Curriculum Vitae (short version)

R. Daniel Peluffo, Ph.D.

Present position: Director of the Group of Biophysical Chemistry
Chairman of the Department of Biological Sciences
CENUR Northern Regional Campus
University of the Republic
Salto, URUGUAY

Education

B.S./M.S., Biochemistry, School of Pharmacy & Biochemistry, University of Buenos Aires, Argentina, 1986.

Ph.D., Biophysical Chemistry, School of Pharmacy & Biochemistry, University of Buenos Aires, Argentina, 1992.

Postdoc, Biophysics, Graduate Hospital and University of Pennsylvania, Philadelphia, PA, USA, 1993-1997.

Professional positions (over the past 10 years)

2005-2013 Tenure-track Assistant Professor, Department of Pharmacology and Physiology, University of Medicine and Dentistry of New Jersey-New Jersey Medical School, Newark, NJ.

2005-Date Member, Graduate School of Biomedical Sciences, Rutgers University, Newark, NJ.

2006-2009 Member (design, organization, and lecturing), Quantitative Neurosciences joint Program, Graduate School of Biomedical Sciences, University of Medicine and Dentistry of New Jersey, Rutgers University, and New Jersey Institute of Technology.

2007-Date Investigator PEDECIBA (Program for the Development of the Basic Sciences), Area: Biology, Ministry of Education and Culture, University of the Republic, Montevideo, Uruguay.

2010-2013 Member, Sloan Minority Ph.D. Program, UMDNJ, Newark, NJ.

2013-2014 Adjunct Assistant Professor, Department of Pharmacology and Physiology, Rutgers University-New Jersey Medical School, Newark, NJ.

2013-Date Full Professor and Director of the Pole for University Development in Biophysical Chemistry, CENUR Northwest, University of the Republic, Salto, Uruguay.

2013-Date Founding Chair, Department of Biological Sciences, CENUR Northern Regional Campus, University of the Republic, Salto, Uruguay.

2014-Date Adjunct Associate Professor, Department of Pharmacology and Physiology, Rutgers University-New Jersey Medical School, Newark, NJ.

Membership in Professional Societies

1988-Date Biophysical Society of Argentina (SAB).

1995-Date Biophysical Society of the United States of America (BPS).

1997-2013 American Association for the Advancement of Science (AAAS).

2005-Date The Society of General Physiologists (SGP).

2009-Date Latin American Biophysical Society (SOBLA).

2014-Date Biosciences Society of Uruguay (SUB), Biophysics Section.

Honors

1992 Achievements in Science and Technology Award. University of Buenos Aires, Argentina.

1993 Achievements in Science and Technology Award. University of Buenos Aires, Argentina.

1996 Leonard N. Horowitz, M.D. Award for the Outstanding Postdoctoral Researcher supported by the Southeastern Pennsylvania Affiliate of the American Heart Association (AHA).

1997 Leonard N. Horowitz, M.D. Memorial Research Award for the Outstanding Postdoctoral Researcher supported by the Southeastern Pennsylvania Affiliate of the AHA.

2002 Plenary Lecturer at the Symposium: Molecular Mechanism and Function III, 10th International Conference on Na,K-ATPase and Related Cation Pumps (Elsinore, Denmark).

2005 Plenary Lecturer at the Symposium: Experimental and Modelistic Views into the Study of Channels and Transporters, 34th Annual Meeting of the Argentine Biophysical Society (Argentina).

2007 Perspectives article (*Journal of Physiology*, **580.3:** 699-700) by Drs. C. Remillard and J. Yuan, UCSD, highlighting the importance of the discoveries reported in Peluffo, 2007.

2007 Organizer and Chairman of the Symposium: Kinetic and Thermodynamic Aspects of Transporters and Pumps, VI International Conference on Biological Physics (Uruguay).

2009 Invited Lecturer at the Graduate Course and Symposium: Physiology of Membrane Ion Transport, Department of Biophysics, School of Medicine, Universidad de la República, Uruguay.

2010 Editorial Focus (*American Journal of Physiology*, **299:** C213-C215) by Dr. C. Gatto, Illinois State Univ., highlighting the importance of the discoveries reported in Zhou et al., 2010.

2011 Plenary Lecturer at the Symposium: Transport across Cellular Membranes, 40 Annual Meeting of the Argentine Biophysical Society (Buenos Aires, Argentina).

2012 Invited Lecturer, University of La Laguna, Tenerife, Canary Islands, Spain. Graduate courses for master and doctoral students: Methods in Biomedicine, Methods in Biotechnology, Biotechnology Discussions. Experimental approaches for the study of membrane transporters.

2013 U.S. Biophysical Society's grant to support the organization of the Uruguayan Biophysical meeting held at the School of Sciences and the Pasteur Institute (Montevideo, Uruguay).

2013 Organizer and Chairman of the symposium "Channels, Transporters and Membranes". Second gathering in Biophysics, School of Sciences and Pasteur Institute (Montevideo, Uruguay).

2013 Uruguayan representative, Latin American Federation of Biophysical Societies (LAFeBS).

Statement of Accomplishments

I devoted my professional career to study the biophysical chemistry of membrane transport proteins. I acquired this expertise through my PhD studies on the pre-steady state kinetics of the Na,K-ATPase, my postdoctoral training in the membrane potential-dependent kinetics of electrogenic pumps, and career as an independent investigator in the field of cationic amino acid transporters and the related nitric oxide pathway. In the area of the Na,K-pump, I discovered a new partial reaction termed "superphosphorylation" that was not predicted by the kinetic models describing its function, and that had implications on the pump working as a dimer. We also found a high-field access channel for potassium binding to the pump, ending a 10-year long controversy on the electrogenicity of K transport. Together with our discovery of the first membrane potential-dependent blockers of the Na,K-pump, these structure-function studies were particularly important at a time where high resolution crystal structures were nor available for this membrane protein. My studies also contributed a methodological innovation to the Na,K-pump field and electrogenic transporters in general as we were able to use transient charge movements by these proteins to quantify the kinetics of associated electroneutral reaction steps. In the past few years, my laboratory discovered a low-affinity, high capacity cationic amino acid transporter in cardiac myocytes, which accounts for more than half of total L-arginine transport under physiological amino acid plasma concentrations (Peluffo, 2007; Lu et al., 2009). We also discovered a novel negative-feedback mechanism on L-arginine transport by which nitric oxide self-regulates its biosynthesis (Zhou et al., 2010). My career investigating cardiac membrane transport proteins has been fully

supported by R01s from the NIH as well as several awards from the American Heart Association (two postdoctoral fellowships, a Grant-in-Aid, and a Scientist Development Grant).

In 2012, I was invited by the Dean of the Uruguayan Public University to put together a project to seed my disciplines (Biophysics and Biochemistry) at locations far from the Capital City, as part of an unprecedented, wonderful process of decentralization of tertiary education ongoing in my Country. As I succeeded with my project, and after competing internationally for a full professorship to become the chairman, I returned to my Country last year and moved my laboratory from the New Jersey Medical School to Northern Uruguay with the goal to develop, work for, and bring the world of biophysics to these “virgin” territories. In this regard, the Latin American Federation of Biophysical Societies granted me the organization of the next POSLATAM (Latin American postgraduate courses in Biophysics), an IUPAB-supported activity that will take place in Northern Uruguay (Salto) by the end of 2015.