



## **PHARMACOLOGY INDUSTRY INTERSHIPS FOR PHD STUDENTS (PIIPS)**

### **INSTITUTIONAL AWARDS**

#### **Program Guidelines and Call for Applications**

Effective: 9/30/2016

#### **1. Synopsis of PIIPS Program**

Pharmacology doctoral programs have a long and honored history of training scientists who enter non-academic careers, including the biotechnology/pharmaceutical industries and regulatory agencies. In fact, the established connection between training in the pharmaceutical sciences and non-academic employment is a strong selling point for graduate programs in pharmacology. Students increasingly embrace the view that their scholarship can have a positive impact on the lives of people. This “culture of impact” has led to a new generation of students who are academic entrepreneurs, and who need both faculty and non-faculty mentors to succeed<sup>1</sup>. Short-term internships in pharma/biotech, undertaken during PhD training, have always been attractive to students interested in these careers. This attraction has only increased in recent years as full-time academic positions have become more difficult to obtain.

The critical need to provide PhD trainees with more comprehensive skills has been noted in many forums<sup>2,3,4</sup>. These competencies, sometimes referred to as “transferable skills”, are typically not taught in traditional didactic programs, but can be conferred through other experiential learning activities during graduate school. Non-research 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; communication; and knowledge of compliance and regulatory constraints<sup>3</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. This program is designed to facilitate industry internships for PhD students in pharmacology and related disciplines. Institutions are invited to apply for funding to establish a PIIPS program on their campus that will build from new or existing partnerships with industrial organizations. 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 the FDA and Contract Research Organizations.
4. To increase participation by industrial organizations in graduate student internships.

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<sup>1</sup> Prestwich, GD (2013) Culture of impact: faculty as mentors for student entrepreneurs. *Science Translational Medicine* 5, 169ed.

<sup>2</sup> Barrett, JE, McGonigle, P, Clark, JE (in press) Translating academic education into pharmaceutical and biotechnology careers. *Drug Discovery Today*.

<sup>3</sup> Janero, DR (2013) Developing doctoral scientists for drug discovery: pluridimensional education required. *Expert Opinion on Drug Discovery* 8, 2015-113.

<sup>4</sup> Alberts, B, Kirschner, MW, Tilghman S, Varmus H (2014) Rescuing US biomedical research from its systemic flaws. *PNAS* 111, 5773-5777.

## **2. Who Should Apply**

Groups of faculty from the same campus who conduct pharmacology-related research including, but not limited to, scientists representing departments of pharmacology, toxicology, pharmaceutical sciences and/or biological chemistry are encouraged to apply for funding to establish a PIIPS program on their campus. If awarded, institutional programs will be responsible for recruiting industrial partners and selecting PhD students to participate in internships.

## **3. Program Requirements**

- a. A group of at least three ASPET Regular members in good standing from one institution may apply, with one ASPET member serving as the Program Director. Any faculty participants in excess of three are encouraged but not required to be ASPET members.
- b. Applications must include a budget and the institution must provide matching funds of at least \$2000 per student (see "Budget" section of application for more details). Requested support from ASPET may not exceed \$5000 per intern and 3 interns per year over 3 years.
- c. Students must participate in an internship for a minimum of 8 weeks.
- d. Student participants must be ASPET members. Graduate student membership in ASPET is free for the first year.

## **4. Terms of the Award**

- a. Awards are normally made for three (3) years, with a maximum of \$15,000 in funding available per year.
- b. Funds will be disbursed yearly, with funds after the first year contingent upon timely completion of the reporting requirements described below.
- c. No indirect costs will be provided. All ASPET funds shall be used for student stipends or wages only.
- d. All awards will be made directly to institutions.
- e. An individual student may not participate in the program more than once; internships must be completed prior to graduation.
- f. Only students of participating faculty shall be eligible for internships.

## **5. Reporting Requirements**

- a. Program Directors are required to submit an annual progress report by December 15 of each award year following the template provided on the [PIIPS website](#).
- b. Program Directors are responsible for ensuring that all interns take an assessment survey within 4 weeks of the conclusion of their internship or by December 15 of each award year, whichever comes first. ASPET will provide instructions for completion of the survey.
- c. Program Directors are responsible for ensuring that all industrial partners complete an assessment survey within 4 weeks after the conclusion of the internship or by December 15 of each award year, whichever comes first. ASPET will provide instructions for completion of the survey.

## **6. Due Dates and Award Timeline**

- a. Applications are due by 5 pm EDT, September 1, 2016.
- b. Applicants will be notified of funding decisions by November 1, 2016.
- c. Funds will be disbursed to awardees in February of each award year.
- d. All reporting requirements described under Section 5 above must be received by December 15 of each award year.

## **7. Application Requirements**

Applications should be emailed by the designated Program Director to Dr. Catherine L. Fry at [cfry@aspet.org](mailto:cfry@aspet.org) and include the following information in a single PDF.

