HHMI Integrating Medicine into Basic Science: Developing Translational Research Teams of the Future

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Diverse Perspectives and Disciplines

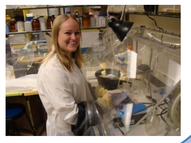
Current and Past Scholars

- Biomedical Engineering
- Neurology, Physiology and Behavior
- Biochemistry and Molecular Biology
- Mechanical/Aeronautic Engineering
- Neuroscience • Chemistry
- Biophysics • Genetics
- Microbiology • Nutrition
- Entomology
- Epidemiology

"The HHMI experience helped remind me of the big medical picture despite the narrow focus of my day-to-day research…. [It] allowed me to think about potential medical applications for my own molecular level research."

"Prior to my HHMI experience, I struggled describing the motivation behind my work…. [After the program] I can now explain why we conduct our research and why the NIH is willing to fund it."

"We employ an engineering approach and microfluidics to establish in vitro models of atherogenesis. By accomplishing this we gain powerful tools for studying the underlying mechanisms that lead to atherosclerosis, a major cause of cardiovascular disease."



Translational Pathways

Multiple Tracks

Cardiovascular
Cancer
Neuroscience

Clinical Rotations and Courses

- Cardiology clinic
- Oncology clinic
- Cardiothoracic surgery
- Electrophysiology lab
- Emergency room
- Cardiac catheterization lab
- Patient management conferences

Research Coursework

- Mechanism of disease
- Stem cell and gene therapy
- Nanotechnology center
- Heart failure and novel therapy development
- Intro to clinical research
- Responsible conduct of research
- IRB protocol development
- Data acquisition and management

"The opportunity to observe doctors and patients in the cath lab, the operating room, the ER, and the heart failure clinic really highlighted the need for research in the realm of preventative care."

Translational Mentor Teams

Principal Investigators, Program Faculty, and Clinicians Provide:

- Translational learning groups
- Opportunity for researcher and clinician crosstalk
- Direction for increasing translational emphasis
- Training on clinical environment and needs
- Guidance for student proposals and presentations

"I believe we will all be much better served if the future scientists who study the microscopic inner workings of humans have a basic concept of how the intact organism functions in the face of disease." – Professor John Robbins, M.D.

BASIC SCIENCE

DISCOVERIES
NOVEL DRUG DELIVERIES
STEM CELL THERAPIES
GENOMIC MANIPULATION
EPIDEMIOLOGICAL STUDIES

Translational Research

By merging the medical and science worlds, the HHMI-IMBS program is helping to expand the possibilities of future researchers by lighting the path from bench to bedside.

CLINICAL APPLICATIONS

NOVEL THERAPIES
NEW DEVICES
INNOVATIVE APPROACHES
IMPROVED PATIENT CARE

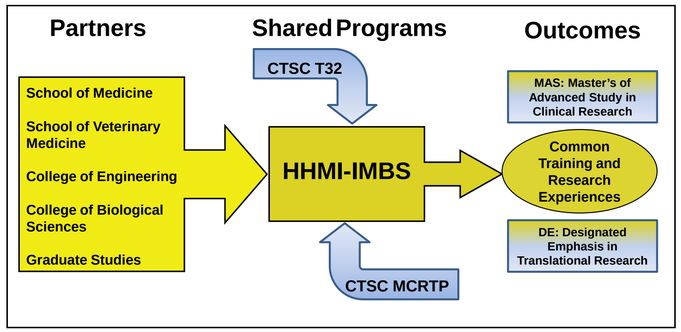
Translational Career Development

Workshops and Courses

- Strategic Career Development
- Leadership Training
- Working in Teams
- Networking Functions
- Academic-Industry Partnerships
- Presentation and Media Skills
- Strategies for Effective Feedback

"This has been an amazing program to participate in. I feel that I have a strong translational foundation for my research and hope to continue my work for many years to come. I have been given amazing opportunities to meet with outstanding clinicians and researchers this past year that I otherwise would have never been connected with."

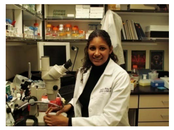
Integration with UC Davis Clinical & Translational Science Center



Program Outcomes

INCREASED PRODUCTIVITY: HHMI scholars have a higher number of publications and presentations than the comparison group (62.5% vs. 33% for publications).

IMPROVED NETWORKING: HHMI scholars have more diverse research networks than the comparison group (40% increase in clinical collaborators following program).



GREATER TRANSLATIONAL FOCUS: HHMI scholars have more interest in disease-oriented research and are more likely to develop theses with clinical relevance than the comparison group.