

CALL FOR APPLICATIONS

PREDOCTORAL STUDENT

PROGRAM OBJECTIVES

The objective of this training program is to provide interactive research environments and opportunities for trainees to become independent investigators in the areas of **lung biology and lung disease research**. The program is designed to take advantage of the existing strengths at UC Davis, including well established collaborations between lung researchers across Schools and Colleges at UC Davis. Approximately 40 faculty members from 4 schools and colleges (17 departments or divisions) may be selected as mentors.

The University of California Davis' Lung Center Program is a cooperative, interdisciplinary research and teaching center that is co-sponsored by the Division of Pulmonary, Critical Care, & Sleep Medicine in the Department of Internal Medicine, School of Medicine. **The UCD Lung Center has three major, inter-related missions:**

- **Research.** The research mission is to investigate human diseases from cells, molecular biology, and animal models through clinical disease. Areas of emphasis include viral and bacterial disease, molecular virology, biochemistry, pharmacology,
- **Integrative Biology.** Faculty members possess a broad range of complementary and interdisciplinary expertise in integrative biology that serves the entire UC Davis campus including research model development, validation, and collaborative support.
- **Teaching.** The interdisciplinary research programs provide a rich academic environment for scientific training at the professional, graduate, and post-graduate levels.

(UCD is an equal opportunity employer)

HOW TO APPLY

Submit applications via email as a **single PDF** file to Ms. Chue Xiong (cvxiong@ucdavis.edu) by the deadlines. Applications will be reviewed by the executive committee members of the training program. An award summary and details will be included in the acceptance letter to the awardee by June 1.

APPLICATION DEADLINES: APRIL 1 by 11:59 PM

New applicants:

- **Biographical sketch or CV**
- **Career goals (1 page limit):** Statement should be clear, concise and relevant. Describe academic plans and research interests, specialization within academic field, research experiences and your career goals.
- **Proposed research plan (up to 2 pages limit):** Provide a title of proposed research activity. Describe your research including objective, significance, approach, and study design.
- **Copy of graduate and undergraduate academic records**
- **Qualifying Exam:** completion of the qualifying exam for the PhD is not required prior to applying to this program and we consider applicants both before and after the QE. GRE is not required.
- **Nomination/support letter** from sponsoring mentor(s) see list of training faculty.
- **Mentor(s) Biosketch and Other Support**

Renewal Applicants:

- **Biographical sketch or CV**
- **Progress Report (up to 2 pages limit):** Provide a title of research activity. Include results & publications
- **Nomination/support letter** from sponsored mentor
- **Mentor(s) Biosketch and Other Support**

Earliest Start Date: August 1, 2020

Our training program is a full-time (one year) curriculum starting on August 1 through July 31, which includes a ten-week Professional Development series with an Emphasis on Writing, Presentation of the Trainees work in seminar form, Participation in Lung Day (mid June), Translational Learning Group Meetings, and Distinguished Speakers Seminar Series. We expect full participation of our trainees in all program activities.

APPLICATION GUIDELINES AND MECHANISMS

Conditions of Award:

Pre-doctoral (Graduate Students) Trainees – Awards to doctoral students to conduct research related to lung biology, lung disease and medicine. The program anticipates providing a two-year NIH stipend (<https://grants.nih.gov/grants/guide/notice-files/NOT-OD-19-036.html>) per year. In addition, \$4,200 will be provided for research allowance. \$1,200 per year will be provided to trainee for travel costs to attend the American Thoracic Society conference, or travel to a domestic scientific meeting.

Additional Program Requirement & Information

Throughout the training program, mentoring and career planning is emphasized so the Program can be individualized to best achieve each trainee's personal goals. In addition, trainees must actively participate in research/training conferences. **If funded, Trainees must present their research and participate in the training program activities. All publications must cite the training grant (T32 HL007013).**

Eligibility Criteria:

