

## James & Esther King Biomedical Research Program

**Rangel, Erika**

*Interdisciplinary Stem Cell Institute  
University of Miami*

*2010 Program  
Postdoctoral Research Fellowship  
(2-year project)*

**Project Title:** Isolation, Characterization, and Differentiation of c-kit Positive Cells from Neonatal Rat Kidneys

**Project Summary:** Tobacco smoking is a renal risk factor in the general population and also in patients with primary and secondary kidney disease, such as glomerulonephritis, hypertension, and diabetes. At present, dialysis and transplantation remain the only treatment options for chronic kidney disease. However, there is hope that stem cell therapy may provide an additional regenerative approach for kidney disease. In this study, we are planning to isolate and expand stem cells from neonatal rat kidneys. To test their potential to differentiate to kidney structures, such as endothelial and epithelial cells, we are going to culture the cells in differentiation media and analyze specific markers both before and after differentiation. Further, the cells will be injected into mice to assess their regenerative potential in a model of ischemia-reperfusion injury (Ischemia is an inadequate blood supply; reperfusion is restoration of blood flow to an area that had previously experienced deficient blood flow).