Investigator:	**Cherry Wongtrakool** Phone: (404) 321-6111 ext. 207388 Email: cwongtr@emory.edu
Primary Research Interest:	Other
Description of Research:	1) Nicotine is a major component of tobacco smoke that has been shown to affect proliferation and airway development in the lung. We are investigating how nicotine is a causative agent for increased airway hyperresponsiveness through effects on neurogenic signals. In addition, because Th2 inflammation contributes to the pathogenesis of asthma and a subset of patients with COPD, we are investigating whether a novel therapy targeting Th2 inflammation can reverse the airway hyperresponsiveness in an animal model of asthma. 2) T2 inflammation is the most common pathophysiologic mechanism in severe asthma. We are studying whether inhibiting GATA-3 using a novel nanoparticle-based therapeutic could be a viable alternative to oral corticosteroids and biologics. 3) We are studying how heavy metal exposure affects lung development through changes in metabolism that lead to changes in cell differentiation and maturation. These early changes during development lead to abnormal lung physiology that predisposes to worse outcomes from lung disease
Relevance to VA:	Cigarette smoking is prevalent among veterans with a current smoking rate of 35%. Pulmonary diseases such as asthma and chronic obstructive pulmonary disease contribute significantly to healthcare utilization in the VA system. Airway hyper responsiveness is associated with poor asthma control and poorer outcomes in patients with COPD, so understanding the mechanisms responsible for airway hyperresponsiveness may identify novel therapeutic targets to improve treatments for asthma and COPD. 2) Asthma affect 1 in 12 people in the U.S. The prevalence of asthma has increased in Iraq and Afghanistan war veterans from 1.1% in 2003 to 3.1% in 2011 (Pugh et al., Mil Med 2016). Asthmatics with severe asthma are dependent on frequent use of oral corticosteroids which have significant side effects. Therefore, alternative to corticosteroids are desperately needed for veterans with severe asthma. 3) Heavy metal exposure is associated with increased risk for pulmonary disease. Veterans are at risk of heavy metal exposure from military time and specifically when deployed in areas of conflict.