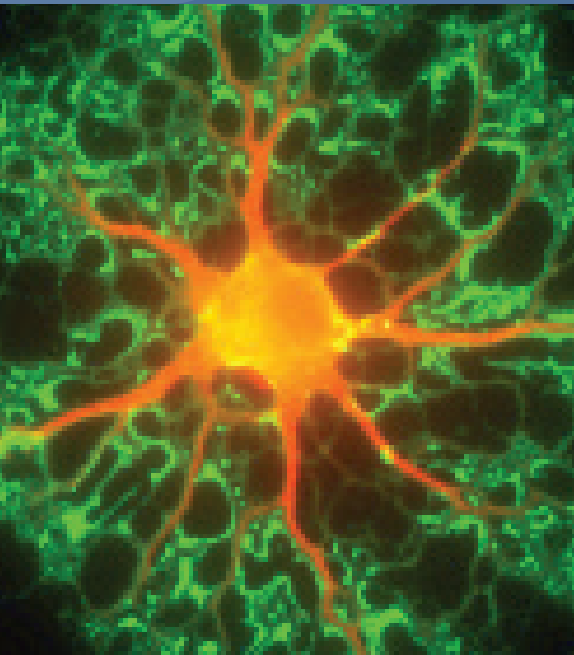


We fuel innovation and save lives



UCSF's Program for Breakthrough
Biomedical Research (PBBR)

Leading the way from curiosity to cures



University of California
San Francisco

advancing health worldwide™

Transformative
basic science
breakthroughs
begin with
PBBR

PBBR: Lighting the world's way to transformative basic science breakthroughs

UCSF scientists lead the global armada fighting human disease — commanding the charge behind many of the greatest biomedical victories the world has ever witnessed.

In one decade alone, three of our boldest young faculty members pursued provocative ideas that ultimately earned each of them the Nobel Prize, while a fourth member laid the groundwork for what would become Genentech, Inc., an international leader in drug development.

Today, no other program in the world supports these kinds of brilliant scientists like the Program for Breakthrough Biomedical Research (PBBR). A beacon for the most courageous among our investigators, PBBR provides funding for only those ideas that challenge conventional

wisdom and could never qualify for funding from increasingly conservative grant sources like the National Institutes of Health (NIH). This unique program dares our scientists to dig deeper, ask tougher questions, and invent novel approaches that defy the status quo.

At UCSF, our investigators stand ready to change the health care conversation from *There's nothing we can do* to *We have answers*. Yet they face a mounting, multifaceted funding crisis, with a rapidly evaporating fiscal wellspring from the NIH and other grant sources.

PBBR alone is providing the fiscal struts to support these scientists as they build their extraordinary bridges to discovery.

“The UCSF Program for Breakthrough Biomedical Research (PBBR) is truly one of the crown jewels of UCSF’s research enterprise. For 15 years, the program has fueled innovation by fostering novel approaches to science and daring our researchers to think bigger and bolder. Support for PBBR is critical for sustaining the University’s culture of creative discovery.”

— Susan Desmond-Hellmann
UCSF Chancellor
Arthur and Toni Rembe Rock Distinguished Professor



Now, more than ever, PBBR requires the partnership of sophisticated investors who understand that in risk, there can be transformative, life-saving rewards.

We visualize
daring ideas

We give
rapid funding

We get
revolutionary
results

Daring ideas, rapid funding, revolutionary results

“Play it safe.” These words of “advice” are given all too often to young investigators who are encouraged to stay well inside the established scientific boundaries in order to appear a safe bet to ever more conservative funders. Wary of the career threats posed by stepping outside the norm, most budding scientists are incited to shy away from posing the bold, unorthodox questions that threaten the conventional wisdom but may lead to revolutionary advances. PBBR enables the best and the brightest to become the exceptions to these constraints on transformative change.

Backed by PBBR, our researchers are limited only by their imaginations

Fifteen years ago, PBBR turned the traditional funding model on its head — and never looked back. Though the majority of other grant programs require lengthy applications and multiple revisions, PBBR applications are no longer than two pages. And while most funding decisions can take a year to come in, and may even stretch to two or three, PBBR decisions are made within 30 days.

We’re not your run-of-the-mill funders

In a departure from traditional funders who favor conservative proposals led by well-established investigators with demonstrated success, the PBBR faculty selection committee chooses only those start-up ideas that challenge

conventional wisdom and have potential for transformational effects. Thus, PBBR’s relatively modest grants reap rich rewards: many of the nascent, low-budget projects have off-the-charts return-on-investment.

We build the momentum

Funded entirely by private philanthropy, PBBR represents a mere 0.5% of UCSF’s overall research budget — but the program has unrivaled leverage. Why? Because hundreds of faculty members have used PBBR grants to turn their unconventional ideas into exciting projects that later successfully compete for grants from the NIH and other major funding sources – opening the doors to improving treatments and developing cures for real people, with real diseases.

We guarantee you’ll see double

The Sandler Foundation doubles the impact of every gift to the program by matching current-use gifts to PBBR on a one-to-one basis.

To date, PBBR-funded projects have generated:

Over 1.2 billion dollars in subsequent grant funding (including some 300 NIH awards); more than 1,500 peer-reviewed publications; over 60 patents awarded or pending. **THAT’S REAL LEVERAGE.**

THE HUMAN BENEFITS DERIVED FROM BASIC SCIENCE RESEARCH GRANTS

The chart below includes a small sample of the many basic science breakthroughs by UCSF faculty that have transformed the world’s understanding and treatment of human disease.

