

# UC Berkeley Intellectual Property & Industry Research Alliances

## IPIRA Annual Report 2024

Fiscal Year 2024 (July 1, 2023—June 30, 2024)

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# IPIRA Year in Review

This year has been one of remarkable progress and innovation for [UC Berkeley's Office of Intellectual Property and Industry Research Alliances \(IPIRA\)](#). As we continue to serve as a bridge between cutting-edge academic research and real-world application, we are proud to share milestones and achievements that have shaped the past year.

In a time when collaboration between academia and industry has never been more crucial, the transformative partnerships, pioneering technologies, and invaluable resources facilitated by IPIRA support our faculty, students, and external collaborators. These efforts underscore the university's commitment to fostering innovation and reflect the impact of research in addressing global challenges.

In this report, you'll find key metrics that highlight our success, from invention disclosures received to patents issued, startups launched, and strategic alliances forged. From driving economic growth to advancing societal well-being, our initiatives have made a lasting impact locally, nationally, and globally.

As we look ahead, we are excited to build on this momentum. By expanding our industry connections, enhancing support for researchers, and exploring new commercialization pathways, we aim to continue transforming ideas into impact.

We extend our gratitude to the faculty innovators, entrepreneurial students, and industry partners who have contributed to this year's success. Your dedication fuels our mission to bridge the gap between discovery and opportunity.

Here's to another year of innovation, collaboration, and impact.

Carol Mimura, Ph.D., RTTP, *Assistant Vice Chancellor, IPIRA*

Laleh Shayesteh, Ph.D., JD, *Director, Intellectual Property and Administration, Office of Technology Licensing*

Mike Cohen, *Director, Innovation Ecosystem Development, Office of Technology Licensing*

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Julie Sarracino, *Director, Business Operations and Compliance, IPIRA*

Debra Summers, *Director of Marketing and Communications, IPIRA*

Andrea McEvoy, *Director of Client Services, IPIRA*

## Beyond the Numbers

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### Equity Investments in Startups

#### UC Berkeley Undertakes the Management of Innovation Equity

In June 2023, UC Berkeley's Chancellor accepted the authority, delegated by the University of California Office of the President, on behalf of the Berkeley campus under Delegation 2650, to accept and manage corporate stock in transactions with companies. This made it possible for the Berkeley campus to establish its own equity management programs and modernize existing policies to better serve campus needs. UC Berkeley accepts equity in companies under three distinct authorizations: 1) through IP licensing transactions, 2) as compensation for access to UC Berkeley facilities or for startup acceleration and incubation services; and 3) under other commercial arrangements. The Equity Solutions Services (ESS) team manages all innovation equity portfolios at UC Berkeley, as well as the implementation of best practices to support and enhance the campus innovation ecosystem. ESS collaborates with stakeholders across the start-up equity lifecycle, from company formation, capital raises, and corporate actions to liquidity/exit events.

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### Advancing University Innovation Platforms

#### Bridging the Gap Between Underutilized University Research Capacity and Industry R&D Needs: Expanding Berkeley Research Infrastructure Commons

The groundbreaking Berkeley Research Infrastructure Commons (Berkeley RIC) program established at UC Berkeley, has expanded. In 2023, Berkeley spunout a startup named Second Lab ([secondlab.com](https://secondlab.com)) to commercialize a cloud-based platform—inspired by the Berkeley RIC—for universities to scale commercial access to their shared R&D facilities. In addition, other campuses in the University of California system began adopting Berkeley's "open source version" of the RICs contracts, contracting process, facilities application and approval process, and also the trademarked Research Infrastructure Commons brand.

As with many US research universities, UC Berkeley has a history of enabling the sharing of excess capacity of specialized R&D facilities with for-profit companies by charging commercial rates. These fees help universities cover the high costs of maintaining the facilities. R&D-intensive startup companies in particular often find these fees affordable since renting on an hourly basis and using shared space is less expensive than committing to monthly rates or dedicated space.

However, contract negotiations with companies were time consuming, fraught with concerns about IP ownership, confidentiality, insurance, liability, and indemnification, as well as federal and state

compliance requirements. Due to the university's decentralized management of R&D facilities, every campus unit offered a different contract. So IPIRA and other campus researcher administrators designed the Berkeley RIC contract, with the most business-friendly terms that the university could allow. The new standard contract even incorporated an exception to the university's IP policy to allow companies to have sole ownership of their IP and sole use of their data. Companies can quickly e-sign the business-friendly contract without any negotiations, making these resources more accessible to the broader scientific community.

