

**James & Esther King Biomedical Research Program**

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*Pediatrics  
University of Miami*

*2010 Program  
New Investigator Research  
(3-year project)*

**Project Title:** Importance of c-kit in Neonatal Lung Development and Disease

**Project Summary:** Cigarette smoking is the most preventable cause of prematurity, low birth weight, and infant death. According to the Center for Disease Control, approximately 10 percent of mothers in the U.S. smoke during pregnancy, and smoking attributable neonatal expenditures are more than \$150 million. One of the leading reasons for this economic burden is prematurity and the lung disease that result from early birth. This lung disease, so called chronic lung disease of prematurity or bronchopulmonary dysplasia (BPD) occurs in 30-50 percent of preterm infants with birth weights <1000 grams and is characterized by an arrest of normal lung development. This 'arrest' in lung development results in alveolar simplification (larger but fewer alveoli) and abnormal blood vessel growth. Whilst the mechanisms that lead to this arrested lung development are unclear, recent studies suggest that preterm birth may lead to abnormal lung vascular growth and this will impair alveolar growth. The goals of this project are to unravel the mechanisms that impair lung vascular growth when an infant is born preterm and to generate new therapeutic interventions to prevent chronic lung disease of prematurity or BPD.