

Astrocytes as Context-Specific Regulators of Memory in Health and Disease

July 25

Tuesday, 12:30 pm

Billings Building—Rosedale Room

SPEAKER:



Anna G. Orr, Ph.D.

Nan and Stephen Swid Assistant Professor of Frontotemporal Dementia Research and Assistant Professor of Neuroscience

Helen and Robert Appel Alzheimer's Disease Research Institute and the Center for Neurogenetics

Feil Family Brain and Mind Research Institute

Weill Cornell Medicine

Host: Rajiv R. Ratan, M.D., Ph.D.

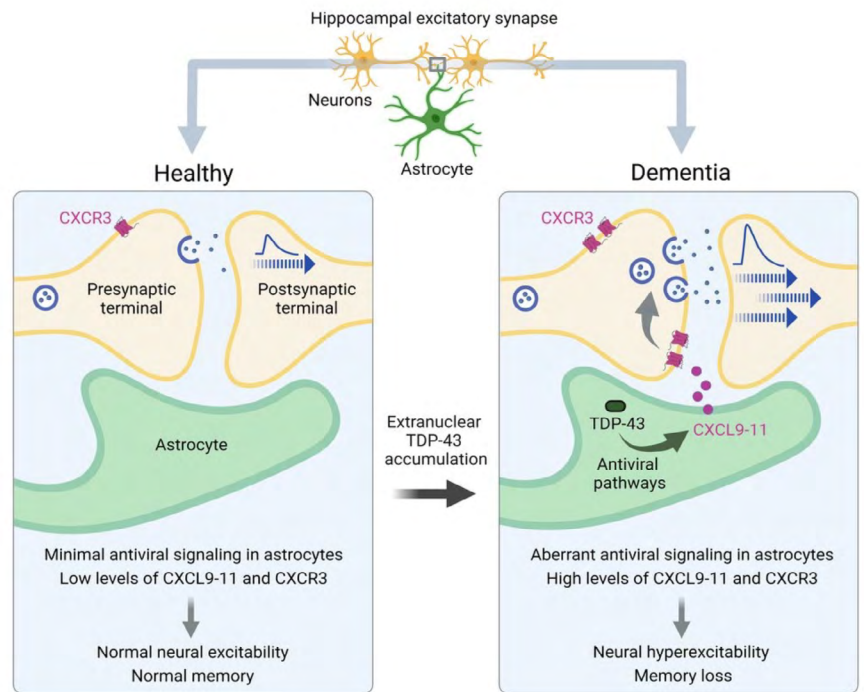
For more information contact

Darlene White

daw9085@med.cornell.edu

Abstract

Dr. Orr will discuss emerging studies revealing that astrocytes have context-dependent and precise roles in neurocognitive function and in neural deficits associated with dementia. Changes in astrocytic receptor signaling modulates memory in a bidirectional manner and these effects are highly dependent on biological sex. In disease, astrocytic proteinopathy can induce memory loss through selective and region-specific changes in astrocytic neuroimmune pathways that target key synaptic functions. Together, these studies and other work in the field are redefining astrocytes as precise and dynamic modulators of neurocognitive processes.



Publications

Orr AG, Hsiao EC, Wang MM, Ho K, Kim DH, Wang X, Guo W, Kang J, Yu GQ, Adame A, Devidze N, Dubal DB, Masliah E, Conklin BR, Mucke L. Astrocytic adenosine receptor A2A and Gs-coupled signaling regulate memory. *Nat Neurosci* 2015 18(3):423-34.

Licht-Murava A, Meadows SM, Palaguachi F, Song SC, Jackvony S, Bram Y, Zhou C, Schwartz RE, Froemke RC, Orr AL, Orr AG. Astrocytic TDP-43 dysregulation impairs memory by modulating antiviral pathways and interferon-inducible chemokines. *Science Advances* 2023 9(16): eade1282.

Meadows SM, Palaguachi F, Licht-Murava A, Barnett D, Zimmer TS, Zhou C, McDonough SR, Orr AL, Orr AG. Astrocytes regulate spatial memory in a sex-specific manner. *BioRxiv* 2022; 511881. Submitted.