Now other universities, and many more entrepreneurs, can benefit from the straight-forward, efficient, hassle-free solution developed at UC Berkeley.

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## Drug Regulatory Science

### Tackling Liver Disease with Clinical Trial Data-Sharing Initiative

When the [Forum for Collaborative Research](#), part of the UC Berkeley School of Public Health, set out to understand and address the complex liver disease metabolic dysfunction-associated steatohepatitis (MASH), the Liver Forum project researchers recognized the potential of aggregating data from multiple clinical trials. For a reliable assessment, the team needed the statistical power of a large sample size.

The Forum turned to IPIRA for help negotiating especially complex data use agreements, one with a French pharmaceutical company, and a second with a company based in California. By addressing concerns around privacy, intellectual property, compliance, and other sensitive issues, the agreements created a balanced framework that protected the interests of all parties while enabling meaningful collaboration and innovation.

Until this year, there were no approved treatments for MASH, formerly known as non-alcoholic steatohepatitis. MASH is a serious liver disease estimated to affect 1.5%-6.5% of people globally. The Forum seeks to address the significant need for novel approaches that address the challenges facing pharmaceutical companies, clinical scientists, regulatory agencies, and especially patients.

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## Industry Sponsored Research

### New \$150 million Research Center to Develop Sustainable Model for Materials Production

In an agreement negotiated by the IPIRA Industry Alliances Office, UC Berkeley partnered with the new [Rio Tinto Centre for Future Materials](#) to transform the way vital materials are produced, used, and recycled, transitioning the world from fossil fuels to renewable energy. Corporate sponsored research programs like this one support and expand UC Berkeley innovation and entrepreneurship. The cycle of innovation starts with these agreements. Some are revenue generating, while others are not.

UC Berkeley, with its unparalleled expertise in computational materials science and a legacy of innovation, is uniquely positioned to help tackle grand challenges related to materials production and discovery. [Rio Tinto will contribute \\$150 million over 10 years](#) to fund the center, which will be led by Imperial College London and act as a hub for collaboration with leading research institutions worldwide.

UC Berkeley's engineers will contribute their specialized knowledge of geomechanics, hydrology, characterization of flow, mineral processing and extractive metallurgy. And the university's social scientists will work to ensure that materials are extracted and distributed in an equitable and sustainable way that benefits local communities.

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## Industry Sponsored Institutes

### Innovative Genomics Institute and Danaher Join Forces to Accelerate and Scale Up the Development of CRISPR Cures

Children and adults with rare, deadly genetic diseases have fresh hope for curative therapies, thanks to a new collaboration between the Innovative Genomics Institute (IGI) and Danaher Corporation, a global life sciences and diagnostics innovator. The [new Danaher-IGI Beacon for CRISPR Cures](#) center will use genome editing to address potentially hundreds of diseases, including rare genetic disorders that have no cure. The goal is to ensure treatments can be developed and brought to patients more quickly and efficiently.

The collaboration enables a substantial new research program at the IGI and is also the largest investment yet from the Danaher Beacons program, which funds pioneering academic research with the goal of developing innovative technologies and applications for human health. The IGI team will receive support from Danaher and several of its operating companies, including IDT, Cytiva, Beckman Coulter Life Sciences, and Aldevron, which has previously collaborated with the IGI in advancing CRISPR-editing tools for neurologic diseases.

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## Outreach

### Website Relaunch Enhances IPIRA Services

IPIRA unveiled a transformative [website relaunch](#) this year, designed to enhance engagement and streamline access to key resources for the university community and industry partners. The new site features expanded and easy-to-navigate content, offering comprehensive information on technology transfer processes, inventor support, licensing opportunities, industry sponsored research, and more. Accessibility improvements ensure that the site meets the highest standards for inclusivity, enabling users of all abilities to engage effectively with IPIRA resources.

The relaunch prioritizes a seamless user experience. Researchers, entrepreneurs, and external partners can now locate critical tools and services with ease, including those for submitting invention disclosures, accessing licensing opportunities, transferring data and materials, and obtaining personalized guidance through the IPIRA concierge.

This revitalized platform reflects IPIRA's commitment to fostering innovation, collaboration, and impact by delivering a user-centered digital experience that supports the university's mission to transform ideas into real-world solutions.

