

# Biology Seminar



Western  
UNIVERSITY · CANADA

12:30 - 1:30 pm  
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BGS 0165



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## What's Acetylcholine Got to Do With It? Effects of Alterations in the Vesicular Acetylcholine Transporter on Synaptic Activity

Cholinergic neurotransmission plays a central role in the regulation of important neuronal functions such as cognition and locomotion. Much is known about the regulation of acetylcholine (ACh) in the brain, including the molecular machinery that synthesizes, packages and transports the neurotransmitter. However, despite this wealth of knowledge, the precise manner through which ACh signaling regulates post synaptic activity, and the full range of physiological consequences of this regulation remain poorly understood. Here, we use an array of molecular genetic tools in the model system *Drosophila melanogaster* to measure the effect of graded changes in cholinergic synaptic transmission on downstream ACh-linked behaviors. We show that specific alterations in the expression and function of the vesicular acetylcholine transporter (VAChT) which mediates that packaging of ACh for exocytotic release, have differential effects on cognitive performance and locomotion, two cholinergic mediated behaviors we studied. Together, our studies shed important light on how changes in cholinergic neurotransmission affects post synaptic events.

