Research will examine longitudinal microRNA expression and toll-like receptor 9 as possible clues in the vascular dysfunction found in preeclampsia

Melbourne, FL – September 13, 2012 – The Preeclampsia Foundation announced today that Styliani "Stella" Goulopoulou, PhD, Georgia Health Sciences University, and Mark Santillan, MD, University of Iowa Hospitals & Clinics are recipients of its 2012 Vision Grants. These prestigious research awards will be presented to them at the Foundation's annual benefit dinner, *Saving Grace – A Night of Hope*, on Friday, Oct. 26, at Sonny Hill Polo Club in Point Clear, Ala.

Vision Grants are awarded to the strongest scientific proposals recommended by the Foundation's scientific review committee with a further review by a consumer advisory board. The Foundation's Board of Directors renders the final decision based on those recommendations.

The Vision Grant Recipients and their Research Proposals (photos available upon request)

Dr. Mark Santillan is a physician-scientist in the Division of Maternal Fetal Medicine at the University of Iowa who practices, teaches, and conducts research in obstetrics. His main research goal is to elucidate the immunologic and genetic underpinnings of preeclampsia-related vascular dysfunction.

His proposal, "Utilizing Longitudinal microRNA Expression in Maternal Plasma to Understand and Predict Preeclampsia," will involve studying the role of small genetic regulators, called microRNAs, in the development of preeclampsia. MicroRNAs are involved in the control of cellular processes like blood vessel and cell growth, which may lead to preeclampsia if disregulated. Investigators have shown that the presence or absence of specific microRNAs is characteristic of different diseases. This study will examine and compare the pattern of microRNAs present at each trimester in normal and in preeclamptic pregnancies.

Dr. Santillan is building his career around a drive to understand and treat preeclampsia,

motivated by the fact that there is currently no cure for preeclampsia other than to deliver the baby. He explained, “As a physician in Maternal Fetal Medicine, I have had to worry about the survival of many moms and their babies. Unfortunately, I have been there when things did not go well. As a husband, I could not imagine anything worse than losing the two greatest loves in your life in one day, especially on a day that should be one of the best days of your life.”

He hopes that this study will help to identify women who will develop preeclampsia prior to the onset of the clinical symptoms and to identify new therapeutic targets.

Dr. Stella Goulopoulou received her PhD from Syracuse University. She is currently a postdoctoral fellow in the Department of Physiology at Georgia Health Sciences University where her research is focused on maternal vascular adaptations to pregnancy.

Her Vision Grant proposal, “Toll-like receptor 9: a novel link between placenta-derived mitochondrial DNA and development of maternal vascular dysfunction in preeclampsia” is based on the hypothesis that molecules released by dead cells from the placenta trigger receptors of the immune system in the blood vessels of pregnant women that can lead to global inflammation and ultimately impair the growing baby’s supply of nutrients and oxygen. Dr. Goulopoulou will use an experimental animal model to examine the molecular mechanisms by which mitochondrial DNA activates immune receptors and drives maternal hypertension and intrauterine growth restriction of the fetus. She will also measure the levels of mitochondrial DNA in the circulation of women with preeclampsia.

Dr. Goulopoulou explained in her application, “If we prove that this idea is correct, we can develop new treatments that inhibit the development of maternal inflammation and the devastating effects of preeclamptic pregnancies.” She added, “I cannot promise that my idea is correct but I can promise that I will not give up the fight and I will continue seeking for answers. I have faith that our hard work will pay off and soon enough we will be able to predict and treat preeclampsia, even at the early stages of the disease.”
About the Vision Grant Program: The Preeclampsia Foundation provides Vision Grants annually to fund medical research pertaining to the pathophysiology, diagnosis, and treatment of hypertensive disorders of pregnancy. Vision Grants are small awards intended to provide initial funding for novel rather than well-established lines of research and to encourage young investigators in this field of study.

About Preeclampsia: Preeclampsia, a disorder of pregnancy, is characterized by high blood

pressure and protein in the urine; other symptoms often include swelling in the hands and face. Preeclampsia affects the mother's kidneys, liver and other vital organs and, if undetected or untreated, can lead to seizures (eclampsia), cerebral hemorrhage, failure in vital organs (i.e., kidney and heart) and death. Preeclampsia complicates five to eight percent of all pregnancies and is responsible for 15 percent of all premature births. By conservative estimates, each year this disease is responsible for 76,000 maternal and half a million infant deaths worldwide.

About the Preeclampsia Foundation: The Preeclampsia Foundation's mission is to reduce maternal and infant illness and death due to preeclampsia and other hypertensive disorders of pregnancy by providing patient support and education, raising public awareness, catalyzing research and improving health care practices. We envision a world where preeclampsia no longer threatens the lives of mothers and babies. For more information, call toll free (800) 665-9341 or visit www.preeclampsia.org.