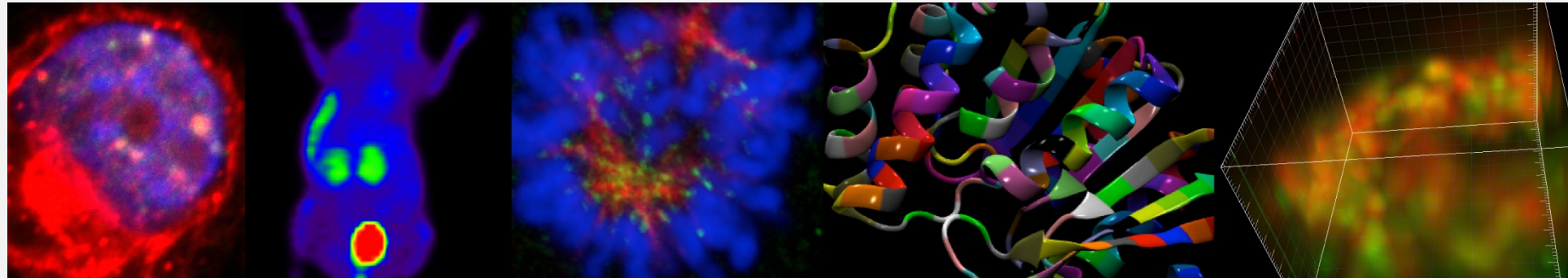


Preparing for a career with a PhD or MD/PhD



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Director, MD/PhD program
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Having worked in a biomedical laboratory for nearly 40-
years, research continues to be an amazing (yet
humbling) journey.



Preparing for a career with a PhD or MD/PhD

- PhD: research intensive, thesis based graduate degree (5-6 years; 5.6 years on average across FoMD programs from 2016-2021)
- MD/PhD: dual degree program to develop Physician-Scientists (8-9 years not including residency and further training)
- UofA requires admission into the MD program before consideration for MD/PhD. Admission requirements, funding, and structures for MD/PhD programs differ nationally



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Graduate Studies

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Graduate Studies

The Faculty of Medicine & Dentistry at the University of Alberta has a large and robust graduate studies program. Nineteen departments offer degrees at the master's and PhD levels. Research topics encompass the entire biomedical spectrum. Each graduate program has its own policies for student stipends, entrance and course requirements so you need to visit the links below to explore potential programs of interest. You can also visit our database of [available graduate student positions](#).

Once you have identified a program to which you wish to apply, submit your [online application](#)

Twelve departments administer independent graduate programs:

- [Biochemistry](#)
 - [Biomedical Engineering](#)
 - [Cell Biology](#)
 - [Laboratory Medicine & Pathology](#)
 - [Medical Microbiology and Immunology](#)
 - [Medicine](#)
 - [Neuroscience](#)
- 12 departmental programs
 - 7 programs administered by Medical Sciences Graduate Program
 - Programs differ regarding financial support

ualberta.ca/medicine/programs/graduatestudies/index.html

ualberta.ca/graduate-studies/programs/index.html



Path into the PhD

- Undergraduate degree (BSc or similar); most students admitted as MSc and transfer to PhD, although direct entry to PhD is possible
- Prior research experience is critical
- FGSR sets minimum admission requirements; most programs set additional criteria, which often exceed those set by FGSR; GPA and course requirements may differ across programs
- Within FoMD, most programs will require that you have secured a potential supervisor (some exceptions)

