

## FOSTERING PARTNERSHIPS WITH INDUSTRY IN GRADUATE TRAINING

Catherine L. Fry, PhD

American Society for Pharmacology and Experimental Therapeutics (ASPET)

In 2016, the American Society for Pharmacology and Experimental Therapeutics (ASPET) launched a new program designed to provide PhD students with experience in industrial settings, such as the pharmaceutical or biotechnology sectors, while enrolled in graduate school. Pharmacology doctoral programs have a long history of training scientists who enter non-academic careers, including the biotechnology/pharmaceutical industries and regulatory agencies. The diverse career paths open to those who undertake training in the pharmaceutical sciences are often a strong selling point for graduate programs in pharmacology. Short-term internships in pharma/biotech, undertaken during PhD training, have always been attractive to students interested in non-academic careers. However, academic PhD programs often lack a structured approach to providing such opportunities, leaving students to advocate for and arrange internships in isolation.

ASPET's Pharmacology Industry Internships for PhD students (PIIPS) program funds academic institutions to establish an internship program on their campus that will build from new or existing partnerships with industrial organizations. This program helps address the critical need to provide biomedical PhD students with more comprehensive skills. Proficiencies seen as beneficial for jobs in the pharmaceutical industry include operational intelligence, which incorporates decision-making, information integration, entrepreneurship, and application of scientific knowledge; project/people management; teamwork; communication; and knowledge of compliance and regulatory constraints<sup>1</sup>. These skills are particularly amenable to training in a commercial setting, and an industry internship can be a beneficial first step toward gaining such training. Internships also afford opportunities for greater collaboration and communication between potential employers and academic institutions. The objectives of the PIIPS program include:

1. To increase opportunities for PhD students enrolled in graduate programs with an emphasis on pharmacology to participate in industrial internships during their graduate training.
2. To develop and foster university-industry partnerships facilitating diversity in graduate training and career options related to pharmacology.
3. To facilitate opportunities for PhD students to make informed decisions about careers in the pharmaceutical and biotechnology sectors as well as other allied disciplines such as contract research organizations.
4. To increase participation by industrial and allied organizations in graduate student internships.

---

<sup>1</sup> Janero, DR (2013) Developing doctoral scientists for drug discovery: pluridimensional education required. Expert Opinion on Drug Discovery 8, 2015-113.

PIIPS funding is a 3-year award that provides financial support (stipends) for students while they undertake their internships. Both faculty and student participants must be members of ASPET, a 5000-member nonprofit professional society, thus positioning access to funding as a membership benefit. As part of the proposal, each institution must secure a letter of collaboration from every industrial partner that will host an intern. Institutions are responsible for matching student interns, who must have advanced to candidacy, with host sites. ASPET solicited the first proposals for this program during the summer of 2016, and received a robust response. We funded three initial institutions to establish internship programs in late 2016. While PIIPS is still in its early stages, we have already heard from both funded and non-funded programs that even the act of collaborating on the proposal helped establish or strengthen partnerships between institutions and industry sites, some of whom committed to providing internships even in the absence of external funding. The requirement for institutional matching funds also allowed faculty applicants to capitalize on existing departmental resources, in some cases even committing to provide internships for double the minimum number of students required by ASPET's funding guidelines.

Evaluation of internships by the faculty mentor, student, and industrial organization is built into the program design, as is tracking of student outcomes after the internship concludes. Participating students are also required to give presentations about their internships at a departmental seminar or similar venue, thus bringing additional visibility to the program and to career opportunities in industry. It is our hope that partnerships cultivated during the program will continue beyond the granting period. As the program matures and we collect data on its effectiveness, we plan to seek additional funding to expand the number of available awards. Additional information about PIIPS can be found at: <https://www.aspet.org/PIIPS/>, or by contacting ASPET's Director of Education, Catherine L. Fry, at [cfry@aspnet.org](mailto:cfry@aspnet.org).