

## 2007-2008 NIH Intramural MD/PhD Partnership Program

### *Frequently Asked Questions*

Below are answers to some of the most frequently asked questions about the NIH Intramural MD/PhD Partnership Program. An archived video presentation and Q&A session about MD/PhD training and the NIH intramural MD/PhD Partnership is also accessible at <https://webmeeting.nih.gov/p63758124/>

#### **A) General FAQ about MD/PhD Training**

***Is MD/PhD training right for me?*** Obtaining combined MD/PHD degree training is a preferred training pathway for students who are committed to careers combining biomedical research with the practice of clinical medicine. Obtaining the intensive mentored training of a Ph.D. and seeing a scientific project from start to finish while still at a student level builds a good foundation for future independent research, and obtaining medical school training which usually 'book-ends' the Ph.D. training fosters thinking that combines the knowledge base of clinical medicine with the investigatory skills of a Ph.D. researcher. The Medical Scientist Training Program (MSTP), an NIH-sponsored training program administered by the National Institute of General Medical Sciences (NIGMS) at 42 U.S. medical schools, provides funding for MD/PhD training to 41 U.S. Medical Schools which allows these schools to offer students full tuition waivers and a Ph.D.-level stipend. Individual medical schools also offer equivalent MD/PhD training programs outside of the MSTP. In total, about 500 new students begin MD/PhD training each year nationwide. MD/PhD-trained investigators have been extremely successful in biomedical research compared with M.D.-trained peers. Although they make up only 3% of medical school graduates, MD/PhD-trained investigators hold 30% of NIH grant funding given to physician-researchers. MD/PhD's have a slight advantage in obtaining research grants over Ph.D.-trained peers.

However, MD/PhD training is definitely not for everyone. If you plan to be a lab-based researcher, even if you study mechanisms of human disease, obtaining a PhD in a field of biomedical research may be a better option, and there are increasing opportunities for students in PhD training to obtain special competency in translational research. If you plan to do primarily clinically-based research, a Master's degree in public health or epidemiology may be a better option for you. This is a long (seven to eight year) training pathway, and the financial benefits of tuition and stipend support during medical school fall far short of what one can earn in three to four years of clinical practice that one would give up to do PhD training.

**What do MD/PhD's do after graduating?** Most MD/PhD trainees enter clinical

residency training after completing their degrees, and have gone into every field of medicine with an outside proportion training in Pathology and Medical and Pediatric subspecialties. Training in procedure-oriented medical subspecialties and surgical subspecialties is possible, although this carries with it the extra challenge of maintaining competency in complex medical procedures while running a research lab. MD/PhD trained physicians are also in demand by the pharmaceutical industry as experts in translating basic discoveries into new therapeutics. The next research experience after MD/PhD training usually occurs during subspecialty fellowship in the medical specialties or during the research years of longer surgical residency training programs. A number of academic institutions have 'physician-scientist' training tracks in their residency and fellowship training programs tailored for the interests of MD/PHD graduates.

### ***B) Applying to the NIH intramural MD/PhD partnership program***

***Is the NIH MD/PhD partnership a 'stand-alone' MD/PhD training program?*** No. The NIH Intramural MD/PHD partnership training program coordinates training, activities and funding for MD/PhD students who conduct research in the intramural research program of the NIH as part of a coordinated plan of dual-degree training with a U.S. medical school as preparation for a career as a physician-investigator in basic or translational science. Students earn the Ph.D. degree through [individual graduate partnerships](#) with their medical school or through one of the sixteen NIH [Institutional Graduate Partnership Programs](#). An NIH scientist serves as your mentor or co-mentor for the Ph.D. portion of your training.

***Do I need to be a U.S. citizen to participate in this program?*** Yes, you do need to be a U.S. citizen or permanent resident to participate in the MSTP-funded portion of the program with U.S. medical schools. Foreign graduate students and holders of MD's or PhD's from other countries can arrange [individual partnerships](#) through the GPP or apply for the [NIH visiting post-doctoral fellow program](#).

***What are the benefits of participating in the NIH Intramural MD/PhD Partnership program?*** GPP Students enrolled in combined degree training will receive the enhanced curriculum offered to MD/PhD students at their medical school, which often includes coursework and seminars designed for combined degree trainees, as well as modified clinical rotation requirements. At NIH a number of activities have been set up for combined-degree trainees. Students accepted to MSTP-funded MD/PhD programs and the NIH Intramural MD/PhD Partnership will receive tuition and stipend benefits in most cases equivalent to traditional MD/PhD students, which involves full tuition waiver and a stipend similar to that of Ph.D. trainees for the duration of MD/PhD training.

