

## BIOGRAPHICAL SKETCH

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NAME Gerena, Yamil	POSITION TITLE		
eRA COMMONS USER NAME (credential, e.g., agency login) Ygerena	Assistant Professor		
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	MM/YY	FIELD OF STUDY
University of Puerto Rico, Río Piedras Campus	B.S.	1997	Chemistry
University of Puerto Rico, School of Medicine	Ph.D.	2005	Pharmacology
University of Puerto Rico, School of Medicine	Post Doc	2007	Immunology/ Molecular Biology

### A. Personal Statement

The goal of the proposed research is to determine if changes in plasma sIR full-length levels are associated with HAND in a cohort of HIV-seropositive women using cART. The emphasis of my work to date has focused on the role of the Insulin Receptor and the Renin Angiotensin System in diabetes and cardiovascular diseases. As a young investigator, my experience to date on Insulin Receptor (IR) includes the study of the effect of high glucose and cytokines on the secretion of soluble Insulin Receptor (sIR) subunits from cultured lymphocytes and other mammalian cell types, the isolation and quantification of sIR ectodomain and full-length from the plasma of HIV-seropositive and Type II diabetic patients, the identification and analysis of IR mRNA alternative splicing variants from different mammalian cells using RT-PCR, the overexpression of Insulin Receptor-Green Fluorescent Protein (GFP) fused protein and their quantification by flow cytometry and western blot analysis, and the crosstalk between the Insulin Receptor Signaling Pathways and the Renin Angiotensin System in cardiomyocytes. Additional experience includes the role of the mineralocorticoid antagonists on the intracrine as well as on the extracellular action of Ang II on isolated cardiomyocytes and the role of aldosterone and spironolactone on L-type inward calcium current in the failing heart of cardiomyopathic hamsters (TO-2) using patch clamp technique. I have extensive experience in molecular biology and fluorometric techniques, with specific training and expertise in molecular cloning, DNA and mRNA isolation, RT-PCR, stable transfection in mammalian cells, western blot and cytofluor analysis. In addition, I have a broad background in flow cytometry particularly the quantification and validation of membrane-bound and intracellular protein expression in human and animal cells using this revolutionary technique. I had the opportunity to collaborate with many scientific investigators providing support to their research projects in these molecular techniques and in the preparation and analysis of samples using different flow cytometric instruments. We have published and submitted many articles and have established an important and strong collaboration. I'm confident our ongoing collaboration will help to clarify the proposed hypothesis to advance the research in this novel research area.

### B. Positions and Honors

#### Positions and Employment

2005	Research Associate	UPR, School of Medicine
2005-06	Director Research Compliance	Ana. G. Méndez University System
2006-07	Director Interdisciplinary Research Inst.	Universidad del Turabo
2007-	Adjunct Professor	UPR, Pharmacology Department
2007-	Assistant Professor	UPR, Pharmaceutical Sciences Department

## **Other Experience and Professional Memberships**

2002-03 Member, International Society of American Cytology  
2006-07 Member, Public Responsibility in Medicine and Research  
2010- Member, American Heart Association

## **Honors**

1996-1997 MARC Program Fellowship, UPR, Río Piedras Campus  
1997 Five Students Recognition Award, Chemistry College of Puerto Rico  
1997-2000 M.B.R.S. Program Fellowship - PR, School of Medicine  
2000 RCMI Student Travel Award - UPR, School of Medicine,  
2001-2004 N.I.H. Fellowship Award – UPR, School of Medicine,  
2001-2002 Outstanding Research Student in Pharmacology - UPR, School of Medicine  
2002 ISAC Student Travel Award - UPR, School of Medicine  
2002 ISAC Exceptional Student Award Finalist - San Diego, California, May, 2002.  
2003 Outstanding Academic Performance - UPR, School of Medicine  
2005 First Place XXV Annual Research and Education Forum, UPR-School of Medicine  
2007 NIH-AABRE Junior Faculty Summer Award – UPR, Río Piedras  
2008 RCMI Travel Award – 11<sup>th</sup> International Symposium, Honolulu, Hawaii  
2010 12<sup>th</sup> RCMI International Symposium Reviewer, Nashville, TN

## **C. Selected Peer Reviewed Publications**

### **Most relevant to the current application**

1. **Gerena-López, Y.**, Nolan, J., Wang, L., Gaigalas, A., Schwartz, A., and Fernández-Repollet, E. (2004). Quantification of EGFP Expression on Molt-4 T Cells Using Calibration Standards. *Cytometry 60A*: 21-28.
2. Kraft-Terry S, **Gerena Y**, Wojna V, Plaud-Valentin M, Rodriguez Y, Ciborowski P, Mayo R, Skolasky R, Gendelman HE, and Meléndez LM. (2010). Proteomic analyses of monocytes obtained from Hispanic women with HIV associated dementia show depressed antioxidants. *Proteomics Clinical Applications*.4: 706–714. PMC In process

### **Additional recent publications of importance to the field (in chronological order)**

3. De Mello, W and **Gerena, Y.** (2008). Eplerenone inhibits the intracrine and extracellular actions of angiotensin II on the inward calcium current in the failing heart. On the presence of an intracrine renin angiotensin aldosterone system. *Regulatory Peptides*, 151:54-60. PMID: PMC2749237
4. De Mello, W and **Gerena, Y.** (2009). Prolonged exposure of cardiac cells to renin plus angiotensinogen reduces intracellular renin in the failing heart. On the role of angiotensin II-AT1 complex internalization. *Regulatory Peptides*. 155(1-3): 139-44.
5. De Mello, W and **Gerena, Y.** (2010). Further studies on the effects of intracrine and extracellular angiotensin II on the regulation of heart cell volume. On the influence of aldosterone and spironolactone. *Regul Pept*. Aug 6. In Press.

## **D. Research Support**

### **Ongoing Research Support**

Novartis Pharmaceutical Grant                      DeMello (PI)                                              04/01/10-03/31/12  
Aliskiren, cardiac remodeling and insulin resistance  
The goal of this project is to analyze the influence of aliskiren on structural and electrical remodeling, glucose uptake and insulin sensitivity in the heart of diabetic TGR(mRen-2)27 rats.  
Role: Co-Investigator

NIH-NCRR-RCMI - G12RR03051

Mercado (PI) /Fernandez (PD)

08/01/07-07/31/11

Multidisciplinary Collaborative Research Program - The overall goal of this program is to enhance the biomedical research capabilities of the University of Puerto Rico Medical Sciences Campus. This goal is being achieved by developing infrastructure and support which facilitate the conduct of research; targeting specific areas of research for further development, especially those that promote basic and clinical collaborations; and developing the research potential of current and newly recruited faculty.

Role: Associate Investigator