### Educational Webinars and Events

Virtual and in person educational workshops attracted the interest of more than 500 UC Berkeley faculty, researchers, staff, postdocs and graduate students, with topics ranging from patenting and licensing intellectual property, to industry research funding, to SBIR/STTR grants, and more. A lunch and learn series hosted in partnership with the Berkeley Research Data Portal explored a wide range of subjects related to working with research data. New faculty joined IPIRA at a luncheon for informal discussions on how to get help with protecting IP for innovations, commercializing inventions, research partnerships with industry, launching a company based on academic research, transferring data and materials, and beyond. Here's a sampling of forums where IPIRA staff answered questions, and encouraged our community to make use of our services.

#### Fall 2023

- UC Berkeley Postdoctoral Entrepreneurial Program presentation, Idea Evaluation: What DeepTech Founders have Done Before Launching Their Startups, August 24, 2023
- Research and Data Security, September 22, 2023
- How to Read Your Data Use Agreement, October 19, 2023
- Talking Tech Transfer: Patenting and Licensing IP Fundamentals for Faculty, October 25, 2023
- Guest Lecture at Berkeley Law, Tech Transfer and IP, October 25, 2023

- Talking Industry Research Funding: Partnership Fundamentals for Faculty, October 26, 2023
- Event Sharing Your Data with Third Parties, November 9, 2023
- IPIRA New Faculty Luncheon, November 16, 2023
- Talking SBIR/STTR Grant Funding: Small Business Research Subcontracts for Faculty, December 7, 2023

#### Spring 2024

- Science and Communications Class Presentation: IP and Tech Transfer, January 22, 2024
- Talking Tech Transfer: Patenting and Licensing IP Fundamentals for Faculty, February 8, 2024
- Talking Industry Research Funding: Partnership Fundamentals for Faculty, March 14, 2024
- Complex Data Use Agreements in the Forum for Collaborative Research, April 12, 2024
- Talking SBIR/STTR Grant Funding: Small Business Research Subcontracts for Faculty, April 18, 2024
- Research and Data Security, April 25, 2024
- How to Read Your Data Use Agreement, May 3, 2024
- Sharing Your Data with Third Parties, May 16, 2024

# About the Office of Intellectual Property & Industry Research Alliances

## **IPIRA Mission**

To enhance the research enterprise of the world's top-ranked public university by establishing multifaceted collaborations with companies.

IPIRA consists of peer divisions working under a synergistic “push and pull” model to support UC Berkeley’s vast research enterprise and to translate research results into societal and economic impact, and to support innovation and entrepreneurship programs.

## **Industry Alliances Office**

IAO establishes agreements with industry to sponsor research, establish industry sponsored institutes, join industry affiliate programs, and sponsor innovation and entrepreneurship programs. IAO also negotiates agreements for SBIR/STTR grants, incoming research data, materials, and software, and confidential information. IAO has signed contracts with more than 1,300 companies worldwide.

## **Office of Technology Licensing**

OTL establishes intellectual property rights agreements with companies that commercialize technologies developed at UC Berkeley. The knowledge transfer benefits the public, funds campus research and education, and rewards university researchers for their ingenuity. More than 730 innovative products and 250 startup companies have been born out of technology licensed by OTL.

## **Equity Solutions Services**

ESS oversees UC Berkeley's corporate stock holdings, including those obtained from IP licenses, access to campus facilities and services, and other commercial arrangements. ESS was established to diversify the types of transactions that result in company stock ownership, and maintain the quantity of shares owned in support of the university's mission. The ESS team collaborates with stakeholders across the startup equity lifecycle, from company formation, capital raises, and corporate actions to liquidity/exit events.





## By the Numbers

Activities managed by the IPIRA Office of Technology Licensing, Industry Alliances Office, and Equity Solution Services

*UC Berkeley and Lawrence Berkeley National Laboratory (LBNL) have a strong collaborative relationship and share approximately 204 joint appointments. Statistics in this section do not include LBNL activities. LBNL has its own, dedicated tech transfer office and manages certain inventions and other assets created by UC Berkeley researchers.*

### Invention and Software Disclosures FY 2024

- Inventions disclosed: 173
- Software disclosed: 5

### US and Foreign Patents Issued FY 2024

- US patents issued: 74
- Foreign patents issued: 256

### **US and Foreign Patents Filed FY 2024**

- US first filings provisional: 111
- US first filings non-provisional: 4
- US secondary filings provisional: 13
- US secondary filings non-provisional: 43
- Foreign first filings: 81
- Total in FY 2024: 252

