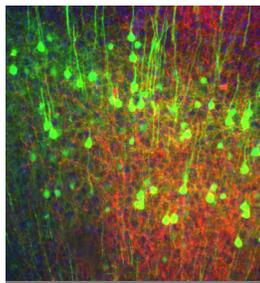


**STANFORD  
BIO-X**

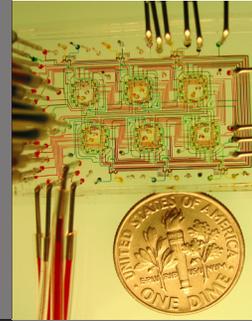


Bio-X awards its first round of Interdisciplinary Initiatives Program seed grants



The Bio-X graduate fellowship program welcomes its first nine PhD students

Simbios—a national center for biomedical computation first launched with Bio-X funding—receives a \$20 million NIH grant



Bio-X NeuroVentures is launched to bring a university-wide approach to the neurosciences

**1998**

**2000**

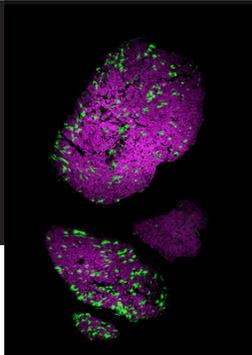
**2003**

**2004**

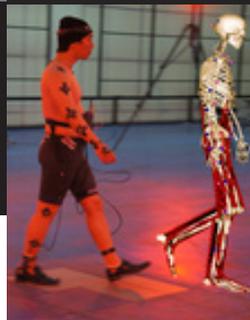
**2006**

**2008**

Stanford faculty launch the Bio-X Planning Committee to foster cross-disciplinary research and teaching

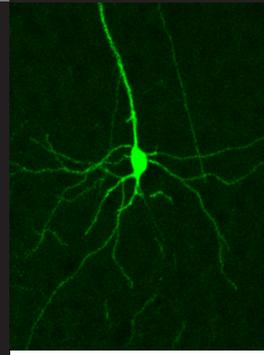


The James H. Clark Center becomes the new home of Bio-X



Microfluidics Foundry opens at the Clark Center, enabling researchers to manufacture custom “labs on a chip”

Bio-X Summer Undergraduate Research Program begins



## Stanford Bio-X: Pioneering Discoveries in Benefit of Human Health

To confront a challenge like cancer or Alzheimer’s is to stand at the **intersection of science, medicine, and engineering**. Finding solutions will require a combination of expertise and powerful collaborations that very few institutions command. Bio-X stands literally and figuratively at this crossroads. At Stanford, the world’s leading experts in a wide range of fields are gathered in unusual proximity—working on breakthroughs in human health, while also dramatically increasing our fundamental knowledge about the biosciences.

This is what makes Bio-X **a cauldron of innovation**. Already, Bio-X has sparked cutting-edge research, launched startup companies, and trained a new breed of multidisciplinary scholars. Now the program is leading a scientific revolution that will have a profound impact.



The Optogenetics Innovation Lab, led by Karl Deisseroth, opens at Bio-X

**2009**

Stephen Quake's entire genome is sequenced, more quickly and inexpensively than possible before

**2010**



Sam Gambhir's lab uses nanoparticles to identify brain tumors

**2011**

Daphne Koller trains computers to assess microscopic images for breast cancer

**2012**



Bio-X recognized by the National Academies as a leading model for biosciences research

**2013**

Carla Shatz's team discovers a receptor linked to Alzheimer's disease

**2014**



## Stanford Bio-X

**SINCE ITS LAUNCH IN 1998, BIO-X HAS CHARTED A NEW APPROACH TO LIFE SCIENCE RESEARCH** by bringing together a combination of experts—doctors, scientists, engineers, physicists, social scientists, and others—to tackle the complexity of the human body. With its base in the innovative James H. Clark Center, Bio-X draws faculty and students from all seven schools across the university. Its mix of **exceptional talent and world-class facilities** has dramatically accelerated the flow of ideas and discoveries. Today, nearly **700 faculty** from around the university are affiliated with Bio-X.

