MD/PhD & Graduate Program Overview

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Dr. Alan Underhill
Director, MD/PhD program
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The MD/PhD program:

D. Alan Underhill, PhD
Program director

• Developing research as a competency in your medical education
• Creating career opportunities with a graduate degree
The goal of the MD/PhD program is to provide training towards becoming a Clinician-Scientist

To create future leaders in academic medical research

Changing medical practice vs. practicing medicine
What can you do with a MD/PhD?

Anything

Dr. Norm Rosenblum, MD, University of Toronto
Profile of a Clinician-Scientist

- Dr. Lorne Tyrrell, Professor, MMI, University of Alberta
- MD, University of Alberta
- PhD, Queen’s University (Pharmacology)
- Dean, University of Alberta, FoMD, 1994-2004
- Discovery of first antiviral drug for treatment of Hep B (game changer)
- Former Chair, BoD, Gairdner Foundation
- Has own Wikipedia profile page

“For his studies on viral hepatitis, Dr. Tyrrell has received numerous prestigious awards including the Gold Medal of the Canadian Liver Foundation (2000), the Alberta Order of Excellence (2000), Officer of the Order of Canada (2002), Fellow of the Royal Society (2004), FNG Starr Award of the Canadian Medical Association (2004), and the Principal Award of the Manning Foundation (2005). He was awarded the University Distinguished Professorship at the University of Alberta and was inducted into the Canadian Medical Hall of Fame in April 2011.”

http://www.canhepc.ca/en/lorne-tyrrell
Paths to the Clinician-Scientist

- The MD/PhD program; supported by the FoMD and UME; graduate degree is overseen by Faculty of Graduate Studies and Research; health related

- Clinical Investigator Program; carried out in residency; supported by the Royal College of Physicians and Surgeons of Canada; typically MSc

- Masters level degrees, including Masters in Public Health (MPH)

- Research fellowships that do not lead to degrees; have to acquire the research skills somewhere
University of Alberta program

• Over 30 students have graduated since 2002; majority of graduates in Canada will secure academic positions as Clinician-Scientists (varying % research)

• Currently, 8 MD/PhD candidates at the UofA; 1 affiliate studying abroad

• Admit approximately 2 students per year

• 4 years on average to complete the PhD

• Funding available from CIHR vouchers (until 2022), competitive studentships (provincial & national), research grants, donations and advancement
Two paths to the MD/PhD: both require separate admission to MD

Path 1: notify of intent to seek MD/PhD by October 15 of year II; apply November 15 of year II

Path 2: admitted to medical school from graduate program; possibility for direct entry to MD/PhD

PhD at UofA (some exceptions); need not be in FoMD, but medically related

Upon receipt of MD/PhD, differential tuition fee is reimbursed for years I and II (currently $8,000); additional funding opportunities
MD/PhD alumni stats

• A clear path towards holding a Clinician-Scientist position at an academic health centre

• A majority of MD/PhD graduates will secure academic positions (83% of those completing all training)

• A majority will continue to carry out research (77%) and hold research grants (53%)

• 97.8% matched with their first choice of specialty

Skinnider et al (2017) CMAJ Open; DOI:10.9778/cmajo.20160152
HOW will you know?

• Already discovered a passion for research through summer or undergraduate projects

• Diverse opportunities in FoMD (lab based, patient centered, or population based/epidemiology/trials) and beyond

• Understanding career paths/opportunities (not one size fits all); diverse range of Clinician-Scientists you can speak to

• Talk to me

• Talk to a current MD/PhD candidate
The MD/PhD program:

D. Alan Underhill, PhD
Program director

We conduct our teaching, research and patient care in accordance with the highest international standards. We work with our partners in education, research and health care for the greater good of the local, regional and global community.
What can you do with a PhD?

Anything (but practice medicine)

Incredible diversity in career options
Profile of an Academic Scientist

• Dr. Michael James, Professor, Biochemistry, University of Alberta
• PhD, Oxford University (lab of Dorothy Mary Crowfoot Hodgkin, Nobel Laureate)
• Postdoctoral fellowship, Chemistry, University of Alberta
• Many ‘firsts’ in protein structure determination, including first person to determine the 3D structure of a protein in Canada
• Huge implications for understanding protein biology
• Significant medical relevance (anti-viral therapy, antibiotic resistance, genetic disease)

“James’ many scientific breakthroughs had a great impact on the development of anti-viral HIV drugs and his work has led to the development of drugs to control high blood pressure. His current research on critical enzyme structures will lead to a greater understanding of the treatment of rare genetic diseases.”

www.ualberta.ca/medicine/news
FoMD Graduate Programs (MSc & PhD)

• 12 independent departmental programs: biochemistry, biomedical engineering, cell biology, laboratory medicine and pathology; medical microbiology and immunology, medicine, neuroscience, oncology, pharmacology, physiology, psychiatry, surgery

• 7 administered under the Medical Sciences Graduate Program (MSGP): anesthesiology and pain medicine, dentistry, medical genetics, obstetric and gynecology, ophthalmology and visual sciences, pediatrics, radiology and diagnostic imaging

• Under the auspices of the Faculty of Graduate Studies & Research
Acquiring skills through grad training

• Designed to provide a high-level skill set: critical thinking, problem solving, independence, intellectual creativity, knowledge creation/translation, leadership, communication, networking

• Can build on these using teaching and internship programs to acquire more specialized skills

• Combination with another degree (i.e., MBA) or training area (i.e., intellectual property, clinical trials)

• Familiarize yourself with the career opportunities and structure your program accordingly
Know the career landscape

• Academic (<20% in tenure track positions), public and private sector positions

• Many non-tenure track opportunities within academia (in research, teaching, administration); all vital to the institution

• Incredible diversity in career opportunities outside of academia: biotech sector, pharma, intellectual property & patent law, funding agencies, education (i.e., NAIT, Grant McEwan, etc.), financial sector

• Be proactive in career planning
Contact information

• Visit the FoMD MD/PhD program website: https://www.ualberta.ca/medicine/programs/md-phd

• Contact me: alan.underhill@ualberta.ca or phone 780-432-8903 (Cross Cancer Institute)

• Graduate studies: Dr. Hanne Ostergaard (Associate Dean Research, Graduate Programs); hanne.ostergaard@ualberta.ca

• Individual graduate programs: www.ualberta.ca/medicine/programs/graduatestudies

• Contact Jen Freund (Graduate Programs Advisor): jen.freund@ualberta.ca or phone 780-492-9721