**Which MD/PHD partnership training track is right for me?** **Track 1** is the closest training track to the traditional MD/PhD training programs, where 1 ½ to 2 years of pre-clinical training is accomplished before starting in the lab full time. Because less than two years elapse between the completion of PhD research and clinical residency training, this training pathway has the advantage of minimizing the time away from research between the PhD and post-doctoral training. **Track 2** is for students currently enrolled in medical school or at NIH in ‘year-out’ programs from medical school. Once accepted, students’ training in this pathway would be similar to Track 1. **Track 3** (Ph.D. first) is a special pathway for students currently in GPP training with at least one year of graduate training remaining. Track 3 is also appropriate for students who must start training with the Ph.D. phase due to a non-deferrable scholarship such as the Rhodes or Marshall programs. Students in post-baccalaureate training in NIH labs should select Track 3 only if they would like to stay in their current lab and they and their mentor feel that the research would suffer if interrupted for medical school training. Students in Track 3 generally finish the bulk of their Ph.D. research before medical school and are then required to have a research mentor and perform additional research during the medical school years.

**Which NIH Ph.D. partnerships are best for MD/PhD students?** Students can combine MD training with any of the NIH institutional partnerships or individual partnerships. Typically students arrange an individual Ph.D. partnership with the Ph.D. granted by a department at the student’s medical school or enroll in an institutional partnership with fewer PhD course requirements. The programs granting a European D.Phil (Karolinska, Oxford, and Cambridge) are highly compatible with medical school due to their streamlined structure and minimal coursework requirements. Discipline-specific [NIH Institutional Ph.D. graduate partnerships](#) at medical schools such at University of Pennsylvania (Immunology), New York University (Structural Biology), Neuroscience (Brown University), and Bioinformatics (Boston University), may also be combined with M.D. training at those universities under the NIH intramural MD/PHD partnership (are eligible to do their Ph.D. research at NIH).

**When and how do I apply for the NIH intramural MD/PHD partnership training?** If you are not currently enrolled in medical school, you should apply for the NIH intramural MD/PhD partnership *in the same admissions cycle* as you are applying for traditional MD/PhD programs and GPP training for **track 1**. The application deadline for track 1 is in early January with details available on the [GPP web site](#). Interviews for MD/PhD applicants will be coordinated with the GPP program(s) to which you apply. The MD/PhD program application does NOT count against the limit for number of NIH partnership

programs to which you can apply. If you are a medical student you should apply for **track 2** in January of year you would like to start Ph.D. training. If you are a current GPP student you should apply for internal 'pre-review' in the spring BEFORE applying for **track 3**. This deadline is in late May or early June [GPP web site](#). Applications for track 3 training may be submitted to most schools for deferred enrollment in medical school after completion of the bulk of the Ph.D. research. In all cases, to be eligible for funding through the partnership MSTP you **must** apply to medical schools participating in the [national MSTP](#) and apply for MD/PHD training even if you are already enrolled or fully intending to do your Ph.D research at NIH. This is to give you maximum flexibility and also to allow the medical school MSTP program to independently consider your application. A significant portion of the costs of MD/PHD training even for NIH partnership students is borne by the Medical School MD/PHD training program. If you are accepted for MD-only training you can participate in the program but will not be eligible for tuition and stipend benefits during medical school.

***Which Medical Schools participate in the program?*** All medical schools receiving training funds from the [NIGMS MSTP](#) (Weblink) are eligible to participate, however financial and programmatic issues may limit the participation of some schools. As of 2007, the following schools have declined to participate in the MSTP funding aspect of the partnership: University of California, San Francisco and the Cornell/Rockefeller/Sloan-Kettering program. The University of Pennsylvania is currently limiting participation to MD/PhD students in the [NIH-University of Pennsylvania Immunology GPP](#). Albert Einstein School of Medicine is limiting consideration to students already enrolled in medical school (Track 2). Please contact the NIH and medical school MSTP program directors for questions about a specific program's participation.

***I have been accepted by a traditional M.D./Ph.D program. Can I participate in the NIH MSTP?*** Yes. If allowed by your Ph.D. program, you may be able to do all or part of your PhD research in an NIH lab, and obtain your PhD from the University affiliated with your Medical School. You can also apply for one of the formal NIH GPP programs with the PhD obtained from elsewhere. However, these options must be discussed with your MD/PhD program advisors ahead of time and written permission to apply for either of these options *must* be obtained from the director of your MD/PhD program.

***If I enroll in a GPP, is acceptance in the MSTP program guaranteed?*** No. Admission and the financial support to pursue this training pathway must be granted independently by the MSTP program of your medical school and the admissions committee of the NIH intramural MD/PHD partnership. The NIH GPP will work with your medical school and its MSTP to make sure the details of this program are accurately communicated. Standards for admission to the NIH intramural MD/PhD partnership are

this program are at least as high as MD/PhD training nationwide, where accepted candidates have average MCAT scores of 33 and a college GPA of 3.7 in addition to significant laboratory or translational research experience. For the partnership program, we are looking for students with exceptional record of previous research accomplishments, and sufficient focus and independence to navigate the challenging aspects of partnership training, which involves multiple training institutions and often two PhD mentors.

