

FULL SPEAKER BIOGRAPHY and ABSTRACT

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John Rubenstein, MD, PhD is a Professor in the Department of Psychiatry at the University of California San Francisco. He also serves as a Nina Ireland Distinguished Professor in Child Psychiatry at the Nina Ireland Laboratory of Developmental Neurobiology. His research focuses on the regulatory genes that orchestrate development of the forebrain.

In the mammalian embryo, the forebrain is the portion of the neural tube where primitive cells are organized to form the cerebral cortex, the basal ganglia and other components of the adult brain -- the structures of the human brain most involved in key functions such as speech, language, cognition and fine motor skills.

Rubenstein's lab has demonstrated the role of specific genes in regulating neuronal specification, differentiation, migration and axon growth during embryonic development and on through adult life. His work may help to explain some of the mechanisms underlying human neurodevelopmental disorders such as autism.

Transcriptional specification of subcortical progenitors

Roughly half of neocortical interneurons are derived from the medial ganglionic eminence (MGE). The MGE also generates basal ganglia projection neurons, such as GABAergic neurons of the globus pallidus. The regions within the MGE that are responsible for generating these diverse cell types are poorly understood. I will present evidence that the ventral MGE is primarily responsible for generating the globus pallidus.

What is the central hypothesis of your presentation?

That the ventral MGE is primarily involved in making subcortical projection neurons and not cortical interneurons

What is the most important observation you will discuss?

The role of Nkx2.1 in generating the globus pallidus

What is the translational significance?

Transcriptional regulation of making telencephalic GABAergic neurons