeting to improve recovery from injury and surgery: Cellular and molecular mechanisms | | | | \$371,908 |
| 93.859 | Myosin Movement In Vitro - Molecular Characterization | | | \$67,615 | \$643,586 |
| 93.859 | Nanoscale probes for sensing molecular functions in live cells | | | | \$519,149 |

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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass-through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|--|---|---|--|----------------------------|
| 93.859 | Next-generation computational/chemical methods for complex RNA structures | | | | \$709,825 |
| 93.859 | Noninvasive deep-tissue single-cell imaging and nanoprobe development | | | | \$299,455 |
| 93.859 | Novel Coalescent Approaches for Studying Evolutionary Processes | | | | \$84,952 |
| 93.859 | Novel Mechanisms of Regenerative Tissue Repair | Baylor College of Medicine | P70000021 | | \$9,544 |
| 93.859 | Nucleic Acid Enzymes and Nucleic Acids Studied at the Molecular Level | | | | \$309,747 |
| 93.859 | OpenMM: Scalable biomolecular modeling, simulation, and machine learning | | | \$4,316 | \$503,161 |
| 93.859 | Organ-scale regulation of stem cell dynamics | | | | \$377,588 |
| 93.859 | Physiology of bacterial metabolism in the human gut microbiome | | | | \$308,066 |
| 93.859 | Planar cell polarity mechanisms and systems architecture | | | | \$979,416 |
| 93.859 | Platform for high-throughput biomechanical measurements using metallic islands on boron nitride nanosheets | University of California, San Diego | 703883 | | -\$41,350 |
| 93.859 | Precision medicine for Asian Americans requiring anesthesia | | | | \$462,895 |
| 93.859 | Probing the architecture, assembly, and function of amyloid-polysaccharide entanglements in bacterial biofilms | | | | \$23,700 |
| 93.859 | Programmable evolution of optogenetic systems - P. Kyriakakis | | | | \$199,052 |
| 93.859 | Protein Folding in the Eukaryotic Cytosol | | | | \$155,106 |
| 93.859 | Quantifying evolutionary solutions to fitness tradeoffs in fluctuating environments | | | | \$73,512 |
| 93.859 | Quantitative approaches for mapping the real-time evolution of the gut microbiota | | | | \$154,975 |
| 93.859 | Quantitative, High-throughput Mechanistic Enzymology | | | | \$950,412 |
| 93.859 | Recombineering-based no-cleavage gene-editing toolkit for large-scale genome engineering and functional screening | | | | \$482,950 |
| 93.859 | Reconstructing and deconstructing intracellular signaling at the membrane-cytosol interface | | | | \$73,481 |
| 93.859 | Regulated Protein Degradation | | | | \$250,870 |
| 93.859 | Regulation of Heterotrimeric G proteins by non-receptor activators | University of Michigan | SUBK00014358 PO 3006261647 | | -\$7,181 |
| 93.859 | Regulation of proliferation and differentiation in the male germ line adult stem cell lineage | | | | \$777,185 |
| 93.859 | Regulatory and Mechanistic Understanding of ADAR-Mediated RNA Editing | | | | \$772,423 |
| 93.859 | Remodeling the microtubule cytoskeleton during epithelial cell division and differentiation | | | | \$49,557 |
| 93.859 | Repurpose open data to discover therapeutics for understudied diseases | Michigan State University | RC110435LSJU | | \$19,150 |
| 93.859 | Research in Anesthesia Training Program (ReAP) | | | | \$353,486 |
| 93.859 | Role of pseudouridines in pre-mRNA processing | | | | \$285,224 |
| 93.859 | Sexual harassment Training Of Principal investigators (STOP) | | | \$51,682 | \$162,740 |
| 93.859 | SimTK: An Ecosystem for Data and Model Sharing in the Biomechanics Community | | | | \$313,100 |
| 93.859 | Single-cell analysis and synthetic control of mammalian chromatin dynamics and gene regulation | | | | \$253,269 |
| 93.859 | Single-Molecule Imaging for Cell Biology and Super-Resolution Microscopy | | | | \$657,892 |
| 93.859 | Spectroscopic Characterization of Oxygen Intermediates in Non-heme and Heme Iron Enzymes | | | | \$351,892 |
| 93.859 | Stanford ChEM-H Chemistry/Biology Interface Predoctoral Training Program | | | | \$300,358 |
| 93.859 | Structural Biology Center for HIV/Host Interaction in Trafficking and Assembly | University of Utah | 10062103-09-LS; PO: U000385803 | | \$209,293 |
| 93.859 | Structural Dynamics and Mechanochemical Coupling in Nucleoprotein Machines | | | \$102,023 | \$267,796 |
| 93.859 | Structural Dynamics at LCLS | | | | \$1,809,861 |
| 93.859 | Structure and dynamics of G protein coupled receptor-G protein complexes | University of California, San Diego | 703861/305126 / R01 GM083118 | | \$236,780 |
| 93.859 | Structure and Function of SWEET Sugar Transporters | | | | \$335,254 |
| 93.859 | Structure and mechanism of the centrosome-cilium complex | | | \$6,155 | \$423,406 |
| 93.859 | Structure-Function Analysis of DNA Replication Initiation Factors Implicated in Disease | | | | \$301,795 |
| 93.859 | STUDIES ON INSULIN RECEPTOR ISO FORMS | | | | \$7,656 |
| 93.859 | Systematic approaches to deciphering cis regulation of A-to-I RNA editing | | | | -\$7,564 |
| 93.859 | Systematic elucidation of calcineurin phosphatase signaling in humans | | | | \$456,860 |
| 93.859 | The population genomics of hybridization: from adaptation to genome evolution | | | | \$312,434 |
| 93.859 | The Role of Chromatin in Metabolic Homeostasis Supplemental | | | | \$544,030 |
| 93.859 | The Role of eIF4G1 and eIF4G2 in Translational Control of Adipogenesis and Obesity | | | | \$63,259 |
| 93.859 | The Role of Membrane Architecture in Primary Cilium Signaling | | | | \$75,385 |
| 93.859 | The role of UFMylation in ribosome quality control at the ER | | | | \$352,400 |
| 93.859 | The ubiquitin proteasome system in ER quality control | | | | \$244,513 |
| 93.859 | Transcriptional and Epigenetic Control of Pluripotency and Self-Renewal by Honey Bee Royalactin and its human structural analog | | | | \$330,091 |
| 93.859 | Transcriptome Analysis with RNA-Reactive Probes | | | | \$523,328 |
| 93.859 | Uncovering fundamentals of gene regulation by enhancers | | | | \$324,982 |
| 93.859 | Universal Roles of Force Generation and Transmission in Biological Systems | Purdue University | 11000645-006 / 4102-83304 | | \$4 |
| 93.865 | 3/3- A randomized controlled trial of frozen embryo transfers performed in modified natural versus programmed cycles (NatPro) | | | \$41,400 | \$285,928 |
| 93.865 | A Novel Orogastric/Nasogastric Feeding Tube for Optimizing Nutritional Administration in the Neonatal Intensive Care Unit Population | TheraNova LLC | TNV 1013 | | \$183,365 |
| 93.865 | A prospective study of male factors, fertility, and pregnancy outcomes | Boston University | 4500004002 | | \$201,080 |
| 93.865 | A Wnt signaling approach to improving kidney tubule regeneration and recovery after acute kidney injury in human organoid and mouse models | Weill Cornell Medical College | 224014-9 | | \$133,739 |
| 93.865 | Active Surveillance of the Safety of Antipsychotic Medications in Pregnancy | Brigham and Women's Hospital | 125323 | | \$38,765 |
| 93.865 | Alliance for Regenerative Rehabilitation Research & Training 2.0 AR3T Administrative Oversight component | Spaulding Rehabilitation Hospital Corporation | 500628 | | \$79,090 |
| 93.865 | Brain and Behavior during Puberty in Klinefelter Syndrome. | | | \$141,890 | \$649,815 |
| 93.865 | Cell Surface Receptor Recognition and Membrane Fusion in Mammalian Fertilization | | | | \$250,999 |
| 93.865 | CELL TYPE-SPECIFIC CONTROL of GENE EXPRESSION by RIBOSOMAL PROTEIN ISOFORMS | | | | \$9,205 |
| 93.865 | Center for Reliable Sensor Technology-Based Outcomes for Rehabilitation (RESTORE) | | | \$103,302 | \$768,532 |
| 93.865 | Center for Sleep in Autism Spectrum Disorder | | | | \$1,039,608 |
| 93.865 | Center for the Development of Phenotype-Based Treatments of Autism Spectrum Disorder | University of California, Davis | A18-0985-S002 | | \$212,470 |
| 93.865 | Chemical-inducible Epigenome Editors for Allele-specific Gene Regulation in Developmental Disorders | | | | \$39,301 |

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass-through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|--|---|---|--|----------------------------|
| 93.865 | Comparative Safety of Antibiotics for Common Bacterial Infections During Pregnancy | Brigham and Women's Hospital | 127850 | | \$44,034 |
| 93.865 | Comparative Safety of Non-Insulin Agents in Pregnant Women with Pregestational Diabetes | Harvard School of Public Health | 117244-5122322 | | \$20,177 |
| 93.865 | Connectivity, activity, and function of a hypothalamic pathway in female social behaviors | | | | \$549,976 |
| 93.865 | Continuous Non-Invasive Blood Pressure Monitor for Neonates | PyrAmes Health | Rhine SPO 149124 | | -\$1,764 |
| 93.865 | Developing deep learning algorithms for studying infant brain and behavior relationships. | | | | \$619,916 |
| 93.865 | Development of allosteric HIPK4 inhibitors as non-hormonal male contraceptives | | | \$339,631 | \$693,491 |
| 93.865 | Disparities in Processes and Outcomes of Care Across Asian/Pacific Islander Populations at Childbirth | | | \$93,997 | \$680,430 |
| 93.865 | Do Hair Cortisol and Hair Oxytocin represent the Stressful and Supportive Experiences of Preschool Children? (Administrative Supplements to Promote Diversity and Re-Entry in Health-Related Research Program: NICHD Supplemental Program) | | | | \$716,612 |
| 93.865 | Dysregulation of Mitochondrial Dynamics in Sepsis | Fred Hutchinson Cancer Center | 0001127564 | | \$260,417 |
| 93.865 | Early and Reinfection in High Risk Women | Fred Hutchinson Cancer Research Center | 0001027099 | | \$233,120 |
| 93.865 | Early Infection in High Risk Women Al38518 | | | | -\$50,582 |
| 93.865 | Effects of household concrete floors on child health | | | \$42,999 | \$147,498 |
| 93.865 | Enhancing Effectiveness of a Dissonance-Based Obesity Prevention Program | | | \$193,158 | \$304,523 |
| 93.865 | Environmental, Genetic, and Epigenetic Mechanisms for Hormonal Change at Puberty | University of Texas at Austin | UTAUS-SUB00000736AM2 | | \$31,198 |
| 93.865 | Evaluation of ovarian reserve, aging and fertility preservation in women with sickle cell disease | | | | \$121,347 |
| 93.865 | FMRP-mediated Regulation in Human Brain Development and Therapeutic Advancement | Emory University | A699367 | | \$504,307 |
| 93.865 | Functional dissection of a molecularly identified female-specific neural pathway in mice | | | | \$448,767 |
| 93.865 | Gaining insights: the effects of the RMK gain-of-function mutations on brain development and neurodevelopmental disorders | | | | \$407,314 |
| 93.865 | Genomic and neural circuit characterization of interoceptive experience-modulated female behavior in mice | | | | \$512,502 |
| 93.865 | Gestational Diabetes Drugs and Perinatal Outcomes in Underserved Populations | Vanderbilt University Medical Center | VUMC99802 | | \$13,787 |
| 93.865 | Grounding models of category learning in the visual experiences of young children | | | | \$84,443 |
| 93.865 | Covid-19: Impact of COVID-19 exposure on U.S. birth outcomes | University of Wisconsin-Madison | 0000001869 | | \$19,714 |
| 93.865 | Imaging Chemotherapy-Induced Brain Damage in Pediatric Cancer Survivors | | | | \$63,251 |
| 93.865 | Improved Targeting of Somatostatin Receptors for Neuroendocrine Cancers | | | | \$111,071 |
| 93.865 | Improving outcomes of periviable births via an enhanced prediction tool | | | \$9,399 | \$19,046 |
| 93.865 | In situ simulation of neonatal resuscitation to improve team performance and clinical outcomes | | | | -\$3,656 |
| 93.865 | Inequities in family engagement in the neonatal intensive care unit | | | | \$17,220 |
| 93.865 | Influence of maternal virome and HIV status on infant gut virome, growth and immunity | Seattle Children's Research Institute | 12533SUB | | \$18,465 |
| 93.865 | Interventions in math learning disabilities: cognitive and neural correlates | | | | \$385,019 |
| 93.865 | Intranasal vasopressin treatment in children with autism | | | | \$348,619 |
| 93.865 | ISRIB as a promising therapeutic for Fragile X syndrome | | | | \$61,633 |
| 93.865 | Large-scale Implementation of Community Co-led Maternal Sepsis Care Practices to Reduce Morbidity and Mortality from Maternal Infection | Duke University | 303000035 | | \$376,363 |
| 93.865 | Learning-Relevant Emotion Socialization: Validation of a Novel Questionnaire Measure for Mothers and Fathers from Diverse Racial/Ethnic Backgrounds in the United States | | | | \$108,700 |
| 93.865 | Listening to Mom in the NICU: Neural, Clinical and Language Outcomes | | | | \$668 |
| 93.865 | Longitudinal investigations of the infant virome and its associations with obesity | | | \$108,652 | \$126,448 |
| 93.865 | Longitudinal Neurocognitive Studies of Mathematical Disabilities: trajectories and outcomes | | | | \$1,173,711 |
| 93.865 | Measuring Neonatal Regionalization | | | | \$50,159 |
| 93.865 | Medical Rehabilitation Research Resource P2C Administrative Oversight | University of Pittsburgh | AWD00002588 (135108-4) | | -\$765 |
| 93.865 | Microbial dispersal, skin-to-skin contact, and assembly of the neonatal gut microbiome | | | | \$48,975 |
| 93.865 | Mixed-Methods Evaluation of Mobile Health Adaptive Learning Training for Pediatric Healthcare Workers in Tanzania | | | | \$78,358 |
| 93.865 | Molecular images and machine learning to extract placental function from maternal cfDNA | | | | \$246,118 |
| 93.865 | Molecular Imaging and Diagnosis of Endometriosis using Mass Spectrometry Technologies | Baylor College of Medicine | 7000001654 / R01 HD101560 | | \$858 |
| 93.865 | Multi-center Randomized Controlled Trial of Refeeding in Anorexia Nervosa | University of California, San Francisco | 12914sc | | \$291,355 |
| 93.865 | Multiplex gene sequencing and metabolomics analysis from newborn dried blood spots to improve screening and diagnosis of metabolic disorders | Yale University | GR111297(CON-80002682) | | \$135,680 |
| 93.865 | Neural mechanisms of successful intervention in children with dyslexia | | | | \$870,376 |
| 93.865 | Neuromodulation of maternal immune adaptations in pregnancy | | | | \$189,301 |
| 93.865 | Neuronal and genetic imprints of male mating experience | | | | \$4,740 |
| 93.865 | NICHD Neonatal Research Network - Stanford University | | | | \$301,295 |
| 93.865 | Novel pathways regulating calcium mediated contractility in the pregnant uterus | | | \$17,500 | \$388,532 |
| 93.865 | Obstetric delivery volume, regionalization, and maternal and infant outcomes | | | \$422,373 | \$734,851 |
| 93.865 | On-Demand Drug Delivery System Composed of Gold Nanoparticles Targeting the Extracellular Matrix for the Treatment of Osteosarcoma | Weill Cornell Medical College | 224014-6 | | \$119,808 |
| 93.865 | Passive phototherapy to improve sleep in teens | | | \$26,637 | \$526,705 |
| 93.865 | Pediatric Global Health Subspecialty Fellowship | | | | \$236,507 |
| 93.865 | Pharmacological and phosphoproteomic studies of HIPK4-dependent spermatogenesis | | | | \$48,625 |
| 93.865 | Predicting language processing efficiency in preterm children: Social-environmental and neuro-biological factors | | | | \$617,416 |
| 93.865 | Predicting long-term outcomes in preterm infants using multimodal neuroimaging techniques and environmental factors | | | | \$105,002 |
| 93.865 | Predicting PrEP Uptake and Adherence among Adolescent Girls and Young Women in Sub-Saharan Africa: Leveraging Programmatic and Clinical Trials Data | Fred Hutchinson Cancer Center | 0001110126 | | \$50,778 |
| 93.865 | Preterm Infant Outcomes Following Changes in Oxygen Saturation Targets in California Neonatal ICUs | Connecticut Children's Medical Center | 20-181011-01 | | \$7,051 |

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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass-through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|---|---|---|--|----------------------------|
| 93.865 | Prevention of neonatal opioid withdrawal syndrome | | | | \$104,743 |
| 93.865 | Rapid remodeling of the translome underlying wound healing and regeneration | | | | \$533,847 |
| 93.865 | Ras/MAPK Mutations Effects on the Developing Brain | | | | \$45,923 |
| 93.865 | Ribosomes and Regeneration: Defining the Role of Protein Synthesis in Tissue Development, Homeostasis and Repair. | | | | -\$24,838 |
| 93.865 | Safety of Benzodiazepines and Non-Benzodiazepine Sedative Hypnotics in Pregnancy | Brigham and Women's Hospital | 127603 | | \$92,958 |
| 93.865 | Specialized Translational Control of Stem Cell Differentiation and Embryonic Development | | | | \$234,885 |
| 93.865 | Stanford Women's Reproductive Health Research Career Development Program | | | | \$330,675 |
| 93.865 | Stem cell-derived smooth muscle progenitor cells for vaginal wall prolapse | | | | \$190,103 |
| 93.865 | Targeting the neurobiology of restricted and repetitive behaviors in children with autism using N-acetylcysteine | | | | \$220,215 |
| 93.865 | Testing a Framework of Environmental Adaptation in Children's Learning Strategies | | | | \$82,945 |
| 93.865 | The Impact of Natural Disasters on Child Health | Rand Corporation | SCON-00000521 | | \$291,305 |
| 93.865 | The Impact of Opioids on Health Outcomes for Hospitalized Infants | Children's Hospital Los Angeles | 000014111-A | | \$72,838 |
| 93.865 | The role of the endogenous retroviral family, IAP, in placentation. | | | | \$73,351 |
| 93.865 | The Value of Hospital Readiness for the Emergency Care of Injured Children | Oregon Health & Science University | 1009131_STANFORD | | \$80,884 |
| 93.865 | Theranostics for Pediatric Brain Cancer | | | | \$656,894 |
| 93.865 | Towards Identifying Optimal NICU Admission Criteria for Late Preterm Infants | | | | \$76,402 |
| 93.865 | Trio Analysis of Recurrent Pregnancy Loss Integrated Bioinformatics Genomics Study (TRIOS) | | | \$640,121 | \$1,632,006 |
| 93.865 | UCSF Stanford Endometriosis Center for Discovery, Innovation, Training and Community Engagement | University of California, San Francisco | 12998sc | | \$243,008 |
| 93.865 | Understanding the Short- and Long-Term Impacts of Childhood Exposure to Violence: Evidence from School Shootings | | | \$131,230 | \$277,582 |
| 93.865 | Validation of the Regulating Emotions in Parenting Scale (REPS) in a Nationally Representative Sample | University of Georgia Research Foundation, Inc. | SUB00002547 | | \$24,347 |
| 93.865 | Vector Flow Velocity Imaging of Human Placenta using Angle-resolved Ultrasound and Deep Learning | | | | \$131,513 |
| 93.865 | VIRTUUS Children's Study: Validating Injury to the Renal Transplant Using Urinary Signatures in Children | Children's Hospital of Philadelphia | 3200880522/PO# 20287500 | | -\$21,049 |
| 93.866 | "Eye-tracking and Multimodal Biomarkers to Enhance Detection of Preclinical Alzheimer's Disease in Diverse Populations." | | | | \$114,701 |
| 93.866 | 226881 AGING (PARENT) - Advancing Geriatric Infrastructure and Network Growth (AGING) Initiative | University of Massachusetts | OSP2018116 WA0117582 | | \$48,380 |
| 93.866 | 231951 Glycemic Control AA -Glycemic Control and Dementia: The Role of Pharmacotherapy and Vascular Complications | Kaiser Foundation Research Institute | RNG210618-Stanford | | \$6,136 |
| 93.866 | 247554 LEARNING (R25) AA - AGS/AGING Learning, Educating, And, Researching National Initiative in Geriatrics (LEARNING) Collaborative | American Geriatrics Society Inc, | 1R25AG071488-01-SU | | \$7,156 |
| 93.866 | A Mentoring Program in Kidney Care for Older Adults | | | | \$69,399 |
| 93.866 | Covid-19: A New Database to Measure the Association Between Income, Race and Mortality: Inequality in Longevity During and Beyond the COVID-19 Pandemic | National Bureau of Economic Research | 41890.01.00.00.Stanford | | \$33,907 |
| 93.866 | A new P2Y12R PET radioligand for measuring microglial function in Alzheimer's disease | | | | \$273,520 |
| 93.866 | A Non-Invasive Neuromodulation Device for In-Home Treatment of Overactive Bladder | TheraNova LLC | 145080 | | \$23,460 |
| 93.866 | ADRC RPPR YR13 | University of Wisconsin-Madison | 0000002227/0000002922 | | \$62,615 |
| 93.866 | Age-related clonal hemopoiesis and cognitive impairment in chronic kidney disease | University of Colorado | FY22.269.005 | | \$4,783 |
| 93.866 | Aging and Stem Cell Resilience | Palo Alto Veterans Institute for Research | RAN0047-01 | | \$15,762 |
| 93.866 | AI-Enhanced Brain PET Imaging for Alzheimer's Disease | | | | \$297,948 |
| 93.866 | Altered ENS Neuroimmune Interactions Disrupt Gastrointestinal Motility in Alzheimers Disease | Palo Alto Veterans Institute for Research | BEC0001-01 | | \$54,139 |
| 93.866 | Alzheimer Gut Microbiome Project (AGMP) - Duke University U19 | Duke University | 303001212 | | \$34,272 |
| 93.866 | Alzheimer's Clinical Trials Consortium (ACTC) | University of Southern California | 11180852; SCON-00000172 | | \$3,380 |
| 93.866 | Alzheimer's Clinical Trials Consortium (ACTC) (U24) | University of Southern California | 105761496/SCON-00000156 | | \$150,045 |
| 93.866 | Alzheimer's Disease Genetic Consortium | University of Pennsylvania | 584640; PO# 4868272 | | \$16,980 |
| 93.866 | Alzheimer's Disease Research Centers | Wake Forest University | 1081-33664-11000000915 | | \$7,864 |
| 93.866 | Alzheimer's Disease Sequencing Project Phenotype Harmonization Consortium | Vanderbilt University Medical Center | VUMC95837 | | \$708,577 |
| 93.866 | Alzheimer's Gut Microbiome Project | Duke University | A035122 | | \$141 |
| 93.866 | Asian Cohort for Alzheimer's Disease (ACAD R56) | University of Pennsylvania | 580820 PO# 4685220 | | \$26,119 |
| 93.866 | Auraacle An AI-Enabled Telecare System to Support the Independence and Safety of Individuals with AD/ADRD and Other Dementias | Gen-9, Inc. | 184530 / R44 AG071211 | | -\$8,592 |
| 93.866 | BEEET root juice to reverse functional impairment in PAD: The BEEET PAD Trial | Northwestern University | 60062622 SU | | \$12,614 |
| 93.866 | Building a Platform for Precision Anesthesia for the Geriatric Surgical Patient | | | | \$422,258 |
| 93.866 | Cardiovascular and Cerebrovascular Risk Factors for Mobility Limitation in the Jackson Heart Study | | | | \$114,778 |
| 93.866 | CD36-dependent neuroimmune pathway regulates disruption of gut motility in Alzheimers Disease | | | | \$231,294 |
| 93.866 | Cellular senescence in chronic pain and aging | | | | \$260,161 |
| 93.866 | Center for Advancing Socioeconomic and Economic Study of Alzheimers Disease and Related Dementias (CeASES-ADRD) | University of Southern California | 139549668- 3 | | \$32,053 |
| 93.866 | Center on the Economics and Demography of Aging | University of California, Berkeley | 00011128 // PO BBo1623867 | | \$29,912 |
| 93.866 | Cerebrovascular Reserve Imaging with Simultaneous PET/MRI Using Arterial Spin Labeling and Deep Learning | | | | \$81,352 |
| 93.866 | Characterizing sleep-wake activity patterns to detect early Alzheimer's disease in normal older individuals | | | | \$59,989 |
| 93.866 | Clinical, Imaging, and Pathological Studies in the Oldest Old: The 90+ Study | University of California, Irvine | 2022-1633 | | \$136,938 |
| 93.866 | COCOA flavanols to improve walking performance in PAD: the COCOA-PAD II Trial | Northwestern University | 60059377 SU / R01 AG068458 | | \$10,677 |

