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Systems level mechanisms of memory impairment converge across a range of neurological disease

Tuesday April 28, 2026 noon – 1:00 pm

Virtual Presentation

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Learning and memory impairments are frequently identified in people with a range of neurological disorders including Alzheimer's disease, epilepsy, and autism spectrum disorders. These impairments have a major negative impact on quality of life and therefore it is critical that effective treatments are identified. Current approaches target disease specific mechanisms, but this has resulted in treatments with a very modest impact. We have recognized similarities in patterns of neuronal action potential dynamics across diseases raising the hypothesis that modulation of dynamics could improve outcomes independently of underlying diagnosis. Dr. Rodney Scott, Nemours Children's Health, will show data supporting this hypothesis and evidence that intervening at the level of inputs to neural systems can improve cognitive function in rodent models of neurological disease.

Meet the Speaker

Dr. Rod Scott MD, PhD is Professor of Neurology and Division Chief of Pediatric Neurology at Nemours. He has extensive experience managing children with severe epilepsies associated with cognitive and behavioral impairments. His research has explored the relationships between epileptic seizures, brain injury and cognitive impairments in humans and animal models using neuroimaging, epidemiological and electrophysiological methods. His recent work considers the brain as a complex adaptive system and derives novel mechanistic and treatment hypotheses within this framework. The group achieves this by modelling neural dynamics at the level of local field potentials and the level of single neuron action potential behaviors. He also studies gene expression patterns and is developing methods for joint modeling of gene expression, electrophysiology and behavior.



Rod Scott, MD, PhD

Professor of Neurology
Division Chief of Pediatric Neurology
Nemours Children's Health
Rodney.Scott@Nemours.org

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