

CODY NICHOLS: POSTDOCTORAL FELLOW AT THE NATIONAL INSTITUTES OF ENVIRONMENTAL HEALTH SCIENCES

Cody Nichols, an alumnus of the 2008 and 2009 WV-INBRE summer research programs and graduate of West Virginia Wesleyan College, recently finished his dissertation research in Dr. John Hollander's lab at the West Virginia University (WVU) Health Sciences Center. On April 11, 2016, Cody defended his dissertation entitled: "Cardiac and Mitochondrial Impacts Following Acute Pulmonary Xenobiotic Exposure". Cody's dissertation research was focused on the cardiovascular impacts of airborne particulate inhalation. Throughout his research, he applied both cutting edge cardiovascular imaging to identify functional impacts and biochemical analyses to identify mitochondrial deficits following exposure. One aim of this project centered on Appalachia and the impact of airborne particulates produced during surface coal mining. Acute exposure to this regionally-specific particulate decreased cardiac and mitochondrial function and was associated with increased cell death. The other aims focused on emerging products (nanomaterials) and the potential toxicity these materials may have in humans. In these studies, Cody and Dr. Hollander identified a distinct form of heart dysfunction in which the heart is not able to relax as well after exposure to these nanomaterials. They also found that the mitochondrion does not function as well and this may be due to an increase in reactive oxygen species production and damage following exposure. This project has allowed Cody to prepare 2 first-author manuscripts, co-author 10 manuscripts, and present at 6 annual national meetings and more than 10 regional meetings. While he has competed and received intramural funding, Cody's research was funded by the American Heart Association through an extramural pre-doctoral fellowship. Cody is leaving WVU for Dr. Stephanie London's lab at the National Institutes of Environmental Health. There, he will investigate how single nucleotide polymorphisms identified in humans increase susceptibility to Chronic Obstructive Pulmonary Disease (COPD).