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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass-through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|---|--|---|--|----------------------------|
| 93.866 | Cognitive, urinary, and functional trajectories of older women using pharmacologic treatment strategies for urgency incontinence | University of California, San Francisco | 13579sc | | \$165,650 |
| 93.866 | Columbia University Science of Behavior Change Resource and Coordinating Center | Columbia University | 1(GG015971-02); PO SAPO G16238 | | \$208,177 |
| 93.866 | Control of Muscle Stem Cells to Enhance Regeneration | | | | \$561,903 |
| 93.866 | Cortical Hemodynamism and Oxygenation During Sleep and Cognition: Window to Cognitive Impairment and Neurodegeneration in Aging | | | | \$105,887 |
| 93.866 | Deciphering the glycan code in human Alzheimer's disease brain | University of Florida | SUB00003801 | | \$317,119 |
| 93.866 | Defining modifiers and mechanisms of RAN translation | | | | \$75,597 |
| 93.866 | Determining the Role of TCAB1 in Shaping Telomerase Function | | | | \$28,771 |
| 93.866 | Develop an ANS-based Personalized Cognitive Training for Mild Cognitive Impairment | | | \$59,426 | \$273,569 |
| 93.866 | Developing a framework to individualize surgical decision-making for older adults with primary hyperparathyroidism | | | | \$231,953 |
| 93.866 | Development of a cost-effective and neurobiologically valid VR assessment tool for early detection of AD | | | | \$61,686 |
| 93.866 | Development of a Novel PET Tracer for Imaging Microglial Function in Alzheimer's Disease | | | | \$44,618 |
| 93.866 | Dietary Modulation of Neuroinflammation in Age-Related Memory Disorders | Columbia University | GG014813,SAPO G13285 | | \$65,693 |
| 93.866 | Discovery of protein aggregates during vertebrate aging and neurodegeneration | | | | -\$503 |
| 93.866 | Disease, Disability and Death in an Aging Workforce | | | \$159,094 | \$386,934 |
| 93.866 | Disruption of neuronal signaling in Alzheimers disease and rescue by manipulating the innate immune receptor PirB | | | | \$46,150 |
| 93.866 | Early Onset AD Consortium - the LEAD Study (LEADS) - Social Worker Funds | Trustees of Indiana University | 9119_SU (SW) // PO0532943 | | \$31,076 |
| 93.866 | Effects of attention and goal-state lapses on memory in healthy and pathological aging | | | | \$758,818 |
| 93.866 | Elucidating sex-specific risk for Alzheimers disease through state-of-the-art genetics and multi-omics | | | | \$140,265 |
| 93.866 | Evaluating the Effectiveness of an Online Small-Group Self-Management Workshop for Rural Caregivers of Individuals with Alzheimer's Disease and Related | University of California, San Francisco | 10987sc | | \$22,083 |
| 93.866 | Evolutionary Conserved Mechanisms that Control Central Nervous System Development Regeneration and Degeneration | | | | \$474,430 |
| 93.866 | From Molecules to Behavior: Understanding How Aging Impacts Entorhinal-based Navigation | | | | \$37,907 |
| 93.866 | Health and Health Care Utilization Effects of Medical Debt Forgiveness | University of California, Los Angeles | 1182 G ZA121 | | -\$91,434 |
| 93.866 | High Deductible Health Plans and Receipt of Recommended Medical Care | Rand Corporation | SCON-00000502 | | \$10,315 |
| 93.866 | Hip Fracture Pathology in Chronic Kidney Disease | University of California, San Diego | 704928 | | \$10,565 |
| 93.866 | Hippocampal-dependent memory decline in aging and early Alzheimer's disease | | | | \$973,518 |
| 93.866 | Identification of Brain Circuit Markers for Psychosis in Alzheimer's Disease by Leveraging Big Data and Machine Learning | | | | \$215,753 |
| 93.866 | Identification of intrinsic and extrinsic regulators of TDP43 splicing function | | | | \$150,442 |
| 93.866 | Identifying barriers to optimizing data sharing and accelerate discovery in Alzheimer's disease and related dementia research | Georgia State University | SP00015890-04 | | \$21,697 |
| 93.866 | Identifying signatures of brain aging through heterochronic blood exchange | University of California, Santa Cruz | A21-0543-S002 | | \$166,238 |
| 93.866 | Identifying the Genetic Etiology of Neuropathology for Alzheimer Disease and Related Dementias | University of Miami | OS00000574; PO# SPC-002455 | | \$344,261 |
| 93.866 | Illuminating the APOE Locus with Long-Read Sequencing and Targeted Genomics | | | | \$1,157,200 |
| 93.866 | Imaging the metabolic and phagocytic landscape of microglia in Alzheimer's disease | | | | \$145,903 |
| 93.866 | Improving Medical Decision Making for Older Patients with End Stage Renal Disease | Boston Medical Center | 4300630001 PO100238350 | | \$397 |
| 93.866 | Innate immune signaling at the synapse in development and pathological Alzheimer's disease | | | | \$427,881 |
| 93.866 | Innovating high-resolution novel imaging approaches to elucidate mechanisms of prion-like spreading of neurodegenerative disease | | | | \$1,083,212 |
| 93.866 | Insulin Resistance and Accelerated Cognitive Aging | | | | \$666,336 |
| 93.866 | Interactive Effects of Aging and AD on Brain Networks | | | | \$488,553 |
| 93.866 | INTERmittent pneumatic ComprESSION for Disability rEversal in PAD: the INTERCEDE Trial | Northwestern University | 60050890 STAN / R01 AG057693 | | \$4,293 |
| 93.866 | Interplay between amyloid precursor protein metabolism and ER-mitochondria contact | | | | \$253,441 |
| 93.866 | Investigating whole-body innate immune activation in Alzheimer's disease using PET imaging and immune profiling | | | | \$1,307 |
| 93.866 | Iron as an Imaging Biomarker for Inflammation in AD | | | | \$529,795 |
| 93.866 | Long term fracture risk and change in peripheral bone in the oldest old men: The MrOS study | California Pacific Medical Center Research Institute | 280201024-S277 | | \$86,279 |
| 93.866 | Longevity, Equity, and Aging Research Network (L.E.A.R.N.) Consortium | | | \$2,523 | \$596,459 |
| 93.866 | Management of Hypertension among Persons with and without Dementia in Long-Term Care | | | \$176,245 | \$544,978 |
| 93.866 | Mapping Molecular and Phenotypic Interactions in Alzheimers Disease | | | \$40,749 | \$730,433 |
| 93.866 | Mass spectrometry and multiplexed immunofluorescence imaging of metabolic and proteomic contributors to selective neuronal vulnerability in Alzheimer's disease | Icahn School of Medicine at Mount Sinai | 0255-H091-4609 | | \$52,994 |
| 93.866 | Mechanisms of sleep fragmentation in a mouse model of Alzheimer's disease | | | | \$114,316 |
| 93.866 | Metabolic mechanisms of cognitive decline in aging and AD mediated by inflammatory PGE2 signaling | | | | \$282,054 |
| 93.866 | Methods to Test Biomarkers of Aging as Shared Determinants of Alzheimers Disease and Related Dementias and Physical Disability | University of Maryland, Baltimore | Subaward 21115 PO 1000015249 | | \$8,128 |
| 93.866 | Microglial lipid droplets in Alzheimer's disease | | | | \$1,007,185 |
| 93.866 | Microsimulation Modeling to Compare the Effectiveness and Cost-Effectiveness of Non-drug Interventions to Manage Clinical Symptoms in Racially/Ethnically Diverse Persons with Dementia | Brown University | 00002273 | | \$38,100 |
| 93.866 | Microstructural changes in gray and white matter in aging and AD | | | | \$659,363 |
| 93.866 | MIRIAD - Multiplexed Imaging of Resilience In Alzheimers Disease | | | | \$226,493 |
| 93.866 | Mobility in older hemodialysis patients | | | | \$306,498 |
| 93.866 | Molecular genetics of human age-related hearing loss | | | | \$251,572 |
| 93.866 | Molecular Regulation of Stem Cell Aging | University of California, Los Angeles | 1580 G ZG487 | | \$243,423 |
| 93.866 | Molecular signature of parabiosis | | | \$14,822 | \$585,515 |

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass-through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|--|---|---|--|----------------------------|
| 93.866 | Multidimensional mapping of vulnerable cell types in humanized Alzheimer's disease mouse models | | | | \$130,325 |
| 93.866 | Multi-omic functional assessment of novel AD variants using high-throughput and single-cell technologies | | | \$1,238,120 | \$2,350,524 |
| 93.866 | National Alzheimer's Coordinating Center | University Of Washington | UWSC12994 / BPO58593 | | \$36,614 |
| 93.866 | Neurofunctional Mechanisms of Changes in Cognition and Motor Function in Aging with HIV and Parkinson's Disease | SRI International | 81121 | | \$25,780 |
| 93.866 | Neuropathology of synapses in AD and ADRD | | | | \$496,929 |
| 93.866 | Next Generation Translational Proteomics for Alzheimers and Related Dementias | University Of Washington | UWSC11818; BPO 48322 | | \$488,144 |
| 93.866 | NIH/NIA R01AG055469 Efficacy and Mechanisms of Combined Aerobic Exercise and Cognitive Training in MCI | Arizona State University | ASUB00000956 | | \$93,837 |
| 93.866 | NIH/NIA R01AG059654 (PI: Li) Blood Biomarkers as Surrogate Endpoints of Treatment Responses to Aerobic Exercise and/or Cognitive Training in Amnesic Mild Cognitive Impairment(funded one, need establish subcontract) | University Of Minnesota | No06750804 | | \$34,743 |
| 93.866 | NIH/NIA U24 AG072701 Network for Emotional Wellbeing and Brain Aging | University Of Rochester | SUB00000240 / GR531893 | | \$112,362 |
| 93.866 | North American Prodromal Synucleinopathy Consortium for RBD, Stage 2 (NAPS2) | Washington University in St. Louis | WU-23-0062/PO: ST00009752 | | \$213,807 |
| 93.866 | NOVEL EXOSOME BIOMARKERS OF IRON PATHOLOGY IN AD | | | | \$180,727 |
| 93.866 | Open Drug Discovery Center for Alzheimer's Disease | Emory University | A702741 | | \$194,633 |
| 93.866 | Origins of Genome Instability in Progeria | | | | \$18,457 |
| 93.866 | Palliative care needs and outcomes for dementia patients | | | | \$613,948 |
| 93.866 | Physician Subspecialization and the Health and Health Care of Older Americans | Harvard School of Public Health | 115445-5123453 | | \$46,971 |
| 93.866 | Population Health Aging Research - Advancing Health Equity and Diversity (PHAR-AHEAd) | | | | \$184,474 |
| 93.866 | Prevalence, Etiology, and Clinical Implications of Low Count Monoclonal B-cell Lymphocytosis (MBL) | Mayo Clinic | STA-244577-05; PO# 68821448 | | \$26,247 |
| 93.866 | Probing Alzheimer synaptopathy in neurons derived from engineered human iPS cells | | | | \$880,641 |
| 93.866 | Probing relationships between DNA methylation and cellular senescence with highthroughput CRISPR-based epigenetic editing | | | | \$7,992 |
| 93.866 | Project 5 Title: Multimorbidity, as part of Health and Aging in Africa (HAALSI) | Harvard School of Public Health | 116360-5109417- Project 5 | | \$33,813 |
| 93.866 | Proteostasis in Aging and Neurodegenerative Disease | Northwestern University | 60057525 STAN | | \$236,425 |
| 93.866 | Proteostasis in Aging and Neurodegenerative Disease (Core B) | Northwestern University | 60052294 STAN | | \$23,166 |
| 93.866 | Proteostasis in the aging brain | | | | \$242,731 |
| 93.866 | Public Insurance Design and Health at Older Ages | | | | \$131,253 |
| 93.866 | Quantitative assessment of early structural and functional changes in aging skeletal muscle | | | | \$49,121 |
| 93.866 | Racial Bias in Risk Adjustment Algorithms and Implications for Racial Health Disparities: Evidence from Dual-Eligible Medicare/Medicaid Long-term Care Patients in New York | | | \$70,961 | \$270,936 |
| 93.866 | RCT of the Effectiveness of Stepped-Care Sleep Therapy In General Practice (RESTING) | | | | \$356,060 |
| 93.866 | Regional tau deposition and digital assessment of cognition in preclinical AD and MCI | | | | \$115,282 |
| 93.866 | Regulation of amyloid production by focused ultrasound | University of Florida | SUB00003785 | | \$44,004 |
| 93.866 | Regulation of cholesterol by y-secretase and ApoE: Implications for AD pathogenesis and synaptic function | | | | \$784,131 |
| 93.866 | Regulation of eicosanoid signaling lipids to improve skeletal muscle function and increase healthspan during aging | | | | \$592,027 |
| 93.866 | Regulation of immune cell metabolism in aging and Alzheimer's disease: role of the kynurenine pathway | | | | \$1,841 |
| 93.866 | Relationship between lawful handgun ownership and risk of homicide victimization in the home | | | \$119,793 | \$462,933 |
| 93.866 | Reprogramming myeloid cell metabolism to prevent cognitive aging and Alzheimer's disease | | | | \$599,999 |
| 93.866 | Reprogramming organismal lifespan through modulation of neuropeptides | | | | \$8,444 |
| 93.866 | Resolving selective vulnerability and disease progression in human Alzheimer's brain via single-cell RNA-seq | | | | \$469,248 |
| 93.866 | Reverse electron transport and tauopathy | | | | \$7,871 |
| 93.866 | Reversing Skeletal Aging by Restoring Functional Skeletal Stem Cell Diversity | | | | \$34,794 |
| 93.866 | Role of beta-adrenergic receptors in modulation of cognition and central and peripheral immune systems in Alzheimer's disease | | | | \$245,303 |
| 93.866 | SCAN: Standardized Centralized Alzheimer's and Related Dementias Neuroimaging | University of California, Berkeley | 00010826/U24AG067418 | | \$82,994 |
| 93.866 | Sequential Multiple Assessment Randomized Trial of Exercise for PAD: SMART Exercise for PAD Trial | Northwestern University | 60063415 STANFORD | | \$1,697 |
| 93.866 | Socioemotional Functioning in Adulthood and Old Age | | | | \$457,217 |
| 93.866 | Stanford Alzheimer's Disease Research Center | | | \$93,158 | \$3,716,248 |
| 93.866 | Stanford Training Program in Aging Research | | | | \$260,535 |
| 93.866 | Statistical and computational methods for integrative analysis of Alzheimer's Disease genetics | | | | \$618,746 |
| 93.866 | Statistical Methods for Kidney Markers as Shared Determinants of Dementia and Physical Disability in Older Adults | University of Maryland, Baltimore | 20850Request:2773PO1000 013671 | | \$16,203 |
| 93.866 | T cells in the aging brain | | | | \$759,623 |
| 93.866 | Targeting CD22 to Restore Brain Homeostasis in Alzheimer's Disease | | | \$60,101 | \$529,594 |
| 93.866 | Targeting Senescence pathways in Alzheimer's disease | | | | \$375,453 |
| 93.866 | Testing Multi-Level Remote Physical Activity Interventions in a National Sample of Older Women: The WHISH EnCore Trial | | | | \$698,903 |
| 93.866 | Th dysfunction in HIV and Aging | University of Miami | OS00000393; PO# SPC-002538 | | \$315,352 |
| 93.866 | The effect of donor age on the function and therapeutic efficacy of human hepatocyte-like cells | | | | \$190,487 |
| 93.866 | The long-term health effects of the New Deal: An 80 year follow-up of 4 cohorts | | | \$58,256 | \$676,813 |
| 93.866 | The Neighborhoods Study: Contextual Disadvantage and Alzheimer's Disease and Related Dementias (ADRD) | University of Wisconsin-Madison | 0000001239 / R01 AG070883 | | \$53,123 |
| 93.866 | The NEIGHBORS (Nationwide analysis of Immigrants on Health and neighborhoods of all AmericanS) Study | Rutgers, The State University of New Jersey | 9006 / PO 25050970 | | \$26,702 |

