MD-PhD: Is it Right for Me?

Communications Committee of the MD-PhD Section of the Group of Research, Education, and Training (GREAT) AAMC

- Careers
- Application Process
Who are biomedical scientists? People who...

- Are *fascinated* by human biology and disease
- Have an *aptitude* for science and are *curious* about how/why things work the way they do
- Are *creative*
- Have the *persistence* to see a project from small beginnings to great discoveries

Biomedical scientists want to use the power of research to understand and cure human disease
Multiple Pathways to become a Biomedical Scientists

- **MD graduates** pursue research training during fellowship years

- **PhD graduates** conduct research with clinical translational training ([www.aamc.org/phd](http://www.aamc.org/phd))

- **MD-PhD graduates** combine careers of the MD and PhD
  - Mentored, integrated research and medical training
  - Conduct mechanism-based research
  - MD & PhD may be completed separately
MD-PhD’s blend
discovery of new knowledge
with clinical medicine
at the intersection of science and medicine
Where is MD-PhD training done?

- There are ~ 90 MD-PhD programs affiliated with medical schools:
  - 45 programs are partially supported by training grants from NIGMS known as Medical Scientist Training Programs or MSTPs

- Most MD-PhD programs offer financial support: stipends, tuition waivers and health insurance
MD-PhD Program Overview

Goal: Prepare men and woman for a career that combines research and clinical care, with an emphasis on research.

- Curriculum integrates MD and PhD training
  - complete both in 7 or 8 years
- Many PhD fields are possible, but not all
  - Non-traditional PhD training opportunities
- Training can be free. Most programs offer extensive financial support

![Diagram showing the breakdown of years in the program]

- **Years 1-2**: Mostly Med School, Some Grad School
- **Years 3-6**: Some Med School, Mostly Grad School
- **Years 7-8**: Mostly Med School, Some Grad School
Program Opportunities

- Student Council
- MD-PHD specific courses and workshops
- Visiting scholar seminars
- Retreats
- National conferences and organizations
- Mentoring for Graduate and Residency Training

A community, not just a “program”
Post-Training Pathways

• ~95% of graduates pursue residencies/fellowship training:
  – 3 to 7+ years of training, varies with specialty
  – fellowship offers opportunity to return to research

• ~75% of graduates become medical school faculty

• ~65% of graduates continue to do significant (> 50%) research

• ~40% of NIH grants to MDs are received by MD-PhD

• Many graduates fill academic leadership roles

• Alternate pathways include working in industry and at research institutions (NIH, HHMI, etc.).
MD-PhD Careers: long term outcomes

Academia, 68%
Research Institute, 5%
Industry, 8%
Private Practice, 16%
Other, 3%

Careers of Biomedical Scientists

José E. Cavazos, MD, PhD, Neurologist, Plasticity of the brain to better treat seizures and epilepsy

Juanita Merchant, MD, PhD, Internal Medicine, studies transcriptional control of gastrointestinal peptides that regulate cell growth and cancer

Dianna Milewicz, MD, PhD, Internal Medicine, studies cardiovascular medicine and genetic diseases of the vascular system
Applying to MD-PhD Programs
Key Elements in a successful MD-PhD application

• Applicants with integrity and maturity who show:
  ▪ Creativity
  ▪ Leadership potential and congeniality
  ▪ Address big questions in biomedical research

• Productive research experience(s)
• Personal statement – why MD-PhD?
• Letter of recommendation from research mentors
• Outstanding academic record, including MCAT scores
• Experience in caring for others
• Extracurricular activities and life experiences
What constitutes a substantive research experience?

- Sufficient research experience to understand what you are getting into:
  - Multiple summer projects
  - Senior thesis research
  - One or more years pursuing research activities after undergraduate degree

- Familiar with the idea of testing a hypothesis
MD-PhD Admissions

National Data

Data source: AAMC matriculation reports

Medical School Matriculants


MD

21,030

MD-PhD

649 (3%)

www.aamc.org/phd  www.aamc.org/mdphd
MD-PhD Statistics -2016-17*

• Nationally, there are ~ 5,344 MD-PhD trainees

• In the 2016-17 entering MD-PhD class
  ▪ 43% of MD-PhD are women (41% of MD-PhD applicant pool are women)
  ▪ 11% are students of diversity

• ~1/3 of MD-PhD applicants entered an MD-PhD Program

*AAMC Table B-8/B-9/B-11: MD-PhD Matriculant Tables
### MD-PhD Applicant Outcomes (2016-17)*

<table>
<thead>
<tr>
<th>Total Applicant Pool</th>
<th>Mean</th>
<th>Range</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>(n= 1,936)</td>
</tr>
<tr>
<td>• MCAT</td>
<td>506</td>
<td>472 – 527</td>
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<tr>
<td>• GPA</td>
<td>3.6</td>
<td>2.0 - 4.0</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Matriculants</th>
<th>Mean</th>
<th>Range</th>
</tr>
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<tbody>
<tr>
<td>(n= 649) 34%</td>
<td></td>
<td>(n= 649) 34%</td>
</tr>
<tr>
<td>• MCAT</td>
<td>514</td>
<td>497-527</td>
</tr>
<tr>
<td>• GPA</td>
<td>3.8</td>
<td>2.8 - 4.0</td>
</tr>
</tbody>
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At this time, MD-PhD Programs do not anticipate that the “new MCAT” will have a significant impact on your probability of matriculating into an MD-PhD Program, since the MCAT is only one of several criteria used for student evaluation.

*AAMC Table B-10: MD-PhD MCAT/GPA scores for Applicants/Matriculants*
Application Timeline to matriculate into an MD-PhD Program: a 4-year effort!
Interviewing at MD-PhD Programs

How you are evaluated:

• Show your positive personality and creativity
• Have strong communication skills
• Show interest in the program
• Describe the details of your research experiences
• Define your motivation for pursuing a dual degree
• Be able to address all the items in your application
• Define career goals
• Have specific questions about the program
What should students look for in an MD-PhD program?

• Research environment
  ▪ program activities, faculty, students and research opportunities

• Academic environment
  ▪ science and clinical curricula, program integration

• Alumni achievement and community involvement

• Location

• A sense of belonging or “good fit”
For more information:

- https://www.aamc.org/mdphd
- NIH.gov/training
- Role models

- Knowledgeable people who care about you:
  - Directors and Mentors (Summer Program and Post-Bac)
  - Professors, Lab Heads and Department Chairs
  - MD-PhD Students, Graduate Students and Post-Docs
  - Career Advising Offices
  - PhD and MD-PhD Program Directors