

National Institute of General Medical Sciences
Postdoctoral Research Associate (PRAT) Program

Strategic Plan

Program Background and History

The NIGMS PRAT Program (originally named the Pharmacology Research Associate Program) was established 1965. Its purpose was to support the training of highly qualified and carefully selected postdoctoral scientists in intramural National Institutes of Health (NIH) and Food and Drug Administration (FDA) laboratories. The size of the program has ranged from an initial 13 fellows to a maximum of 22 fellows, and in recent years, enrollment has ranged from 11 to 15 fellows. A key goal has been to support the development of leaders in pharmacological research in academia, industry and government.

Since it began, the PRAT Program has undergone several changes. For example, while fellows were initially supported for 3 years, in the 1990s, the training period was reduced to 2 years; in 2005, NIGMS reinstated a third year of support. Another change is the source of trainees: Before the 1990s, fellows were recruited from outside NIH and FDA. In the 1990s, upon viewing the recruitment and selection process of outside applicants as too labor-intensive for NIH staff, the program began selecting fellows almost exclusively from the pool of postdoctoral scientists who had already accepted positions in NIH or FDA laboratories or who had been in an intramural laboratory for less than 1 year. A further change over time has been a shift in scientific emphasis. What began as a program narrowly focused on pharmacology and toxicology has evolved to also support fellows in scientific areas only marginally related to pharmacology. In recognition of this shift, in 2012 “Pharmacology” in the P-R-A-T acronym was changed to “Postdoctoral.”

The Program Today

Currently, the PRAT Program distinguishes itself from standard NIH intramural postdoctoral training by providing, in addition to the laboratory research experience, personal mentorship by the PRAT Program director(s), extensive career development activities, a monthly seminar series

on both research and career development topics, networking activities, presentations by the fellows and the option to pursue a short-term position in a non-laboratory setting. The PRAT Program has a strong reputation and an enviable track record. Former fellows have filled key leadership positions in all research sectors. Many have become academic department chairs and deans; NIH lab chiefs; and presidents, vice presidents and directors in pharmaceutical or biotechnology companies. Fellows have pursued other successful careers, as well.

Program Impact and Benefits

In addition to providing financial support for a group of fellows, PRAT benefits the intramural research program in other ways. In particular, the program greatly broadens the experience of participating fellows through its emphasis on intensive mentoring, career development activities and leadership training. In so doing, it indirectly enhances the experience of other NIH and FDA intramural postdoctoral scientists. The intramural program has been trying to increase its diversity, and PRAT has had a good record of attracting women and members of groups underrepresented in the biomedical sciences. The program can also strengthen NIH's intramural research focus in the basic biomedical science areas that NIGMS supports extramurally.

Benefits accrue to NIGMS, as well. The PRAT Program can serve as a test bed for innovative training, and successful experiments can be applied to extramural training programs supported by the Institute. The PRAT Program can also foster closer interactions between NIGMS staff and intramural scientists, facilitating the ability to share expertise and knowledge. Renaming the program "NIGMS PRAT" would emphasize the distinctiveness of the program and raise the awareness of the NIGMS mission within the intramural community and of NIGMS' role in managing the program.

Strategic Goals and Objectives

NIGMS PRAT has fulfilled its mission very well.¹ However, in light of changes in how research training is conducted in the 21st century and recognizing that the program has evolved over nearly half a century, NIGMS leadership recognized that a strategic planning process was

warranted to continue to optimize the direction for the program over the next 5 years. To develop this strategic plan, a small committee of NIGMS staff studied the program's history in depth and met with its former program directors, members of the PRAT Advisory Committee and Dr. Michael Gottesman, NIH Deputy Director for Intramural Research (see Appendix). Past and current fellows were not interviewed because, as part of an assessment in 2011, 15 fellows were interviewed in depth.²

The NIGMS PRAT Program's overarching goal is to provide high quality research training in the basic biomedical sciences, in NIH and FDA intramural research laboratories, to a diverse group of postdoctoral fellows to prepare them for leadership positions in biomedical careers. This training includes a mentored laboratory experience as well as intensive career and leadership development activities. The specific goals are to:

- Provide outstanding and innovative training in NIGMS mission-related basic biomedical research areas.
- Provide intensive training in career and leadership development in academia, government and industry.
- Select an outstanding and diverse group of fellows through a highly competitive application, review and selection process.
- Foster efficiency in the administration of the program.

