

Division of Medical Sciences

# Seminar Series

## 2023 – 2024



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University  
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Medical Sciences

Friday, September 29

12:30pm

Zoom\*

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### Insights into regulating synaptic plasticity from studies on hippocampal area CA2

Pyramidal cells in hippocampal area CA2 have synaptic properties that are distinct from the other CA subregions. Notably, this includes a lack of ability to express typical long-term potentiation (LTP) of stratum radiatum synapses (Zhao, 2007) and robust metabotropic glutamate receptor (mGluR)-dependent long-term depression (LTD). CA2 pyramidal neurons have a distinct molecular makeup that not only includes several proteins that we now know limit LTP (a specialized extracellular matrix- perineuronal nets, and RGS14 for example), but also high levels of the mineralocorticoid receptor (MR; encoded by the *Nr3c2* gene). MRs are critical for regulating behavioral responses to stress, but how they regulate neuronal physiology and gene expression is unknown. How synaptic plasticity is regulated in CA2 by these proteins, and how CA2 regulates mouse behavior, will be presented.