*Cover page*

### **PIIPS Program Director:**

Name and degree(s)

Title

Department

University

City, State, Zip code

Telephone number

Email address

### **Graduate Program:**

Title of Program

Home department/unit

University

Website URL

### **Signatures:**

Program Director

Department Chair

Dean

### **A. Background information for the graduate program (1-1.5 pages of text, single-spaced; two required data tables)**

#### **Please include:**

1. History and goals of the graduate program; role of pharmacology training if this is an “umbrella” program; role of pharmacology in the curriculum and in faculty research
2. Number of students admitted per year; number of students graduating per year over the last five years
3. Demographics (sex and race/ethnicity) of current students in the graduate program
4. Available financial and administrative support of the department/college for the PIIPS program; relationship of proposed PIIPS support to other program support

### **Tables:**

Complete Tables I and II to provide data regarding the participating faculty and potential student interns.

**Table I. Participating Faculty Members**

| Name/Degree(s) | Rank | ASPET member | Primary (& Secondary) Appointment(s) | Role(s) in PIIPS Program | Research Interest |
|----------------|------|--------------|--------------------------------------|--------------------------|-------------------|
|                |      |              |                                      |                          |                   |
|                |      |              |                                      |                          |                   |
|                |      |              |                                      |                          |                   |
|                |      |              |                                      |                          |                   |

**Table I Instructions:** List alphabetically each faculty member participating in the proposed PIIPS program with his/her degree(s), academic rank, ASPET membership (Y/N), primary departmental affiliation and secondary appointments, role in the proposed PIIPS program (Program Director or participant), and research interests that are relevant to the program.

**Table II. Current Predoctoral Trainees**

| Trainee (List by Number) | Year of Matriculation | Dept./ Program | Previous Institution(s) | Prior Degree(s) & Year(s) | Undergrad GPA | Current Research Mentor | Title of Research Project |
|--------------------------|-----------------------|----------------|-------------------------|---------------------------|---------------|-------------------------|---------------------------|
|                          |                       |                |                         |                           |               |                         |                           |
|                          |                       |                |                         |                           |               |                         |                           |
|                          |                       |                |                         |                           |               |                         |                           |
|                          |                       |                |                         |                           |               |                         |                           |

**Table II Instructions:** List the qualifications of predoctoral trainees in your program who are eligible for PIIPS (eligibility requires that the student has advanced to candidacy and is involved in research with a pharmacology emphasis; their mentor must be listed in Table I as a participating faculty member). Trainees should be listed anonymously and identified by a number in sequence, rather than by name, to safeguard privacy. For each trainee, list: year of matriculation into program; department/program of entry; previous institution(s), degree(s) and year awarded; undergraduate GPA; current research mentor; and title of research project. Please sort trainees by year of matriculation into the program.

### **B. Career training opportunities offered in the graduate program (1 page, single-spaced)**

In this section, please address:

1. How the proposed PIIPS program would enhance existing efforts and interface with the strategic plan of the graduate program
2. Prior or existing industrial internships that are available to students in the graduate program, including the number of graduate students in the program who have participated in industry internships within the past year
3. Number and type of opportunities for graduate students in the program to learn about career options in industry (e.g., guest speakers, career forums, professional development workshops)

### **C. Industrial partners**

For each proposed partner, provide a letter of support from an appropriate official at the industrial organization. Each letter should contain:

1. Name and location of the industrial organization
2. Brief description of the organization and examples of the experiences potentially available to interns
3. Any previous educational collaborations between the institution and the industrial organization

#### **D. Program logistics (1 page, single-spaced)**

1. Describe the policies and procedures, including a timeline, for applications by PhD students, including the information that will be requested. Please describe the review criteria and process, including who will review the applications. At a minimum, ASPET requires the following criteria for participation:

- a. advanced to PhD candidacy
- b. written support of the PhD mentor, who must be listed in Table I
- c. personal statement indicating their interest in exploring non-academic career options

2. Describe the policies and procedures for scheduling and monitoring the internships (length of internships, policies for any internships scheduled during times when the interns are normally enrolled for credit, etc.). Internships must be at least 8 weeks in duration.

3. Describe the proposed mechanism/venue for interns to report on their PIIPS experience at their home institution, including the intended audience.

4. Describe any proposed internal assessment of the PIIPS program, to complement required ASPET assessment data.

#### **E. Budget (1 page, single-spaced)**

1. Describe how ASPET funds will be used. The budget must delineate academic cost-sharing at a minimum of \$2000 per intern per program year. Contributions from the academic institution may include the following: stipend, benefits, travel to the internship site, housing, and tuition remission. Please describe any cost-sharing from the industrial partner, if applicable. The requested contribution from ASPET must not exceed \$5000 per intern and 3 interns per year. ASPET funds can be used only for stipends or wages.

#### **F. Biosketch for the PIIPS Program Director (3 pages maximum)**

Attach an NIH biosketch (General, Version C) for the Program Director. **The biosketch should address the individual's contributions to graduate training and mentoring as well as relevant administrative or program management experience.** See

<http://grants.nih.gov/grants/funding/424/index.htm#biosketch> for templates and examples.

#### **G. Contact Information for Financial Official**

If an award is made, please include the name and mailing address of the institutional official who will accept payment. Be sure to indicate to whom the check should be made out.