This strategic plan charts a 5-year course for NIGMS to maximize the effectiveness and impact of the NIGMS PRAT Program by focusing on excellence in training, mentorship, career and leadership development; diversity in people and thought; and efficiency in management.

Provide outstanding and innovative training in NIGMS mission-related basic biomedical research areas

The NIGMS PRAT Program currently supports fellows pursuing training in a broad and vaguely defined range of scientific areas. Going forward, NIGMS PRAT will support fellowship training in NIGMS mission-related areas of basic biomedical science. These include cell biology,

biophysics, genetics, developmental biology, pharmacology, physiology, biological chemistry, computational biology, technology development and bioinformatics. Studies employing model organisms will be encouraged. Closer alignment of NIGMS PRAT with the NIGMS mission and research portfolio is expected to increase the potential impact of this program as well as the scientific diversity of the NIH/FDA intramural research portfolio.

High-quality mentorship is a defining feature of the NIGMS PRAT Program. The NIGMS PRAT Advisory Committee and the NIH Deputy Director for Intramural Research will be consulted to ensure that fellows train only with intramural scientists who have excellent training records. NIGMS PRAT fellows will be encouraged to broaden their training by attending scientific seminars on the NIH campus, traveling to scientific meetings, participating actively in lab meetings, making scientific presentations and publishing the results of their research. Fellows will also receive formal training in the ethical conduct of research and scientific methods, including a focus on the reproducibility of data. All fellows will be strongly encouraged to take courses in quantitative biology and statistics, if they have not already done so. They will also be exposed broadly to the cutting-edge technologies for which the intramural program is noted.

The NIGMS PRAT Program also has a unique opportunity to foster innovative postdoctoral training through “experiments” that, if successful, could be exported for use to the extramural academic community.

Provide intensive training in career and leadership development in academia, government and industry

NIGMS PRAT fellows augment their research training through intensive career development activities. The program will continue to provide training in oral and written communication skills through opportunities to deliver frequent scientific presentations and to practice writing grants. Fellows will also develop skills in networking and forming collaborations, as well as in laboratory management.

NIGMS PRAT fellows will be required to establish individual development plans in collaboration with their lab mentors and the NIGMS PRAT Program director. The NIGMS PRAT Program director is encouraged to develop a career development curriculum for all NIGMS PRAT fellows as well as advise on customized plans based on the individual needs and interests of the fellows.

NIGMS PRAT fellows will be exposed to various career options, since it is likely that they will follow a wide range of career paths. This will be done by inviting speakers to talk about their scientific careers and by giving fellows the opportunity to pursue details outside the laboratory setting.

Leadership training will remain a key component of the NIGMS PRAT experience and might include formal leadership courses and lectures, confidence-building activities and opportunities to take on leadership roles in the intramural program or in the broader scientific community.

Select an outstanding and diverse group of fellows through a highly competitive application, review and selection process

Currently, NIGMS PRAT fellows are drawn only from the pool of postdoctoral scientists who have been accepted into an NIH or FDA intramural laboratory or who have been in an intramural laboratory for less than 1 year. While the quality of fellows selected from this pool has been outstanding, a number of reasons justify expanding the candidate pool to include postdoctoral scientists outside NIH/FDA. Expected benefits of this approach include: increasing competition and selectivity, increasing the number of women and individuals from underrepresented groups, and casting a wider applicant net and thus increasing the visibility of the NIGMS PRAT Program. It is recognized that a broader recruitment will result in more applications and a greater workload for the NIGMS PRAT staff. It will be necessary for the Institute to make available appropriate resources.

The NIGMS PRAT application will mirror the Ruth L. Kirschstein National Research Service Award application for postdoctoral fellowships (F32). The NIGMS PRAT Program director will

explore whether applications may be submitted through Grants.gov to allow capture of data elements in the IMPAC II database. Alternatively, F32 applications could be accessed by applicants and submitted electronically to NIGMS, where the data could be downloaded automatically to a database.