### **Active Patents**

- US patents active: 885
- Foreign patents active: 1,428
- Total as of June 30, 2024: 2,313

### **Patent Costs FY 2024**

- US and foreign patent prosecution expenses \$7,229,918
- Patent cost reimbursements \$5,703,263

### **IP Agreements Completed FY 2024**

- IP rights letter of intent agreements: 17
- IP rights option agreements: 23
- IP rights license agreements:
  - Exclusive: 8
  - Non-exclusive: 11
- IP rights inter-institutional agreements: 16
- Total in FY 2024 signed in IPIRA: 75

### **Research Agreements with Industry Completed FY 2024**

- Research with industry (*including federal flow through*): 78
- Industry Affiliate Programs (Memberships) Signed: 35
- SBIR/STTR Grant Subcontracts: 8
- Total Agreements Completed in FY 2024 (*excluding awards with federal flow through*): 103
- Total research agreements supported in FY 2024 that were signed in other UC Berkeley offices: more than 160

### **Industry Sponsored Institutes**

- Institutes actively managed: 8
  - Energy & Biosciences Institute, CARA - California Research Alliance by BASF, Laboratory for Genomics Research, C3.ai Digital Transformation Institute, Center for CRISPR Target Discovery, Danaher-IGI Beacon for CRISPR Cures, Arc Institute
- New Programs Launched FY 2024: 1 - Danaher-IGI Beacon for CRISPR Cures

**Innovation Services Agreements**

- I&E Programs served with Sponsor Agreements: 5
- Innovation Services Sponsor Agreements FY 2024: 15
- Startups participating under Sponsor Agreements FY 2024:
- New Programs Launched FY 2024: 1 - CITRIS Innovation Hub

**Material Transfer Agreements (“MTA”):**

- Incoming MTAs Executed: 442
- Outgoing MTAs Executed: 69
- Total MTAs Executed:

**Data Use Agreements (“DUA”):**

- Incoming DUAs: 86
- Outgoing DUAs: 12

**Nondisclosure Agreements (“NDA”):**

- Incoming NDAs: 70
- Outgoing NDAs: 13

**Assists to Other Campus Offices, including**

- Government and Foundation Grants and Awards: 167
- IP Management Plans:

**Visiting Scholar Agreements: FY 2024: 20****Equity**

- Number of agreements executed with private equity provisions in FY 2024: 7
- Number of agreements executed in FY 2024 that have participation rights: 5
- Number of agreements executed in FY 2024 that have existing affiliated VC fund investments: 1

**Researchers with the most US patent applications filed in FY 2024**

- Jennifer Doudna 11
- Niren Murthy 7
- Alanna Schepartz 5
- Rohit Kumar Sharma 5
- Francisco Toste 4
- Omar Yaghi 4

**Researchers with the most US patents issued between 2000 and 2024**

- Jennifer Doudna 109
- Martin Jinek 63
- Homayoon Kazerooni 52

- Carolyn Bertozzi 50
- Jay Keasling 48

## Startups Founded With an IP License from Berkeley

### Number of Startups Founded in FY 2024: 9

- **Total number of startups** licensed over all years as of June 30, 2024: 294
- **Total Raised in FY 2024 by 32 companies:** 3.47B

### Top 10 Funding Deals by Size in FY 2024 *(all IPIRA startups, regardless of year in which the company was founded)*

| <b>Company</b>            | <b>Size</b> | <b>Deal Type</b>           |
|---------------------------|-------------|----------------------------|
| Ambrx                     | \$2.4B      | Merger/Acquisition         |
| 4D Molecular Therapeutics | \$194.3M    | Second Public Offering     |
| Nurix Therapeutics        | \$152.5M    | Second Public Offering     |
| Caribou Biosciences       | \$125M      | Second Public Offering     |
| PhenomeX                  | \$109.4M    | Merger/Acquisition         |
| Frontier Medicines        | \$100M      | Later Stage VC / Series C  |
| Addition Therapeutics     | \$75M       | Early Stage VC / Series A  |
| Genedit                   | \$58.7M     | Later Stage VC / Series A1 |
| Prolific Machines         | \$54.6M     | Early Stage VC / Series B1 |
| Tenaya Therapeutics       | \$50M       | Second Public Offering     |

