PharmTox Fights COVID-19
Week of March 22-26, 2021

Dr. Leung Receives DEAP Award

Associate professor Ricky Leung is the recipient of a UAMS Development Enhancement Awards for Proposals (DEAP Award). Dr. Leung will receive $25,000 immediately for his 1-year submission, "RNA modifications by paternal exposure to arsenic and intergenerational effects on sperm quality". He plans to collect more preliminary data for a R01 grant to explore the effect of in utero arsenic exposure on sperm functions and to demonstrate ability to detect modified bases in small RNAs using a newly developed Nanopore sequencing protocol. Dr. Leung's proposal addresses the emerging concern that paternal exposure to toxicants, including arsenic, compromises sperm quality and male fertility in offspring. It seeks to identify unique changes in sperm RNAs that explain the intergenerational effects and the sensitive period during development to this toxicant. The long-term goal is to understand how gene-environment interactions cause disease across generations through modified small RNA populations.

Basnakian Team to Publish Collaborative Manuscript

Professor Alexei Basnakian and research associates, Alena Savenka and Shane Shelton, recently co-authored a manuscript that has been accepted to the European Journal of Medicinal Chemistry. The manuscript was a collaborative effort with a team of scientists led by associate professor Mohammad Alam of Arkansas State University and professor Mark Smeltzer of the UAMS Department of Microbiology & Immunology. The manuscript titled "4-4-(anilinomethyl)-3-[4-(trifluoromethyl)phenyl]-1*H*-pyrazol-1-ylbenzoic acid derivatives as potent anti- gram-positive bacterial agents" describes a newly discovered antibiotic compound that is highly effective against *Staphylococcus aureus* and is non-toxic to cultured human cells and mice.

Dr. Kiaei's Manuscript Accepted by Nature Scientific Reports

Associate professor Mahmoud Kiaei had a paper accepted by Nature Scientific Reports. This report is a follow-up study of an earlier publication in Scientific Reports (Kiaei et al., 2018). The new study, titled "In silico studies reveal structural deviations of mutant profilin-1 and interaction with riluzole and edaravone in amyotrophic lateral sclerosis", examines the ALS-causing PFN-1 mutant protein and possible functional changes in its structural dynamics and chemical bonding behavior using *in silico* tools. Dr. Kiaei and colleagues observed that mutations alter the structure of the PFN-1 protein. Riluzole and edaravone, two FDA-approved drugs for ALS, showed potential to reduce the structural deviations and stabilize the mutant PFN-1. These structural deviations of mutant PFN-1 protein may explain the neurotoxicity and change in PFN-1 function as a novel mechanism of ALS neurotoxicity. The manuscript is available at https://www.nature.com/articles/s41598-021-86211-4