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NEURONAL DIVERSITY IN THE BASAL GANGLIA

The external globus pallidus (GPe) of the basal ganglia is in a unique and powerful position to influence processing of motor information by virtue of its widespread projections to all basal ganglia nuclei. Despite the clinical importance of the GPe in common motor disorders such as Parkinson's disease, there is only limited information about its cellular composition and organizational principles. In this seminar, recent advances in the understanding of the diversity in the molecular profile, anatomy, physiology, and corresponding behavior during movement of GPe neurons will be discussed.

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Dr. Chan started his research group in 2012 at Northwestern University, Department of Physiology. The overarching research objective of his laboratory is to study cellular communications in the brain and how disruption of these processes contributes to neurological dysfunctions. The primary focus has been on reconstructing the electrical properties, signal transduction mechanisms, and anatomical connectivity of identified neuron classes in the external globus pallidus (GPe). The yielded knowledge should inform the roles of the GPe in controlling motor function in both health and disease. The impact of Dr. Chan's work is demonstrated by the clinical trials driven by his research.