

Our friends at Hunter College of The City University of New York Center for Study of Gene Structure and Function and Department of Biological Sciences asked us to share the attached announcement for the Fall 2011 Seminar **Modeling Oxido-Reduction Stress Signaling Networks and Protein Aggregation Diseases in Flies and Mice** with *Dr. Ivor J. Benjamin*.

Hunter College of the City University of New York  
Center for Study of Gene Structure and Function  
*and*  
Department of Biological Sciences Fall 2011 Seminar

**MODELING OXIDO-REDUCTION STRESS  
SIGNALING NETWORKS AND PROTEIN  
AGGREGATION DISEASES IN FLIES AND MICE**

**Abstract:** *Our NIH Director's Pioneer Award Program is designed to develop a robust experimental platform for exploring the mechanisms of reductive stress disease. Our laboratory has challenged this paradigm by demonstrating that mouse hearts exhibiting protein-folding cardiomyopathy found in humans are under 'reductive stress' from an over-active antioxidative system. Decreasing the function of glucose-6-phosphate dehydrogenase (G6PD), which generates the reductant NADPH, "cures" the disease in mice by ameliorating reductive stress, aggresome formation, hypertrophy, heart failure and death. By expressing the R120G mutant form of CryAB in the Drosophila eye a visible phenotype was produced: the eye is disorganized, lacks pigment and is poorly differentiated. In addition, we have established proof of concept that a genetic model of human R120G-induced cardiomyopathy in Drosophila recapitulates the biochemical and functional phenotypes in mice, providing complementary strategies for our multidisciplinary program on reductive stress. And this careful work now places us in position to proceed with genetic screens to find modifiers to elucidate the mechanism(s) of reductive stress cellular pathology. Future studies are geared towards translation and clinical applications in terms of small molecule screening and tissue regeneration using induced pluripotent stem cells.*



**Dr. Ivor J. Benjamin, MD, FACC, FAHA**  
*Christi T. Smith Endowed Chair of Cardiology and  
Medicine, Director, Laboratory of Cardiac Disease,  
Redox Signaling and Cell Regeneration, NIH  
Director's Pioneer Award Program, University of  
Utah School of Medicine*

**Hunter College Alumnus**

**Monday, September 19, 2011 • 12:00pm  
Room 926 • Hunter North Biology Conference**

**REFRESHMENTS WILL BE SERVED AT 11:45AM**

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