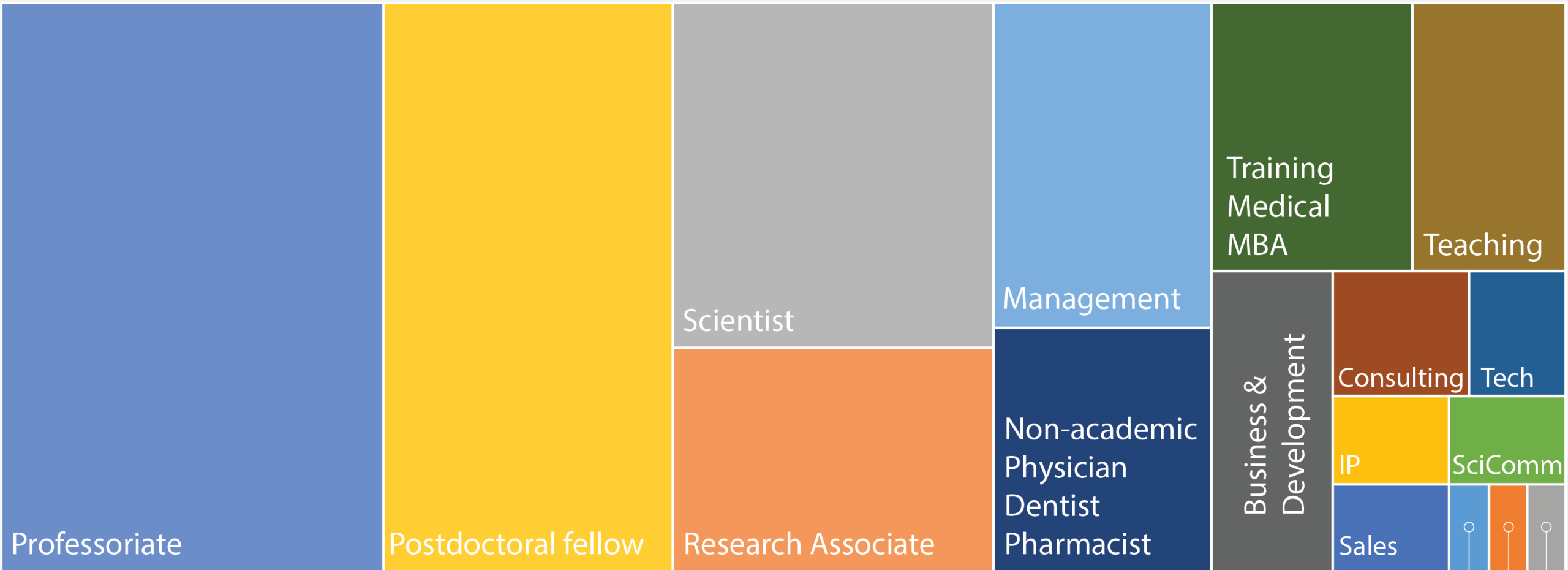


Path to the PhD

- Complete course, ethics, and professional development requirements
- Carry out (and ideally publish) original research
- Most programs require a PhD proposal that you develop with your supervisor and supervisory committee that maps out your thesis research
- Completion of a candidacy or qualifying exam
- Prepare and defend your thesis, which “must embody the results of original investigations and analyses and be of such quality as to merit publication, meeting the standards of reputable scholarly publications. It must constitute a substantial contribution to the knowledge in the student's field of study.”



What can you do with a PhD?



FoMD PhD alumni data provided by Dr. Gina McIntyre
Survey of 555 graduates from 2005-2015

Unemployed
Regulatory affairs
Science policy



...or you can combine your PhD with a MD to prepare for a career as a Physician-Scientist

“Physician–scientists are traditionally the primary catalysts in bridging the translational gap—that is, the failure to link fundamental new knowledge in the pathobiology of disease with advances in health care and health policy in a timely manner”

Strong *et al* (2017) *Academic Medicine*



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health care needs of our communities. Our goal is to graduate qualified, compassionate and inquisitive practitioners and researchers accomplished in health-care delivery and scholarship.

We are committed to serving patients and populations by providing a rich interdisciplinary environment of learning, practice, research and public service for all our students and faculty.