***I am a current GPP Ph.D. student and want to go to Medical School. What should I do?***

If you intend to primarily practice medicine after graduating from medical school, you should apply for MD training and not participate in the NIH intramural MD/PhD partnership program. If you intend to spend at least 50% of your time in a research setting (basic or translational) you should apply for pre-review by the NIH intramural MD/PhD partnership in the spring before applying to MD/PhD programs under **track 3** of the MD/PhD partnership. You must have at least one year of Ph.D. training remaining and be in good academic standing in your GPP. During interviews with representatives of the NIH intramural MD/PhD partnership you will receive individual counseling about which schools would be most appropriate to apply to. If you are declined support for MSTP funding by the NIH intramural partnership you are free to re-apply to the MSTP partnership in a future year or apply to medical school for MD training following your PhD without NIH financial support.

***I am a medical student interested in switching to track 2 partnership MD/PhD training. What should I do?***

You should apply to one of the [NIH institutional partnership PhD. programs](#) or arrange an individual partnership with a PhD program at your medical school and an NIH investigator. Additionally if you want to be considered for NIH partnership funding on your return to medical, you *must* apply to your MSTP program as an internal candidate. Currently, all medical schools funded by the MSTP allow this, other than U.C.S.F., the Cornell/Rockefeller/Sloan-Kettering tri-institutional program, and the University of Pennsylvania (with the exception of students in the NIH-U. Penn immunology GPP).

***I am a post-baccalaureate student doing research at NIH in the post-bac IRTA or tech-IRTA program. How should I apply for NIH intramural MD/PHD partnership training?***

You are not committed to the lab you are currently working in so you should apply to the MD/PhD training programs of your choice across the country and simultaneously apply to an NIH GPP for the PhD training. You could return to your current lab after the pre-clinical years of medical school. If you are committed to finishing research training in the lab in which you are currently working before attending medical school, you can pursue by applying to a GPP PhD program and simultaneously or

subsequently applying to track 3 of the MD/PhD partnership. See above for comparison of these training pathways.

***I am attending a Medical School that does not currently receive NIH MSTP funding. Can I still participate in this program?*** If accepted into a GPP program, you can participate in combined degree training activities and receive funding for Ph.D. training. There is currently no mechanism for distributing MSTP funding for the medical school portion of the training to schools not receiving an MSTP grant. Loans and scholarships for this may be available through your medical school, and some non-MSTP funded MD/PhD programs have allowed students to do all or part of their Ph.D. research in the intramural program of NIH. However, there are individual NIH fellowships that fund both phases of MD/PhD training at any U.S. medical school in [specific disciplines](#) from certain NIH institutes or from all NIH institutes for students from [minority or disadvantaged backgrounds](#). Students must have chosen a research mentor and specific plan of study to apply for these grants.

## C) Program features

***What can I do to maintain ties to clinical medicine while I am in the research phase of NIH Intramural MD/PhD Partnership training?*** GPP Students enrolled in combined degree training will receive the enhanced curriculum offered to MD/PhD students at their medical school, which include program retreats, coursework and seminars designed for combined degree trainees, as well as modified clinical rotation requirements. The program aims to provide bridges to clinical medicine and clinical investigation while students are in the research phase of training at the NIH. Students participate in a number of activities to this end, including individually arranged longitudinal clinical preceptorships with clinical investigators at NIH's [Clinical Center](#), the nation's largest hospital devoted entirely to clinical research. Students can attend [NIH Clinical Grand Rounds](#) and the [Demystifying Medicine Course](#), and are eligible to attend the annual [National MD/PhD student conference](#) in Colorado and the Clinical Investigator Student Conference in Bethesda. Special forums in translational research will be sponsored by the NIH Intramural MD/PhD Partnership Program at selected NIH GPP events such as program-specific colloquia and the annual GPP student symposia and retreats.

***What can I do to maintain ties to research during the medical school phase of my training?*** In track 3 of the NIH intramural partnership program, at least four years may pass after your PhD training where you would not be engaged in research full time. This is not an optimal situation because your research skills may deteriorate due to lack of

use. To prevent this from occurring, we expect students in this training pathway to plan an extension of their PhD research or a related project with a mentor at the medical school; this arrangement would ideally involve participation on the part of your current PhD mentors. When you are researching MSTP programs to which you are considering applying, we strongly recommend you focus on those with suitable mentors and research time built into the medical school curriculum.

***What advising and career counseling will I receive in the NIH intramural MD/PhD partnership program?*** In addition to the GPP and Medical School MD/PhD program advisors, NIH intramural partnership students will be assigned to a **designated NIH faculty member MD/PhD advisor** for the length of their training. These advisors are all experienced physician-scientists who serve on the steering committee of NIH intramural MD/PhD partnership program. Students submit an individualized training plan in the first year of their training and annual progress reports which are shared with their medical school, graduate school and MD/PhD advisors.

**Still have questions?** Contact Bridget Lampert, Managing Director of the program or Richard Siegel, Program Director.

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