The NIGMS PRAT Program director will develop rigorous review criteria and publicize these standards to applicants and reviewers. NIGMS will continue to review applications via a review panel that resembles a standard study section, and these panels will prepare and distribute brief critiques to applicants. If workload and resources permit, NIGMS should conduct in-person interviews of the finalist group of NIGMS PRAT fellow applicants

Foster efficiency in the administration of the program

Several administrative considerations affect the ability of NIGMS to achieve the goals in this strategic plan. First, since pharmacology is no longer its scientific focus, the NIGMS PRAT Program is now housed in the NIGMS Division of Training, Workforce Development, and Diversity (TWD). This location will enable synergies between this intramural program and NIGMS' extensive extramural training programs. Within TWD, however, the NIGMS PRAT Program should maintain independence, with the program director reporting to the NIGMS deputy director. NIGMS leadership considered an alternative location within the NIGMS Office of the Director, but that option was not feasible for administrative reasons.

Second, to increase administrative efficiency and improve the overall experience for NIGMS PRAT fellows, all years of support will be provided by an Intramural Research Training Award (IRTA). Currently, PRAT fellows are supported in their first year by an IRTA and in the second and third years under a Title 42 appointment (temporary full-time employee, or FTE). There are many differences between these types of appointments, including permitted activities, approval of travel, benefits, ethics rules and performance evaluations. Other distinctions include whether NIGMS or the fellow's home institute is responsible for certain administrative functions, such as pay and travel. Although there are some advantages to the FTE appointment (i.e., the "status" of a government position and the ability to accrue retirement benefits), there are overwhelming

advantages to IRTA support throughout program participation. These include increased flexibility to travel, participate in job interviews and accept awards; to use maternity or paternity leave; and to pursue a short-term work experience outside the lab. NIGMS PRAT fellows will continue to be paid at a higher stipend level than other IRTA-supported postdoctoral scientists based on the highly competitive nature of the NIGMS PRAT Program.

Third, the NIGMS PRAT Program requires sufficient resources to allow the proper recruitment and review of fellows as well as career development opportunities that are essential to the program, such as inviting outside speakers, hosting an annual symposium and providing continued curriculum development.

Fourth, the NIGMS PRAT Program requires a searchable database that has defined standards and can interface with the IMPAC II database. Program applicants and mentors should be able to enter information directly into NIGMS PRAT application forms. That information should be directly and automatically downloaded into the database. The database should enable tracking of application receipt and review and of fellows while supported by NIGMS PRAT and of their subsequent career progression. (A detailed assessment of PRAT database needs³ was conducted in 2011.)

Finally, one of the reasons for developing and maintaining a robust database is to evaluate the outcomes of the NIGMS PRAT Program. This will require the development of evaluation criteria and the conduct of routine assessments as to whether the program is meeting those criteria.

Footnotes

¹ Abt Associates, NIGMS Evaluation Support Services Task 2: Exploratory Assessment of the Pharmacology Research Associate Program (PRAT), 2011, p. 14.

http://dpcpsi.nih.gov/sites/default/files/oep/document/Final_Report_%2810-5204_NIGMS%29_10-17-11.pdf

² Ibid., p.11-15.

³ Ibid., pp. 18-32.

April 28, 2014

Appendix

NIGMS Strategic Plan Committee

- Judith H. Greenberg, Chair
- Alison Cole
- Shiva Singh
- Amy Swain
- Jessica Faupel-Badger (Ex Officio)

NIH Staff Interviewed

- Former PRAT directors Pamela Marino and Richard Okita – December 3, 2013
- Written input from PRAT Advisory Committee member Julie Segre (NHGRI) – December 16, 2013
- PRAT Advisory Committee members Peter Blumberg (NCI), Katherine Roche (NINDS), Willie Vann (CBER, FDA) and Kenton Swartz (NINDS) – January 7, 2014
- NIH Deputy Director for Intramural Research Michael Gottesman – January 30, 2014