Paths to becoming a Physician-Scientist

- The MD/PhD program; supported by the FoMD and UME; graduate degree is conferred by FGSR; health related but not necessarily in FoMD
- Clinical Investigator Program; carried out in residency; supported by the Royal College of Physicians and Surgeons of Canada; MSc and PhD options
- MSc level degrees (thesis or course based), including Masters in Public Health (MPH)
- Research Fellowships that do not lead to degrees
- Prior graduate degree



Features of Canadian MD/PhD Graduates

CMAJ OPEN

Research

Characteristics and outcomes of Canadian MD/PhD program graduates: a cross-sectional survey

Michael A. Skinnider BArtsSc, Jordan W. Squair MSc, David D.W. Twa BSc, Jennifer X. Ji BSc, Alexandra Kuzyk BSc, Xin Wang PhD, Patrick E. Steadman MSc, Kirill Zaslavsky BSc, Ayan K. Dey BSc, Mark J. Eisenberg MD MPH, Ève-Reine Gagné MD, Kent T. HayGlass PhD, James F. Lewis MD, Peter J. Margetts MD PhD, D. Alan Underhill PhD, Norman D. Rosenblum MD, Lynn A. Raymond MD PhD

Skinnider *et al* (2017) CMAJ Open



Features of Canadian MD/PhD graduates

- Surveyed 186 eligible alumni of MD/PhD programs (**74.7%** completed the survey) who had graduated prior to 2015
- A majority (58 [**83%**]) of the 70 respondents who had completed all training were appointed as faculty at academic institutions (typically below **20%** for PhD graduates)
- Among the 58 respondents appointed at academic institutions, 44/57 (**77%**) dedicated at least 20% of their time to research 25/57 (**44%**) dedicated at least 50% to research
- 133/136 (**97.8%**) matched with their first residency choice (some programs encourage or require a graduate degree)
- The median length of Physician-Scientist training was **13.5** years

