Postdoctoral Position Available (Dr Kelesidis research group) in theDepartment of Medicine

Department: Medicine
Position available: Immediately
Length of position: Full time, 2 year-funded position by NIH, California State, Industry

Novel therapeutic approaches to treat viral infections including HIV and COVID-19
Overview: The pandemic COVID-19 has caused severe morbidity and mortality worldwide, emphasizing the need to develop novel therapeutic strategies to combat morbidity and mortality from viral infections. Despite potent antiviral therapy (ART) chronic HIV infection is a state of increased systemic inflammation and immune dysfunction that leads to development of end organ disease and comorbidities including cardiovascular disease. The Kelesidis laboratory focuses on mechanisms how increased oxidative stress, systemic inflammation and immune dysfunction drive development of end organ disease such as atherosclerotic cardiovascular disease (CVD) and liver disease (liver fibrosis and fatty liver disease). We have found that bioactive lipids that are formed during viral infections alter cells and tissues and drive pathogenesis of CVD. Mitochondria are cellular organelles that sense cellular stress and may also contribute to dysfunction of cells, tissues and ultimately organs. Novel research in the laboratory has identified novel antioxidants that target increased bioactive lipids and altered mitochondria to attenuate increased systemic inflammation, immune dysfunction and end organ disease in chronic HIV infection. Importantly these antioxidants were also recently shown to attenuate SARS-CoV-2 viral replication and associated inflammatory responses in lung epithelial cells. The lab uses *in vitro* cell culture models, *ex vivo* models of atherogenesis and gut explants to dissect mechanisms how the cross talk betweenbioactive lipids, immune, endothelial and epithelial cells drive atherogenesis and how novel therapeutic agents attenuate aberrant proinflammatory cellular pathways. The lab also uses a preclinical animal mechanistic humanized mouse model of chronic treated HIV infection to study *in vivo* how novel therapies attenuate end organ disease.
Another active area of research is clinical studies with HIV infected patients to determine how certain antiretrovirals alter mitochondrial function to drive development of comorbidities. The research group also collaborates with cardiologists to determine how oxidative stress during smoking and use of electronic cigarettes contributes to development of cardiovascular disease. Finally, recent areas of research include studies of pathogenesis of COVID-19 using preclinical in vitro and animal models of SARS-CoV-2 infection. These findings may initiate further studies to explore the efficacy of novel therapeutic interventions that might improve the prognosis of vulnerable groups that are at high risk for development and progression of viral infections like HIV and COVID-19. The research within the laboratory leverages the expertise of the lead PI in immunity, inflammation, oxidative stress, cardiovascular disease and infectious diseases, and the synergy among the laboratories within UCLA cardiovascular medicine, pulmonary medicine and the UCLA Metabolism Theme to facilitate the investigation of highly innovative and underexplored questions.

Qualifications:

- A PhD is required. Candidates with a strong background in molecular immunology and/orvirology and or related disciplines are strongly encouraged to apply.
- Preferredqualifications:Familiarwithtechniquessuchas**multi-colorflowcytometry**,**steriletechniqueforcellculture** with **BSL-2+** practices, ELISA, qRT-PCR, immunofluorescence, Western Blot and molecular biologytechniques. Mouse experience is preferred but is not required. Experience in virology research is preferred but is not required. **The candidate should be comfortable working with BSL2+ biospecimens including biospecimens (cells, plasma, tissues) from patients or mice with COVID-19 and/or HIV.**

Responsibilities - Ideal candidates will be expected to:

- Lead existing research projects with regards to design, execution and analysis of experiments, guidance of technicians to complete assigned work within specific timeframe.
- Establish independent research projects, present at scientific meetings, write peer-reviewedpublications
- Demonstrate ability and desire to develop grantsmanship skills for the preparation of competitive funding proposals
- The individual will learn new laboratory procedures and techniques as needed.
- Form part of multidisciplinary researchcollaborations
- Contribute to training/supervisionof undergraduate students and technicians in thelab
- Oversee the maintenance of thelaboratory.

Contact: To apply, please provide a cover letter and curriculum vitae (with three names of references)to Dr Theodoros Kelesidis at tkelesidis@mednet.ucla.edu