In addition to modern lab space, Bio-X provides critical resources—seed grants, graduate fellowships, and venture funds—to drive early-stage research and educate a new generation of interdisciplinary scientist-leaders. Acting as **an incubator**, Bio-X fosters a collaborative culture and provides resources to explore ideas considered too experimental for federal funding. The success of this model has been replicated by other institutions around the globe.

This approach has worked. Bio-X's results include **breakthrough technologies** and whole **new fields of study**. Its scholars have created cutting-edge neural prostheses that can be moved by the brain, uncovered the inner workings of viruses with tiny microscopes, developed techniques for using light to understand pain, and much more.

What began as a bold experiment is now a **proven research paradigm**. To continue to fuel this remarkable **engine of discovery** far into the future, Stanford seeks to secure a long-term financial foundation for Bio-X through philanthropic endowment gifts. Enduring support will help meet the **growing demand** from highly qualified faculty and students.



RESEARCHERS WORKING IN CHRISTOPHER CONTAG'S LAB AT THE CLARK CENTER. CONTAG IS PROFESSOR OF NEONATAL AND DEVELOPMENTAL MEDICINE.

## The X-Factor

**WHY INVEST IN THE BIOSCIENCES AT STANFORD? THE UNIVERSITY'S "X-FACTOR"** distinguishes Stanford from other institutions worldwide:

- The combined breadth and depth of Stanford's **excellence across disciplines** is unusual, even among top universities. Stanford's **contiguous campus** places all of these experts within walking distance.
- Stanford is known for **collaborations that cross traditional academic boundaries**; in fact, Bio-X emerged from scholars' grassroots efforts to work together.
- Stanford has a longtime **commitment to multidisciplinary institutes and centers**, which serve as springboards for discovery.
- Highly integrated with Silicon Valley, the university excels in technology transfer and partnership with industry. Its celebrated **entrepreneurial culture** fosters innovation in many fields.
- Stanford Bio-X has built a **highly interactive network of faculty and students** across the entire university that traverses traditional departmental and school boundaries, establishing a new dimension to the way that great research universities function.

Jennifer Raymond  
NEUROBIOLOGY



Michael Levitt  
STRUCTURAL  
BIOLOGY



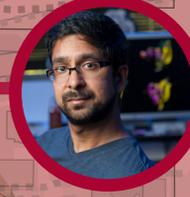
Jonathan Pritchard  
GENETICS AND  
BIOLOGY



