

# UC DAVIS HEALTH

## Department of Pathology and Laboratory Medicine

UC Davis College credit opportunities are available for students interested in pre-med, pre-vet, or scientific medical research. Faculty in the Department of Pathology and Laboratory Medicine at UC Davis School of Medicine invite qualified undergraduate students to enroll in the **PMD 199** course, which provides credit for participating in scientific research. This course allows students to gain valuable research or pre-medical experience with state-of-the-art equipment and techniques while receiving course credit. Additionally, if you are not interested in receiving course credit, [volunteering is an option as well](#). A list of interested faculty and their research areas are:

- **James Chan, PhD** Contact: [james.chan@cbst.ucdavis.edu](mailto:james.chan@cbst.ucdavis.edu)  
Dr. Chan's research focuses on developing and applying novel biophotonic techniques for applications in cytopathology, single cell analysis, and bio- and chemical sensing. The optical techniques used include nonlinear microscopy, vibrational spectroscopy, and auto-fluorescence.
- **Verónica Martínez-Cerdeño, PhD** Contact: [vmartinezcerdeno@ucdavis.edu](mailto:vmartinezcerdeno@ucdavis.edu)  
The goal of Dr. Martínez-Cerdeño's laboratory is to determine the etiology and pathology of certain forms of autism. In addition, her lab studies the role of stem cells in the development, evolution, and pathogenesis of the mammalian cerebral cortex. The anatomy and pathology of autism and related diseases in postmortem brains are studied and based on the findings, animal models are developed for autism research.  
Laboratory website: [www.ventricular.org](http://www.ventricular.org)
- **Kuang-Yu Jen, MD, PhD** Contact: [kyjen@ucdavis.edu](mailto:kyjen@ucdavis.edu)  
UC Davis Health performed the highest number of kidney transplants in the country in 2016, and remains on pace to do the same in 2017. Consequently, we have a large archive of transplant kidney biopsies that are available for research. Dr. Jen focuses on clinical research, correlating pathological findings on kidney biopsies to transplant patient outcomes. The methods involved are largely microscopic examination of kidney biopsies and patient chart review, using basic statistical methods for data analysis.
- **Ralph Green, MD, PhD, FRC PATH** Contact: [rgreen@ucdavis.edu](mailto:rgreen@ucdavis.edu)  
Dr. Green studies the roles of micronutrients in the maintenance of normal health and how nutrients and their pathways contribute to the pathogenesis and manifestations of disease. A major focus has been the characterization of B vitamin status in acquired and genetic diseases. Recently, his laboratory has performed studies on sickle cell anemia, cancer and degenerative neurological disorders, including Parkinson's disease and Alzheimer Disease and population studies on declining cognitive status in the elderly. Methods used in the laboratory include hplc, enzyme immunoassays (ELISA) and multiplex proteomic assays.
- **Leonor Fernando, MD, FACP** Contact: [lpfernando@ucdavis.edu](mailto:lpfernando@ucdavis.edu)  
Dr. Fernando performs clinical research using retrospective data collection to analyze different therapeutic apheresis techniques to treat disease and develop clinical practice protocols.
- **Konstantinos Zarbalis, PhD** Contact: [kzarbalis@ucdavis.edu](mailto:kzarbalis@ucdavis.edu)  
The Zarbalis laboratory's main focus is developmental biology and the study of pathological processes underlying craniofacial and neurodevelopmental disorders. In our approach, we use cell culture and in vivo models to reveal the effects of mutation in genes of interest on cellular behavior. We apply a variety of techniques to address the questions we are interested in, including methods of molecular biology, molecular histology, protein biology, biochemistry, and bioinformatics.
- **Denis Dwyre, MD** Contact: [dmdwyre@ucdavis.edu](mailto:dmdwyre@ucdavis.edu)  
Dr. Dwyre focuses on clinical research in the areas of coagulation, apheresis, and hematology.
- **Yu-Jui Yvonne Wan, PhD** Contact: [yvonnewan98@gmail.com](mailto:yvonnewan98@gmail.com)  
The Wan lab studies the role of microbiota in contributing to and preventing obesity and metabolism-associated health issues including fatty liver, inflammation, skin lesions, mental issues, and cancer aiming to uncover means for prevention and treatment. We utilize human tissue samples as well as mouse models to study the GI, liver, and gut-liver axis. Additionally, we focus on utilizing

natural chemicals derived from  $\beta$ -carotene, tea, cheese, or bacteria-generated metabolites for potential treatment and health regulation.

- **Mirna Lechpammer, MD, PhD**

Contact: [mlechpammer@ucdavis.edu](mailto:mlechpammer@ucdavis.edu)

The Lechpammer lab focuses on hypoxia driven mechanisms in neoplastic and non-neoplastic brain disorders. Students will engage in human cell culture and western blot experiments to investigate proteins and molecular markers involved in these situations.

If you are interested in working with any of these faculty members on research, please contact them through email. For PMD 199, two or three hours per week correspond to one unit. Most of the professors are located at the School of Medicine and UC Davis Health campus in Sacramento; however, busing for students is available between the two campuses.

Please contact Niki DeGeorge, 916-734-4146 or [ntdegeorge@ucdavis.edu](mailto:ntdegeorge@ucdavis.edu), if there are any questions.