



Michael John Ferns, B.Sc.(Hons), Ph.D.

Clinical Interests My interest is in diseases of cholinergic neuromuscular and autonomic synapses, such as myasthenia gravis and congenital myasthenic syndrome. Our aim is to understand the pathological basis for these diseases at a molecular level and to define new therapeutic targets for the treatment of these disorders.

Research/Academic Interests My research interest is in understanding the cellular and molecular basis of synapse formation in the mammalian nervous system. Synapse formation is critical for the formation, maintenance and plasticity of the nervous system and perturbations in synaptic structure and function have been implicated in a range of neurological disorders.

My research focuses on cholinergic synapses that play critical roles in the functioning of both the peripheral and central nervous systems. Our main aims are (1) to define the extracellular synaptogenic factors that regulate the formation and maintenance of neuromuscular and neuronal autonomic synapses in the PNS; (2) to define the intracellular mechanisms that regulate the trafficking and localization of nicotinic acetylcholine receptors at these synapses; and (3) to establish how defects in synapse formation or receptor localization contribute to neurological diseases such as myasthenia gravis and congenital myasthenic syndromes. This includes collaborative studies with clinician-scientists at UC Davis.

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Education Ph.D., University of Western Australia, Perth, Crawley, 1988
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Select Recent Publications Chang Rudell, J., Borges, LS., Rudell, JB., Beck, KA., and Ferns, MJ. Determinants in the beta and delta subunit cytoplasmic loop regulate Golgi trafficking and surface expression of the muscle acetylcholine receptor. J Biol Chem. 2014;289(1):203-214.



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