Mark Schnitzer  
APPLIED PHYSICS  
AND BIOLOGY



Judith Frydman  
BIOLOGY



Vijay Pande  
CHEMISTRY

MEDICINE

James H. Clark  
Center

BASIC SCIENCES

ENGINEERING



STANFORD BIO-X



Krishna Shenoy  
ELECTRICAL ENGINEERING

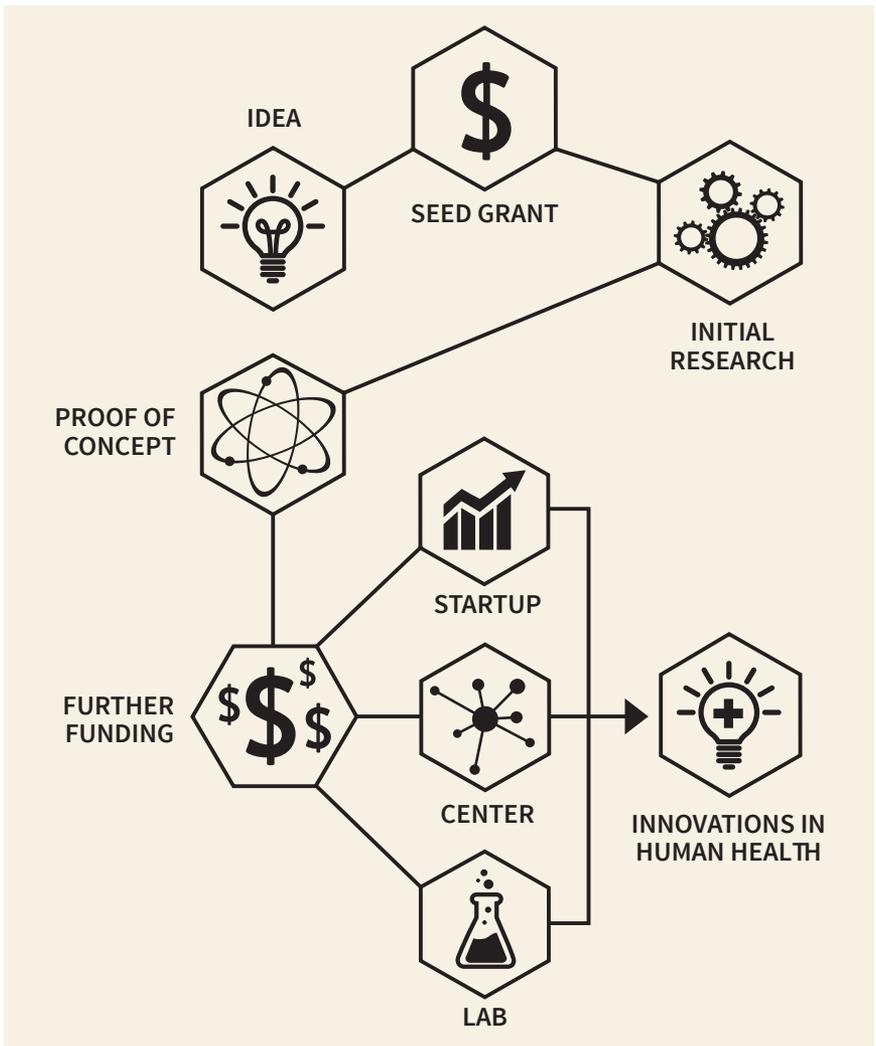


Scott Delp  
BIOENGINEERING



Beth Pruitt  
MECHANICAL ENGINEERING

These faculty are among the nearly **700 Bio-X affiliated scholars** who span the campus and come together at the **Clark Center**, generating collaborations in the biosciences.



## Seed Grants for Success

**BIO-X AWARDS SEED GRANTS TO TEAMS OF FACULTY PARTNERING ACROSS FIELDS** who are launching innovative new research projects. These Interdisciplinary Initiatives Program (IIP) grants, which average \$200,000 over two years, have stimulated a striking increase in collaborations across the university.

The projects are **high-risk, high-reward**. Those that have succeeded have produced discoveries with great promise. The program has:

