“The weekly lectures and journal club discussions taught us how to think critically and analytically, not only in science but in general.”

- Anna Dulencin, 2006 HIP Intern

There are very few places in the world where undergraduate students can have direct access to cutting edge stem cell science, let alone directly participate in it. In order to bridge this educational gap and inspire the next generation of stem cell scientists, we created the HSCI Internship Program (HIP) more than six years ago.

A real taste of research

Each summer, approximately 35 undergraduates from Harvard and colleges across the country and around the world are each paired with a mentor to receive hands-on training in research labs throughout the HSCI community. Participants have come from as far as Pakistan, Egypt, and Costa Rica to attend the program. And these students don’t become the lab’s designated dishwasher or perform one-off lab techniques. Rather, over the course of 10 weeks, students are paid to work on a defined research project and are required to prepare and present results at a program-ending symposium.
Skills beyond the bench

In addition to their time in the lab, students participate in a weekly seminar series that is designed to explore specific scientific questions and advances in stem cell research as well as other facets of the field. Topics include “big picture” sessions such as the history of stem cell research and reflections on ethics and policy, but also include specific issues related to undergraduates such as a career panel with representatives from science-related fields. Importantly, a discussion with patient advocates helps the students understand the importance and ultimate aim of their research.

A second weekly meeting, the companion course, is designed to teach or refine, skills in reading and critiquing scientific literature, making a scientific poster, and presenting to scientific and non-scientific audiences. A journal club and multiple group projects ensures the program is highly interactive and helps students learn how to engage in team-based work.

By supplementing the laboratory experience with the seminar series and companion course, the program imparts the invaluable skills of:

- thinking critically
- engaging in inquiry-driven research
- analyzing problems logically
- making fact-based decisions in a complex, fast-changing field
- knowing how to share the value of their work with various audiences

So though the program hopes to inspire students to pursue careers in research, the internship program imparts skills that are applicable to the future career of any student.

Opening new doors

HIP has been successful in attracting students, including even some non-science-bound ones, into the field of stem cell science.

In 2006, Derrick Reynolds, was an undergraduate majoring in genetics and biotechnology at Brigham Young University, and had planned to attend law school after his graduation the following year. He’d even taken his law school boards and started the application process. But after completing the HIP Program, Reynolds had a change of heart, and has pursued a doctoral degree in molecular biology with the goal of someday conducting stem cell research.

“I found I really enjoyed going to the lab each day and being involved in work that has the potential to benefit society,” Reynolds said.

Rado Penchev participated in HIP in 2009 and spent 10 weeks working in the lab of HSCI principal faculty member Benjamin Humphreys, MD, PhD. Penchev was a great intern. So great, in fact, that after he finished his senior year at Macalester College, in St. Paul, Minnesota, he came back to Boston and was hired by Humphreys as a lab technician. “I’m very, very lucky to have had this opportunity. I don’t know where I’d be without it,” Penchev said.

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