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SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass-through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|---|---|---|--|----------------------------|
| 93.866 | The Phenotypic Landscape of Cognitive Decline as Revealed by Next-Generation Multiplexed Ion Beam Imaging | | | | \$152,126 |
| 93.866 | The role of aging in mitochondrial response to exercise training assessed by noninvasive 31P Magnetic Resonance Spectroscopy. | Pennington Biomedical Research Center | AG069476-SU01 | | \$117,012 |
| 93.866 | The role of peripheral versus brain myeloid immunity in the cognitive decline of aging and Alzheimers disease | | | | \$656,097 |
| 93.866 | The Stanford Extreme Phenotypes in Alzheimer's Disease (StEP AD) Cohort | | | \$334,612 | \$483,774 |
| 93.866 | Toward translation of a novel PET probe for imaging innate immune function in Alzheimer's Disease | | | | \$16,967 |
| 93.866 | Ultralong-term single-molecule imaging of amyloid precursor protein (APP) processing in Alzheimer's disease | | | | \$1,201 |
| 93.866 | Uncoupling Age- Versus Cognitive-Related Cellular Senescence in Alzheimer's Disease | | | | \$469,378 |
| 93.866 | Using Informatics to Evaluate and Predict Cataract Surgery Impact on Alzheimer's Disease and Related Dementias and Mild Cognitive Impairment Outcomes | | | \$89,321 | \$449,522 |
| 93.866 | Utilizing naturalistic virtual environments to assess age-related alterations of attention and episodic memory | | | | \$49,787 |
| 93.866 | vmPFC's role in adherence to cognitive training | | | | \$38,471 |
| 93.867 | 3D bioprinting of regenerative, corneal cell-laden inks to treat corneal blindness | | | | \$17,978 |
| 93.867 | A Phase 2 Study of the Value of Pre-symptomatic Genetic Risk Assessment for Age-Related Macular Degeneration | University of Utah | 10060978-01-SU / PO U000416601 | | \$19,773 |
| 93.867 | Activity-Dependent Mechanisms of Memory Consolidation | | | \$163,739 | \$426,291 |
| 93.867 | Activity-Dependent Tagging of Cerebellar Neurons for Studying Signal Processing and Learning | | | | \$12,974 |
| 93.867 | Afferent and Efferent Visual Systems During Abnormal Vision Development | | | \$61,250 | \$593,351 |
| 93.867 | Covid-19: Autonomous AI to mitigate disparities for diabetic retinopathy screening in youth during and after COVID-19 | Johns Hopkins University | 2005714289 | | \$171,600 |
| 93.867 | Autophagy and Mechanotransduction in the Trabecular Meshwork | Duke University | 303000366 | | \$10,104 |
| 93.867 | Beyond ganglion cells: Novel foveal avascular zone features in MS with implications for vision loss | | | | \$380,418 |
| 93.867 | Bi-directional neural interface for probing parallel visual pathways | | | \$111,156 | \$821,346 |
| 93.867 | Characterization of corneal stromal stem cells encapsulated within bioorthogonally crosslinked collagen gels for delivery to the ocular surface | | | | \$6,609 |
| 93.867 | Computational, anatomical, and molecular principles of system-wide visual encoding | | | | \$23,240 |
| 93.867 | Corneal Scar Repair through SPAACKL: Sutureless, Pro-regenerative Anterior Additive Collagen gel KeratopLasty | | | | \$1,165,768 |
| 93.867 | Descemet Endothelial Thickness Comparison Trial (DETECT) | | | \$420,227 | \$955,085 |
| 93.867 | Determining cell-type specificity for a nonclassical MHC class I during an activity-dependent cortical critical period. | | | | \$160,908 |
| 93.867 | Developing Novel Neuroprotective Strategies for EAE/Optic Neuritis | | | | \$108,586 |
| 93.867 | Development and regeneration of retinal ganglion cells in the vertebrate retina | | | | -\$15,246 |
| 93.867 | Development of Face Perception: Cross-sectional and Longitudinal Investigations | | | | \$423,959 |
| 93.867 | Disparity Processing in Human Visual Cortex | | | | \$89,934 |
| 93.867 | Dissecting Neural Circuit Computations in the Peripheral Visual System | | | | \$95,531 |
| 93.867 | Diverse visual processing properties of novel ganglion cell and amacrine cell types in the human retina | | | | \$151,337 |
| 93.867 | Effects of Hyperbilirubinemia on Visuocortical Functioning in High-Risk Infants | Smith-Kettlewell Eye Research Institute | 6012201S / HJD6G4D6TJY5 | | \$180,827 |
| 93.867 | Elucidating Neuron-Intrinsic Molecular Mechanisms of Optic Nerve Regeneration | | | | \$401,859 |
| 93.867 | Endothelial Transmigration in Neovascular Age-related Macular Degeneration | | | | \$68,993 |
| 93.867 | Enhanced Identification of Ocular Phenotypes and Outcomes in Electronic Health Record Data | University of Michigan | SUBK00015736/PO 3007066356 | | \$158,688 |
| 93.867 | PGF21 as a mediator of RPE mitochondrial dysfunction | | | | \$212,624 |
| 93.867 | Function and circuitry of adaptive inhibition in the retina | | | | \$472,960 |
| 93.867 | Functional-neuroanatomy of high-level visual cortex: a quantitative multimodal approach | | | | \$294,986 |
| 93.867 | Gene Expression Regulatory Pathways and Retinal Ganglion Cell Neuroprotection | | | | \$691,827 |
| 93.867 | Imaging Photoreceptor Function | University of Pennsylvania | 579681; PO# 4905210 | | \$19,365 |
| 93.867 | Improving rigor and reproducibility in adaptive optics ophthalmoscopy | | | \$81,936 | \$433,565 |
| 93.867 | In Situ Bioconjugation as a Therapeutic Delivery Modality to Enhance Ocular Wound Healing | | | | -\$2,613 |
| 93.867 | In Vivo Function and Metabolism Evaluation of Glaucomatous RGCs by Two-Photon Scanning Laser Ophthalmology | | | | \$24,336 |
| 93.867 | Increasing the isoplanatic patch in adaptive optics ophthalmoscopy | | | \$86,780 | \$783,112 |
| 93.867 | Inflammatory Gene Transcription in the Retina | | | \$71,622 | \$710,038 |
| 93.867 | Interaction of Visual and Oculomotor Signals in Cortex | | | | \$377,371 |
| 93.867 | Localization, safety, and efficacy of optic nerve injections | | | | \$149,055 |
| 93.867 | Long-term Suppressive Valacyclovir Treatment for Herpes Zoster Ophthalmicus | New York University | 106171 | | \$5,589 |
| 93.867 | Low Latency Eye-Motion Compensation | | | | \$509,451 |
| 93.867 | Mechanisms of Angiogenesis in ROP | | | \$23,669 | \$284,091 |
| 93.867 | Mechanisms regulating the plasticity of postmitotic cells in mammalian retina | | | | \$242,152 |
| 93.867 | Molecular mechanism of Norrin signaling through Frizzled4 and LRP5/6 | | | | \$34,829 |
| 93.867 | NAC Attack, a phase-3, multicenter, randomized, placebo-controlled trial in patients with retinitis pigmentosa | Johns Hopkins University | PO # 2005723952 | | \$8,292 |
| 93.867 | Nanoparticle-Based Tracking of Retinal Ganglion Cell Transplant | | | | \$21,328 |
| 93.867 | Neural coding of interneuron populations in the retina | | | | \$246,135 |
| 93.867 | Neuroprotection by Modulating ER Stress in Glaucoma | | | | \$170,581 |
| 93.867 | Optineurin dysfunction induces neurodegeneration in normal tension glaucoma by a novel molecular mechanism | | | | \$764,599 |
| 93.867 | Optoretinography: All-optical measures of functional activity in the human retina | University Of Washington | UWSC13335 BPO 61344 | | \$462,017 |
| 93.867 | Pediatric Eye Disease Investigator Group | Jaeb Center for Health Research | PEDIG Site #360 | | \$1,441 |
| 93.867 | Personalized Predictions for Glaucoma Progression Using Artificial Intelligence for Electronic Health Records | | | | \$409,040 |
| 93.867 | Phosphoinositide signaling in glaucoma: rescue strategies for Lowe syndrome | | | \$17,894 | \$445,699 |
| 93.867 | Probing visual computations and electrical stimulation in the central macaque retina for high fidelity vision restoration | | | | \$41,017 |
| 93.867 | Proteomic Biomarkers of Intraocular Infection | | | \$102,764 | \$453,622 |
| 93.867 | Quantitative Electrophysiology to Link Neuroplasticity, Brain State, and Behavioral Change in Human Visual Cortex | | | | \$43,173 |

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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass-through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|--|---|---|--|----------------------------|
| 93.867 | Relating spontaneous activity to electrical stimulation properties of primate retinal ganglion cells | | | | \$40,556 |
| 93.867 | Representation and integration of diverse visual features in circuits and behavior | | | | \$98,574 |
| 93.867 | Retinal Ganglion Cell Replacement in Optic Neuropathies | | | \$594,577 | \$1,439,666 |
| 93.867 | Retinal Muller Glial Cells in the initiation of diabetic retinopathy | | | \$34,395 | \$421,251 |
| 93.867 | Retinal vessel features as a marker of idiopathic intracranial hypertension treatment response: a secondary analysis of the idiopathic intracranial hypertension treatment trial | | | \$130,792 | \$148,089 |
| 93.867 | Robust AI to develop risk models in retinopathy of prematurity using deep learning | Massachusetts General Hospital | 237342 / R21 EY031883 | | \$29,148 |
| 93.867 | RPE Energy Metabolism and Cell Phenotype | | | | -\$42,996 |
| 93.867 | Secondary Analyses of data from the Infant Aphakia Treatment Study: Patching in Children with Unilateral Congenital Cataracts and Poor Visual Acuity | George Mason University | E2058212 / 1R21EY032152-01A1 | | \$29,366 |
| 93.867 | Stanford K12 Clinician-Scientist Career Development Program | | | | \$228,212 |
| 93.867 | Stanford Vision Research Core | | | | \$785,284 |
| 93.867 | Stanford Vision Training Program | | | | \$196,735 |
| 93.867 | Steroids and Cross-linking for Ulcer Treatment (SCUT II) | University of California, San Francisco | 13122sc | | \$165,998 |
| 93.867 | Structural and functional tests of ganglion cell damage in glaucoma | | | | \$444,432 |
| 93.867 | The Role of Mechanosensitive Ion Channels in Glaucoma | | | | \$26,494 |
| 93.867 | The role of primary cilia in glaucoma pathogenesis | | | | -\$46 |
| 93.867 | Transcriptional activation for rare disease rescue | | | | \$7,347 |
| 93.867 | Unique physiological properties of novel ganglion cell types in primate retina | | | \$111,399 | \$318,396 |
| 93.867 | Vision disorders in adolescents follow concussion -- A planning grant | Ohio State University | 60080241 | | \$28,597 |
| 93.867 | Visual Cortex as a Window to Microstructural and Functional Development of the Human Brain | | | \$105,955 | \$468,280 |
| 93.867 | VRC: The Role of Perinuclear cAMP in Retinal Ganglion Cell Neuroprotection and Optic Nerve Regeneration | | | | \$184,334 |
| 93.879 | A Mobile Game for Domain Adaptation and Deep Learning in Autism Healthcare | | | | \$750,496 |
| 93.879 | Advancing Knowledge Discovery for Postoperative Pain Management | | | | \$524,348 |
| 93.879 | Automated data curation to ensure model credibility in the Vascular Model Repository | | | \$78,515 | \$86,812 |
| 93.879 | Biomedical Data Science Graduate Training at Stanford | | | | \$143 |
| 93.879 | Biomedical Informatics Training Program at Stanford | | | | \$909,213 |
| 93.879 | Creating an artificial intelligence therapy-to-data feedback loop for child developmental healthcare | | | | \$715,592 |
| 93.879 | Deep Curation via an Integrated Whole-Cell Computational Model | | | \$73,269 | \$317,489 |
| 93.879 | From Enrichment to Insights | | | | \$4,210 |
| 93.879 | Image tools for computational cellular barcoding and automated annotation | J. David Gladstone Institutes | SC-00069 / R01 LMO13617 | | \$17,887 |
| 93.879 | Improved metadata authoring to enhance AI/ML readiness of associated datasets | | | | \$575,308 |
| 93.879 | Machine Learning Clinical Order Recommendations for Specialty Consultation Care | | | | \$15,108 |
| 93.879 | Novel Algorithmic Fairness Tools for Reducing Health Disparities in Primary Care | | | \$27,003 | \$270,298 |
| 93.879 | Novel machine learning and missing data methods for improving estimates of physical activity, sedentary behavior and sleep using accelerometer data | | | | \$387,871 |
| 93.879 | Pacific Symposium on Biocomputing | | | | \$15,159 |
| 93.879 | Statistical Methods for Modern Evidence Syntheses with Multiple Biases | | | | \$271,481 |
| 93.879 | Toward improved understanding of sex differences in drug response: developing gene and pathway-based informatics methods to examine sex-differential genetic effects | | | | \$14,455 |
| 93.884 | Stanford MSPA Primary Care Training and Enhancement - Physician Assistant Rural Training (PCTE-PAR) Program | | | | \$171,826 |
| 93.889 | Western Regional Alliance for Pediatric Emergency Management (WRAP-em) | University of California, San Francisco | 11655sc / U3REP190616-02 | | \$39,864 |
| 93.945 | Lymphedema (full title tbd) | Lymphatic Education & Research Network | 231024 | | \$57,772 |
| 93.946 | Statewide Perinatal Quality Collaboratives | | | | \$200,732 |
| 93.989 | Global Health Equity Scholars Program. | Yale University | CON-80003658 (GR116387) | | \$165,158 |
| 93.994 | CA Maternal Mortality Review | California Department of Public Health | 22-10009 | | \$127,365 |
| 93.RD | Covid-19: To develop small synthetic chemical molecules as broadly active antiviral for the treatment of viral infections - Advancing a lead broad spectrum antiviral PI-kinase inhibitor to the clinic for enteroviruses and COVID-19 | | | \$258,412 | \$2,471,400 |
| 93.RD | 3D Multiscale Biomolecular Human Reference Atlas Construction, Visualization and Usage [4 of 5] | Indiana University | 9422 // PO0563499 | | \$70,997 |
| 93.RD | Covid-19: ABFM - CDC - Stanford Cooperative Agreement: COVID-19 | American Board of Family Medicine Inc. | 232898 | | \$1,284,265 |
| 93.RD | ACC Harmonized Adjuvant Comparison Study | | | \$100,623 | \$2,621,955 |
| 93.RD | Biorepository of human induced pluripotent stem cells for cardiovascular diseases | | | | \$970,993 |
| 93.RD | Bridge2AI: Salutogenesis Data Generation Project | University Of Washington | UWSC14056 | | \$391,807 |
| 93.RD | Building an Interpretable Genotype Translator Using Maps of Cell Architecture | University of California, San Diego | 705725 | | \$304,150 |
| 93.RD | CEDAR Template testing | Leidos Biomedical Research Inc. | 17X074 TO#5 MOD 04 | | -\$284 |
| 93.RD | Collaborative Influenza Vaccine Innovation Centers (CIVICs) Component A: Vaccine Center | Icahn School of Medicine at Mount Sinai | 0258-A443-4609 | | \$301,083 |
| 93.RD | Comparative Modeling of Lung Cancer Prevention, Early Detection and Treatment Interventions | BC Cancer Agency | 2023-0534 | | \$227,912 |
| 93.RD | eDynamic - STANFORD | | | | \$1,173,270 |
| 93.RD | Flexible Hybrid Cloud Infrastructure for Seamless Integration and Use of Human Biomolecular Data and Reference Maps | Carnegie Mellon University | 1090719-462287 | | \$681,324 |
| 93.RD | Highly Accurate Low Cost ctDNA Diagnostics With Magnetic Nanoparticle Enabled Automated Sample Preparation Assays | NVIGEN, Inc. | 140396 | | \$39,124 |
| 93.RD | MACRA Episode Groups and Resource Use Measures II | Acumen, LLC. | MIDS-19F0004-T0005 | | \$53,341 |
| 93.RD | Covid-19: Medical Imaging and Data Resource Center (MIDRC) for Rapid Response to COVID-19 Pandemic | University of Chicago | AWD101462-D / 75N92020D00021 | | \$627,938 |
| 93.RD | National Sleep Research Resource (NSRR) | Brigham and Women's Hospital | 122255 | | \$7,821 |
| 93.RD | Neuropsychological Assessment System for Cancer Patients | Creare Inc | S677 PO 106415 | | \$64 |
| 93.RD | NIAID Centers of Excellence for Influenza Research and Response | University of Pennsylvania | 53816/02; PO 4867412 | | \$341,845 |
| 93.RD | Covid-19: Pathology and Pathogenesis of Coronavirus Infections in Animal Models | | | | \$898,896 |

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| 93.RD | Pediatric Trials Network | Duke University | 48/232379/6941 ANA01/STN99 | | \$7,869 |
| 93.RD | POINT-OF-CARE DIAGNOSTICS TOOL FOR PREECLAMPSIA AND ANEMIA IN PREGNANCY | | | | \$5,137 |
| 93.RD | PROMINENT (CRUK/NIH Grand Challenges) | | | | \$392,100 |
| 93.RD | Pumps for Kids, Infants, and Neonates (PumpKIN) Clinical Trial | New England Research Institute, Inc. | Task Order #6, Mod 7 | | \$62,495 |
| 93.RD | Quality Reporting Program Support for the Long-Term Care Hospital, Inpatient Rehabilitation Facility, Skilled Nursing Facility QRPs and Nursing Home Compare | Acumen, LLC. | MIDS-19F0003-To010 | | \$10,772 |
| 93.RD | ReCePI Study | Cerus Corporation | Work Order #1 PO 206124 | | \$333,697 |
| 93.RD | Sequelae and immunopathology of Ebola virus infections | | | | -\$53,955 |
| 93.RD | Stanford Human Cancer Models Initiative Center | Leidos Biomedical Research Inc. | 19X015Q | | \$7,403 |
| 93.RD | STRIVE ICC Leadership and Start-up | Vanderbilt University Medical Center | 109032 | | \$10,313 |
| 93.RD | Targeted Bone Regeneration via Activation of Resident Stem Cells | Medical Science & Computing, LLC | SPO 271718 | | \$114,449 |
| 93.RD | The CBER Biologics Effectiveness and Safety (BEST) Initiative: Conduct Surveillance Activities for Safety and Effectiveness of Biologics" | Acumen, LLC. | FDA-20F19003-To004 | | \$331,410 |
| 93.RD | The Women's Health Initiative (WHI)- Regional Centers | | | | \$1,216,692 |
| 93.RD | Trial Net Screening and DPT-1 Follow Up Studies | University of South Florida | PO 261241; 253349 | | \$95,358 |
| 93.RD | Covid-19: Virufy Covid-19 Screening through AI-based Cough Analysis | Virufy | SPO-276978 | | \$15,680 |
| Department of Homeland Security | | | | | \$102,406 |
| 97.061 | How Organizational Dynamics in a Multi-Actor Environment Shape Terrorist Threats and Counterterrorism Responses | University of Nebraska | 44-0108-1001-420 | | \$102,406 |
| Department of Justice | | | | | \$44,059 |
| 16.560 | Bio-inspired Material-integrated Magnetic Beads for Differential Extraction of Sperm in Forensic Applications | | | | \$44,059 |
| Department of State | | | | | \$994,241 |
| 19.019 | CAFE - Comprehensive Action towards Forced Labor Eradication | Global Fund To End Modern Slavery | G12-001-Stanford-220101 | | \$596,951 |
| 19.019 | Measuring the Prevalence of Trafficking around the World: Implications for Research, Programming, and Policy | University of Georgia Research Foundation, Inc. | SUB00002413 | \$34,493 | \$71,079 |
| 19.019 | Working Title: Program to End Modern Slavery PRIF Expansion | | | \$57,422 | \$306,801 |
| 19.040 | Strengthening the Capacity of African Civil Society to Counter Chinese Propaganda and Disinformation | Institute for War & Peace Reporting US | 133-20-15-HU | | -\$590 |
| 19.501 | SCHOLAR RESCUE FUND AFGHANISTAN - N. Nezaami (Year 2) | Institute Of International Education | SRFUS04000_SU_8.01.2022 | | \$20,000 |
| Department of the Interior | | | | | \$511,609 |
| 15.506 | Linking Anaerobic Wastewater Treatment to Non-Potable and Potable Wastewater Reuse | Silicon Valley Clean Water | SPO 163392 | | \$285,759 |
| 15.807 | Constraints on Stress Heterogeneity From Modeling Induced Seismicity on Rough Faults in Oklahoma | | | | \$29,437 |
| 15.808 | 2022-2024 SECE-USGS Research Collaboration at Stanford University | University of Southern California | SCON-00003734 | | \$84,941 |
| 15.808 | Collaborative research on earthquakes and lithospheric seismic properties in Saudi Arabia | | | | \$13,210 |
| 15.808 | Stanford-USGS: Micro-Isotopic Analytical Center (SUMAC) | | | | \$64,934 |
| 15.808 | Synthesis of Bering Sea Regional Geologic Framework | | | | \$31,814 |
| 15.933 | Connected through Confinement: An Archaeology of the Gila River Incarceration Site | | | | \$1,514 |
| Department of Transportation | | | | | \$3,173,213 |
| 20.108 | Air Navigation Based on Global Navigation Satellite Systems | | | | \$100,648 |
| 20.109 | ASCENT Project 25 Chemical Kinetics Combustion Experiments | | | | \$197,395 |
| 20.109 | ASCENT Project 59 Jet Noise Modeling to Support Low Noise Supersonic Aircraft | | | | \$170,236 |
| 20.109 | Opensource data collection, Analysis and Mitigation of Aviation Environmental Impacts | | | | \$299,284 |
| 20.205 | Center for Excellence in Project Finance | University of Maryland | 116176-Z9815205 | | \$133,856 |
| 20.RD | Air Navigation Based on Global Navigation Satellite Systems | | | | \$2,256,510 |
| 20.RD | The Railroad of the Mid-Century | University of New Mexico | 456733-873H | | \$15,284 |
| Department of Veterans Affairs | | | | | \$51,775 |
| 64.RD | Task casual inference efforts conducted by the Center for Policy Evaluation (CPE) at the VA Palo Alto Healthcare System in accordance with Contract 36C24E23D0002. | | | | \$51,775 |
| National Aeronautics and Space Administration | | | | | \$21,424,338 |
| 43.001 | 21-ATP21-0081. Modeling the radio/infrared/gamma-ray correlation at sub-galactic scales for the Milky Way and starforming galaxies | | | | \$137,389 |
| 43.001 | A Remarkable Pulsar-powered Filament | Smithsonian Astrophysical Observatory | G01-22054X | | \$27,925 |
| 43.001 | Assessing Paleointensity Variability During the Lunar High Field Epoch (FINESST) | | | | \$43,054 |
| 43.001 | Assessing the habitability of post-impact hydrothermal systems using the Chicxulub crater as a natural laboratory | | | \$62,125 | \$80,027 |
| 43.001 | Assessment of Capella Space Radar Constellation for Rapid Repeat, Fine Resolution InSAR Applications | | | | \$45,701 |
| 43.001 | Assessment of ICEYE Radar Constellation for Rapid Repeat, Fine Resolution InSAR Applications | | | | \$45,701 |
| 43.001 | Bridging the gap between carbon cycle models and remote sensing observations | California Institute of Technology | S538120 | | \$25,842 |
| 43.001 | Building a Legacy Progenitor-Selected Cluster Sample at z>1 | Smithsonian Astrophysical Observatory | G01-22131B | | \$2,200 |
| 43.001 | CHiPS1911+4455: A Cooling Flow in a Merging Cluster | Smithsonian Astrophysical Observatory | G02-23116X | | \$14,311 |
| 43.001 | Collaborative Research to Evaluate the Effects of Injection Strategies on Mixing in ARC-Heaters at the AMES Research Center | | | | \$73,653 |
| 43.001 | Completing hard X-ray observations of the iron K reverberation sample of Seyfert galaxies | | | | \$16,163 |
| 43.001 | Consequences of Fields and Flows in the Interior and Exterior of the Sun (COFFIES) | | | \$731,783 | \$1,389,340 |
| 43.001 | Consequences of Flows and Fields in the Interior and Exterior of the Sun (COFFIES) | | | \$77,724 | \$81,251 |