- **Graduate students** must be currently enrolled for at **least 12 units** at UC Davis with strong evidence of interest in pursuing an academic career in pulmonary research and/or medicine. Must commit to a minimum of **12 calendar months appointment**.
- **All nominees must be citizens or permanent visa residents of the United States**
- **Underrepresented candidates are encouraged to apply.**
- It is essential that the nominees be **graduate students** who have interest in becoming independent lung-related biomedical researchers. Scholastic achievement, innovation and interdisciplinary research weigh heavily in the selection. Collaborations between laboratories and crossing traditional boundaries are also highly valued in the selection process. The research proposal and progress reports are important to establish disciplinary relevance and candidate preparation/progress.
- Trainees will be selected from the pool of candidates across the campus in a host of graduate groups related to the membership of the **individual training faculty members (See mentor list attached)**
- Candidates must also provide evidence of previous research training and a commitment relevant to the research activities and priorities. If you have completed an ethics course or responsible conduct of research training please forward documentation of that completion or your plan to complete this training as part of your application.
- Faculty preceptors are available to direct research training in five primary areas: 1) stem cell biology, regenerative medicine and lung cancer malignancy; 2) airway pathophysiology; 3) lung toxico-pharmacology; 4) lung inflammation and immunity; and 5) translational research.
- Applicants must be in a good academic standing and must disclose any past or present academic misconduct, institutional actions, felonies and misdemeanors.
- Mentor must have non-NIH funding to support any supplemental portions of the trainees' salary, tuition, and fees that are not provided by this Training Grant Program

CURRICULAR ACTIVITIES

▪ **UCD Lung Center Seminar Series**

During the seminar series, all trainees and faculty trainers will have the opportunity to present their research-in-progress to the group. We will also invite speakers from the campus whose research is of interest to the group. In addition, we will invite distinguished speakers who are experts in the field of our research focus group on a bi-weekly basis (average of 36 speakers per year).

- **Journal Clubs: "Meet the Professor"**
- **Evening Dinners**
- **Learning Groups and Workshops for professional development**
- **Annual Lung Day symposium**
- **Annual RCR/Ethics refresher**

PROGRAM LEADERSHIP

Program Director:	Nicholas Kenyon, MD	Professor of Medicine; Dept. of Internal Medicine, & Chief of Division of Pulmonary, Critical Care, and Sleep Medicine
Co-Directors:	Angela Haczku, MD, PhD,	Professor of Medicine; Dept. of Internal Medicine, Division of Pulmonary, Critical Care, and Sleep Medicine & Associate Dean of Research
	Laura S. Van Winkle, PhD	Professor; Dept. of Anatomy, Physiology, Cell Biology, UCD Center for Health and the Environment (CHE)

MENTORS/FACULTY TRAINERS

Jason Adams, MD
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Timothy E. Albertson, MD, MPH, PhD
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Nick Anderson, PHD, MAS
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Nicole Baumgarth, DVM, PhD
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Bruce Hammock, PhD
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Richart W. Harper, MD
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Nicholas J. Kenyon, MD, MAS
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AREA OF INTEREST

Clinical Registries in epidemiology, health informatics, database administration, project/process management: Medical/Critical Care informatics, ARDS/PETAL Sepsis, Ventilator data analysis and visualization

Pulmonary and critical care medicine, medicine, pharmacology and toxicology, anesthesia and emergency medicine: Pharmacokinetics of drug delivery and outcome measurement, Septic Shock ARDS/PETAL

Clinical Research Informatics, Biomedical Informatics

Regulation of immune responses to pathogens with emphasis on influenza virus infection and HIV; mucosal immunology; respiratory tract immunology; molecular regulation of early B cell activation; and function and development of B-1 cells

Asthma, Environmental risk assessment and Epidemiology.

Cardiac physiology & pathophysiology, Ca signaling, electrophysiology

Innate immunity; mucosal host defense; defenses

Cardiovascular biology and medicine: hypertension, inflammatory disorders, Cardiac ion channel regulation and cardiac arrhythmias

Airway breath condensates and breath analysis

Multiscale modeling and numerical simulation of complex processes and systems

Developments and applications in metabolomics & interpretation of genomics and metabolomics data

Tissue engineering 3D micro-physiological systems to simulate vascularized and models of cardiac and vascular development

Pulmonary physiology, airway inflammation and the underlying immune regulatory mechanisms, including inflammatory phenotype in response to environmental exposures to air pollution, cigarette smoke, allergen inhalation and psychosocial stress.

