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Ruth Perez received her B.S. and M.A. degrees from the University of Texas at El Paso and her Ph.D. from the University of Pittsburgh School of Medicine. After postdoctoral training at the Center for Neurologic Diseases at Brigham and Women's Hospital of Harvard Medical School she joined the faculty of the Allegheny Singer Research Institute, Medical College of Pennsylvania Hahnemann and Allegheny University of the Health Sciences in Pittsburgh in 1997. She returned to the University of Pittsburgh in 1999 and in 2005 became Assistant Professor of Neurology with a secondary faculty appointment in the Department of Pharmacology. Her basic research has been funded by the Alzheimer's Association, Scaife Family Foundation, Michael J Fox Foundation, Ethyl Vincent Charitable Trust, and by major funding from the National Institute of Neurological Disorders and Stroke of the National Institutes of Health.

Research

The Perez lab studies the normal function of proteins that have been implicated in neurological diseases, utilizing cellular and transgenic models manipulated by transfection or viral transduction. Key projects are related to Parkinson's disease (PD), Dementia with Lewy Bodies (DLB), Alzheimer's disease, and Diabetes. The lab's PD and Diabetes work focuses on the functions of alpha-synuclein and 14-3-3, two chaperone-like proteins that often work in counterpoint to regulate key proteins with which they interact. With regard to PD, the Perez lab has shown that alpha-synuclein regulates the synthesis of dopamine, a neurotransmitter that contributes to olfaction, body movements, affect, and cognition; however, dopamine is toxic when dysregulated. New data from the lab demonstrate that alpha-synuclein also contributes to the release of insulin from pancreatic beta cells by interacting with and inhibiting the activity of the inwardly rectifying potassium channel, Kir6.2. The DLB studies focus on the impact of alpha-synuclein aggregation on changes in the activity of the phosphatase, PP2A, which modulates phosphorylation of key brain proteins. Those studies align closely with Alzheimer-related projects to investigate the normal function of the amyloid precursor protein (APP) in neuronal cells. Together these projects form a concerted effort to identify novel targets for improving neuronal function and the quality of life of patients with "synucleinopathies".