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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass-through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|---|--|---|--|----------------------------|
| 43.001 | Covid 19: Advancing Focal-Plane TRL for Next Generation CMB Space Missions | University of California, Berkeley | 00010967 / P.O. BBo1592334 | | \$62,797 |
| 43.001 | Deep Observations of a New Dynamically Relaxed Galaxy Cluster at High Redshift | Smithsonian Astrophysical Observatory | GO2-23113A | | \$10,144 |
| 43.001 | Detecting Harmful Algal Blooms in the Pacific Sector of the Arctic Ocean | | | | \$61,346 |
| 43.001 | Development of a UAV-based integrated ice-penetrating radar system for ice shelf monitoring (FINNEST - Thomas Teisberg) | | | | \$38,471 |
| 43.001 | Development of Far-side Magnetic Flux Measurement Using GONG Data | | | \$8,335 | \$83,834 |
| 43.001 | Development of integrated readout electronics for next generation X-ray CCDs | | | | \$299,276 |
| 43.001 | Experimental Constraints for Improving Terrestrial Exoplanet Photochemical Models (EXCITEPM) | University of California, Riverside | S-001525 | | \$87,382 |
| 43.001 | Extremely Low-noise, High Frame-Rate X-Ray Image Sensors for Strategic Astrophysics Missions | Massachusetts Institute of Technology | s6057, PO #922398 | | \$34,714 |
| 43.001 | Fermi and the Search for Lost Magnetar Giant Flares | University of Maryland, Baltimore County | NASA0066-02 | | \$27,615 |
| 43.001 | Frequency-Dependent Helioseismic Analysis on Solar Meridional Flow, Center-to-Limb Effect, and Sunspots | | | | \$133,723 |
| 43.001 | Giant Planet Demographics from an Analysis of the Gaia Astrometric Survey | | | \$37,549 | \$37,549 |
| 43.001 | HelioCloud Data Delivery for SDO | | | | \$58,361 |
| 43.001 | Helioseismic and Magnetoacoustic Waves in and above Sunspots: Origin, Up-Channelling, and Reflection | | | | \$23,716 |
| 43.001 | High-Energy Unknown Transients: The Fermi-INTEGRAL Synergistic View | | | | \$730 |
| 43.001 | Identifying the biosynthetic pathway of brGDGT biomarker lipids | | | | \$10,560 |
| 43.001 | Impact-induced Formation of Prebiotic Molecules on Terrestrial Planets | | | | \$47,999 |
| 43.001 | Improving X-ray Polarization Sensitivity and an IXPE Application to the physics of Blazar Jets | | | | \$19,991 |
| 43.001 | Integration of InSAR with Airborne Geophysical Data for the Development of Groundwater Models | | | | \$105,482 |
| 43.001 | Intermediate complexity schemes for modelling the diversity of vegetation drought response | | | | \$53,938 |
| 43.001 | Investing in equity and environmental justice: an urban decision-support tool integrating earth observations, socioeconomic data, and ecosystem service models | University Of Minnesota | P010028102 | | \$32,710 |
| 43.001 | IXPE sources: a quick-look database and high-level data analysis toolkit | University of Maryland, Baltimore County | NASA0118-02 | | \$20,099 |
| 43.001 | Joint inversion of seismicity and geodetic observations for imaging volcanic intrusions | | | | \$16,142 |
| 43.001 | Joint radar and model investigations of Greenland basal water conditions | | | | \$43,062 |
| 43.001 | Laboratory measurement of opacities and pressure-induced line broadening parameters at exoplanetary atmospheric conditions | | | | \$48,324 |
| 43.001 | Linking Active Regions and Solar Cycles to Understand How Variable Flows in the Solar Interior Affect Surface Magnetic Field Evolution | | | \$40,098 | \$121,230 |
| 43.001 | Linking crater basin winds, dune morphology, and stratigraphy | Texas A&M University | M2200119 | | \$12,728 |
| 43.001 | Multi-Messenger 3D Modeling of the Interstellar Medium of the Milky Way | | | \$44,417 | \$142,848 |
| 43.001 | NASA ACRES: A Climate Resilient Ecosystem Approach to Strengthening US Agriculture | University of Maryland | 124245-Z6512205 | | \$10,088 |
| 43.001 | NASA Food Security and Agriculture Consortium (FSAC) | University of Maryland | 54308-Z6059203 | | \$14,754 |
| 43.001 | NASA Harvest: NASA Food and Agriculture Consortium | University of Maryland | 125062-Z6521205 | | \$44,255 |
| 43.001 | Next-generation event characterization for X-ray imaging observatories | | | \$85,602 | \$226,592 |
| 43.001 | NUSTAR TOO OBSERVATIONS OF LUMINOUS BLAZARS | | | | \$14,725 |
| 43.001 | Oceans Across Space and Time | Cornell University | 142075-21988 | | \$65,845 |
| 43.001 | Optimized Cluster Cosmology with the Planck Satellite | | | | \$234,487 |
| 43.001 | Persistent Scatterer InSAR: Maximizing Coverage and Enabling Applications Through User-friendly Data Products | | | | \$114,264 |
| 43.001 | PSR J2030+4415: A Breakthrough Target for Bowshock Studies | Smithsonian Astrophysical Observatory | GO8-19049X | | \$15,235 |
| 43.001 | PSR J2215+5135: An IBS Probe of Mass and Evolution | | | | \$43,091 |
| 43.001 | Quantifying and mitigating the role of parametric uncertainty in forecasts of the terrestrial carbon cycle | | | | \$48,714 |
| 43.001 | Quantifying the Rate of Nearby Dual AGN | Smithsonian Astrophysical Observatory | GO1-22096B | | \$13,075 |
| 43.001 | QUIESCENT SOLAR GAMMA-RAY EMISSION: PROBING COSMIC RAYS AND SOLAR ENVIRONMENT | | | | \$9,474 |
| 43.001 | Radiation Hard and High Temperature Tolerant Thermal Imagers | Jet Propulsion Laboratory | CREI 1631670 | | \$46,824 |
| 43.001 | Real World, Real Science: Using NASA Data to Explore Weather and Climate | Gulf of Maine Research Institute | 30-NASARS-21 S | | \$171,822 |
| 43.001 | Research Coordination Network for Ocean Worlds | | | | \$40,784 |
| 43.001 | Resolving the extreme environments outside supermassive black holes with XRISM measurements of X-ray reflection and reverberation | | | | \$14,673 |
| 43.001 | Scale enrichment of incompressible large eddy simulations | | | | \$82,426 |
| 43.001 | Science Study for Space-based Optical Atomic Clocks and Optical Time Transfer | Jet Propulsion Laboratory | Sub No. 1583357 | | \$1,286 |
| 43.001 | Self-consistent Modeling of Multi-messenger and Multi-wavelength Galactic Emissions in Support of Past, Current, and Future NASA Missions | | | | \$212,737 |
| 43.001 | Simulating Active Longitudes by Coupling Magnetograms with a Nonlinear MHD Tachocline Model: a Data Assimilation Approach | University Corporation of Atmospheric Research | SUBAWD002075 | | \$44,725 |
| 43.001 | Simulating pre-solar-storm patterns of magnetic toroids from surface sunspot observations | University Corporation of Atmospheric Research | SUBAWD003043 | | \$55,250 |
| 43.001 | Solar Storms and Terrestrial Impacts Center (SOLSTICE) | University of Michigan | PO3005977491.SUBK00011 | | \$29,654 |
| 43.001 | Study of Global-Scale Surface Flows and Migration of Polar Crown Filaments of the Sun in Past 10 Solar Cycles in Comparison with Helioseismology Results in 2 Recent Cycles | New Jersey Institute of Technology | (NP) 997277 | | \$40,740 |
| 43.001 | Studying the Progenitors of Our Favorite Clusters at $z > 1$ | | | \$52,787 | \$67,078 |
| 43.001 | Suprathermal Seeds for Solar Energetic Particles: Two-stage Acceleration from Flares to CME-Shocks | Bay Area Environmental Research Institute | NASA-80NSSC21K1327 | | \$52,155 |
| 43.001 | Taming the Sharks: Dynamics and Dust in the High-Latitude 3D ISM with GALEX | Space Telescope Science Institute | 53143 | | \$26,006 |

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|---|--|---|--|--|-------------------------------|
| 43.001 | The Airborne InSAR and PolSAR Permafrost Dynamics Observatory | University of Colorado, Boulder | 1554878,PO 1000792321 | | \$16,239 |
| 43.001 | The Effects of Atmospheric Density on Eolian Ripple Formation and Morphology | | | \$52,932 | \$277,108 |
| 43.001 | The Gemini Planet Imager Exoplanet Survey: Completion and Analysis | | | \$26,298 | \$50,789 |
| 43.001 | The M-dwarf Opportunity: Characterizing Nearby M-dwarf Habitable Zone Planets | Johns Hopkins University Applied Physics Laboratory | 169752 | | \$47,100 |
| 43.001 | The Moving Filament of the Guitar Nebula | Smithsonian Astrophysical Observatory | GO1-22055A | | \$56,067 |
| 43.001 | The next stage of X-ray reverberation: Mapping a sample of supermassive black holes | | | | \$57,295 |
| 43.001 | The relationship between the corona and jet in the radio-loud Seyfert galaxy IRAS 17020+4544 | | | | \$31,937 |
| 43.001 | The role of magnetic fields in star formation: novel analyses of archival SOFIA data | | | | \$41,702 |
| 43.001 | Toward a Consensus for Multi-Sourced Photospheric Magnetic Field Cross- Calibrations | | | \$30,915 | \$121,210 |
| 43.001 | Toward Fast, Low-Noise, Radiation-Tolerant X-ray Imaging Arrays for Lynx: Raising Technology Readiness Further | Massachusetts Institute of Technology | S5074 - PO 481322 | | \$93,294 |
| 43.001 | Understanding memory effects and climatic drivers of net primary productivity and respiration enabled by SMAP vegetation optical depth | Columbia University | 1(GG017016)/PO-SAPO G15119 | | \$33,458 |
| 43.001 | Understanding the Role of Helicity Flux in Solar Eruptions from Active Regions | | | \$84,788 | \$200,719 |
| 43.001 | Unraveling the role of plant hydraulic traits in transpiration using microwave radiometry | | | | \$45,001 |
| 43.001 | US contributions towards studies of the Athena WFI instrumental background and transient source populations | Pennsylvania State University | S001536-NASA | | \$179,212 |
| 43.001 | Validation and user-friendly product analysis for NISAR time series of deformation, with application to permafrost and soil moisture examples | | | | \$55,994 |
| 43.001 | What Life Wants: Exploring the Natural Selection of Elements | University of Wisconsin- Madison | 0000002170 | | \$2,471 |
| 43.001 | World Enough and Time: Mapping the Martian Adaptive Landscape with a Terran Bacterium | Georgia Institute of Technology | AWD-001061-G1 | | \$48,303 |
| 43.001 | X-Ray Speed-Reading: Integrated Readout Technology for Fast, Very Low-Noise, Megapixel X-Ray Imaging Detectors | | | \$6,773 | \$71,903 |
| 43.002 | Low-Speed Flight Characteristics and Noise Design Tools for the Integrated Configuration Shaping of Commercial Supersonic Aircraft | University Of Washington | UWSC11500/BPO 43773/SC11500 | | \$130,837 |
| 43.002 | Safe Aviation Autonomy with Learning-enabled Components in the Loop: from Formal Assurances to Trusted Recovery Methods | | | \$1,157,242 | \$1,751,819 |
| 43.002 | Single Source, Wall-Modeled Large-Eddy Simulation of an Aircraft With Emphasis on High-Lift Configurations | | | | \$858,575 |
| 43.003 | Countermeasure Development against Myocardial Mitochondrial Stress by Space Radiation Exposure | Baylor College of Medicine | NNX16AO69A / 7000001427 | | \$76,712 |
| 43.003 | Effects of chronic high LET radiation on the human heart | Baylor College of Medicine | 7000001223 | | \$524,884 |
| 43.003 | Identifying Genetic Factors in Radiation Injury with Pooled Single Cell Sequencing | Baylor College of Medicine | 7000001729 // P0701 | | \$73,097 |
| 43.003 | Mechanisms underlying charged particle-induced disruption of CNS function | University of California, Irvine | 2015-3277 | | \$55,488 |
| 43.003 | Using human stem-cell derived vascular, neuronal and cardiac 3D tissues to determine countermeasures for radiation | Baylor College of Medicine | 7000001222 / NNX16AO69A | | \$92,725 |
| 43.007 | Microgravity Crystal Growth of Photovoltaic Semiconductor Materials: Controlled Defect Homogeneity in CuInS2 | Center for the Advancement of Science in Space | GA-2019-0858 | | \$50,468 |
| 43.008 | Fidelity-Adaptive Models for Supersonic Combustion | | | | \$56,705 |
| 43.009 | Cellular Fabrication (C-Fab) Materials for In-Situ Lunar Additive Manufacturing & Outfitting | Branch Technology Inc. | 229888 | | \$70,951 |
| 43.009 | Collaborative Research to Evaluate the Influence of Injection and Mixing on Nozzle Flow Uniformity in Arc-Jets at Ames Research Center | | | | \$145,833 |
| 43.012 | Advancing Computational Methods for Supersonic Retropropulsion | | | | \$63,375 |
| 43.012 | Advancing the State of the Art in the Simulation of Parachute Inflation and Descent Dynamics: Multiscale Modeling, Performance Acceleration, and Validation | | | | \$113,060 |
| 43.012 | Aftshell Radiative Heating During Planetary Entry | | | | \$73,648 |
| 43.012 | Broadband mid-infrared silicon metalenses based on data-driven inverse design for space deployment | | | \$163,934 | \$377,517 |
| 43.012 | Closed-Form Collision Avoidance Maneuvers with Passive Safety Considerations | | | | \$59,886 |
| 43.012 | Collaborative Manipulation for Space Exploration and Construction | | | | \$3,302 |
| 43.012 | CUBES-II: Center for the Utilization of Biological Engineering in Space v.II | University of California, Berkeley | 00009564/PO#BB01347866 | | \$324,087 |
| 43.012 | Electrochemical in situ resource utilization of urine-derived nitrogen for sustainable space travel and habitation | | | | \$64,600 |
| 43.012 | Electrochemical membrane reactors for in-situ resource utilization of wastewater in space | | | | \$2,643 |
| 43.012 | High-Fidelity Combustion Modeling for LOX/Methane In-Space Propulsion Systems | | | | \$71,621 |
| 43.012 | High-Fidelity Modeling of High-Energy Density Plasma Systems for Fusion Propulsion | | | | \$3,745 |
| 43.012 | Integrated acoustic technology for boil-off control, mass gauging, and structural health monitoring in cryogenic fuel tanks | | | | \$131,802 |
| 43.012 | Invariant Funnels For Robust Interplanetary Transfer, Flyby, Capture, and Landing | | | | \$70,388 |
| 43.012 | Joint Advanced Propulsion Institute | Georgia Institute of Technology | AWD-002637-G5 // PO- 5217407 | | \$126,385 |
| 43.012 | Kinetic models of the facility effects and beam neutralization for high-power electric propulsion systems | | | | \$67,771 |
| 43.012 | Micro-scale modeling of ablative thermal protection systems during atmospheric entry | | | | \$57,362 |
| 43.012 | Motion Planning in Unknown Environments | | | | \$64,640 |
| 43.012 | Physics-informed Modeling of Multi-nozzle Plume Physics with Quantifiable Uncertainties from Supersonic Retropropulsion Tests | | | | \$227,404 |
| 43.012 | ReachBot: Small Robot for Large Mobile Manipulation Tasks in Martian Cave Environments | | | | \$402,805 |
| 43.012 | Real-time predictive modeling of Hall effect thrusters for thruster performance estimation and optimization | | | | \$70,433 |
| 43.012 | Starling Formation-Flying Optical Experiment (StarFOX) | | | | \$75,619 |
| 43.012 | Towards a robust laser-based velocity and temperature diagnostic for deployment in hypersonic ground-test facilities and high-speed flight | | | | \$64,670 |

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| 43.012 | Versatile Inverted-Hand Robotic Design for Mobile Manipulation in Space Environments | | | | \$51,098 |
| 43.RD | A definitive test of the dark matter paradigm on small scales | Space Telescope Science Institute | JWST-GO-02046.013-A | | \$29,282 |
| 43.RD | Advanced Design Tools for Electrosail Propulsion Systems | Particle Matters, Inc. | STTR22NS01 | | \$283,838 |
| 43.RD | Advanced Telescope for High-ENERgy Astrophysics (ATHENA) | | | | \$531,274 |
| 43.RD | Characterizing and quantifying lagged processes regulating the tropical land carbon sink responses to climatic variability and atmospheric CO2 | Jet Propulsion Laboratory | 1671875 | | \$93,404 |
| 43.RD | Galaxy-halo connection from resolved star formation histories of dwarf galaxies | Space Telescope Science Institute | HST-AR- 17044.001-A | | \$47,496 |
| 43.RD | Interior working group telecon co-chair | Jet Propulsion Laboratory | 1655926 | | \$65,941 |
| 43.RD | Launch Delay -IRIS | Lockheed Martin Corporation | Sub 8100003073 Line #6 | \$126,109 | \$262,228 |
| 43.RD | Leveraging Weak Gravitational Lensing - Redshift Space Distortions Cross-correlations | Jet Propulsion Laboratory | 1687951 | | \$17,032 |
| 43.RD | Lunar Vertex Mission | Johns Hopkins University Applied Physics Laboratory | 173019 | | \$11,878 |
| 43.RD | Mini Radio Frequency Instrument for Lunar Orbiter | Johns Hopkins University Applied Physics Laboratory | 164323 CLIN 1 PROJECT LJO8 | | \$9,940 |
| 43.RD | Petal-Type Radio-Frequency | Jet Propulsion Laboratory | 1680934 | | \$12,452 |
| 43.RD | REASON (Radar for Europa Assessment and Sounding: Ocean to Near Surface) | University of Texas at Austin | UTA16-001083 | | \$123,468 |
| 43.RD | REASON Starshade Inner Disk Subsystem (IDS) Optical Shield Engineering Support | Jet Propulsion Laboratory | 1681202 | | \$36,714 |
| 43.RD | The Fermi Large Area Space Telescope - Phase E 6-year Extension | | | \$389,344 | \$1,930,574 |
| 43.RD | The Solar Dynamics Observatory (SDO) Helioseismic and Magnetic Imager Investigation - Third Extended Mission | | | \$130,306 | \$4,716,979 |
| 43.RD | VERITAS (Venus Emissivity, Radio science, InSAR, Topography And Spectroscopy) | Jet Propulsion Laboratory | 1669789 | | \$7,094 |
| National Endowment for the Arts | | | | | \$35,000 |
| 45.024 | Stanford Live FY22 | | | | \$35,000 |
| National Endowment for the Humanities | | | | | \$113,146 |
| 45.149 | The Tousey Project | Board of Trustees of Northern Illinois University | G2B66860-STANFORD | | \$12,841 |
| 45.160 | The Church Of Baghdad | | | | \$59,719 |
| 45.164 | Wise Women: A Philosophy Talk Series on Female Philosophers Through the Ages | | | | \$36,209 |
| 45.313 | IMLS Laura Bush 21st Century Librarian Program | West Chester University | WCU IMLS SU 001 | | \$4,377 |
| National Science Foundation | | | | | \$81,547,468 |
| 47.041 | Adaptive management of water supply infrastructure for persistent anomalies versus climate trends | | | | \$60,231 |
| 47.041 | Assessing Urban Post-Earthquake Community Recovery to Inform Pre-Disaster Planning | | | | \$48,335 |
| 47.041 | CAREER: A Framework for Co-design and Optimization of Programmable Hardware Accelerators and Compilers | | | | \$4,102 |
| 47.041 | CAREER: Accelerating Real-time Hybrid Physical-Numerical Simulations in Natural Hazards Engineering with a Graphics Processing Unit (GPU)-driven Paradigm | | | | \$98,839 |
| 47.041 | CAREER: Data Analytics for Distribution Systems Management and Operations | | | | -\$593 |
| 47.041 | CAREER: Demystifying Deep Machine Learning Models using Convex Optimization for Reliable AI | | | | \$5,897 |
| 47.041 | CAREER: Mixed-bonded IV-VI semiconductors for hybrid heterostructures | | | | \$123,364 |
| 47.041 | CAREER: Multiphysics Mechanics of Magnetic Shape Memory Polymers | | | | \$47,195 |
| 47.041 | CAREER: Quantifying Wind Hazards on Buildings in Urban Environments | | | | \$93,894 |
| 47.041 | CAREER: Quantum Acoustic Information Processing with Phononic Crystal Devices | | | | \$109,298 |
| 47.041 | CAREER: Regulation of stem cell migration by extracellular matrix plasticity | | | | \$40,500 |
| 47.041 | CAREER: Sculpting light in biological tissue: an ultrasound-mediated traveling light source for spatiotemporally precise in vivo gene editing | | | | \$69,016 |
| 47.041 | CAREER: Soft Robotic Fingertips with High-Resolution, Calibrated Shape and Force Sensing for Dexterous Manipulation | | | | \$144,849 |
| 47.041 | CAREER: Structures as Sensors: Elder Activity Level Monitoring through Structural Vibrations | | | | \$220,929 |
| 47.041 | CAREER: UrbanEMOS: An Urban Energy Management Operating System for understanding and co-optimizing building, energy and human systems at multiple scales | | | | \$245,950 |
| 47.041 | CAS: Towards sustainable sunscreens: identifying chemical structures in sunscreens linked to phototoxicity in corals | | | | \$270,500 |
| 47.041 | CDS&E: Physics-driven computational tools for photonic design | | | | \$25,850 |
| 47.041 | Center for Turbulence Research Summer Program | | | | -\$27,775 |
| 47.041 | Collaborative Research: Bottom-up Construction of a Synthetic Neuron and Programmable Neuronal Network | | | | \$124,355 |
| 47.041 | Collaborative Research: Cell-free glycoprotein synthesis technology for point-of-care vaccine biomanufacturing | | | | \$5,388 |
| 47.041 | Collaborative Research: Examination of the Multi-physical Properties of Microgravity-synthesized Graphene Aerogels | | | | \$3,617 |
| 47.041 | Collaborative Research: Frame-Spine System with Force-Limiting Connections for Low-Damage Seismic Resilient Buildings | | | | \$90,714 |
| 47.041 | Collaborative Research: ISS: Assessing the Effect of Microgravity on Growth and Properties of Metal-Organic Framework (MOF) Crystals | | | | \$94,815 |
| 47.041 | Collaborative Research: Mixed-Autonomy Traffic Networks: Routing Games and Learning Human Choice Models | | | | \$166,586 |
| 47.041 | Collaborative Research: Nonlinear Coupling and Relaxation Mechanisms in Micro-Mechanics | University of California, Santa Barbara | KK2257 | | \$38,168 |
| 47.041 | Collaborative Research: Planning: Track 1: Beyond Recruitment: Engaging Allies to Foster Black Junior Environmental Engineering Faculty Success | | | | \$11,820 |
| 47.041 | Collaborative Research: RAPID: Coronavirus Persistence, Transmission, and Circulation in the Environment | | | | \$1,023 |
| 47.041 | Collaborative Research: RECODE: Directing and Controlling Cardiac Differentiation Through Cellular and Microenvironmental Manipulation and Application of Machine-Learning | | | | \$20,359 |
| 47.041 | Conference: 2023 Workshop on Nanotechnology Infrastructure of the Future | | | | \$126 |

