

Med-into-Grad: Integrating medical knowledge into graduate training

Disease-specific training tracks:

Provide a medical context to thesis research or envisioned post-doctoral studies

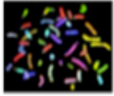
Provide knowledge of human histology and pathology

Reveal unmet needs in diagnostics and therapeutics

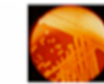
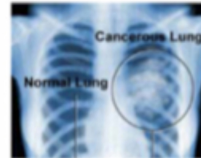
Emphasize development of new diagnostics and therapeutics

Reveal the most important areas of research for improving human health

Establish an understanding of how medical groups function, which will make it easier for students to establish new collaborations and acquire primary tissue throughout their careers



Institutionalized with funding from the Howard Hughes Medical Institute



Overview: Med-into-Grad at UCSD School of Medicine provides clinical training for graduate students, giving them an understanding of the presentation, progression, diagnosis and treatment of diseases related to their area of thesis research. Originally launched with funding from the Howard Hughes Medical Institute (HHMI) in 2006, the program has now been institutionalized as a core offering for students in the Biomedical Sciences Graduate Program. Students from other departments may also apply. The UCSD Biomedical Sciences Graduate Program believes that clinical training for interested Ph.D. students will produce researchers who focus their current and future research on the most important aspects of human disease, who are aware of how their molecular knowledge can be used to improve diagnostics and therapeutics, who will understand how to interface and collaborate with clinical and translational researchers to move basic research discoveries into the clinical setting, and who will be more passionate about their research goals because they have acquired an urgency to cure human disease by being exposed to it first hand.

Rational for Integrating Medical Training into Graduate Education: The medical setting richly illustrates the profound impact of disease on the human condition. It daily reveals how defined biochemical mechanisms produce clear pathologies, and illustrates the features of disease that continue to progress despite the best treatments. The medical setting is also a rich environment for clinical and translational research, which includes ongoing clinical trials, and the development and use of new diagnostics, new drugs, and new biomechanical or biosensing devices. While graduate students interested in biomedical research are empowered to solve molecular mechanisms and both conceptualize and develop new therapeutics, they may lack a medical understanding of disease that can steer their research down the most important avenues, and help them to use their molecular discoveries to address unmet diagnostic and therapeutic needs. Med-into-Grad is designed to provide limited, focused medical education within a student's area of disease interest to optimize their future contributions toward understanding, diagnosing, and treating human disease.

Core Med-into-Grad education: The Med-into-Grad annual cycle starts with applications accepted from May 1 to May 30. Students send their application (application is below) directly to the coordinator of the clinical training track in which they would like to participate. The clinical tracks and their coordinators are also listed below. All applicants will be interviewed. The interview/selection process ends by June 30. Students who are accepted prepare to enter the clinic by taking a single autumn quarter course, "Science Meets the Medical Patient" (MED275) and by participating in a short histopathology self-study/PowerPoint presentation focused on diseases in their medical area. "Science Meets the Medical Patient" is a 2-unit course that meets once a week. The course highlights patient interaction, disease mechanisms, and unmet needs in diagnostics and therapeutics. By meeting patients with a broad spectrum of diseases and discussing their disease progression and treatment, students learn current states of disease diagnosis and treatment, unmet needs in both areas,

and become better prepared to understand what they will observe in the clinic during winter quarter. In early December, the student, their track coordinator, and the clinical coordinator for that track (a clinician within that medical division) meet to discuss the clinical activities that the student will attend in the Jan/Feb time-frame. Winter quarter clinical training is for approximately 60 hours over the course of 4 to 8 weeks. Its structure varies significantly among tracks. In the clinic/hospital, students interact with patients, observe their symptoms, diagnosis, and treatment, observe variations and modifications of treatment, and attend clinical discussions of particularly interesting or challenging cases. Some students also attend “sign-out” conferences, where pathologists use histopathology and cell-specific analysis to diagnose diseases. At the end of winter quarter clinical activities, students summarize their learning in a 2-page summary/impact report and meet with their track coordinator to discuss their training and to make suggestions for future beneficial track modifications. Students return to lab full-time in spring quarter. Laboratory research is continued throughout the winter quarter at 60 to 80 percent time. At the end of spring quarter, Med-into-Grad students meet with their medical cognates – medical students who have trained in research laboratories for 3 months throughout that year – to compare notes on the importance of complementary education in research and medicine. This end-of-year event is sponsored by the CTSA (Clinical and Translational Science Award).

Winter quarter training programs

Cancer -- Solid tumors
 Leukemia, lymphoma, & myeloproliferative diseases
 Inflammatory, allergic, autoimmune diseases of joints/skin
 Gastrointestinal diseases of inflammation or autoimmunity
 Orthopedics (mobility disorders, skeletal stress issues)
 Cardiovascular Diseases (thru Bioengineering)
 Genetic & Neurogenetic Diseases
 Neurodegenerative Diseases
 Reproductive diseases
 Infectious diseases
 Lung diseases
 Eye diseases
 Diabetes

Track coordinator

Dwayne Stupack
 Rafael Bejar
 Jack Bui
 Peter Ernst
 Samuel Ward
 Karen Christman
 Bruce Hamilton
 Christina Sigurdson
 Pamela Mellon
 Victor Nizet
 Frank Powell
 Jonathan Lin
 Nigel Calcutt

email address

dstupack@ucsd.edu
 rabejar@ucsd.edu
 jbui@ucsd.edu
 pernst@ucsd.edu
 s1ward@ucsd.edu
 christman@eng.ucsd.edu
 bah@ucsd.edu
 csigurdson@ucsd.edu
 pmellon@ucsd.edu
 vnizet@ucsd.edu
 fpowell@ucsd.edu
 jlin@ucsd.edu
 ncalcutt@ucsd.edu

Application and more information: Students should be in years 3 through 6 of graduate training. Their thesis research mentor should approve of their participation. Applicants should use the form below to provide a short description of your research background, current research interests and projects, and rationale for track selection. Send the application to the track-specific faculty contact listed above between May 1 and May 31. All applicants will be interviewed. Students selected for participation will be notified by June 30th. Students who want more information about track activities may contact their track coordinator at any time.

Application for Med-into-Grad

(Copy/paste the contents of this application into a MS Word document,
 respond to the queries, and send it to your track coordinator)

1. Name (First, Middle Initial, Last)
2. email address you most frequently use
3. Graduate program
4. Year enrolled in graduate program
5. Undergraduate institution and major
6. Graduate thesis research mentor name and title (include MD, PhD, or both)
7. Thesis research mentor departmental and institutional affiliation
8. Short title of your thesis research or proposed thesis research (70 characters Max).
9. Provide a one-half page description of your current research, the reasons why you are interested in Med-into-Grad, and your rationale for selecting this particular clinical training track.