

Chairs' Corner – April 2008
Medical Scientist Training Programs

TO: UW Foundation, Campaign Cabinet, Deans, Development & Alumni Staff
FROM: Orin C. Smith, Chair, UW Foundation
Daniel J. Evans, Vice Chair, UW Foundation
William H. Gates, Campaign Chair

Dear Friends,

Medical training makes heavy demands on future doctors: four rigorous years of medical school, additional years of specialist training in residency and beyond, and a cumulative loss of sleep that is best not calculated. PhD programs have their own heavy demands: intensive coursework followed by years of independent (and often lonely) research—and then, that dissertation. And then, a post-doc for yet more training.

Who, of sound mind and ordinary human body, would sign on for *both* an MD and a PhD?

Well, there are about 65 MD/PhD programs around the country, and admission to these programs is fiercely competitive. The UW's program, like the medical school itself, is among the very best. (When applicants are considering multiple offers, the only programs to which we consistently lose more students than we draw are Harvard/MIT and UC San Francisco. Only a handful of other programs—Stanford, Duke, Cornell/Rockefeller/Sloan-Kettering—are really competitive with the UW for students.)

Last year, 317 ambitious young men and women applied to the UW program. Only 47 were invited for interviews, 24 were accepted, and 12 actually entered the program last fall. Their scores on the GPA and MCAT exams exceed those of both straight medical students and straight PhD students, and, equally important, they already have the kind of research experience that equips them to know what they are getting into.

What are these students looking for? By and large, their goal is to get the best possible training for biomedical research and then to enter the ranks of medical-school professors and researchers.

It was exactly the desire to encourage this pathway—to bring more doctors into research—that led the National Institutes of Health, back in 1964, to create a national MD/PhD initiative called the Medical Scientist Training Program, or MSTP. The UW was chosen to participate in the program early on (1971) and is now one of 35 MSTPs funded by the NIH. That funding carries a tremendous advantage for students: the NIH pays all their medical-school costs plus a stipend (and their PhD costs are covered by the research labs in which they work, which at the UW are currently spread among 13 different departments, from biochemistry to genome sciences to neurobiology).

Dr. Marshall Horwitz is associate director of the UW's MSTP and is himself a graduate of the program. "In the explosion of medical research since the 60s," he says, "the national MSTP has been the primary vehicle that propels physicians to go into research. Today, it produces about two-thirds of all the country's MD/PhDs." The UW program itself has graduated 150 MD/PhDs in its 37 years and has 88 current students.

Of course, there are plenty of eminent medical researchers who did not go through an MSTP, and they include Dr. Horwitz's three fellow directors of the UW program. Dr. Lawrence Loeb, who has headed the program since 1986, put together his own MD and PhD (from two different universities) back before the MSTP existed. During his 32 years at the UW, his ideas and research have made fundamental contributions to our understanding of the relationship between cell mutations and cancer. Professor Mary-Claire King, who now co-directs the MSTP, has "only" a PhD but of course is famous as the researcher who first identified a specific gene linked to breast cancer. And Dr. Alec Clowes, a vascular surgeon and another associate director of the MSTP, has been a prolific researcher in the biology of blood vessels, despite having "only" an MD.

Yet all four directors—who run the MSTP as a labor of love, without compensation—are passionate about the benefits of the program. Combining medical and PhD training, says Dr. Horwitz, "promotes 'translational' research that is more likely to pay off with respect to clinical advances in the form of 'bench to bedside' discoveries (or vice-versa)." The scientific rigor and open-ended problems of PhD research join forces with "the sort of ingenuity and perhaps more flexible approach to problem-solving that medical practice—an 'art' as well as a science—entails." And the medical training gives researchers direct clinical experience of the problems they are working on. Without such experience, says Dr. Horwitz, "there may be subtle clues to disease origins that go undetected, or you may fail to appreciate how routes of administration and side effects, or even economics and marketing, might skew approaches for developing new therapies." Teaching and patient care, he says, are also enhanced by the dual perspective of the MSTP.

If the program's directors love the *idea* of the MSTP, they are even more enthusiastic about the students themselves. "When they come into a room," says Dr. Loeb, "it lights up with their energy. You start discussions at the very top. They are the best of the best, and each class has its own identity." Atis Muehlenbachs, who is about to graduate from the program, has a slightly different but equally positive take on his fellow students: "They're really wonderful—quirky personality types with interesting and bizarre hobbies. Of course they're all workaholics, but there's a veneer of relaxation and casualness—maybe that's the West Coast influence."

Half of these exceptional people end up staying in Seattle, many at the UW, and that, says Dr. Clowes, is another major benefit of the program. Case in point: Dr. Horwitz. He came to the program in 1983 from southern California, ended up working with Dr. Loeb in his pathology lab, finished the program in 1990, looked around for residencies and decided the UW had the best opportunities, later looked around again and chose a clinical post-doc in medical genetics at the Hutch, joined the medical-school faculty, and is now a full professor, doing research on genes responsible for blood diseases. "Life

was good,” he says. “There was never much reason to go elsewhere.” Along the way, he has picked up two prestigious national honors: a Presidential Early Career Award in Science and Engineering and, just last fall, an NIH Director’s Pioneer Award. The Pioneer awards (with \$2.5 million in funding) are meant to help transform American medical research; only twelve were given.

Atis Muehlenbachs, perhaps, will follow a similar path. He too is staying at the UW for his residency (in pathology). Although he hopes to follow that with a post-doc in parasitic diseases at the Centers for Disease Control or NIH (he has done research on malaria in pregnancy), he thinks of Seattle as his ultimate home: “I fell in love with the Northwest. And the mentoring in the MSTP program has been incredible—having such amazing scientists in close proximity.”

There is only one cloud on the MSTP horizon, and that, you may not be surprised to learn, is financial. With program costs increasing each year and NIH funding expected to be flat for the foreseeable future, Dr. Loeb and his colleagues are trying to find additional ways to sustain the program. MSTPs at some other universities have dedicated endowments, and that would be a welcome development here.

For Dr. Clowes, the MSTP is “the jewel in the crown” of the medical school. Along with Dr. Loeb, Professor King, and Dr. Horwitz, he will do everything possible to keep that jewel as bright as it is today.

Orin, Dan, and Bill

Looking Back—**Outstanding** Campaign News

- **Total Campaign giving since July 1, 2000, has surpassed the \$2.5 Billion goal. As of March 31, 2008, \$2,588,611,112 has been received.** The push continues for a strong Campaign finish in the final months.
- The March Report of Contributions Notes is attached and contains fundraising details.

Looking Ahead

- **Friday, April 25, 2008**, Foundation Board & Campaign Cabinet Meeting, 9:00 a.m. coffee, 9:30-11:30 a.m. meeting. Auditorium, UW Tower (formerly Safeco). Dedication of UW Tower, noon-12:30 p.m. Washington Weekend April 24-26, 2008.
- **Friday, September 26, 2008**, Campaign Finale. Foundation Board & Campaign Cabinet Meeting, and Recognition Gala.