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| 47.041 | CPS: Medium: Secure Smart Machining | | | | \$125,980 |
| 47.041 | Creep in shale across space and time | | | | \$46,587 |
| 47.041 | DMREF/Collaborative Research: Designing Mutable Metamaterials with Photo-Adaptive Meta-Atoms | | | | -\$1 |
| 47.041 | Dynamic Matching Problems with Application to Kidney Allocation | Northwestern University | 60059615 STAN | | \$91,570 |
| 47.041 | EAGER: Advanced Digital Twin Capabilities for NSF NHERI Wind Tunnel Facilities | | | | \$20,021 |
| 47.041 | EAGER: CRYO: Development of materials and techniques to enable sub-Kelvin cooling via adiabatic decompression of para-nematic materials. | | | | \$121,529 |
| 47.041 | EAGER: Neuromodulation in the second near-infrared window | | | | \$139,329 |
| 47.041 | ECO-CBET: Collaborative Research: Towards a Circular Nitrogen Bioeconomy: Tandem Bio- and Chemocatalysis for Sustainable Nitrogen Recovery and Nitrous Oxide Mitigation | | | | \$59,142 |
| 47.041 | EFRI BRAID Preliminary Proposal: DenPro3D Dendritic Processing of Spike Sequences in Biological and Artificial Brains | | | | \$216,344 |
| 47.041 | EFRI DChem: Engineering interfaces between plasma, catalysts, and reactor design for natural gas conversion to liquid products | Princeton University | SUB0000425 | | \$41,501 |
| 47.041 | EFRI DChem: Re-Engineering the Nitrogen Cycle: Distributed Electrochemical Nitrogen Refineries for Ammonia Synthesis and Water Purification | | | | \$252,005 |
| 47.041 | Engineering Fellows Postdoctoral Fellowship Program | American Society for Engineering Education | 769-2096 | | \$110,831 |
| 47.041 | Engineering Fellows Postdoctoral Fellowship Program - Roya Fallah Firoozi | American Society for Engineering Education | 2127509 | | \$131,777 |
| 47.041 | FW-HTF: Collaborative Research: Enhancing Human Capabilities through Virtual Personal Embodied Assistants in Self-Contained Eyeglasses-Based Augmented Reality (AR) Systems | | | | -\$158 |
| 47.041 | Generation of food-based chlorination disinfection byproducts (F-DBPs) during food processing | | | | \$13,508 |
| 47.041 | I-Corps: Developing technology for social-emotional learning for young children | | | | \$3,110 |
| 47.041 | Integrated Modeling and Control of Aftertreatment Systems for Clean, Efficient and High-Performing Gasoline Direct Injection Engines | | | | \$51,204 |
| 47.041 | Laser Frequency Metrology of Vapor Cells | Vapor Cell Technologies, LLC | SPO 193423 | | \$37,526 |
| 47.041 | Micromechanics of Interactions Between Hard Magnetic Particles and Soft Matrix on Magneto-Mechanical Actuation | | | | \$79,457 |
| 47.041 | Mid-scale RI-1 (M1:DP): National Full-Scale Testing Infrastructure for Community Hardening in Extreme Wind, Surge, and Wave Events (NICHE) | Florida International University | 000561/FIU01-0000240921 | | \$171,699 |
| 47.041 | MID-SCALE RI-1 (M1:IP): IMPLEMENTATION OF A NATIONAL SILICON CARBIDE RESEARCH FABRICATION FACILITY | University of Arkansas | UA2022-294/SPC-001885 | | \$92,364 |
| 47.041 | National Science Foundation's Alan T. Waterman Award | | | | \$224,198 |
| 47.041 | Natural Hazards Engineering Research Infrastructure: Computational Modeling and Simulation Center | University of California, Berkeley | 00010842; BBO1598236 | | \$395,415 |
| 47.041 | NNCI: nano@stanford | | | | \$1,405,816 |
| 47.041 | Norovirus persistence in surface water | | | | \$166,157 |
| 47.041 | NRI: FND: Computational and Interactive Design of Soft Growing Robot Manipulators | | | | \$207,086 |
| 47.041 | NRI: INT: COLLAB: Mesh Of Robots on a Pneumatic Highway (MORPH): An Untethered, Human-Safe, Shape-Morphing Robotic Platform | | | | \$150,882 |
| 47.041 | NSF Engineering Research Center for Re-Inventing America's Urban Water Infrastructure | | | \$86,506 | \$94,648 |
| 47.041 | Programmable Surfaces by Scalable Self-assembly of Particles Printed by Two-photon Polymerization | | | | \$104,679 |
| 47.041 | RAISE: TAQS: Engineering high quality, practical qubits in diamond | | | \$40,062 | \$40,062 |
| 47.041 | RAISE: TAQS: Inverting the design paradigm: Tunable qubits in hybrid photonic materials as a scalable platform for quantum photonic devices | University of Delaware | 51696 | | \$17 |
| 47.041 | Covid-19: RCN: Wastewater Surveillance for SARS-CoV-2 and Emerging Public Health Threats | University of Notre Dame | 204597SU | | \$17,857 |
| 47.041 | RECODE: Real-time analysis and environmental feedback for directed differentiation of liver organoids | | | | \$538,539 |
| 47.041 | REU Site: Center for Power Optimization of Electro-Thermal Systems (POETS) | University of Illinois at Urbana Champaign | 2014-00555-03 | | \$557,894 |
| 47.041 | SBIR Phase II: An Ingestible Intraluminal Bioelectronic Capsule (IBC) for Closed-Loop Diagnosis and Treatment of Gastrointestinal Disorders | Niche Biomedical Inc. | SPO 226852 / Prime #2052272 | | \$14,644 |
| 47.041 | Scalable diamond quantum systems | | | | \$273,639 |
| 47.041 | SCH: Improving patient health and equity through the digital transformation of diabetes care delivery | | | | \$70,785 |
| 47.041 | Scopi | | | | -\$796 |
| 47.041 | SenSE: Artificial Intelligence-enabled Multimodal Stress Sensing for Precision Health | | | | \$273,383 |
| 47.041 | Shock-Tube Studies of High-Temperature Flames Applicable to Next-Generation Energy Systems | | | | \$162,535 |
| 47.041 | Swirling Propulsion in Complex Fluids and Micro-Swimming Rheometry | | | | \$122,996 |
| 47.041 | The Dynamics of Curved Fluid Films Between Complex Interfaces | | | | \$24,494 |
| 47.041 | Understanding the impact of mechanical constraints on the dendrite formation in lithium metal anodes | | | | \$101,339 |
| 47.049 | Active Adaptive Materials Design Inspired by Cell Mechanics | University of Chicago | AWD103106 (SUB0000697) | | \$35,614 |
| 47.049 | Additive Combinatorics and Ramsey theory | | | | \$83,338 |
| 47.049 | Asymptotic in Probability: walks and graphs, disordered dynamics, interacting particles | | | | \$136,108 |
| 47.049 | Branching Processes, Random Partial Differential Equations and Applications | | | | \$55,264 |
| 47.049 | CAREER: Chemical Synthesis and Biophysical Study of Noncanonical Membrane Lipids | | | | \$12,823 |
| 47.049 | CAREER: Dielectric screening in structured polymer electrolytes | | | | \$85,271 |
| 47.049 | CAREER: Electrically tuned topological phase transitions in moire heterostructures | | | | \$36,672 |
| 47.049 | CAREER: Electronic and Optical Properties in Generalized Moire Systems from First Principles | | | | \$17,159 |
| 47.049 | CAREER: New statistical approaches for studying evolutionary process: statistical inference, attribution and computation | | | | \$86,085 |
| 47.049 | CAS: Improving the Efficiency of Supported Palladium Catalysts for Methane Complete Combustion Using Monodisperse Nanocrystals | | | | \$115,656 |
| 47.049 | CCI Center in Selective C-H Functionalization | Emory University | A374186 | | \$86,694 |
| 47.049 | CCI Phase I: Center for Interfacial Ionics | University of Oregon | 2016VoD | | \$60,316 |
| 47.049 | CCI Phase I: NSF Center for Adapting Flaws into Features | Rice University | PO X03043173 (218233) | | \$21,774 |

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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass- through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|--|--|--|--|-------------------------------|
| 47.049 | Chiral Quantum Networks | University of California, Santa Barbara | KK1924 | | -\$4 |
| 47.049 | Coherent Control of Cold Collision by Preparing Molecular Eigenstates Using Stark-Induced Adiabatic Passage | | | | \$73,649 |
| 47.049 | Collaborative Research: Axion Resonant InterAction DetectioN Experiment (ARIADNE) - a renewal proposal | | | | \$87,389 |
| 47.049 | Collaborative Research: Center for Coatings Research | | | | \$124,795 |
| 47.049 | Collaborative Research: DMREF: Developing Damage Resistant Materials for Hydrogen Storage and Large-scale Transport. | | | | \$137,462 |
| 47.049 | Collaborative Research: Enabling multi-scale studies of magnetic reconnection with interpretable data-driven models | | | | \$174,175 |
| 47.049 | Collaborative Research: Fusing massive disparate data and fast surrogate models for probabilistic quantification of uncertain hazards | | | | \$17,028 |
| 47.049 | Collaborative Research: Novel Cavity Haloscopes for Axion Dark Matter at CM-Wavelengths | | | | \$134,535 |
| 47.049 | Collaborative Research: Optical Transitions in Metallic Nanoclusters at High Pressure | | | | \$37,180 |
| 47.049 | Collaborative Research: Scalable Linear Algebra and Neural Network Theory | | | | \$41,553 |
| 47.049 | Collaborative Research: Stanford-Florida program in Support of LIGO on Coatings and Core Optics | | | | \$379,286 |
| 47.049 | Collaborative Research: Statistical Optimization for Barcoding and Decoding Single-Cell Dynamics via CRISPR Gene Editing | | | | \$195,991 |
| 47.049 | Collaborative Research: Transferable, Hierarchical, Expressive, Optimal, Robust, Interpretable Networks | | | | \$122,499 |
| 47.049 | Combinatorics: Thresholds and Hamming Cubes | | | | \$14,219 |
| 47.049 | Conjugated Systems Containing Antiaromatic Cyclobutadienoids: Synthesis and Study of the Multifaceted Effects of Local Antiaromaticity | | | | -\$1 |
| 47.049 | CQIS: Quantum Chaos and Quantum Gravity from Entanglement | | | | \$112,980 |
| 47.049 | Dark Sectors and More with the ATLAS Experiment | | | | \$134,770 |
| 47.049 | Deep Learning for Inverse Problems | | | | \$106,483 |
| 47.049 | Defect Characterization and Control in Metastable GeSn Optoelectronic Alloy Nanostructures | | | | \$65,657 |
| 47.049 | Design Rules for Obtaining White Light from Layered Perovskites and Related Lattices | | | | \$82,038 |
| 47.049 | Diverse Degradable Polymers from Versatile Ring-Opening Metathesis (Co)Polymerization of Electron-Rich Cyclic Olefins | | | | \$201,562 |
| 47.049 | DMREF: Collaborative research: Data driven discovery of synthesis pathways and distinguishing electronic phenomena of 1D van der Waals bonded solids | | | | \$175,799 |
| 47.049 | DMS-EPSC: Fast martingales, large deviations and randomized gradients for heavy-tailed target distributions | | | | \$142,518 |
| 47.049 | Dynamics of Ions and Molecules in Concentrated Electrolyte and Acid Solutions | | | | \$255,541 |
| 47.049 | EAGER: Superlattice-induced polycrystalline and single-crystalline structures in conjugated polymers | | | | \$133,370 |
| 47.049 | ECLIPSE: Miniaturization of Ultra-High-Power Laser Systems with Plasma Grating Chirped Pulse Amplification | | | | \$18,253 |
| 47.049 | Enabling Quantum Leap: Q-AMASE-i: Quantum Foundry | University of California, Santa Barbara | KK2245 | | \$154,667 |
| 47.049 | Enhancing helicity-dependent optical interactions in inversion-asymmetric materials | | | | \$1,015 |
| 47.049 | Evolutionary Dynamics and Diversity in High Dimensions | | | | -\$5,306 |
| 47.049 | Exploring Excited-State 1D Dipolar Quantum Matter with Dysprosium Gases | | | | \$415,668 |
| 47.049 | Exploring the properties of quantum many-body scar states in dipolar gases | | | | \$408 |
| 47.049 | Flexible Statistical Modeling | | | | \$143,594 |
| 47.049 | Frequency function method in elliptic PDEs and harmonic analysis | | | | \$99,473 |
| 47.049 | FRG: Collaborative Research: Generative Learning on Unstructured Data with Applications to Nature Language Processing and Hyperlink Prediction | | | | \$103,087 |
| 47.049 | Functional Materials Through Synthesis Informed Design | | | | \$601 |
| 47.049 | Galois Representations and Automorphic Forms | | | | \$54,900 |
| 47.049 | Geometric and Arithmetic Langlands program | | | | \$70,182 |
| 47.049 | Geometric Applications of Microlocal Analysis Conference | | | | \$26,623 |
| 47.049 | Geometry & Statistics | | | | -\$7 |
| 47.049 | GOALI: CAS: Organocatalytic Reactions and Processes for Polymer Chemistry | | | | \$167,275 |
| 47.049 | High Throughput Structure Determination for Low Thermal Noise Coatings | | | | \$130,573 |
| 47.049 | IAS/Park City Mathematics Institute | Institute for Advanced Study | 7456-2305-1915835 | | \$37,853 |
| 47.049 | Imaging correlations and charge order in transition metal dichalcogenide moiré systems | | | | \$145,273 |
| 47.049 | Interfacing Spins with Photons: Quantum Many-Body Physics with Non-Local Interactions | | | | \$299,200 |
| 47.049 | Investigation of Thermodynamic Conditions in an Arc Discharge Plasma | Texas Engineering Experiment Station | M2201408-28-513400- 00007 | | \$68,336 |
| 47.049 | Laplace Eigenfunctions and Unique Continuation | | | | \$98,875 |
| 47.049 | Long Time Behavior for Differential Equations in Random Media | | | | \$76,947 |
| 47.049 | Mathematical Problems in General Relativity | | | | \$82,840 |
| 47.049 | Matrix completion with non-uniform missing patterns, a new measure of conditional dependence, and applications to feature selection | | | | \$54,614 |
| 47.049 | Microlocal Analysis and Applications | | | | \$61,988 |
| 47.049 | Microlocal Analysis and Geometry | | | | \$66,253 |
| 47.049 | Modulating and engineering Luttinger liquid plasmons in low dimensional materials | | | | \$132,578 |
| 47.049 | Moduli Problems in Algebraic Geometry, their Structures and their Applications | | | | \$11,279 |
| 47.049 | Moduli Spaces of Pseudoholomorphic Maps | | | | \$71,155 |
| 47.049 | MREFC: US ATLAS HL-LHC Upgrade Project | Columbia University | 42(GG016228-42) | | \$19,003 |
| 47.049 | MRI: Development of Layered Quantum Materials Synthesis Facility | | | | \$205,814 |
| 47.049 | MSIP: Innovation to Achieve the Full Science Reach of the BICEP Array Stage 3 CMB Polarization Experiment | | | \$523,688 | \$2,061,565 |
| 47.049 | Multivariate histograms and inference with finite sample guarantees | | | | \$26,131 |
| 47.049 | Nanoscale Control over Surface Functionalization by Molecular Layer Deposition | | | | \$111,490 |
| 47.049 | New Algorithms for Markov Decision Processes and Reinforcement Learning | | | | \$91,011 |
| 47.049 | New Invariants of Knots and 3-Manifolds | | | | \$104,940 |
| 47.049 | New Strategies for Electrocatalytic Reactions with Transition-Metal Hydrides | | | | \$276,329 |
| 47.049 | New Techniques And Analyses For Random Sampling | | | | \$36,313 |
| 47.049 | Novel, engineered bio-inks for 3D printing of complex, perfusable structures | | | | \$265,829 |
| 47.049 | NSF-BSF: Investigation of Streaming Instabilities for tailoring the profile of high-energy laser-generated proton beams | | | | \$27,447 |
| 47.049 | NSF-BSF: Theory of quantum materials | | | | \$80,260 |

