

PATH 862 - Translational Pathology

Fall 2021

Sep. 2 – Dec. 9

Thursday 8:00-9:00 AM (in conjunction with Pathology Residents Morning Conference)

Course Directors

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Objectives

Translational Pathology is a graduate-level course designed to help meet the growing need for scientists and medical professionals who can bridge the gap between basic science and clinical practice. This multi-disciplinary course trains both graduate students and clinical residents/fellows in the methods and principles involved in translating basic science findings into clinically useful interventions to improve human disease outcomes. The central objective is to illustrate how basic science applied to human disease can lead to the discovery of its pathophysiology, which in turn can be used to develop therapeutics and diagnostic tests. The course is taught from the perspective of the pathologist, wherein faculty experienced with successful translational research offer insight spanning: the nature and manifestation of human disease, the mechanisms of disease pathogenesis, chemical pathology and drug discovery/development, laboratory diagnostics, clinical trials, personalized medicine, and the newest technologies in these arenas. The target mixture of research and clinical trainees enriches the educational experience.

Format

Course objectives are met using a combination of learning experiences, with an emphasis on active rather than passive learning. Didactic sessions bring students up to speed on the basics of core technologies involved in acquiring and translating basic research findings in the era of personalized medicine, as well as the background and unique challenges of translational research. Examples of successful translation are provided in the form of moderated seminars by active researchers. Students and residents then work together in making and critiquing presentations of clinical cases and associated basic research with a focus on identifying potential opportunities and pathways to translation.

General Outline (adjusted to account for presenter schedules)

- 1. Didactic lectures**
- 2. Translational research examples from the field**
- 3. Student-led discussions/case reports**
- 4. Discussion sessions**

Schedule

Date	Session	Presenter
Sep. 2	Introduction	Thomas E. Wilson, M.D., Ph.D. Zaneta Nikolovksa-Coleska, Ph.D.
Sep. 9	Clinical Chemistry	Carmen Gherasim, Ph.D.
Sep. 16	Molecular Pathology	Aaron Udager, M.D., Ph.D.
Sep. 23	Microbiology	Michael Bachman, M.D., Ph.D.
Sep. 30	Drug Development	Zaneta Nikolovksa-Coleska, Ph.D.
Oct. 7	Neuropathology	Sriram Veneti, M.D., Ph.D.
Oct. 14	Digital Pathology	Liron Pantanowitz, M.D.
Oct. 21	Industry	Scott Tomlins, M.D., Ph.D.
Oct. 28	Case Presentations and Discussion	
Nov. 4	Case Presentations and Discussion	
Nov. 11	Medical and Research Ethics	Lauren B. Smith, M.D.
Nov. 18	Case Presentations and Discussion	
Nov. 25	No Class (Thanksgiving)	
Dec. 2	Barriers and Opportunities to Translational Research	Thomas E. Wilson, M.D., Ph.D. Zaneta Nikolovksa-Coleska, Ph.D.
Dec. 9	Translational Research in Practice	Thomas E. Wilson, M.D., Ph.D. Zaneta Nikolovksa-Coleska, Ph.D.

Student-led Case Reports

Course Coordinator

Winston Lee, M.D., Ph.D. winstonl@med.umich.edu

A series of patient-centered case studies will be provided to students and residents. These cases have been selected to represent a variety of clinical areas and current directions in translational research and/or because they expose an area of need where further translational effort could solve a problem and have real impact.

Groups will be assembled consisting of a clinical resident/fellow and several graduates students. Working together, each group will:

- 1) Review their case and discuss the therapeutic and diagnostic problems it presents.

- 2) Relate the patient case history to other patients and trends, as appropriate.
- 3) Review the basic and clinical science literature relevant to the case and disease.
- 4) Identify gaps (or challenge the existence of supposed gaps) in our knowledge and clinical tool set.
- 5) Discuss and develop a plan for translating basic science into clinical action.
- 6) Present their findings and plan to the class in written and oral format for discussion and critique.

Guidelines will be provided separately regarding the format for the oral presentation and short written document (the latter will be distributed to the class ahead of the scheduled oral presentation). Broadly speaking, the intent is to move beyond a simple description of “what is” to include “what could be” and “how might we get there.”

Critique is an important part of research. Accordingly, students will be asked to provide a short critique of the presentations made by other groups. Details will again be provided separately but will entail a short-answer/checkbox form addressing the clarity of identification of the problem and the potential of the proposed translational plan for addressing it.

Protected Health Information

All patient information is strictly confidential. All cases will be provided to graduate students only after removing any potentially identifying information about the patient(s) involved. Even so, students are expected to respect the privacy of patients and use and discuss the provided case histories only for the explicit purposes of this course.

Requirements

PATH 862 is a required course for all Molecular and Cellular Pathology degree candidates and trainees of the T32 Training Program in Translational Pathology. It is also open to Ph.D. degree candidates in any biomedical graduate program. All students enrolled in PATH 862 are required to attend and actively participate in all sessions. Attendance will be recorded by a sign-in sheet. In addition, all students must participate in developing and presenting a presentation/case report and critiquing others' presentation. These written documents must be revised and provided on the last day of class in lieu of a final exam. Grading is pass/fail.

Anatomic and Clinical Pathology post-graduate trainees are strongly encouraged to attend and actively participate in the PATH 862 series one term during their residency or fellowship. Additionally, a subset of trainees will be recruited to participate in developing and presenting a presentation/case report, where a main role will be to collate, disseminate and explain de-identified clinical information to students. Clinical trainees who participate in case development and presentation are designated as “Assistant Instructor for Path 862, Translational Pathology” for CV and other purposes.

Auditing is allowed with permission of the course directors. Auditors must have full course participation as described above for graduate students.