Contributions of Reactive Astrocytes to Alzheimer's Disease Progression
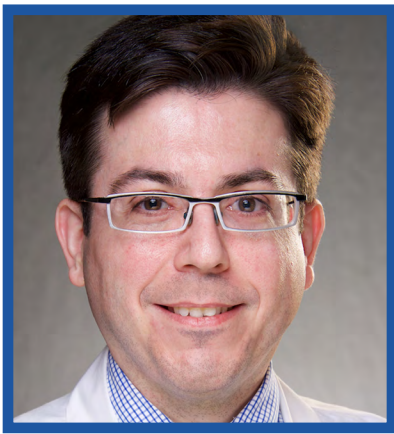
May 28

Tuesday, 12:30 pm

Billings Building—Rosedale Room

SPEAKER:

Alberto Serrano-Pozo, M.D., Ph.D.,

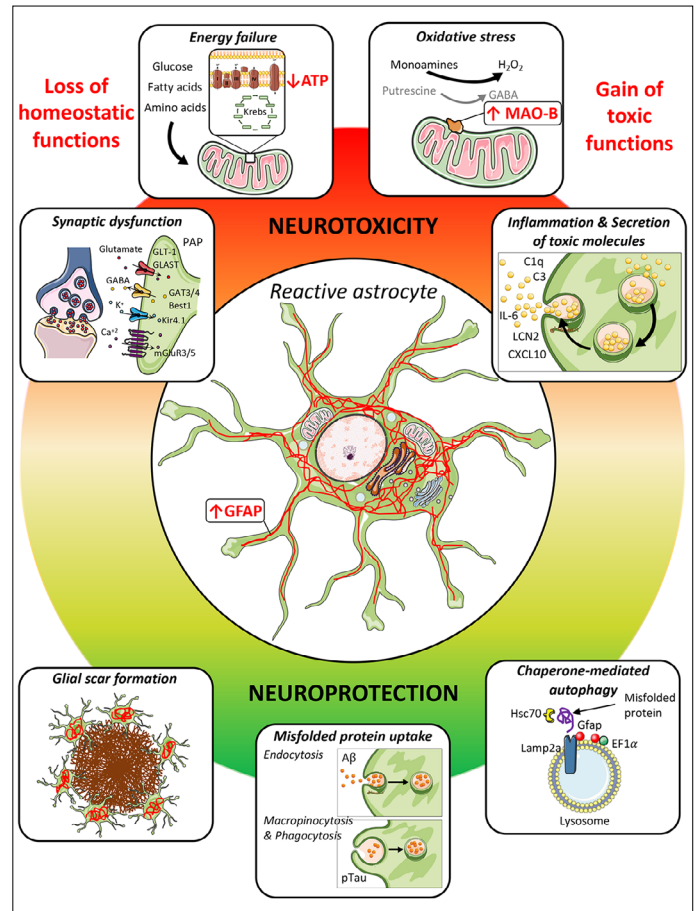*Assistant Professor of Neurology Massachusetts General Hospital & Harvard Medical School*

Host: Gary E. Gibson, Ph.D.

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Abstract

Astrocytes suffer profound molecular, functional, and morphological changes in Alzheimer's disease (AD), collectively termed reactive astrogliosis. Reactive astrocytes surround the two pathological hallmarks of AD—amyloid-β (Aβ) plaques and tau neurofibrillary tangles—but their role in AD progression remains controversial. Specifically, whether reactive astrocytes protect neurons and synapses from the toxic effects of Aβ and tau aggregates, or acquire neurotoxic properties and contribute to neurodegeneration, or merely accompany the neurodegenerative process as bystanders has yet to be elucidated. We will discuss recent data from our lab highlighting the complexity of the reactive astrogliosis observed in AD.

Publications

1. Viejo L, Noori A, Merrill E, Das S, Hyman BT, Serrano-Pozo A. *Systematic review of human post-mortem immunohistochemical studies and bioinformatics analyses unveil the complexity of astrocyte reaction in Alzheimer's disease.* Neuropathol Appl Neurobiol 2022; 48(1): e12753. [PMCID: PMC8766893]

2. Muñoz-Castro C*, Noori A*, Magdamo CG, Li Z, Marks JD, Frosch MP, Das S, Hyman BT, Serrano-Pozo A. *Cyclic multiplex fluorescent immunohistochemistry and machine learning reveal distinct states of astrocytes and microglia in normal aging and Alzheimer's disease.* J Neuroinflam 2022; 19(1): 30. [PMCID: PMC8808995]

3. Jaisa-aad M, Muñoz-Castro C, Healey MA, Hyman BT, Serrano-Pozo A. *Characterization of monoamine oxidase-B (MAO-B) as a biomarker of reactive astrogliosis in Alzheimer's disease and related dementias.* Acta Neuropathol 2024; 147(1): 66. [PMCID: PMC10991006]

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