Effect of toxins on arachidonate signaling; environmental chemistry; biosensor development

Lung cell biology and oxidative biology: DUOX and anti-viral activity

Severe asthma mechanisms and therapeutics; Nitric Oxide, Breath analysis; Airway inflammation and fibrosis; lung physiology; environmental effects on lung function; the role of nitric oxide in airway diseases; asthma; COPD; lung injury

Brooks Kuhn, MD btkuhn@ucdavis.edu	Novel mechanical ventilation waveform analytics, COPD, Medical Informatics
Satyan Lakshminru-simha, MD slakshmi@ucdavis.edu	Pulmonary vascular biology, oxygen and Neonatal resuscitation
Kit Lam, MD, PhD kslam@ucdavis.edu	Combinatorial chemistry, chemical biology, drug development, molecular imaging, nanotherapeutics and medical oncology
Janine LaSalle, PhD jmlasalle@ucdavis.edu	Severe asthma mechanisms and therapeutics: Epigenetics of neurodevelopmental disorders, including autism, Rett, Prader-Willi, Angelman, Down and Dup15q syndromes.
Pamela Lein, PhD pjlein@ucdavis.edu	Neurotoxic mechanisms of pollutants: Neuropharmacology and neurotoxicology and cell and molecular mechanisms of neural plasticity and their role as targets for growth factors, inflammatory mediators & neurotoxicants
K. C. Kent Lloyd, DVM, PhD kclloyd@ucdavis.edu	Integrative physiology, murine transgenics and ES cell biology. Transgenic mouse model; mouse ES cell lines; mutant mouse regional source center
Karen McDonald, PhD kamcdonald@ucdavis.edu	Advances in Plant-Made Therapeutics
Lisa Miller, PhD lmiller@ucdavis.edu	Lung immunology and neonatal immunity; Air pollution and inhalation toxicology
Brian M. Morrissey, MD bmmorrissey@ucdavis.edu	Airway disease and cystic fibrosis; NO condensate in lung diseases; Translational clinical research
Jan A. Nolta, PhD jnolta@ucdavis.edu	Regenerative Medicine: Stem cell research and treating disease and tissue injury
Justin Oldham, MD, MAS joldham@ucdavis.edu	Pulmonary Fibrosis Genetics Pharmacogenetics: translating ILD genetics research into clinical application and pharmacogenetics research to identify genetic subgroups most likely to benefit from ILD therapies
Kent E. Pinkerton, PhD kepinkerton@ucdavis.edu	Inhalation lung toxicology and injury and repair: Air pollution health effects in children and adults
Bradley Pollock, PhD bpollock@ucdavis.edu	Epidemiology, biostatistics, environmental, and occupational health sciences
Edward S. Schelegle, PhD esschelegle@ucdavis.edu	Lung pathophysiology and airway hypersensitivity: Neurokinins in lung; Pharmacology aspect of lung injury by environmental pollutants
Michael Schivo, MD, MAS mschivo@ucdavis.edu	Breath Analytics and Asthma and Emphysema
Scott I. Simon, Ph.D. sisimon@ucdavis.edu	inflammation: focus on leukocyte-endothelial interactions in atherosclerosis
Jay Solnick, MD, PhD jsolnick@ucdavis.edu	Pathogenesis of Helicobacter pylori: Protections against childhood asthma and allergy; respiratory pathogens; influenza virus; & Infectious diseases

Alice Tarantal, PhD
aftarantal@ucdavis.edu

Translational research focusing on stem cells and gene therapy;
Regenerative medicine, primate models across the lifespan, in vivo imaging

Judy Van de Water, PhD
javandewater@ucdavis.edu

Clinical immunology and immunopathology associated with autism

Laura S. Van Winkle, PhD
lsvanwinkle@ucdavis.edu

Respiratory toxicology, sex differences and drug metabolism (Lung Cell
Biology, Toxicology and Remodeling)

Anthony Wexler, PhD
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Air pollution and measurement of specific chemicals in air

Reen Wu, PhD
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Lung Cell and Molecular Biology: Lung Cell and Molecular Biology: Airway
epithelial cell biology and gene expression; IL-17 in airway diseases and
functions

Heike Wulff, PhD
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Potassium channel modulators for the treatment of autoimmune and
cardiovascular disease

Amir Zeki, MD, MAS
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Statin-mediated airway mucosal immunity; pathogenesis of severe asthma
and COPD