2016 Young Investigator Award of the American Physiological Society

Renal Section

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Short Running Title: 2016 Young Investigator Award-APS Renal Section

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Minolfa Prieto, MD, PhD, Associate Professor at Tulane University (Fig. 1), is the recipient of the Young Investigator Award of the American Physiological Society (APS) Renal Section for 2016. Dr. Prieto is an exceptionally talented scientist in renal physiology working in the Department of Physiology and the Tulane Hypertension and Renal Center of Excellence. Dr. Prieto received her MD from the University of Zulia in Venezuela and did residences in pediatrics and clinical genetics prior to joining Tulane in 1997.

Dr. Prieto’s initial research exposure to the renin-angiotensin system was in Dr. El-Dahr’s laboratory where she investigated the cellular expression of angiotensinogen and AT1 receptor protein in the ureteric bud during morphogenesis of the kidney. This study demonstrated the importance of the renin-angiotensin system in morphogenesis of the distal nephron segments of the kidney and led to a first author paper in Physiological Genomics in 2001. As a graduate student in Dr. Gabby Navar’s laboratory in the Department of Physiology, Dr. Prieto continued her work on the role of the renin-angiotensin system on kidney function. Dr. Prieto discovered the presence of renin in collecting duct cells of distal nephron segments in both rats and mice. She performed experiments showing that, in contrast to renin in juxtaglomerular cells, renin expression in principal cells of the collecting duct is stimulated in angiotensin-dependent hypertension via an AT1 receptor dependent mechanism. She received her PhD in 2004 and stayed on as a postdoctoral fellow until 2005.

After returning to Tulane in 2007 as a faculty member, Dr. Prieto focused her research efforts on studies identifying the distal nephron-collecting duct as a novel, major target of the renin-angiotensin system in pathological states. She is investigating the role of prorenin, renin and the prorenin receptor (PRR) in the collecting duct in the pathogenesis of high blood pressure and has also initiated studies evaluating tubular renin and the prorenin receptor in diabetes. As part of that effort, Dr. Prieto was appointed as a scholar in the NIH funded Building Interdisciplinary Research Careers in Women’s Health program from 2008-2011. She also received support as a junior faculty investigator funded by the Tulane CoBRE on Hypertension and Renal Biology. She brought a great breadth of experience which has served her well in her continuing efforts to develop this area of investigation. In particular, her work evaluating the role of the soluble PRR in activating prorenin and thus enhancing collecting duct Ang II levels and stimulating sodium reabsorption is exciting and quite novel. She has extended her research activities from basic bench research to translational studies and competed successfully for a translational research grant from LACaTS (Louisiana Clinical and Translational Science Center) to evaluate the tubular renin-angiotensin system in human subjects with Type-2 diabetes mellitus. She also received a grant from the AHA. Dr. Prieto obtained funding from NIH with her RO1 application being awarded in 2014. Because of her original training in Medicine, Dr. Prieto has a special interest in translating her research findings to human subjects with diabetes mellitus and hypertension. Accordingly, her clinical/translational connections provide a unique niche in her overall research portfolio.

Dr. Prieto has presented her work at national and international meetings which have resulted in important publications demonstrating her emergence as an independent
investigator with international stature. She currently has over 70 publications including original communications and book chapters. She has been an invited speaker at several conferences and workshops including the Annual High Blood Pressure Conference of the American Heart Association in 2008, the International Symposium on Vasoactive Peptides in Brazil in 2010, and the Symposium on Renin, Prorenin and Its Receptor Symposium held during the Annual High Blood Pressure Conference of the American Heart Association in 2011. She was an invited speaker at the 2014 symposium on Intrinsic Control of Renal Function held in Charleston, SC (sponsored by the International Society of Nephrology), the Physiological Genomics symposium held prior to the 2014 Experimental Biology meeting, an international symposium on the renin-angiotensin system as well as the joint meeting of the Interamerican Society of Hypertension and the Brazilian Society of Hypertension both held in Brazil in August. More recently, she was an invited speaker at the 2016 Gordon Conference on the renin-angiotensin system held in Italy.

Dr. Prieto was awarded a Caroline turn Suden/Francis Hellebrandt Professional Opportunity award from the American Physiological Society (APS), and she also received the Outstanding Young Investigator award from the Water and Electrolyte Section of the APS in 2005. At the 12th Annual National Meeting of The Consortium for Southeastern Hypertension Control in Nashville, she received the Arthur Guyton New Investigator award for Excellence in Research. She also received the Young Investigator Renal Recognition award from the renal section of the APS in 2006. She then received the Young Scholar award from the American Society of Hypertension in 2009.

Dr. Prieto has continued to demonstrate her leadership and creativeness and has also developed a laboratory group of graduate students and postdoctoral fellows under her direct supervision. She now has responsibility for direct supervision of research assistants, postdoctoral fellows and students and has mentored two Ph.D. students who completed their studies. She has extensive expertise in quantitative immunohistochemistry which has contributed to important findings reported in several of her papers and has also led to many collaborative studies. She also has assumed responsibility for important aspects of the research programs in the Tulane Hypertension and Renal Center of Excellence and supervises Core facilities on immunohistochemistry and imaging.

Figure Legend

Figure 1. Dr. Minolfa Prieto.