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Involvement of brain-based gonadotropin hormone signaling in neuroplasticity and cognition

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The goal of my laboratory is to determine the chronology of appearance and interplay between pathological CNS events that underlie the loss of learning and memory function and neuronal plasticity during aging. The focus on my work is on Alzheimer's Disease prevention/delay strategies, however, the basic understanding of mechanisms studied in my laboratory can be broadly translated to brain health strategies beyond AD such neuroprotection and repair. Particular focus is placed on understanding the basic mechanisms of peptide hormones such as leptin, amylin, estrogen and gonadotropins and how age-related changes in these metabolic and reproductive peptide and steroid hormones influence hippocampal function and plasticity and brain health. We use animal and cellular models and a broad variety of techniques including behavioral testing, histology, in vivo and in vitro viral and pharmacological delivery, imaging, and transgenic approaches to address these aims.

Biography

Gemma Casadesus Smith has authored over 100 peer-reviewed manuscripts, chapters, and commentaries, has edited several books and special topics for various journals, and serves as editor in chief of Frontiers of Aging Neuroscience. Casadesus is a member of several editorial boards including Journal of Alzheimer's disease, Neuropharmacology and Neurobiology of Aging, amongst others, serves in advisory and review panels for federal and private foundations such as the Alzheimer's Association, NIH and the VA and is a member of various scientific societies including Society for Neurosciences, the International Behavioral Neurosciences Society and the International Society for Neurochemistry.

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