Basic Science Breakthrough	Transformative Impact on Human Disease
Recombinant DNA technology	Created the biotechnology industry, leading to the invention of new drugs for heart disease, cancer, diabetes, asthma, arthritis, and more
The first oncogene, traced to its origin in animals	Transformed cancer therapy by revealing the genetic basis of cancer and myriad targets for life-saving drugs
The prion	Revealed a new, unsuspected mechanism for the cause and spread of brain diseases, including Alzheimer’s and Parkinson’s
The role of pulmonary surfactant	Confirmed that synthetic surfactants can rescue premature newborns from lethal respiratory distress
The telomerase enzyme	Identified associations between telomere length and diseases of the heart, cancer, and diabetes, plus aging and longevity

Profiles in courage



“PBBR allowed me to connect a core basic science question to a clinical dilemma.” — David Rowitch

Replacing myelin in a first-ever clinical trial

A neonatologist, scientist, and former PBBR grantee, UCSF’s David Rowitch is among a handful of doctors around the world using stem cells to treat devastating diseases in newborns and young children. In 2006, Rowitch received a grant from PBBR to explore a fundamental idea: he believed that the central nervous system (CNS) development and neurological diseases shared common mechanisms.

Building on his background in developmental biology, this basic research helped lay the foundation for the world’s first clinical trial of neural stem cells to treat Pelizaeus-Merzbacher disease (PMD), a condition caused by a defective X-linked gene that leads to insufficient myelin in the brain. Children with PMD are unable to walk, talk, eat, or breathe normally, and those with severe PMD progressively deteriorate until death between 10-15 years of age. Not only did the clinical trial show signs of myelin production in the brains of children with PMD, it also gave hope to the millions of patients around the globe who suffer from multiple sclerosis, cerebral palsy, and other myelination disorders. Says Rowitch, “some of the world’s most devastating neurological diseases have a chance at a cure, thanks in large part to PBBR.”



“Venturing into the hypothalamus was considered by some to be scientific suicide.” — Holly Ingraham

Altering behavior through a single gene

Cellular and molecular physiologist Holly Ingraham recalls both excitement and apprehension as she prepared her application for a PBBR grant, to begin asking how the hypothalamus and neuroendocrine system could affect how we eat, defend ourselves, and reproduce. She remembers asking herself, “How would I be competitive for NIH funding when their peer-review system is inherently averse to risk taking? How would I attract trainees to work in this area? And how would I get money to generate preliminary data so that we might begin publishing in this area?”

These are common concerns for investigators at the beginning of their careers, since most traditional funding sources reward incremental steps instead of bold leaps. A PBBR grant allowed Ingraham to take the plunge into uncharted territory and follow her instincts. She has now published extensively in this area, presented on the topic at a National Society of Neuroscience symposium, and earned a major grant where it was suggested that her results were potentially transformative. Today, a handful of labs, including Ingraham’s, are fully committed to understanding how neuroendocrine circuits develop and control behavior. The latest results suggest that we can dramatically change behavior, such as decreasing anxiety and increasing exploratory behavior, by eliminating just one gene from one hypothalamic region. “In the end, PBBR was essential to getting my lab headed down the right path,” Ingraham notes.



“An infusion of money at the right time, at the right place, for the right thing, can have a dramatic effect.” — Joe DeRisi

Detecting any virus in existence

The global impact of UCSF microbiologist and PBBR grantee Joe DeRisi’s ViroChip is measured in what hasn’t happened. The device holds DNA samples of every known virus on the planet (currently 22,000). Within minutes, the ViroChip can detect any virus — like severe acute respiratory syndrome (SARS), which DeRisi worked with the Centers for Disease Control to identify in 2003 — leading to its isolation and containment, and potentially preventing a pandemic.

Since SARS, several new viruses have been identified by the ViroChip, including some associated with diseases like gastroenteritis and severe respiratory disease, two of the biggest killers of children under five years of age. DeRisi believes the technology will be a lens to a whole new viral frontier. Says DeRisi, “PBBR provides an indispensable spark that ignites new ideas.”

Champion innovation: Support PBBR

We need visionary funders to support our visionary thinkers

Visionary thinking is difficult to fund. That's why we need you. You are reading this because we believe you understand the critical importance of giving an unconventional idea a place to grow. In their early stages, radical ideas that challenge the status quo may be dismissed as unproven, impractical, or impossible. We believe you know that giving atypical ideas a chance to flourish is the path to breakthroughs. You know that history shows some of the most counterintuitive ideas have had the biggest overall impact on science and medicine, transforming disciplines, and creating entire new fields of study.

We strive to offer a unique array of awards to meet the broad aspirations of our fearless donors, and the expansive needs of UCSF's visionary thinkers.

Priority funding areas include:

Biomedical Discovery Fund

Named for the donor and existing in perpetuity, these endowment funds support innovative basic science projects at UCSF through the PBBR program.

New Frontiers Research

These awards sponsor research projects at levels of risk and innovation that substantially exceed those supported by the NIH.

Technologies, Methodologies, and Cores

These awards emphasize invention and development of new, shared resources for the scientific community, at UCSF and beyond.

Emerging Talent

PBBR supports two initiatives for young scientists:

- **Postdoctorate Independent Research Program**

Knowing that many of the next generation's scientific leaders reside in UCSF's postdoc community, PBBR supports independent-minded young researchers who want to explore an innovative project outside the constraints of their home laboratory.

- **Sandler Fellows Program**

This novel initiative provides funding for a small cohort of MDs or PhDs, for whom a period of independence, free of the limitations of a postdoctoral traineeship and the demands of assistant professorship, would give full voice to their extraordinary creativity.

Support the Program for Breakthrough Biomedical Research at UCSF.

For more information, please contact:

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PROGRAM FOR BREAKTHROUGH BIOMEDICAL RESEARCH

For more information on how you can support the Program for Breakthrough Biomedical Research at UCSF today, please contact:

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