



Tomorrow's Doctors, Tomorrow's Cures

# MD-PhD Training, Careers, and Program Application

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Lead

NIH Graduate and Professional  
School Fair  
July 10, 2008



Association of  
American Medical Colleges

# Panel Members

- **Joseph T. Barbieri, PhD**  
Professor of Microbiology & Molecular Genetics  
Director, Medical College of Wisconsin MD-PhD Program
- **Craig Blackstone, MD, PhD**  
Chief, Cellular Neuroscience Unit, NINDS, NIH  
Trans-NIH MD-PhD Partnership Program
- **Terri Goss Kinzy, PhD**  
Professor of Molecular Genetics & Microbiology  
Director, RWJMS/Rutgers/Princeton MD-PhD Program
- **M. Kerry O'Banion, MD, PhD**  
Associate Professor of Neurobiology & Anatomy  
Director, University of Rochester MD-PhD Program
- **Patrice Spitalnik, MD**  
Assistant Professor of Clinical Pathology  
Assistant Director, Columbia University MD-PhD Program

# Who is MD-PhD training for?

Women and men who:

- are fascinated by biology and disease and have an aptitude for science
- are passionate about understanding how things work
- enjoy helping people and are willing to make personal sacrifice

# How is it done?

- Nationwide, over 100 MD-PhD programs are affiliated with medical schools
- PhD can be awarded in a wide variety of disciplines
- Curricula creatively mix MD and PhD phases to complete both in 7 to 8 years
- Programs promote interactions with like-minded students and faculty

# Disciplines

Biomedical Sciences including:

- Biochemistry & Macromolecular Biophysics
- Cell & Developmental Biology
- Immunology
- Molecular Biology & Genetics
- Microbiology & Infectious Disease
- Neuroscience
- Pathology & Mechanisms of Disease
- Pharmacology
- Physiology

Bioengineering & Biomedical Imaging

Bioethics

Chemical and Physical Sciences

Computational Biology & Bioinformatics

Public Health, Epidemiology & Preventative Medicine

Social and Behavioral Sciences

# Curriculum is a continuum

## Preclinical (years 1 - 2)

- Medical sciences
- Explore research opportunities (lab rotations)
- Initiate clinical exposure

## Research (years 3 - 5 or 6)

- Develop and conduct thesis research
- Culminates with PhD
- Potential opportunity for clinical experience

## Clinical (years 6 - 7 or 7 - 8)

- Clinical clerkships and rotations
- Potential opportunity for further research experience

# Program Opportunities

- Retreats
- MD-PhD specific courses
- Visiting scholars
- Student/Alumni presentations
- Student council
- Social events
- National conferences and organizations

# Post-Training Pathways

- About 90% of graduates pursue clinical residencies followed by fellowship training
  - 4 to 7+ years of additional training, varies with specialty
  - fellowship offers opportunity to return to research
- 80% of graduates become academic medical school faculty
- 50% continue to do significant research
- Many fill academic leadership roles
- Alternate pathways include industry and research institutions (NIH, HHMI, etc)



# Biomedical Scientists - Multiple Paths

- PhD graduates
- MD-PhD program graduates
- MD graduates, often with research experience in medical school, who pursue significant research during fellowship training



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# Applying to MD-PhD Programs

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# Who do MD-PhD Programs Seek?

- Applicants of integrity and maturity who show:
  - Concern for others
  - Leadership potential
  - An aptitude for working with others

PLUS:

- Demonstrated passion for research

# What do MD/PhD Programs Evaluate?

- Research experience(s)
- Academic records
- Personal statements – why MD-PhD?
- MCAT scores
- Letters of recommendation from research mentors
- Experience in caring for others
- Extracurricular activities
- Life experiences

# What constitutes a substantive research experience?

- Sufficient time pursuing research opportunities to understand what you are getting into
  - Multiple summer projects
  - Senior thesis research
  - One or more years pursuing research activities after undergraduate degree
- Familiarity with idea of testing a hypothesis

# Statistics

Nationally, there are 4,496 MD-PhD students

- 11.8% are underrepresented minorities
- 38% are women

In 2007:

- There were 1,726 MD-PhD applicants
- 928 applicants (54%) received an interview from at least one MD-PhD program
- 622 (67%) received an acceptance from at least one MD-PhD program
- Mean MCAT and GPA of accepted students was 34 (total) and 3.7, respectively

# Application Timeline

Application to AMCAS - Summer before entry year

- Secondary applications
- Letters of recommendation

Interviews - October to March

Final decisions - December to April

Revisit programs - April and May

Process complete - May

Start program - June to August

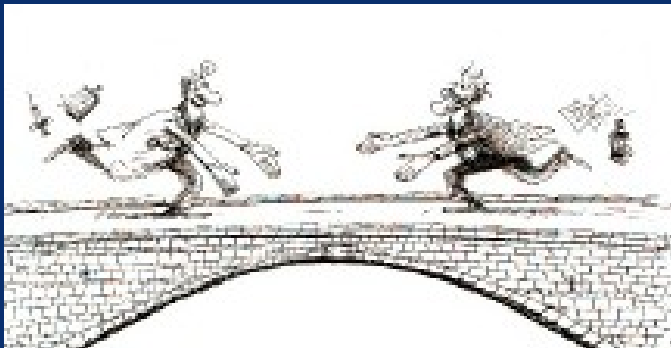
# What do you look for in an MD-PhD program?

- Research environment - programs, support, faculty and opportunities
- Academic environment - science and clinical curricula and teaching
- MD-PhD program organization, achievement, and community
- Location
- A sense of belonging or “good fit”



# Why NIH for MD/PhD?

- Opportunity to interact with the 1200 NIH PI's: >100 MD/PhD trained, most ASCI members of any institution
- Largest Clinical Research center in the world: 200 beds, 1000 clinical protocols
- Participation in NIH clinical center activities and trials
- Access to intramural translational research resources
- Interdisciplinary and collaborative Ph.D. Programs
- Existing infrastructure of NIH GPP



QuickTime™ and a  
TIFF (Uncompressed) decompressor  
are needed to see this picture.

# NIH Intramural MD/PhD Partnership

- Coordinates training, activities and funding for MD-PhD students who conduct research in the intramural research program of the NIH
- Take advantage of NIH clinical center while in PhD research
- Students earn the PhD degree through Individual partnerships with their medical school or through one of the NIH Institutional Graduate Partnership Programs

# Two ways to combine MD with PhD training at NIH

## Individual Partnership with a Department in your medical school

- PhD obtained from medical school
- NIH “off campus” Mentor
- Requires permission from department
- 1-2 semesters of graduate school coursework
- No GPP central funding for PhD training in individual partnerships

## Institutional Partnerships

- European D. Phil programs are likely the best fit
- Discipline specific programs may also be appropriate
- May work if your medical school has a pre-existing partnership



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# Questions?

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