

SEMINAR

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16 May 2023 (Tues), 11am
Seminar Room 05-41 (Level 5)

SYNAPSES: FROM MOLECULES TO BRAIN DISORDERS



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The power of our brain resides in its *synapses*. These are specialized cell-cell junctions responsible for information flow between nerve cells and their targets, as well as storage of information to create memories. This talk will provide an overview of the research that our lab is doing on three different aspects of synaptic communication:

- how chemical signals (neurotransmitters) are secreted to enable communication between neurons;
- mapping of the synaptic circuits formed between nerve cells; and
- defects in brain circuits arising during dementia

George Augustine is the Irene Tan Liang Kheng Chair Professor of Neuroscience and Director of the Neuroscience & Mental Health Research Program at the Lee Kong Chian School of Medicine at NTU. Prof. Augustine is interested in molecular mechanisms of synaptic transmission and optogenetic mapping of brain circuitry, in health and disease. He has published more than 200 scientific articles and is co-author of a popular textbook, titled *Neuroscience*.

Recent Publications:

1. H.E. Halverson, J. Kim, A. Khilkevich, M.D. Mauk and G.J. Augustine. (2022) Feedback inhibition underlies new computational functions of cerebellar molecular interneurons. *eLife* 11: e77603.
2. M. Zhang and G.J. Augustine (2021) Synapsins and the synaptic vesicle reserve pool: Floats or anchors? *Cells* 10: 658.
3. Z. Chia, G.J. Augustine and G. Silberberg (2020) Selective targeting of anterior cingulate projecting-claustrum neurons reveals a modular organization of the connectivity between the claustrum and cortex. *Current Biology* 30: 2777-2790.