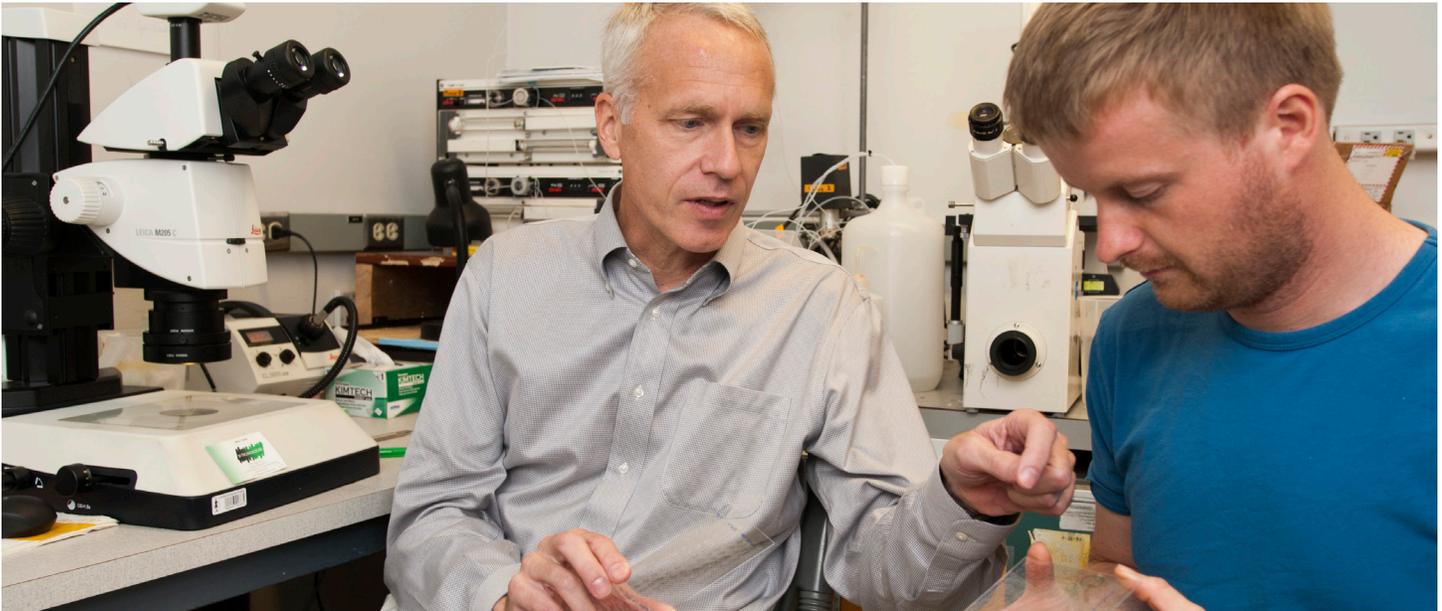
- Fueled innovative research and generated the growth of **pioneering new fields of study**
- Fostered more than **500 interdisciplinary teams** of faculty from all seven schools and more than 60 departments
- Attracted funding from outside sources that exceeded the initial grant amounts by **a factor of 10**
- Generated more than **30 patent filings** and numerous startup companies
- Launched projects that turned into **federally funded labs**

Bio-X has surpassed all expectations, redefining how we conduct research and generating new directions in interdisciplinary work for the benefit of generations to come.

JOHN HENNESSY  
STANFORD PRESIDENT AND BING PRESIDENTIAL PROFESSOR

It's no accident that Bio-X has grown up here in Silicon Valley, a place where many see the value in high-risk, high-payoff approaches to discovery and invention.

CARLA J. SHATZ  
THE SAPP FAMILY PROVOSTIAL PROFESSOR,  
THE DAVID STARR JORDAN DIRECTOR OF STANFORD BIO-X,  
AND PROFESSOR OF BIOLOGY AND OF NEUROBIOLOGY



LIKE OTHER BIO-X ASSOCIATED FACULTY, BRIAN KOBILKA, THE HELENE IRWIN FAGAN CHAIR IN CARDIOLOGY AND A PROFESSOR OF MEDICINE, ADVISES AND TEACHES A WIDE RANGE OF STUDENTS. KOBILKA IS ONE OF SEVERAL BIO-X AFFILIATES WHO HAVE WON NOBEL PRIZES.

## Training the Next Generation

**BIO-X TRAINS VISIONARY SCIENCE LEADERS. IT IS ONE OF THE FEW PLACES IN THE WORLD** where graduate students can pursue research that does not fit neatly within single disciplines. **Bio-X Fellowships and Stanford Interdisciplinary Graduate Fellowships** provide financial support independent of any one lab or outside grant, enabling students to work across fields. These fellowships give top graduate students the resources to turn their creative ideas into pioneering new work, generating unprecedented combinations of people, methods, and fields.

