



POST-DOCTORAL POSITION

Andrew Dylag, M.D.

Associate Professor, Department of Pediatrics

Associate Professor, Department of Biomedical Engineering

Dr. Dylag's lab seeks enthusiastic, highly motivated applicants who hold or will soon earn a Ph.D. Applicants must have a strong interest in fundamental and translational research. Expertise in neonatal or developmental lung injury, lung mechanics, or bioengineering will be an advantage.

Qualifications:

- Ph.D. or MD/Ph.D. in a relevant field with a record of publication in peer-reviewed journals
- A strong desire for independent research, collaboration, and curiosity
- Ability to problem-solve and think critically
- Ability to independently design, execute, and analyze experiments
- Ability to work both independently and in a collaborative team environment
- Excellent written and oral communication skills
- Knowledge of lung physiology, gene regulation, and translational biology
- Experience in cell culture, cellular and molecular biology techniques, transcriptional and translational analyses

WHAT WE OFFER: Our research team (laboratory and staff) provides an open, supportive, dynamic, and motivating academic environment with excellent training opportunities and the possibility to work on cutting-edge and novel translational research projects in neonatal lung disease. We use a broad spectrum of in vitro and in vivo techniques to examine the biological signals impacting the neonatal lung in response to mechanical ventilation and hyperoxia exposure. We use multidisciplinary approaches ranging from biochemical, cellular, and molecular biology to biomaterials and biomechanical research, including lung physiology measurements.

University of Rochester offers an extraordinarily stimulating and nourishing academic environment with rich resources to facilitate career development for young scientists. UR has an active Postdoc Association that provides a highly enriched environment for postdocs, including career development workshops and social activities. University of Rochester is the metropolitan area's oldest and most prominent institution of higher learning, and one of the country's top research centers.

WHO WE ARE: Our lab studies how the developing lung is injured by supplemental oxygen and mechanical ventilation that keep extremely premature infants alive. These life-saving therapies also injure the developing lung. Our work focuses on thrombospondin-1 (TSP-1) as a central mediator of neonatal lung injury. Mechanical stretch stimulates TSP-1, and many lung cell types produce it. We study two signaling axes: TSP-1 activation of TGF- β and downstream extracellular matrix remodeling, and TSP-1 signaling through its receptor CD47. We pair in vivo neonatal mouse models of hyperoxia and mechanical ventilation with a custom-built cyclic stretch platform that applies physiologic and injurious mechanical strain to precision-cut lung slices (PCLS). We are also developing photopolymerized PEG-based hydrogel systems to support and manipulate lung slices ex vivo.

Our approach is highly multidisciplinary, integrating lung physiology and pulmonary mechanics, biomaterials engineering, spatial proteomics (laser capture microdissection, LC-MS/MS, and multiplex immunohistochemistry), single-nuclear RNA sequencing, and emerging machine learning approaches to bioinformatics. Our overall goal is to identify the molecular drivers of oxygen- and stretch-induced injury in the developing lung and translate these findings into targeted strategies to protect the lungs of the most vulnerable infants.

Please send your cover letter, CV, and names of three references to: Andrew_Dylag@urmc.rochester.edu

Website is: <https://www.urmc.rochester.edu/pediatrics/dylag-lab>