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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass- through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|--|---|--|--|-------------------------------|
| 47.049 | Opening the Gravitational-Wave Band below 30 Hz for LIGO and Cosmic Explorer | Massachusetts Institute of Technology | 55902, PO #829617 | | \$21,426 |
| 47.049 | Placing spins in semiconductors | | | | \$99,819 |
| 47.049 | Polymer Physics Across Scales: Bridging Atomistic and Coarse-Grained Polymer Models | | | | \$53,731 |
| 47.049 | Properties of approximate inference for complex high-dimensional models | | | | \$101,624 |
| 47.049 | QLCI-CI: Enhanced Sensing and Distribution Using Quantum States Stanford sub-award | University of Colorado, Boulder | 1559523 PO#1001397680 | | \$361,142 |
| 47.049 | QLCI-CI: Hybrid Quantum Architectures and Networks | University of Illinois at Urbana Champaign | 100918-19124 | | \$124,903 |
| 47.049 | Quantum dynamics and spectroscopy of reactive species in heterogeneous environments | | | | \$46,739 |
| 47.049 | Quantum Input-Output Modeling in the Ultra-Fast Domain: Theoretical Foundations and Experimental Validation | | | | \$246,954 |
| 47.049 | Questions and Methods in Probabilistic Combinatorics | | | | \$76,104 |
| 47.049 | QuIC-TAQS: Integrated Lithium Niobate Quantum Photonics Platform | Harvard University | 124381- 5119997 | | \$63,026 |
| 47.049 | Randomized quasi-Monte Carlo sampling for scientific computing | | | | \$37,530 |
| 47.049 | Research in Particle Theory, Cosmology, and Quantum Gravity | | | | \$1,097,959 |
| 47.049 | Ricci Flows and Steady Ricci Solitons | | | | \$69,396 |
| 47.049 | Robust Diagnosis in Electronic Health Records Integrating Physics-based Missing Data Multiple Imputation, Fast Inference for Hemodynamic Models, and Differential Privacy | University of Notre Dame | 203615SU | | -\$1 |
| 47.049 | Robust Wasserstein Profile Inference | | | | \$5,562 |
| 47.049 | Rubin Legacy Survey of Space and Time (LSST) Project | Association of Universities for Research in Astronomy | N51908C | | \$424,958 |
| 47.049 | Stability in Geometric Variational Problems | | | | \$31,729 |
| 47.049 | Stanford Program in Support of LIGO - Seismic Isolation and Controls | | | | \$611,095 |
| 47.049 | STRONG SPIN-ORBIT COUPLING AND HIGH MOBILITY VIA COMPLEX OXIDE HETEROEPIITAXY | | | | \$215,054 |
| 47.049 | Student workshop in symplectic and contact geometry | | | | \$26,359 |
| 47.049 | Superconductor-(Metal)-Insulator Transitions: Understanding the Emergence of Metallic States, A Continuation Proposal | | | | \$43,416 |
| 47.049 | Supplement of Understanding Gravity at the Smallest Scale | | | | \$242,036 |
| 47.049 | Symplectic, conformal symplectic, contact structures and foliations in interaction | | | | \$99,425 |
| 47.049 | The Algebra of Flow Categories | | | | \$87,055 |
| 47.049 | The Multi-Mission Maximum Likelihood framework (3ML): a tool to explore the high-energy Universe in the era of Multi Messenger Astrophysics | | | | \$91,770 |
| 47.049 | The Structure of the Gromov-Witten Invariants | | | | \$60,706 |
| 47.049 | The SuperCDMS SNOLAB Experiment - supplement request | University of California, Berkeley | 00008790 PO# BB01304587 | | \$119,047 |
| 47.049 | Theoretical and Computational Modeling of Supercoiling, Topology, and Active Fluctuations in Chromosomal Organization and Dynamics | | | | \$152,147 |
| 47.049 | Topics in Number Theory | | | | \$20,592 |
| 47.049 | Towards understanding fine-scale microbial diversity | | | | \$151,804 |
| 47.049 | Turbulent structure formation in the magnetic interstellar medium: a multi-tracer approach | | | | \$266,519 |
| 47.049 | Two Higgs are Better than One: Investigating Electroweak Symmetry Breaking at the LHC and Beyond with Real-Time Charged Particle Reconstruction | | | | \$51,220 |
| 47.049 | U.S. ATLAS Operations: Discovery and Measurement at the Energy Frontier | Stony Brook University, State University of New York | 93443/1172884/2 M&O | | \$136,031 |
| 47.049 | Ultrafast Strong-Field Control of Coherence and Entanglement in Atoms and Molecules | | | | \$449,524 |
| 47.049 | Unraveling the principles of catalytic diversity in the carotenoid oxygenase superfamily | University of California, Irvine | Subaward 2021-1589 | | \$15,999 |
| 47.049 | Yang-Mills existence, KPZ universality, and related problems | | | | \$97,701 |
| 47.050 | Belmont Forum Collaborative Research: Risk mapping and targeted snail control to support schistosomiasis elimination in Brazil and Cote d'Ivoire under future climate change | | | | \$22,568 |
| 47.050 | CAREER: Crossing over into the geochemical milieu: Using the molecular genomic record to inform the geologic biomarker record | | | | \$81,016 |
| 47.050 | CAREER: Cross-Instrument Synthesis of Antarctic Radar Sounding Observations | | | | \$81,769 |
| 47.050 | CAREER: Microbial activity and chemoautotrophy in the deep sea: who, how, and how much? | | | | \$134,167 |
| 47.050 | CAREER: Retention and Mobility of Beryllium in Soils and Sedimentary Environments | | | | \$36,732 |
| 47.050 | CAREER: Tracking deep-time environmental change through statistical analyses of the sedimentary geochemical record | | | | \$163,137 |
| 47.050 | CEDAR: Investigation of Atmospheric Neutral Density Dynamics Through Meteor Observations | | | | \$9,875 |
| 47.050 | Center for Chemical Currencies of a Microbial Planet (C-CoMP) | Woods Hole Oceanographic Institution | A101552 | | \$88,980 |
| 47.050 | Characterization of Meteoroids and Meteors Through Simulations and Remote Sensing Using High-Power Large-Aperture Radars" | | | | \$346,535 |
| 47.050 | Collaborative Research: Identifying and harnessing local refuges from oceanographic extremes for coastal marine species and fisheries. Title changed by NSF Program Director: Collaborative Research: Evaluating how abalone populations in the California Current are structured by the interplay of large-scale oceanographic forcing and nearshore variability | | | | \$2,631 |
| 47.050 | Collaborative Research/EAGER: Toward Long-Distance Ocean and Seismic Sensing on Optical Telecommunications Infrastructure | | | | \$36,874 |
| 47.050 | Collaborative Research: Aeronomy: A Simulation and Theoretical Analysis of Meteor Evolution over Scales Ranging from Sub-microseconds to Minutes | | | | \$56,060 |
| 47.050 | Collaborative Research: Changes in hyporheic exchange and nitrous oxide generation due to streambed alteration by macro-roughness elements | | | | \$46,553 |
| 47.050 | Collaborative Research: From rock to regolith to rivers: weathering, grain size, and controls on soil production and fluvial incision | | | | \$59,185 |
| 47.050 | Collaborative Research: From Silicate Melts Properties to the Dynamics and Evolution of an Early Basal Magma Ocean | | | | \$4,520 |
| 47.050 | Collaborative Research: GP-IN: Connected to Earth: Cross-Cultural Knowledge Exchange for Advancing Earth Science Learning | | | | \$15,861 |

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|---|--|---|---|--|----------------------------|
| 47.050 | Collaborative Research: How are Rhyolites Generated? Evaluating Models for the Volcanic-plutonic Connection in the Searchlight Magmatic System, Nevada | | | | \$14,094 |
| 47.050 | Collaborative Research: Hydrologic Disturbance in Tropical Peatlands: Linking Drainage, Soil Moisture, Flammability, and Carbon Fluxes | | | | \$60,219 |
| 47.050 | Collaborative Research: Imaging the Beginning of Time from the South Pole: Completing the BICEP Array Survey | | | | \$74,772 |
| 47.050 | Collaborative Research: Imaging the Beginning of Time from the South Pole: The next Stage of the BICEP Program | | | | \$179,013 |
| 47.050 | Collaborative Research: Improved observation and parameterization of bottom boundary layer turbulence and particle properties for sediment fate and transport modeling | | | \$11,739 | \$15,915 |
| 47.050 | Collaborative Research: Investigating Magmatic Differentiation in a Fossil Upper-Crustal Silicic Magma System: Stillwater Range, NV | | | | \$47,222 |
| 47.050 | Collaborative Research: Kelp forest hydrodynamics: observations of drag and cross-shore exchange on the inner shelf | | | | \$247,226 |
| 47.050 | Collaborative Research: Late Cretaceous - early Cenozoic paleolatitude of the Walvis Ridge hotspot: Implications for true polar wander and hotspot geodynamics " | | | | \$9,016 |
| 47.050 | Collaborative Research: Management and implementation of the US GEOTRACES Pacific Meridional Transect | | | | -\$3,000 |
| 47.050 | Collaborative Research: Predicting the global location of heat tolerant corals: Palau patch reefs as a general model | | | \$9,207 | \$60,876 |
| 47.050 | Collaborative Research: Quantifying N2 fixation rates of non-cyanobacterial diazotrophs and environmental controls on their activity | | | | \$153,471 |
| 47.050 | Collaborative Research: Quantifying nitrous oxide sources across an oxygen gradient in the northern Benguela upwelling system | | | | \$203,708 |
| 47.050 | Collaborative Research: Testing the reduction of aerobic habitat as a common kill mechanism for major mass extinction events | | | | \$65,286 |
| 47.050 | Collaborative Research: US GEOTRACES GP17-OCE: Mapping nitrous oxide sources and sinks through isotopic measurements in the Pacific Ocean | | | | \$102,156 |
| 47.050 | Collaborative Research: US GEOTRACES PMT: Investigating geochemical tracers of the Pacific nitrogen cycle and budget | | | | \$68,120 |
| 47.050 | Computational modeling of volcanic eruptions and their seismic and infrasound radiation | | | | \$48,863 |
| 47.050 | Computational simulations of volcanic eruptions and infrasound | | | | \$12,794 |
| 47.050 | CoPe RCN: New technology to inform Coastal Science and Management | University of California, Santa Barbara | KK2268 | | \$7,542 |
| 47.050 | CubeSat Ideas Lab: Collaborative Research: Space Weather Atmospheric Reconfigurable Multiscale Experiment (SWARM-EX) CubeSats | | | | \$4,564 |
| 47.050 | CubeSat Ideas Lab: Collaborative Research: Virtual Super-resolution Optics with Reconfigurable Swarms (VISORS) | | | | \$36,416 |
| 47.050 | Development and Validation of an In-Situ Particle Tracking Velocimetry System for Ocean Turbulence Measurement | | | | \$207,407 |
| 47.050 | DISES: Pathways and constraints to adaptation on coastal social-environmental systems | | | \$155,618 | \$468,895 |
| 47.050 | Earthquake Sequence Simulations with Thermomechanical Coupling and Fault-Zone Fluid Transport | | | | \$165,136 |
| 47.050 | FUSE: Food-water-energy for Urban Sustainable Environments | | | | \$3,443 |
| 47.050 | Geophysics of Iron in the Earth's Core | | | | \$107,470 |
| 47.050 | GP-IMPACT Collaborative: A-STEP: Ambassadors for STEM Training to Enhance Participation. | | | | \$454 |
| 47.050 | Insights into Episodic Caldera Collapse and Magmatic Systems from the 2018 Eruption of Klauaea Volcano | | | | \$61,126 |
| 47.050 | INSIGT: Investigating Shear-margin Interactions with Grounding-line Transitions | | | | \$9,095 |
| 47.050 | Investigating the Large-Scale Solar Magnetic Field During the Transition to Solar Cycle 25 | | | | \$52,856 |
| 47.050 | IODP Expedition 399 (Building Blocks of Life, Atlantis Massif) aboard the JOIDES Resolution | Columbia University | 102F(GG009393-04)/SAPO G17632 | | \$17,541 |
| 47.050 | Large-scale CoPe: Reducing Climate Risks with Equitable Nature-based Solutions: Engaging Communities on Reef-Lined Coasts | University of South Florida | 2104-1376-00-C | \$34,168 | \$163,259 |
| 47.050 | Moving from correlation to mechanism: testing the role of temperature and oxygen change in the Great Ordovician Biodiversification Event | | | | \$51,052 |
| 47.050 | NSFGEO-NERC: Collaborative Research: Energy transfer between submesoscale vortices and resonantly-forced inertial motions in the northern Gulf of Mexico | | | | \$45,515 |
| 47.050 | NSF-NERC: Thwaites Interdisciplinary Margin Evolution (TIME): The Role of Shear Margin Dynamics in the Future Evolution of the Thwaites Drainage Basin | University of California, Santa Cruz | A18-0296-S004-P0668401 | | \$107,807 |
| 47.050 | NSFPLR-NERC: TIME - Thwaites Interdisciplinary Margin Evolution - The role of shear margin dynamics in the future evolution of Thwaites drainage basin | University of California, Santa Cruz | A18-0296-S002-P0668511 | | \$65,738 |
| 47.050 | OCE-PRF Beyond the light: ecological and evolutionary insights into RuBisCO from the dark ocean | | | | \$129,696 |
| 47.050 | OCE-PRF: Lighting up the ocean: resonant nanophotonic metasurfaces for autonomous in situ measurement of aquatic phycotoxins | | | | \$22,585 |
| 47.050 | Paleolatitude of basal sediments along the Walvis Ridge and implications for hotspot fixity and true polar wander | Columbia University | 102E(GG009393-04)/SAPO G14700 | | \$17,998 |
| 47.050 | Participation of Sonia M. Tikoo-Schantz on IODP Expedition 391 | Columbia University | 102D(GG009393-04)/POSAPOG14700 | | \$37,006 |
| 47.050 | Physical and Mechanical Response of the Cementation of Aluminosilicate Seals | | | | \$92,136 |
| 47.050 | Prediction of solar eruptions with machine-learning algorithms combining physical models and observations | | | \$90,626 | \$135,586 |
| 47.050 | RCN: Community-based educational infrastructure for numerical simulation in the Earth Sciences: a reactive transport use case | Colorado School of Mines | 401654-5801 | | \$21,851 |
| 47.050 | REU Site: Stanford SURGE- Sustainability Undergraduate Research in Geoscience and Engineering | | | | \$97,648 |
| 47.050 | SCEC5 Research Collaboration at Stanford University | University of Southern California | 91270823 / PO 10617840 | | \$85,786 |
| 47.050 | Scientific Findings across Multiple Environments: Replication, Robustness, and Equity in Genetic Association Studies | | | | \$49,416 |
| 47.050 | Seafloor Fiber Optic Array in Monterey Bay (SEAFOAM) | | | \$368,726 | \$406,375 |
| 47.050 | Towards a process-based understanding of different eruptive regimes at persistently degassing volcanoes | | | | \$98,628 |
| 47.050 | Transdisciplinary Training Collaboratory: Building Common Ground | | | \$63,689 | \$302,498 |
| 47.050 | Wavy turbulent flow over a coral reef: vertical structure and fluxes | | | | \$87,885 |
| 47.070 | AF: Medium: Algorithmic Market Design | | | | \$11,948 |
| 47.070 | AF: Medium: Collaborative Research: Exploiting Opportunities in Pseudorandomness | | | | \$77,441 |

STANFORD UNIVERSITY
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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass- through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|---|---------------------------------|--|--|-------------------------------|
| 47.070 | AF: Small: Building a rich and rigorous theory of decision tree learning | | | | \$120,213 |
| 47.070 | AF: Small: Matching in Dynamic Environments | | | | \$114,767 |
| 47.070 | AF: Small: Robust and Secure Learning | | | | \$167,433 |
| 47.070 | AF:Medium:Collaborative Research:The Quest for Statistically Optimal Algorithms | | | | \$78,985 |
| 47.070 | AF:SMALL:Geometry of Polynomials and Algorithm Design | | | | \$89 |
| 47.070 | BIGDATA: F: Computationally efficient algorithms for large scale crossed random effects models | | | | \$185,891 |
| 47.070 | CAREER: A Unified Compiler for Sparse Array Operations and Relational Algebra | | | | \$153,470 |
| 47.070 | CAREER: Accelerating Machine Learning with Low Dimensional Structure | | | | \$43,700 |
| 47.070 | CAREER: Advancing Accessible Making for People with Visual Impairments via Tactile Shape Displays | | | | \$77,731 |
| 47.070 | CAREER: Discrete Convexity in Algorithm Design | | | | \$134,494 |
| 47.070 | CAREER: Extracting principles of neural computation from large scale neural recordings through neural network theory and high dimensional statistics | | | | \$109,998 |
| 47.070 | CAREER: Frontiers of Unconditional Derandomization | | | | \$22,570 |
| 47.070 | CAREER: High Integrity Navigation for Autonomous Vehicles | | | | \$106,363 |
| 47.070 | CAREER: Machine Learning with Behavioral and Social Data | | | | \$149,962 |
| 47.070 | CAREER: Modeling and Inference for Large Scale Spatio-Temporal Data | | | | \$254,689 |
| 47.070 | CAREER: New Fundamentals in Coding Theory | | | | \$112,356 |
| 47.070 | CAREER: Optimal Estimators Using Sum-of-Squares Proof Systems | | | | \$133,486 |
| 47.070 | CAREER: Safe and Influencing Interactions for Human-Robot Systems | | | | \$18,185 |
| 47.070 | CAREER: Scalable Assurance via Verifiable Hardware-Software Contracts | | | | \$88,366 |
| 47.070 | CAREER: Scarlet: Learned Protocols and Functional Architectures for Low-Latency Internet Video | | | | \$145,130 |
| 47.070 | CAREER: Socially-Aware Language Technologies To Support People in Supporting Others for Better Online Communities | | | | \$3,197 |
| 47.070 | CAREER: Theory of Fast Graph Optimization | | | | \$71,334 |
| 47.070 | CAREER: Toward a Comprehensive Generalization Theory for Deep Learning | | | | \$191,779 |
| 47.070 | CAREER: Understanding visual learning with self-supervised neural network models | | | | \$91,696 |
| 47.070 | CCRI: ENS: Activity-Centric Interactive Environments for Embodied AI | | | | \$778,957 |
| 47.070 | CCRI: Research Infrastructure: Planning-M: Multi-Modal Infrastructure for Enabling Social AI Research | | | | \$16,432 |
| 47.070 | CHS: Medium: Collaborative Research: Charting a Research Agenda in Artificial Intelligence - Mediated Communication | | | | \$14,462 |
| 47.070 | CHS: SMALL: Blending the Virtual & the Physical: Understanding and Designing Crowd-Based Open Innovation Systems for Physical Products | | | | \$3,392 |
| 47.070 | CHS: Small: Learning and Leveraging Conventions in Human-Robot Interaction | | | | \$13,128 |
| 47.070 | CIF: Small: Collaborative Research: Generative Adversarial Networks: From Art to Science | | | | \$56,143 |
| 47.070 | CIF: Small: Foundations of Decentralized Data Science: Optimizing Utility, Privacy and Communication Efficiency | | | | \$293,043 |
| 47.070 | CIF: Small: Learning and estimation with rough non-convex objectives: Fundamental limits and efficient algorithms | | | | \$180,856 |
| 47.070 | CIFellow 2020: Incorporating User Experiences to Improve Automated Detection of Toxic Content Online | Computing Research Association | CIF2020-SU-28 | | \$129,485 |
| 47.070 | CNS Core: Large: Autonomy and Privacy with Open Federated Virtual Assistants | | | | \$332,269 |
| 47.070 | CNS Core: Small: Online learning of cross-layer systems for robust and high-performance Internet video transmission | | | | -\$1,343 |
| 47.070 | Collaborative Research: AF: Medium: Continuous Concrete Complexity | | | | \$233,069 |
| 47.070 | Collaborative Research: AF: Medium: Foundations of Structured Optimization | | | | \$101,009 |
| 47.070 | Collaborative Research: AF: Medium: Modern Combinatorial Optimization: Incentives, Uncertainty, and Smoothed Analysis | | | | \$185,280 |
| 47.070 | Collaborative Research: AF: Small: Hardware-Aware Matrix Computations for Deep Learning Applications | | | | \$59,783 |
| 47.070 | Collaborative Research: CCRI: Grand: Virtual Experience Research Accelerator (VERA) | | | | \$31,242 |
| 47.070 | Collaborative Research: CIF: Medium: An Information-Theoretic Foundation for Adaptive Bidding in First-Price Auctions | | | | \$213,540 |
| 47.070 | Collaborative Research: CIF: Medium: MoDL: Toward a Mathematical Foundation of Deep Reinforcement Learning | | | | \$90,235 |
| 47.070 | Collaborative Research: CNS Core: Medium: A Stateful Switch Architecture for In-Network Compute | | | | \$17,713 |
| 47.070 | Collaborative Research: CNS Core: Small: Algorithms and Models for Asking Questions of Modern Network Traffic. | | | | \$37,940 |
| 47.070 | Collaborative Research: CPS: Medium: Closing the Teleoperation Gap: Integrating Scene and Network Understanding for Dexterous Control of Remote Robots | | | | \$199,201 |
| 47.070 | Collaborative Research: CPS: Small: Risk-Aware Planning and Control for Safety-Critical Human-CPS | | | | \$3,405 |
| 47.070 | Collaborative Research: Differentiable and Expressive Simulators for Designing AI-enabled Robots | | | | \$77,745 |
| 47.070 | Collaborative Research: FMitF: Track I: End-user Programming for CAD Systems via Language Design and Synthesis | | | | \$130,216 |
| 47.070 | Collaborative Research: Framework: Improving the understanding and representation of atmospheric gravity waves using high-resolution observations and machine learning | | | | \$202,956 |
| 47.070 | Collaborative Research: Framework: Software: CINES: A Scalable Cyberinfrastructure for Sustained Innovation in Network Engineering and Science | | | | \$152,471 |
| 47.070 | Collaborative Research: HCC: Medium: Big Data on the Dairy Farm: Relational Transformations across Agricultural Occupations and Organizations with the Rise of Digital Technologies | | | | \$36,494 |
| 47.070 | Collaborative Research: HCC: Small: Computational Design and Application of Wearable Haptic Knits | | | | \$51,949 |
| 47.070 | Collaborative Research: Learning by Touch: Preparing Blind Students to Participate in the Data Science Revolution | | | | \$142,141 |
| 47.070 | Collaborative Research: Multifidelity Uncertainty Quantification Through Model Ensembles and Repositories | | | | \$120,641 |
| 47.070 | Collaborative Research: NRI: Robot-Assisted Feeding: Towards Efficient, Safe, and Personalized Caregiving Robots | | | | \$19,170 |
| 47.070 | Collaborative Research: PPOSS: LARGE: A Full-Stack Architecture for Sparse Computation | | | | \$260,760 |
| 47.070 | Collaborative Research: RI: Medium: Learning Compositional Implicit Representations for 3D Scene Understanding | | | | \$13,070 |