### Faculty with the most IPIRA startups founded between July 1, 2020 and June 30, 2024

- Jennifer Doudna 16
- Boris Rubinsky 10
- Luke Lee 9
- David Schaffer 9
- Jay Keasling 6
- Albert Pisano 6
- Kevin Healy 5
- Anastasios Melis 5
- Niren Murthy 5
- Omar Yaghi 5

# IPIRA Revenue

## Licensing Royalties and Fees

*Statistics in this section do not include disclosures made by Berkeley researchers to the Lawrence Berkeley National Lab Technology Transfer Office.*

### **Total Revenue in FY 2024: \$29,262,044**

- Includes \$615,887 from the sale of equity in FY24. The equity sold in FY 2024 was obtained in licenses that were signed 8-9 years before equity cash-out.
- Total revenue (FY00-FY24) as of June 30, 2024: \$307M
- Total funding from campus to the Office of Technology Licensing from July 1, 2004, through June 30, 2024: \$8.7M. This excludes funding to the Industry Alliances Office division of IPIRA.

### **Income Distributions Made in FY 2024 (based on income from FY 2023)**

- Paid to inventors: \$4,170,436
- Paid to departments: \$1,734,092

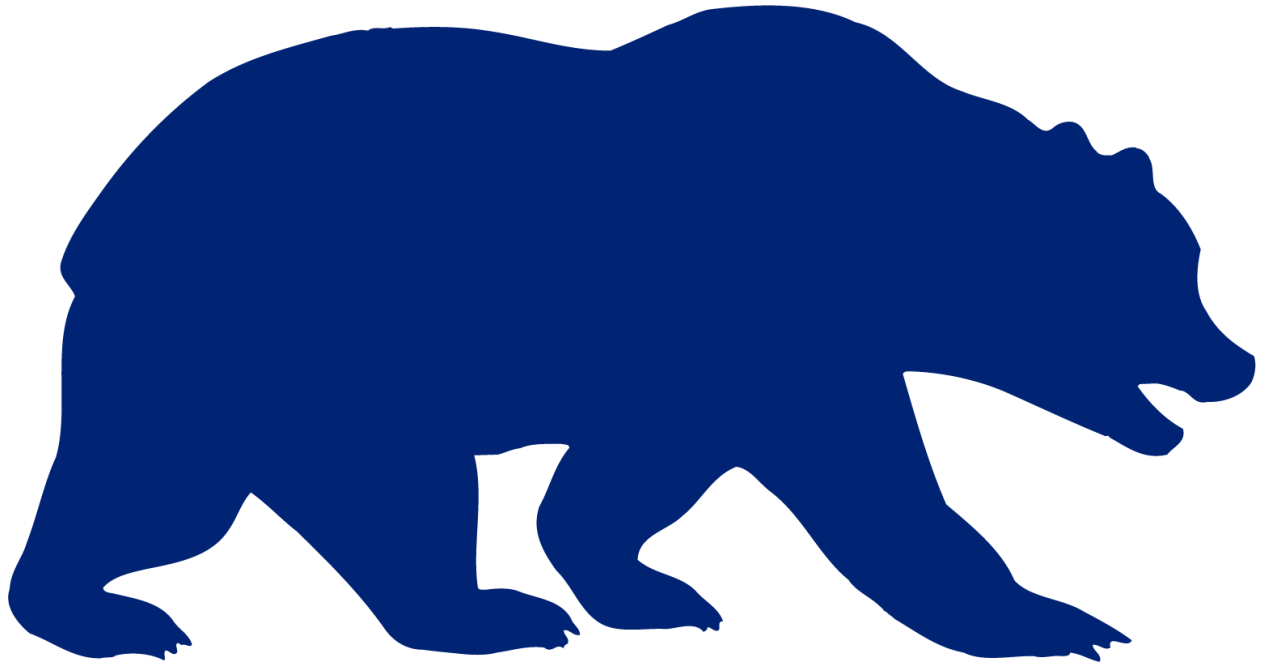
### **Equity**

- Funds received from sale of private equity agreements in FY 2024: \$615,887.
  - The aggregated total is ~\$51M from the sale of licensing-acquired equity over all FYs to date.

## Funding from Industry

### **Total Funding from Active Industry Partnerships in FY 2024: \$38.3 million**

- Grants and contracts (*excluding federal flow through*): \$27.5 million
- Research with non profit businesses: \$100,000
- Industry Affiliate Program Membership agreements: \$9.4 million
- SBIR/STTR Grant Subcontracts: \$700,000



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