

## 2011/2012 MRG Awards Report

---

**Organization Name**

**Primary Contact**

**Project Title**

**Public Information Summary**

---

### **East Carolina University**

**Dr. Qun Lu**

*Cell-Cell Junction Protein as Biomarker for Prostate Cancer (Resubmission)*

This project will test a non-invasive urine assay based on the overexpression and high frequency gene mutations in a unique protein, delta-catenin, in prostate cancer. The success of this project will provide the foundation to investigate whether delta-catenin-based assays are a potentially better prostate cancer biomarker for development of a new diagnostic test.

### **Duke University**

**Dr. Lingchong You**

*Modeling, Microfluidics and Quantitative Single Cell Signaling Dynamics*

Signaling pathways regulate cell cycle progression and cell fate decisions in normal and in cancerous cells. The proposed research aims to develop a suite of experimental tools, including genetic tools and microfluidic devices, to manipulate and measure cell signaling dynamics in mammalian cells. This work has implications for understanding development and treatment of cancer.

### **North Carolina State University**

**Dr. Ruben G. Carbonell**

*Disposable, High-Throughput, High-Capacity Antibody Capture Membrane with In-Line Sensors*

Current techniques for purification of antibody therapeutic drugs are costly. This is a proposal to develop a novel membrane that will improve production of antibody therapeutic drugs, making it less costly, faster and more efficient. It consists of a small molecule that can recognize antibodies specifically in a complex mixture and capture them in an open fibrous membrane structure.

### **North Carolina State University**

**Dr. Melissa S. Ashwell**

*Genetic Variation of Plasma Disposition Kinetics and Liver Gene Expression in the Pig and their Implications on Animal Welfare and Drug Efficacy (Resubmission)*

Current FDA drug withdrawal times in swine are based on information from relatively few animals and do not take into account differences among breeds. This approach may result in drug administration at too low or too high levels, increasing veterinary costs and possibly cultivating drug resistance. This project will examine drug withdrawal times in pig breeds to evaluate the role of genetic variation in drug metabolism.

---

**Organization Name**

**Primary Contact**

**Project Title**

**Public Information Summary**

---

**UNC - Wilmington**

**Dr. Andrea J. Bourdelais**

*Development of Ladder Frame Polyethers as Drug Escortins*

A major hurdle in the development of new therapeutic drugs is getting them inside cells and to their site of action. This proposal aims to develop both natural and synthetic compounds called ladder frame polyethers, as drug carriers to improve the cellular uptake of drugs with low membrane permeability.