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| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass- through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
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| 47.070 | Collaborative Research: RI: Medium: MoDL: Mathematical and Conceptual Understanding of Large Language Models | | | | \$123,239 |
| 47.070 | Collaborative Research: RINGS: Collaborative Inference and Learning Between Edge Swarms and the Cloud | University of Texas at Austin | UTAUS-SUB0000487 | | \$65,381 |
| 47.070 | Collaborative Research: SaTC: Core: Large: Building Rapid-Response Frameworks to Support Multi-Stakeholder Collaborations for Mitigating Online Disinformation | | | | \$73,274 |
| 47.070 | Collaborative Research: SaTC: CORE: Medium: Systematic Detection Of and Defenses Against Next-Generation Microarchitectural Attacks | | | | \$69,357 |
| 47.070 | Collaborative Research: SCH: Fair Federated Representation Learning for Breast Cancer Risk Scoring | | | | \$6,694 |
| 47.070 | Collaborative Research: SHF: Small: Leveraging Satisfiability Modulo Theories for Design Synthesis and Optimization of Emerging Computing Technologies | | | | \$44,149 |
| 47.070 | Collaborative Research: Visual Tactile Neural Fields for Active Digital Twin Generation | | | | \$36,038 |
| 47.070 | Computer and Information Science and Engineering Graduate Fellowships (CSGrad4US) (Krista Opsahl-Ong) | | | | \$46,000 |
| 47.070 | Computing Innovation Fellows 2020 Project | Computing Research Association | CIF2020-SU-03 | | \$97,645 |
| 47.070 | Computing Innovation Fellows 2021 Project | Computing Research Association | 2021CIF-Stanford-48 | | \$126,664 |
| 47.070 | Computing Innovation Fellows 2021 Project: Combating the Spread of Disinformation on Encrypted Messaging Apps | Computing Research Association | 2021CIF-Stanford-16 | | \$145,663 |
| 47.070 | CPS: Medium: Collaborative Research: Building Information, Inhabitant, Interaction and Intelligent Integrated Modeling (BI5M) | | | | \$55,972 |
| 47.070 | CPS: Medium: Sufficient Statistics for Learning Multi-Agent Interactions | | | | \$134,924 |
| 47.070 | CPS: Small: Collaborative Research: Information Design and Price Mechanisms in Platforms for Cyber-Physical Systems with Learning Agents | | | | \$25,525 |
| 47.070 | CPS: Small: Collaborative Research: Models and System-Level Coordination Algorithms for Power-in-the-Loop Autonomous Mobility-on-Demand Systems | | | | \$62,069 |
| 47.070 | CRII: RI: Active Learning of Preferences for Human-Aware Autonomy | | | | \$23,348 |
| 47.070 | Doctoral Consortium at the 2020 International Symposium on Experimental Robotics (ISER 2020) | | | | \$7,000 |
| 47.070 | EAGER: Dryad BRIDGE: Building Repository Interconnections with Dryad Guidance and Extensions | Metadata Game Changers | SPO #228508 | | \$8,621 |
| 47.070 | Elements: AMR-H: Adaptive multi-resolution high-order solver for multiphase compressible flows on heterogeneous platforms | | | | \$246,846 |
| 47.070 | Enabling data accountability and governance in machine learning. | | | | \$166,009 |
| 47.070 | Expeditions: Coherent Ising Machines for Optimization, Machine Learning and Neuromorphic Computing | | | \$787,353 | \$1,829,229 |
| 47.070 | Expeditions: Collaborative Research: Global Pervasive Computational Epidemiology | | | | \$169,366 |
| 47.070 | Expeditions: Collaborative Research: Understanding the World Through Code | | | | \$183,268 |
| 47.070 | Expeditions: Mind in Vitro - Computing with Living Neurons | University of Illinois at Urbana Champaign | 108555-18953 | | \$102,774 |
| 47.070 | FMitF: Collaborative Research: Track I: Finding and Eliminating Bugs in Operating Systems | | | | \$2,936 |
| 47.070 | FMitF: Track II: Scaling Formal Hardware Security Verification with CheckMate from Research to Practice | | | | \$24,047 |
| 47.070 | III: Small: A System for Rapid Audiovisual Analysis of Large-Scale Video Collections | | | | -\$1,818 |
| 47.070 | III: Small: Learning From Diverse Populations: A Complexity-Theoretic Perspective | | | | \$226,549 |
| 47.070 | NSF Student Travel Grant for 2022 Theoretical Computer Science (TCS) Women Meeting at Symposium on Theory of Computing (STOC) | | | | \$4,841 |
| 47.070 | NSF-BSF: AF: Small: Advancing Coding Theory Through the Lens of Pseudorandomness | | | | \$37,241 |
| 47.070 | NSF-BSF: AF: Small: Algorithmic Game Theory: Equilibria and Beyond | | | | \$300,665 |
| 47.070 | NSF-BSF: AF: Small: Algorithms for Graph-Based Codes | | | | \$157,941 |
| 47.070 | NSF-BSF: AF: Small: Mechanisms for Auctions and Markets - The Interplay of Incentives and Optimization | | | | \$133,790 |
| 47.070 | NSF-BSF: SHF: Small: Certifiable verification of large neural networks | | | | \$21,536 |
| 47.070 | NSF-BSF: SHF: Small: Efficient, Automatic, and Trustworthy Smart Contract Verification | | | | \$157,192 |
| 47.070 | NSF-BSF: SHF: Small: Neural Network Verification: Abstraction, Compositional Verification and Standardization | | | | \$153,421 |
| 47.070 | OAC Core: Small: Enabling High-fidelity Turbulent Reacting Flows Simulations through Advanced Algorithms and High-order Methods for Extreme-scale Computing | | | | \$95,375 |
| 47.070 | Planning for the Leadership-Class Computing Facility | University of Texas at Austin | UTA20-001116 | | \$2,283 |
| 47.070 | RI: Medium: Collaborative Research: Object-Centric Inference of Actionable Information from Visual Data | | | | \$3,967 |
| 47.070 | RI: Small: New tools for studying structural and inductive bias in NLP models | | | | \$100,167 |
| 47.070 | RI: Small: Robustness and Confidence in Machine-Learned Systems | | | | \$57,088 |
| 47.070 | RI: Small: Using and Gathering Data for Efficient Batch Reinforcement Learning | | | | \$233,403 |
| 47.070 | RTML: Large: Collaborative: Harmonizing Predictive Algorithms and Mixed-Signal/Precision Circuits via Computation-Data Access Exchange and Adaptive Dataflows | | | | \$2,764 |
| 47.070 | RTML: Large: Continuous Adaptation for Decision Streams | | | | \$87,406 |
| 47.070 | S2I2: Institute for Research and Innovation in Software for High Energy Physics (IRIS-HEP) | Princeton University | SUB0000280 | | \$187,364 |
| 47.070 | SaTC: CORE: Frontier: Collaborative: End-to-end Trustworthiness of Machine-Learning Systems | | | | \$342,814 |
| 47.070 | SCH:INT: A gamified mobile system for real-time mental health data modeling and personalized autism care across sociocultural settings | | | | \$372,030 |
| 47.070 | S12-SSI Collaborative Research: The SimCardio open source multi-physics cardiac modeling package | | | | \$25,175 |
| 47.070 | SII-Center: SpectrumX - An NSF Spectrum Innovation Center | University of Notre Dame | 204303SU | | \$21,492 |
| 47.070 | Spokes: MEDIUM: WEST: Breaking down barriers for reproducible neuroimaging data analyses | | | | -\$55 |
| 47.070 | The Stanford Data Science Collaboratory | | | | \$26,520 |
| 47.074 | A novel integration of fine scale ecological data, high-resolution precision mapping, and regional network modeling to investigate environmental drivers of schistosomiasis dynamics | | | \$57,860 | \$500,045 |
| 47.074 | An experimental facility to test the impacts of multiple physical stressors on physiology, ecology and genomics of marine species | | | | \$12,429 |

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| 47.074 | BIO: Determining the molecular mechanisms underlying the size-scaling of biosynthesis | | | | \$195,607 |
| 47.074 | BIORETS: Interspecies Interactions Research Experience (INSPIRE) | | | | \$71,705 |
| 47.074 | BIOROBOOST travel support for US-based researchers to workshops to develop standards in synthetic biology | | | | \$83,005 |
| 47.074 | BoCP-Implementation: Eco-evolutionary dynamics of rewinding: Real-time genetic monitoring of large-mammal community reassembly | Princeton University | SUB0000642 | | \$264,064 |
| 47.074 | CAREER: Dissecting the Mechanism of Replication Initiation in Vertebrates via Single Molecule Imaging | | | | \$104,438 |
| 47.074 | CAREER: Elucidating Large-Scale Spatial Patterns of Ecosystem Traits with Data Assimilation | | | | \$32,186 |
| 47.074 | CAREER: From Ecology to Neurobiology: spatial cognition in rainforest frogs | | | | \$291,521 |
| 47.074 | CAREER: Investigating Chromatin Dynamics Underlying Activity-Induced Neuronal Transcription Using CRISPR Technologies | | | | \$96,220 |
| 47.074 | CAREER: When do mycorrhizal fungi influence plant community dynamics? | | | | \$303,497 |
| 47.074 | Center for Cellular Construction | University of California, San Francisco | 9907sc | | \$547,097 |
| 47.074 | Collaborative Proposal: MRA: Macroecology of microorganisms: Scaling fungal biodiversity from soil cores to the North American continent | | | | \$328 |
| 47.074 | Collaborative Research: Biomechanical mechanisms conferring wound resilience in single-celled organisms | | | | \$135,150 |
| 47.074 | Collaborative Research: Climate effects on Mn oxidation states in soils and Mn/SOM interactions | | | | \$126,120 |
| 47.074 | Collaborative research: defining the scope and consequences of ectomycorrhizal fungal control on forest organic matter decomposition | | | | \$8,664 |
| 47.074 | Collaborative Research: Do defenses against herbivores and pathogens drive the commonness and rarity of tropical trees at local and regional scales? | | | | \$171,817 |
| 47.074 | Collaborative Research: From Molecules to Communities: How Levels of Selection Integrate to Tame Selfish Elements | | | | \$291,933 |
| 47.074 | Collaborative Research: Structural and functional connectivity of squid chromatophores | | | | \$173,684 |
| 47.074 | Collaborative Research: Systematic Investigation of the Structure, Dynamics, and Energetics of Hydrogen Bonds and the Protein Interior Using Ketosteroid Isomerase and Model Systems | | | | \$144,643 |
| 47.074 | Connecting cell fate and epigenome drift through physical models of chromatin structure and dynamics | University of California, Irvine | 2020-1358 | | \$375,260 |
| 47.074 | Cytokinesis without an actomyosin ring: studies in Chlamydomonas | | | | \$35,310 |
| 47.074 | Determining the function of sterol lipids in the bacterial domain | | | | \$129,118 |
| 47.074 | Dimensions: Collaborative Research: Assembly and function of nectar microbial communities | | | | \$156,190 |
| 47.074 | EDGE CT: Developing transgenic and lineage tracing tools in planarians | | | \$87,051 | \$155,811 |
| 47.074 | EDGE: Developing techniques for linking genotype to phenotype in amphibians | | | | \$39,668 |
| 47.074 | FMRG: Genetically-targeted chemical assembly (GTCA) of functional structures in living cells, tissues, and animals | | | | \$845,341 |
| 47.074 | Hemichordate neural organization: generating neural system diversity from conserved molecular patterning | | | | \$19,116 |
| 47.074 | How land use change transforms the landscape of vector-borne disease | | | \$139,465 | \$205,144 |
| 47.074 | Impact of Matrix Viscoelasticity on Induced Pluripotent Stem Cell Morphogenesis | | | | \$427,733 |
| 47.074 | Integrated Circuit Cracking (ICC) with Linked Tools for Diverse Systems | | | \$46,489 | \$781,220 |
| 47.074 | Leveraging Microfluidics for High-Throughput in Vitro Investigations of Transcriptional Regulation | | | | \$192,794 |
| 47.074 | MIM: Systematic Dissection of Complex Synthetic Gut Bacterial Communities | | | \$114,337 | \$1,113,423 |
| 47.074 | Molecular mechanisms that boost systemic immunity in plants | | | | \$278,596 |
| 47.074 | MTM 1: The sandy beach microbiome: physical, chemical and biological controls on diversity and function | | | | \$132,664 |
| 47.074 | NeuroNex: Enabling Identification and Impact of Synaptic Weight in Functional Networks | University of Texas at Austin | UTA20-000889 | | \$184,658 |
| 47.074 | NSF2026: EAGER: Material morphogenesis using biohybrid vesicles as building blocks | | | | \$26,880 |
| 47.074 | NSF-BSF: Natural selection on the social interactions that mediate collective behavior: ecological pressures and genomic architecture | | | | \$133,941 |
| 47.074 | Organization and Dynamics in Photosynthetic Reaction Centers and Model Membrane Architectures | | | | \$169,979 |
| 47.074 | RCN-UBE Incubator: Building the San Francisco Bay Network for Student Opportunities in Avian Research (SOAR) to enhance STEM education and assess urban impacts on avian ecology | | | \$3,125 | \$5,393 |
| 47.074 | RCN-UBE Incubator: Diversifying and Integrating Marine Education at Stations along a latitudinal gradient | | | \$2,336 | -\$4,059 |
| 47.074 | RoL: Regulation of cell envelope homeostasis in the alpha-proteobacterium Sinorhizobium meliloti | | | | \$507,041 |
| 47.074 | Scaling from cell physiology to community stability in a natural gut microbiome | Carnegie Institution of Washington aka Carnegie Institution for Science | 05-10995-02 | | \$21,792 |
| 47.074 | THE ROLE OF NON-CODING RNA IN THE MODULATION OF ANTHÉR & POLLEN DEVELOPMENT IN GRASSES | Donald Danforth Plant Science Center | 23908-S | | \$109,153 |
| 47.074 | Unraveling biofilm matrix composition, architecture, and function | | | | \$281,285 |
| 47.074 | Using sedaDNA from California Holocene and Anthropocene lake sediments to determine drivers of the "Insect Apocalypse" | | | | \$152,023 |
| 47.075 | Affective Virality on Social Media: The Role of Culture and Ideal Affect | | | | \$79,134 |
| 47.075 | ANES WEB: American National Election Studies 2018-2021 Supplement | | | \$245,000 | \$560,469 |
| 47.075 | Asylum Seeker and Refugee Integration in Europe | | | | \$99,565 |
| 47.075 | Auction Design for Complex Centralized Markets | | | | \$29,728 |
| 47.075 | CAREER: Computational work design: How algorithms and crowdsourcing are changing organizational design and worker experience | | | | \$149,864 |
| 47.075 | CAREER: Empirical Studies of Cities' and Neighborhoods' Influence on Income and Consumption Inequality: Research and Training | National Bureau of Economic Research | 36344.00.00.00.7700 | | \$69,962 |
| 47.075 | CAREER: Family Behavior, Health, and Government Policy: Research and Training | National Bureau of Economic Research | 36409.00.00.00.7700 | | \$6,176 |
| 47.075 | CAREER: Frictional Financial Markets, Crises and Policies | National Bureau of Economic Research | 36422.00.00.00.7700 | | \$13,216 |
| 47.075 | CAREER: Macroeconomic Implications of Microeconomic Heterogeneity | National Bureau of Economic Research | 36398.00.00.00.7700 | | \$44,007 |

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| 47.075 | CAREER: Understanding the Drivers and Consequences of Personal Adaptation Behavior to Environmental Extremes | | | | \$68,322 |
| 47.075 | Central Banks in Uncharted Waters: Navigating a World with Large Reserves | | | | \$170,784 |
| 47.075 | CHN2-S: Measuring adaptive responses that strengthen governance of marine resources along the Baja California Peninsula | Duke University | 333-2698 | | \$7,871 |
| 47.075 | Collaborative Research: DASS: Developer Implementation of Privacy in Software Systems | | | | \$96,554 |
| 47.075 | Collaborative Research: Deliberation online: how online foci shape conversation in a polarized era | | | | \$8,628 |
| 47.075 | COLLABORATIVE RESEARCH: HIGH-PERFORMANCE COMPUTATIONAL STANDARDS FOR REDISTRICTING | | | | \$23,550 |
| 47.075 | Collaborative Research: Linguistic Production, Perception, and Identity in the Career Mobility of Black Faculty in Linguistics and the Language Sciences | | | | \$55,465 |
| 47.075 | Collaborative Research: NCS-FR: Beyond the ventral stream: Reverse engineering the neurocomputational basis of physical scene understanding in the primate brain | | | | \$293,191 |
| 47.075 | Collaborative Research: Origins of Serial Sovereign Default | | | | \$57,064 |
| 47.075 | Collaborative Research: SOS-DCI / HNDS-R: Advancing Semantic Network Analysis to Better Understand How Evaluative Exchanges Shape Scientific Arguments | | | | \$29,981 |
| 47.075 | Covid-19: Collaborative Research: The Intergenerational Effects of COVID-19 | | | | \$4,850 |
| 47.075 | Collaborative research: Time transect of ancient genomes of Indigenous North Americans | | | | \$17,587 |
| 47.075 | Collaborative Research: Time-Sharing Experiments for the Social Sciences (TESS): Proposal for Renewed Support, 2020-2023 | | | | \$50,574 |
| 47.075 | Collaborative Research: Transparency and Misspecification in Structural Estimation | | | | \$35,611 |
| 47.075 | Computer-intensive inference with applications to social sciences | | | | \$15,362 |
| 47.075 | Consumer Innovation Survey Development | | | \$107,660 | \$193,765 |
| 47.075 | Cross-cultural trust and resource sharing; The Role of Ideal Affect | | | | \$3,900 |
| 47.075 | Developing an Ethics and Society Review for Research | | | | \$83,602 |
| 47.075 | DMUU: Climate and Energy Decision Making | Carnegie Mellon University | 1122280-421711 | | \$3,395 |
| 47.075 | Doctoral Dissertation Research: "Conflicts of Coexistence: Social Protest, Consensus, and Multicultural Democracy in Peru" | | | | \$7,752 |
| 47.075 | Doctoral Dissertation Research: Anexando Masculinidades?: An Ethnography of Drug Rehabilitation Centers along the US-Mexico Borderlands - Zaith Lopez | | | | \$23,832 |
| 47.075 | Doctoral Dissertation Research: Evidentiary Practices for Establishing Psychological Trauma in Asylum Claims | | | | -\$2 |
| 47.075 | Doctoral Dissertation Research: Experiences of Youth at the Intersection of the Child Welfare and Juvenile Justice Systems. | | | | \$12,159 |
| 47.075 | Doctoral Dissertation Research: Plurality and Managed Integration Strategies in Urban Contexts | | | | \$1,490 |
| 47.075 | Emotion as information: Young children's use of others' emotional expressions to guide their inference and exploration | | | | \$77,416 |
| 47.075 | GDP-B: A New Well-being Metric in the Era of the Digital Economy | | | | \$57,390 |
| 47.075 | Genealogical ancestors, admixture, and population history | | | | \$89,465 |
| 47.075 | Identifying the Optimal Methods for Controlling Contamination Bias in Prospective Research on Child Maltreatment | Pennsylvania State University | S002840-NSF | | \$129,009 |
| 47.075 | Immigration Law as Development Policy: Mexican Guestworkers and the H-2A Visa Program | | | | \$148,895 |
| 47.075 | Influencing Conflict-Related Emotional Dynamics | | | \$90,103 | \$90,103 |
| 47.075 | Innovating Developmental Science with an Online, Scalable Meta-Science Platform for Investigating Cognitive Development During Early Childhood | University of Texas at Dallas | 2008652; PO S314550 | | \$23,012 |
| 47.075 | Intracranial EEG and Direct Cortical Stimulation Study of Stimulus-Driven and Cognitively-Modulated Emotional Processing in the Human Brain | | | | \$34,163 |
| 47.075 | Learning systems that enable healthcare workers to perfect safety-critical hospital work | | | | \$445,350 |
| 47.075 | Mental Conditioning and Health: A Cultural and Neurophysiological Study | | | | \$20,893 |
| 47.075 | NSF CAREER: The Effects of Public Policy on Families with Children: New Evidence from Multiple Large-Scale Data Sets | | | | \$103,275 |
| 47.075 | NSF CAREER: Within City, Across Seasons or Across Borders: The Economics of Labor Movements | | | | \$84,430 |
| 47.075 | RAPID: Coupled Contagion, Behavior-Change, and the Dynamics of Pro- and Anti-Social Behavior During the COVID-19 Pandemic | | | | \$35,556 |
| 47.075 | REU Site: Language, Cognition and Computation | | | | \$116,413 |
| 47.075 | REU Site: Talking College: Increasing African-American English Speakers in the Linguistic Sciences through Research on Language and Social Mobility | | | | \$75,205 |
| 47.075 | RIDIR: Integrated Media Database and Computational Tools for Multimodal Analysis of Inter-media News Flow and Agenda Setting in Mass and Social Media | | | | -\$905 |
| 47.075 | SBE-UKRI: Understanding imprecise space and time in narratives through qualitative representations, reasoning, and visualisation | | | | \$62,298 |
| 47.075 | SCISIPBIO: Can consultation create a fairer scientific peer-review process? | | | | \$306,497 |
| 47.075 | Social Response to Environmental Variation | | | | \$18,905 |
| 47.075 | Stanford Institute for Theoretical Economics Summer Workshop | | | | \$118,712 |
| 47.075 | Strategic Information Disclosure | | | | \$57,387 |
| 47.075 | The 2024 American National Election Studies | University of Michigan | SUBK00016711/PO3007222037 | | \$311,504 |
| 47.075 | The Cultural Life of Communism in Kerala | | | | \$3,540 |
| 47.075 | Theoretical and Empirical Investigations of the Dynamics of Homophily and its Impact on Students' Achievement, Decisions, and Well-Being | | | | \$87,715 |
| 47.075 | When Rebels Lose Trust: The Divergent Effects of Conflict on Ethnic Voting in Myanmar | | | | \$34,675 |
| 47.076 | AI Institute for Transforming Education for Children with Speech and Language Processing Challenges | State University of New York at Buffalo | R1340096 | | \$62,430 |
| 47.076 | Building STEM Skills by Integrating Data Literacy and Text Analytics in English Language Arts | | | | \$87,637 |
| 47.076 | Collaborative Research: A Partnership to Adapt, Implement and Study a Practice-based Professional Learning Model and Build District Capacity to Meet the Challenges of NGSS | | | | \$228,757 |
| 47.076 | Collaborative Research: AGEP TRANSFORMATION ALLIANCE: RESEARCH EXCHANGE | | | | \$33,302 |
| 47.076 | Collaborative Research: NSF INCLUDES Alliance: STEM Core Expansion | Saddleback College | SC-SUB-G1300 | | \$116,292 |
| 47.076 | Collaborative Research: Scaling the Early Research Scholars Program | | | | \$84,973 |
| 47.076 | Collaborative Research: Supporting Rural Paraprofessional Educators and their Students with Computer Science Professional Learning and Expansively Framed Curriculum | | | | \$57,563 |