In addition, the **Undergraduate Summer Research Program** provides opportunities for younger students to conduct hands-on interdisciplinary research, while working with many faculty across a range of disciplines.

## Bio-X Ventures: Investing in Scientific Enterprise

**WHAT SEED FUNDING DOES FOR INDIVIDUAL PROJECTS, BIO-X VENTURES PROVIDES FOR larger-scale collaborations**, those with the potential to revolutionize the way science is done. Underwriting grassroots efforts launched by Stanford faculty, Bio-X Ventures supports rapid development—facilitating collaboration, funding, training, and the exchange of ideas—until a new enterprise can stand alone.

For example, Bio-X provided early funding and facilities to Stanford's **Department of Bioengineering**, a joint effort of the university's School of Engineering and the School of Medicine. Since its creation in 2002, bioengineering has become one of the world's most highly regarded departments of its kind.

In addition, **NeuroVentures**, led by neuroscientist and Harman Family Provostial Professor William Newsome, was launched in 2008 with Bio-X support. In 2013, this effort, alongside other significant school endeavors, culminated in the creation of the **Stanford Neurosciences Institute**, advancing President Hennessy's vision for interdisciplinary brain research.

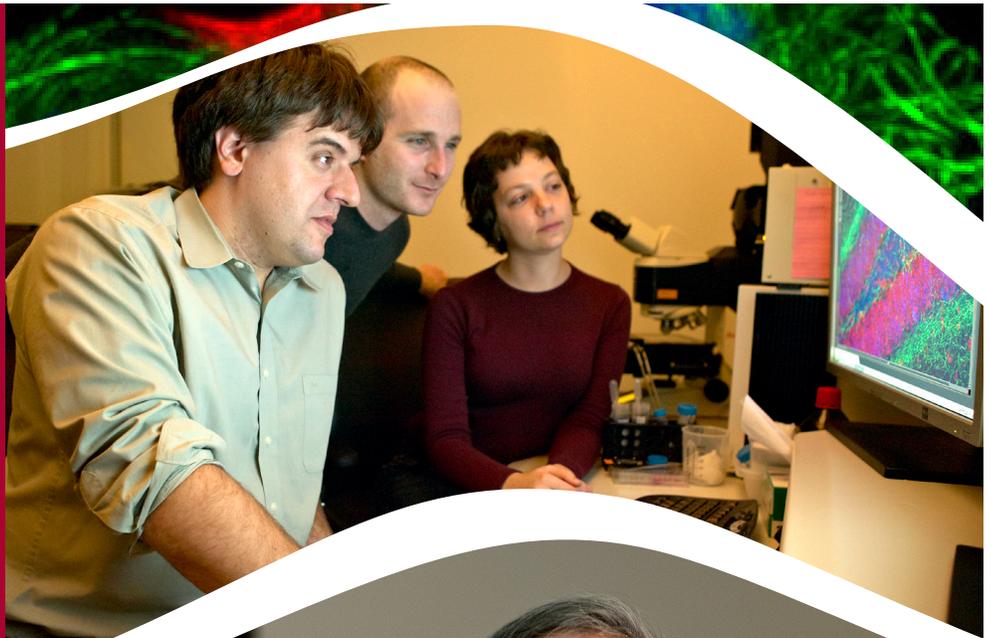
One emerging field on the horizon is **quantitative biology**, a revolutionary area of research with great promise. This rising field encompasses computational biology, neurobiology, statistics, genomics, and bioinformatics, and seeks to use math and computing to unlock insights about the body.



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Other institutions offer interdisciplinary research. What makes Stanford Bio-X so special is its extraordinary faculty and students, culture of collaboration, and can-do, entrepreneurial spirit that encourages risk-taking and delivers phenomenal results.

KATHLEEN LAVIDGE, '74  
CHAIR, STANFORD BIO-X ADVISORY COUNCIL



**STANFORD  
BIO-X**

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**Stanford**  
University