

Department of Anatomy & Cell Biology Seminar Series

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Guiding plasticity in the mature CNS: Novel roles for netrin-1 in myelination, synaptic plasticity and memory formation in the adult brain

Neural plasticity in the mature CNS engages mechanisms that change synapse structure and function, yet many of the underlying events bear a striking similarity to processes that occur during the initial establishment of neural circuits during development. A long-standing hypothesis proposes that the molecular mechanisms critical for neural development may also regulate synaptic plasticity related to learning and memory in adults. Netrins were initially described as chemoattractant guidance cues that direct cell and axon migration during embryogenesis, yet they continue to be expressed by neurons and oligodendrocytes in the adult brain. Recent studies have identified roles for netrin-1 and netrin receptors in myelination and synaptogenesis during postnatal maturation, and regulating myelin maintenance and synaptic plasticity in the adult mammalian brain. These findings provide an example of a conserved developmental guidance cue that continues to function as a central regulator of neural circuits in the mature CNS. The talk will address the role of netrin-1 in myelination and synaptic plasticity, and discuss the implications of these discoveries for the neurobiological basis of memory consolidation and for neurodegenerative disease.



Wednesday, Jan. 11, 2023
11:30am - 12:30pm

 Room 1/12 - Strathcona
Anatomy and Dentistry
Building

Hosted by: Susanne Bechstedt, PhD



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