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2023

| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass- through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|--|--|--|--|--|-------------------------------|
| 47.076 | Effects of Combined Attention and Academic Interventions for Kindergarten Children with Significant Difficulties in Mathematics | Vanderbilt University | OSA00000037 / PO #: P23004624 | | \$7,448 |
| 47.076 | Facilitating Teacher Learning with Video Clips of Instruction in Science | Florida State University | R000002770 | | \$16,788 |
| 47.076 | Facilitating Teacher Learning with Video Clips of Instruction in Science | Rand Corporation | SCON-00000573 | | \$33,147 |
| 47.076 | GRFP: Graduate Research Fellowship Project | | | | \$20,024,690 |
| 47.076 | NCS-FO: Integrated neurocognitive process models of individual differences in children's math problem solving strategies, learning and development | | | \$32,014 | \$132,198 |
| 47.076 | NRT: NeuroTech - Bringing Technology to Neuroscience | | | | \$379,133 |
| 47.076 | Partnerships to support improvement in middle school mathematics | University of California, Riverside | S-001181 | | \$5,830 |
| 47.076 | Promoting Math in Young Children: Leveraging pediatric clinics to reach underrepresented children in rural communities | | | \$130,892 | \$381,224 |
| 47.076 | RCN-UBE: San Francisco Bay Research Coordination Network for Student Opportunities in Avian Research to enhance STEM education and assess human impacts on avian biodiversity | | | \$18,700 | \$35,988 |
| 47.078 | CAREER: Taking process-based models to the field to understand the possibility and implication of an internal shear band forming in ice flowing over rough topography | | | | \$68,053 |
| 47.078 | Collaborative Research: Investigating four decades of Ross Ice Shelf subsurface change with historical and modern radar sounding data | | | | \$33,052 |
| 47.078 | Collaborative Research: Understanding the massive phytoplankton blooms over the Australian-Antarctic Ridge | | | | \$73,343 |
| 47.078 | Doctoral Dissertation Research: Determining the functional relationship between simultaneous co-limiting light and nutrient conditions on phytoplankton growth | | | | \$18,063 |
| 47.078 | Doctoral Dissertation Research: Dissolved organic nitrogen uptake by harmful algal blooms in the Chukchi Sea | | | | \$13,554 |
| 47.078 | EAGER: Community-Driven Ice Penetrating Radar Systems for Observing Complex Ice-Sheet Thermal Structure and Flow | | | | \$31,047 |
| 47.078 | Priorities for future US-led physical oceanography fieldwork in the sub-polar Southern Ocean | | | | \$5,001 |
| 47.078 | The Tale of Three Systems: Fate of Primary Production in the Chukchi Sea | | | | \$387,128 |
| 47.079 | IRES Track I: US-CERN Summer Program on ATLAS Experiment of LHC at CERN for the California State University System | California State University, Fresno Foundation | SC360452-19-01 / PO #57699 | | \$7,559 |
| 47.083 | A multi-scale open knowledge network for precision medicine | University of California, San Francisco | 12431sc | | \$399 |
| 47.083 | Center for Dark Energy Biosphere Investigations (C-DEBI) | University of Southern California | 66468074/PO# 10392717 | | \$2,206 |
| 47.083 | Collaborative Research: FW-HTF-P: Supporting future crisis line work through the inclusive design of worker-facing tools that empower self management of wellbeing and performance | | | | -\$577 |
| 47.083 | GCR: Collaborative Research: The Convergent Impact of Marine Viruses, Minerals, and Microscale Physics on Phytoplankton Carbon Sequestration | | | | \$1,221 |
| 47.083 | NSF Convergence Accelerator - Track C: Quantum Networks to Connect Quantum Technology (QuanNeCQT) | University of Maryland | 111309-Z3811202 | | \$12,233 |
| 47.083 | NSF Convergence Accelerator Track F: Adapting and Scaling Existing Educational Programs to Combat Inauthenticity and Instill Trust in Information | Massachusetts Institute of Technology | 55530 PO 723059 | | \$28,331 |
| 47.084 | A National Network for Critical Technology Assessment: A First-Year Pilot | Carnegie Mellon University | 1123649-463108 | | \$94,551 |
| 47.084 | FuSe-TG: The Future of Semiconductor Technologies for Computing through Device-Architecture-Application Co-Design | | | | \$2,255 |
| 47.084 | Green manufacturing of recyclable high-performance composites | | | | \$43,127 |
| 47.084 | I-Corps: Sustainable Biostimulants and Fertilizers | | | | \$9,420 |
| 47.084 | NSF Convergence Accelerator Track E: Digital Reefs: A Globally Coordinated, Universally Accessible Digital Twin Network for the Coral Reef Blue Economy | Woods Hole Oceanographic Institution | A101603 / 83073400 | | \$83,131 |
| 47.084 | NSF Convergence Accelerator Track H: Appropriate Rehabilitation Technology via Passive Tactile Stimulation | | | | \$403,460 |
| 47.084 | Soof Solutions: Giving voice to the speechless | | | | \$50,000 |
| 47.RD | Does Equalizing School Funding Lead to More Equal Outcomes? | American Educational Research Association | 256959 | | \$27,500 |
| 47.RD | Early Childhood Opportunity, PreK to Grade 3 | American Educational Research Association | 256661 | | \$27,500 |
| Social Security Administration | | | | | \$2,232 |
| 96.007 | NB21-15: Paid Family Leave and Family Health Shocks | National Bureau of Economic Research | 51460.03:NB21-15-Stanford | | \$2,232 |
| United States Environmental Protection Agency | | | | | \$365,509 |
| 66.034 | Energy Modeling Forum Research Program on Energy and Integrated Assessment Modeling | | | | \$132,537 |
| 66.509 | Advancing Sanitation Justice | | | | \$34,621 |
| 66.509 | Evaluating the Effectiveness of Reducing Wildfire Smoke Exposure and Health Risks in Low-Income Hard-to-Reach Communities in California | | | \$46,102 | \$147,372 |
| 66.516 | Electro-Assisted Wastewater Nutrient Recovery | | | | \$50,979 |

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2023

| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass- through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|---|---|--|--|--|-------------------------------|
| Other Federal Awards | | | | | \$4,611,115 |
| Department of Education | | | | | \$1,521,733 |
| 84.015A | National Resource Centers (NRC) Program | | | | \$884,364 |
| 84.015B | Foreign Language and Area Studies Fellowship (FLAS) Program | | | | \$637,369 |
| Department of Health and Human Services | | | | | \$2,410,967 |
| 93.084 | Prevention Policy Modeling Lab | | | \$964,937 | \$1,816,776 |
| 93.421 | Covid-19: Policy Modeling and Forecasting for Public Health Decision Making (2022) | Council of State and Territorial Epidemiologists | PO# 7723 | \$232,976 | \$304,238 |
| 93.U01 | Constructing Support for California Tribe Efforts on Suicide Prevention | | | \$84,243 | \$289,953 |
| Department of State | | | | | \$286,507 |
| 19.703 | ALEP Extension--Graduate Diploma Program | | | \$242,509 | \$286,507 |
| Institute of Museum and Library Services | | | | | -\$9,389 |
| 45.301 | Stanford University Archaeology Collections Inventory Project (Conservation) | | | | -\$9,389 |
| Library of Congress | | | | | \$104,225 |
| 42.010 | Teaching with Primary Sources (2021) | | | | \$104,225 |
| National Archives & Records Administration | | | | | \$119,134 |
| 89.003 | Martin Luther King, Jr., Papers Project | | | | \$119,134 |
| National Endowment for the Humanities | | | | | \$177,938 |
| 45.161 | The Papers of Civil Rights Leader Martin Luther King, Jr. (1929-1968) | | | | \$173,464 |
| 45.169 | Transnational Japanese Diaspora: Preserving the Brazilian Nikkei Literary and Cultural Heritage | | | | \$4,474 |

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART A - AWARD EXPENDITURES BY FEDERAL PROGRAM
YEAR ENDED AUGUST 31, 2023

| Federal Grantor / Assistance Listing Number | Federal Program Name | Name of Pass- through Entity | Pass-Through Entity Identifying Number/ Additional Award Identification | Amount Passed Through to Subrecipients | Total Federal Expenditures |
|--|---|---------------------------------|--|--|-------------------------------|
| Student Financial Assistance Cluster | | | | | \$66,845,929 |
| Department of Education | | | | | \$11,410,035 |
| 84.007 | SEOG: Federal Supplemental Educational Opportunity Grant | | | | \$647,248 |
| 84.033 | FWS: Federal Work Study | | | | \$2,109,104 |
| 84.033 | Pell Grant Program | | | | \$8,514,110 |
| 84.033 | TEACH: Teacher Education Assistance for College and Higher Education | | | | \$139,564 |
| Department of Education (Loans and Loan Programs) | | | | | \$55,421,252 |
| 84.038 | Department of Education - Federal Perkins Loan Program - Administrative Allowance | | | | \$0 |
| 84.038 | Department of Education - Federal Perkins Loan Program - New Loans Issued | | | | \$0 |
| 84.038 | Department of Education - Federal Perkins Loan Program - Outstanding Balance as of 9/1/2022 | | | | \$8,560,901 |
| 84.268 | Department of Education - Federal Direct Student Loan Program - PLUS Loans - Graduate and Parent - New Loans Issued | | | | \$28,114,603 |
| 84.268 | Department of Education - Federal Direct Student Loan Program - Subsidized Stafford Loans - New Loans Issued | | | | \$724,242 |
| 84.268 | Department of Education - Federal Direct Student Loan Program - Unsubsidized Stafford Loans - New Loans Issued | | | | \$18,021,506 |
| Department of Health and Human Services (Loans and Loan Programs) | | | | | \$14,642 |
| 93.342 | Department of Health and Human Services - Health Professions Student Loans | | | | \$0 |
| 93.342 | Department of Health and Human Services - Loans for Disadvantaged Students - New Loans Issued | | | | \$0 |
| 93.342 | Department of Health and Human Services - Loans for Disadvantaged Students - Outstanding Balance as of 9/1/2022 | | | | \$14,642 |
| Grand Total | | | | \$93,929,938 | \$1,026,235,169 |

**Schedule of Expenditures of Federal Awards
Part B, Federal Loan Program Year End Balances**

STANFORD UNIVERSITY
SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
PART B - FEDERAL LOAN PROGRAMS YEAR END BALANCES
Year Ended 8/31/2023

| Federal Grantor/Assistance Listing Number | Federal Program Name | Outstanding Loan Balance as of 08/31/2022 |
|--|--|--|
| Department of Education | | |
| 84.038 | Federal Perkins Loan Program - Outstanding Balance | \$7,065,172 |
| Department of Health and Human Services | | |
| 93.342 | Loans for Disadvantaged Students - Outstanding Balance | \$15,557 |
| Total | | 7,080,729 |

Stanford University

Notes to the Schedule of Expenditures of Federal Awards

Year Ended August 31, 2023

1. Basis of Presentation

The accompanying Schedule of Expenditures of Federal Awards (the “Schedule”) Part A, Award Expenditures by Federal Program, Part B, Federal Loan Program Year End Balances, has been prepared in accordance with the requirements of Title 2 U.S. Code of Regulations Part 200, Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (Uniform Guidance). Therefore, amounts presented in the Schedule may differ from amounts presented in, or used in the preparation of, Stanford University’s (“Stanford”) financial statements, as they relate to the various federal loan programs, as well as other awards. The purpose of the Schedule is to present a summary of those activities by Stanford for the year ended August 31, 2023, that have been financed by the U.S. Government (“federal awards”).

Consistent with the provisions of Uniform Guidance, the Schedule does not include expenditures of SLAC National Accelerator Laboratory that was funded by Department of Energy (“DOE”) contract. SLAC National Accelerator Laboratory, a national laboratory operated and managed by Stanford under contract directly with DOE, represents a government-owned, contractor operated (“GOCO”) facility. GOCOs are excluded from the provisions of the Uniform Guidance. The Schedule does not include federal expenditures of Stanford Health Care and Lucille Packard Children’s Hospital because a discrete schedule of expenditures in accordance with Uniform Guidance is issued for these entities.

Stanford applies its predetermined approved facilities and administrative rate when charging indirect costs to federal awards rather than the 10% de minimis cost rate as described in Section 200.414 of Uniform Guidance.

The accompanying Schedule has been prepared on the accrual basis of accounting, which is consistent with Stanford’s financial statements. Assistance Listing Numbers and pass-through numbers are provided when available. Negative amounts presented as expenditures represent subsequent period adjustments, transfers, or vendor credits.

2. Loan Programs

The federal student loan programs listed in the Schedule are administered directly by the University and balances and transactions relating to these programs are included in Stanford’s consolidated financial statements. Included within the Schedule Part A are the loan beginning balances, new loans and administrative cost allowances from the Perkins Loans Program and Loans for Disadvantaged Students. Included within the Schedule Part B are the loan balances for the year ended August 31, 2023.

II. Internal Control and Compliance



Report of Independent Auditors on Internal Control Over Financial Reporting and on Compliance and Other Matters Based on an Audit of Financial Statements Performed in Accordance with *Government Auditing Standards*

To the Board of Trustees of the Leland Stanford Junior University

We have audited, in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States, the consolidated financial statements of The Leland Stanford Junior University and its subsidiaries ("Stanford"), which comprise the consolidated statement of financial position as of August 31, 2023, and the related consolidated statements of activities and of cash flows for the year then ended, including the related notes (collectively referred to as the "consolidated financial statements"), and have issued our report thereon dated December 6, 2023, except with respect to the opinion on the schedule of expenditures of federal awards, as to which the date is May 6, 2024.

Report on Internal Control Over Financial Reporting

In planning and performing our audit of the consolidated financial statements, we considered Stanford's internal control over financial reporting (internal control) as a basis for designing audit procedures that are appropriate in the circumstances for the purpose of expressing our opinion on the consolidated financial statements, but not for the purpose of expressing an opinion on the effectiveness of Stanford's internal control. Accordingly, we do not express an opinion on the effectiveness of Stanford's internal control.

A deficiency in internal control exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements on a timely basis. A *material weakness* is a deficiency, or a combination of deficiencies, in internal control such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected, on a timely basis. A *significant deficiency* is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control that might be material weaknesses or significant deficiencies. Given these limitations, during our audit we did not identify any deficiencies in internal control that we consider to be material weaknesses. However, material weaknesses or significant deficiencies may exist that were not identified.

Report on Compliance and Other Matters

As part of obtaining reasonable assurance about whether Stanford's consolidated financial statements are free from material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts and grant agreements, noncompliance with which could have a direct and material effect on the financial statements. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.

Purpose of this Report

The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the results of that testing, and not to provide an opinion on the effectiveness of Stanford's internal control or on compliance. This report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering Stanford's internal control and compliance. Accordingly, this communication is not suitable for any other purpose.

PricewaterhouseCoopers LLP

San Francisco, California

December 6, 2023, except with respect to the opinion on the schedule of expenditures of federal awards, as to which the date is May 6, 2024



Report of Independent Auditors on Compliance for Each Major Program and on Internal Control Over Compliance Required by Uniform Guidance

To the Board of Trustees of the Leland Stanford Junior University

Report on Compliance for Each Major Federal Program

Opinion on Each Major Federal Program

We have audited The Leland Stanford Junior University and its subsidiaries' ("Stanford") compliance with the types of compliance requirements identified as subject to audit in the OMB *Compliance Supplement* that could have a direct and material effect on each of Stanford's major federal programs for the year ended August 31, 2023. Stanford's major federal programs are identified in the summary of auditor's results section of the accompanying schedule of findings and questioned costs.

In our opinion, Stanford complied, in all material respects, with the compliance requirements referred to above that could have a direct and material effect on each of its major federal programs for the year ended August 31, 2023.

Basis for Opinion on Each Major Federal Program

We conducted our audit of compliance in accordance with auditing standards generally accepted in the United States of America (US GAAS); the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States; and the audit requirements of Title 2 U.S. *Code of Federal Regulations Part 200, Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance). Our responsibilities under those standards and the Uniform Guidance are further described in the Auditors' Responsibilities for the Audit of Compliance section of our report.

We are required to be independent of Stanford and to meet our other ethical responsibilities, in accordance with relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion on compliance for each major federal program. Our audit does not provide a legal determination of Stanford's compliance with the compliance requirements referred to above.

Other Matter - Federal Expenditures Not Included in the Compliance Audit

Stanford's consolidated financial statements include the operations of Stanford Health Care and Lucile Salter Packard Children's Hospital at Stanford, which are not included in Stanford's schedule of expenditures of federal awards during the year ended August 31, 2023. Our compliance audit, described in the Opinion on Each Major Federal Program section of our report, does not include the operations of Stanford Health Care and Lucile Salter Packard Children's Hospital at Stanford because discrete reports in accordance with Title 2 U.S. *Code of Federal Regulations Part 200, Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance) are issued for these entities.

Responsibilities of Management for Compliance

Management is responsible for compliance with the requirements referred to above and for the design, implementation, and maintenance of effective internal control over compliance with the requirements of laws, statutes, regulations, rules and provisions of contracts or grant agreements applicable to Stanford's federal programs.

Auditors' Responsibilities for the Audit of Compliance

Our objectives are to obtain reasonable assurance about whether material noncompliance with the compliance requirements referred to above occurred, whether due to fraud or error, and express an opinion on Stanford's compliance based on our audit. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with US GAAS, *Government Auditing Standards*, and the Uniform Guidance will always detect material noncompliance when it exists. The risk of not detecting material noncompliance resulting from fraud is higher than for that resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Noncompliance with the compliance requirements referred to above is considered material, if there is a substantial likelihood that, individually or in the aggregate, it would influence the judgment made by a reasonable user of the report on compliance about Stanford's compliance with the requirements of each major federal program as a whole.

In performing an audit in accordance with US GAAS, *Government Auditing Standards*, and the Uniform Guidance, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material noncompliance, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding Stanford's compliance with the compliance requirements referred to above and performing such other procedures as we considered necessary in the circumstances.
- Obtain an understanding of Stanford's internal control over compliance relevant to the audit in order to design audit procedures that are appropriate in the circumstances and to test and report on internal control over compliance in accordance with the Uniform Guidance, but not for the purpose of expressing an opinion on the effectiveness of Stanford's internal control over compliance. Accordingly, no such opinion is expressed.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and any significant deficiencies and material weaknesses in internal control over compliance that we identified during the audit.

Report on Internal Control Over Compliance

A *deficiency in internal control over compliance* exists when the design or operation of a control over compliance does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, noncompliance with a type of compliance requirement of a federal program on a timely basis. A *material weakness in internal control over compliance* is a deficiency, or combination of deficiencies, in internal control over compliance, such that there is a reasonable possibility that material noncompliance with a type of compliance requirement of a federal program will not be prevented, or detected and corrected, on a timely basis. A *significant deficiency in internal control over compliance* is a deficiency, or a combination of deficiencies, in internal control over

compliance with a type of compliance requirement of a federal program that is less severe than a material weakness in internal control over compliance, yet important enough to merit attention by those charged with governance.

Our consideration of internal control over compliance was for the limited purpose described in the Auditors' Responsibilities for the Audit of Compliance section above and was not designed to identify all deficiencies in internal control over compliance that might be material weaknesses or significant deficiencies in internal control over compliance. Given these limitations, during our audit we did not identify any deficiencies in internal control over compliance that we consider to be material weaknesses, as defined above. However, material weaknesses or significant deficiencies in internal control over compliance may exist that were not identified.

Our audit was not designed for the purpose of expressing an opinion on the effectiveness of internal control over compliance. Accordingly, no such opinion is expressed.

The purpose of this report on internal control over compliance is solely to describe the scope of our testing of internal control over compliance and the results of that testing based on the requirements of the Uniform Guidance. Accordingly, this report is not suitable for any other purpose.

PricewaterhouseCoopers LLP

San Francisco, California

May 6, 2024

III. Findings

Stanford University
Schedule of Findings and Questioned Costs
August 31, 2023

Section I – Summary of Auditor’s Results

Consolidated Financial Statements

| | |
|---|---------------|
| Type of auditor’s report issued: | Unmodified |
| Internal control over financial reporting: | |
| Material weakness(es) identified? | No |
| Significant deficiency(ies) identified that are not considered to be material weaknesses? | None reported |
| Noncompliance material to financial statements noted? | No |

Federal Awards

| | |
|--|---------------|
| Internal control over major programs: | |
| Material weakness(es) identified? | No |
| Significant deficiency(ies) identified that are not considered to be material weaknesses? | None reported |
| Type of auditor’s report issued on compliance for major programs: | Unmodified |
| Any audit findings disclosed that are required to be reported in accordance with 2 CFR 200.516(a)? | No |

Identification of major programs:

| Assistance Listing Number(s) | Name of Federal Program or Cluster |
|-------------------------------------|---|
| Various | Research and Development Cluster |
| 93.084 | Prevention Policy Modeling Lab |

| | |
|--|-------------|
| Dollar threshold used to distinguish between Type A and Type B programs: | \$3,078,706 |
| Auditee qualified as low-risk auditee? | Yes |

Stanford University
Schedule of Findings and Questioned Costs
August 31, 2023

Section II – Financial Statement Findings

None noted.

Section III – Findings and Questioned Costs for Federal Awards

None noted.

Stanford University
Summary Schedule of Prior Audit Findings and Status
August 31, 2023

There are no findings from prior years that require an update in this report.