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The NO-Age and NO-AD Seminar Series 035

'Mechanisms of and drug development for Alzheimer's disease' (tentative)

by

Prof. Michela Gallagher

Johns Hopkins University

at

14:00-15:00 (CET), Monday, on the 18th Oct. 2021

Register in advance for this webinar:

https://uio.zoom.us/webinar/register/WN_5YguZNppT4eDBS8gTlPaaw

Organizers:

Evandro F. Fang (UiO), Menno P. Witter (NTNU), Jon Storm-Mathisen (UiO), Lene Juel Rasmussen (KU), W.Y. Chan (CUHK)

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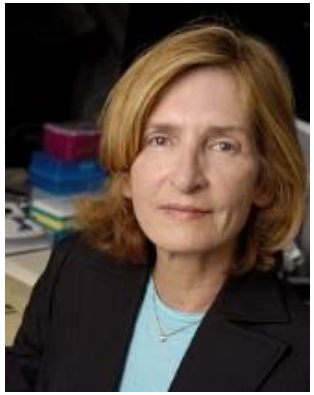

Name: Michela Gallagher
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Speaker: Michela Gallagher

Title: 'Mechanisms of and drug development for Alzheimer's disease' (tentative)

Abstract:
To be updated

Biography:
Neural Mechanisms of Memory and Attention

My lab is interested in neural systems that serve a role in memory and attention. Behavioral studies in laboratory rodents are conducted in conjuction with a range of neurobiological techniques. For example, we examine the behavioral effects of removing specific neurons in the brain with newly developed immunotoxins, we measure information encoding by neurons in awake behaving animals, and we use molecular biological methods to assess the expression of genes and proteins involved in neural plasticity. One problem under study concerns the effects of aging on memory. Rats are tested for memory of spatial locations, a function for which the neural circuitry in rodents is well-defined. A notable behavioral observation in our animal model is that decline in spatial memory is evident in only a subpopulation of aged rats, a phenomenon commonly reported for cognitive impairment in elderly humans. Individual differences are used in our work as a background for identifying features of brain aging that are characteristic of aged rats with cognitive impairment. Contrary to a common view that neuron loss contributes to such deficits in aging, we find no loss of neurons but functional alterations within the existing architecture of the brain are predictive of memory impairment. Such alterations are evident at the level of information encoding by single hippocampal neurons in awake behaving rats and in measures of signal transduction systems. Other research in our laboratory includes studies of subcortical neural circuitry and mechanisms used to regulate cortical processing. Storage of information in memory and the operation of attentional processes provide powerful devices by which past experience can be brought to bear on the selection and interpretation of current sources of input. We have defined a role for the basal forebrain innervation of cortex in attentional processes. Recent studies have focused on a circuit that includes the basolateral amygdala and its interconnections with prefrontal cortex, which appear to be essential for representing the incentive value of goals.