

2011/2012 BRG Awards Report

Organization Name

Primary Contact

Project Title

Public Information Summary

UNC - Greensboro

Dr. Chris Kepley

Identification and Validation of Novel Therapies for the Inhibition of Atherosclerotic Plaque Lesions

Atherosclerosis is a chronic inflammatory disease affecting millions of Americans. Treatment of the disease is extremely expensive and contributes to the rising cost of healthcare. The PIs have discovered a potential clinically important way to prevent heart attack and stroke due to atherosclerosis. This new discovery has important implications for the development of new ways to treat this disease as it represents a novel way to prevent the disease that differs from commercially available therapies (e.g. statins). This discovery could lead to paradigm-shifting strategies for preventing one of the most costly and debilitating diseases in humans.

UNC - Charlotte

Dr. Irina V. Nesmelova

Towards Rational Engineering of Transposon-based Genetic Tools

The goal of this project is to use biotechnology techniques to improve the tools for gene therapy and other genetic applications. The first step to developing new gene therapies is to understand the structure of important proteins called transposons. The PIs will study the structure of one transposon in order to provide the information needed for transposon engineering.

Western Carolina University

Dr. Indrani Bose

Using RNA Interference to Identify New Drug Targets in the Human Pathogenic Fungus, Cryptococcus neoformans

Cryptococcus neoformans, a fungus that infects immunocompromised patients, may cause fatal meningoencephalitis if left untreated. Current antifungals have little efficacy against this organism. The PIs will identify fungal genes involved in producing disease (virulence factors). Once these genes are identified, new therapeutics may be developed to target these factors. The PIs will construct and screen an RNA interference library to identify novel genes required for melanization (a virulence factor) that could serve as new drug targets.

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East Carolina University

Dr. Yong Zhu

Developing a Method to Control Invasive Animals through Biotechnology

The PI will develop a platform technology for producing infertile fish that has potential applications for control of invasive species. The method is based on a genetic procedure and will be developed in zebra fish as a model organism. Competitive mating of sterile fish with fertile individuals would eventually reduce overall reproductive capacity achieving the goal of population control of invasive animals.

East Carolina University

Dr. Jitka A.I. Virag

Intramyocardial EphrinA1-Fc Reduces Myocardial Infarct Injury (Resubmission)

The investigator will examine the mechanisms by which ephrin A1-Fc provides protection against injury to the heart muscle after blood flow is cut off to the organ and in the absence of reperfusion therapy. The cell signaling pathway intermediates through which ephrin A1-Fc acts to enhance cardiomyocyte survival are as yet unknown. Understanding these mechanisms will reveal the therapeutic potential of ephrinA1-Fc for cardiovascular diseases and stroke, as well as tissue engineering and regenerative applications.