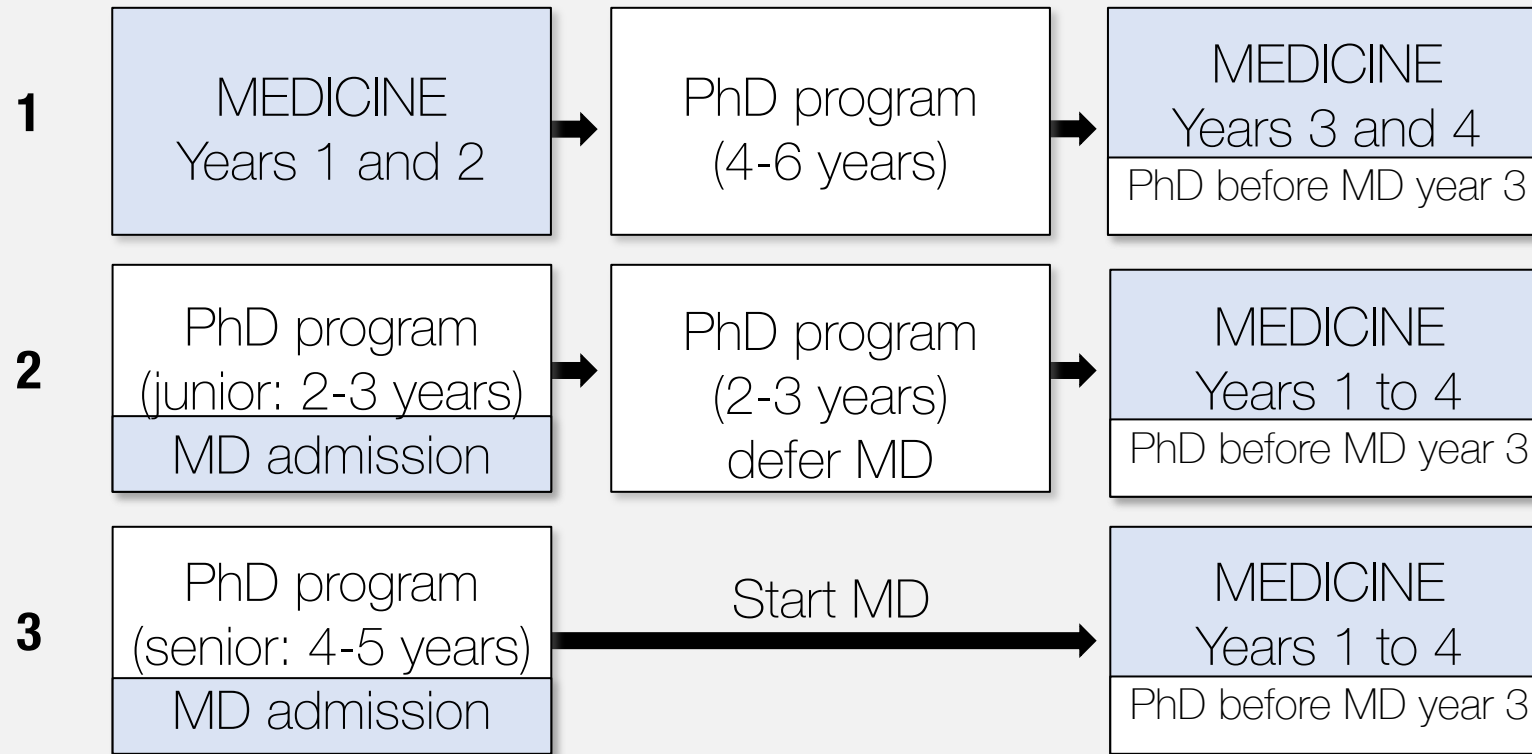


University of Alberta MD/PhD program

- Over 40 students have graduated since 2002
- Currently, 15 MD/PhD candidates (we admit approximately ~2 students per year)
- 4 years on average to complete the PhD (ranges from 3 to 6*)
- Funding available from competitive studentships (provincial & national), research grants, and philanthropy



MD/PhD program structure



- Path 1: notify of intent by October of MD year 2; apply by November
- Paths 2 and 3: admitted to medical school from a graduate program as either a junior (2-3 years) or senior (4-5 years) graduate student. Path 2 defers MD start, while path 3 can start MD upon admission
- All paths require that the PhD be completed and defended before starting clerkship (MD year 3)
- PhD at UofA; some exceptions on a case-by-case basis (not formally part of the MD/PhD program)
- Meet all PhD requirements of Faculty of Graduate Studies & Research



Other considerations

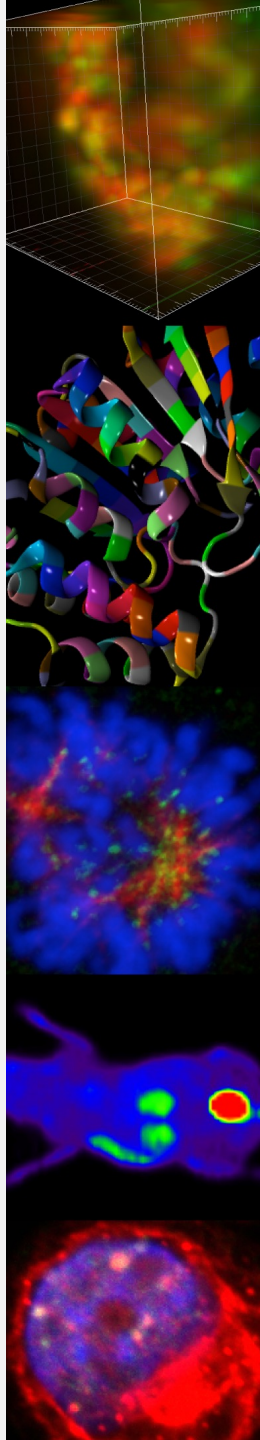
- Know your options regarding training paths and career opportunities
- Be informed of processes and requirements for different training programs
- Be proactive; map out where you want to go and how best to get there (develop the necessary skills)
- Consider using an individual development plan to set career objectives
- Seek advice and mentorship along the way
- Be realistic



Contact information

- Visit the FoMD MD/PhD and graduate program websites:
 - ualberta.ca/medicine/programs/md/md-phd/index.html
 - ualberta.ca/medicine/programs/graduatestudies/index.html
- Contact me: alan.underhill@ualberta.ca
- Contact the Graduate Programs Advisor: fmdgrd@ualberta.ca





QUESTIONS?

