

MCD Seminar Series  
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**Obesity and dementia: it's what happens when LMO4 is deleted in the brain**

The LIM domain only 4 protein is a neuronal modulator of transcription and cell signaling. Mice deficient in LMO4 die at birth with neural tube defects. We knocked out LMO4 in glutamatergic neurons in the brain and found that these mice become obese and diabetic. They also have a deficit in spatial memory and learning. Loss of LMO4 expression in the cortex and hippocampus has been reported in patients with Alzheimer's disease and people with metabolic syndrome and diabetes are at higher risk of developing Alzheimer's disease. The objectives of this seminar are: 1) to learn about the function of LMO4 in leptin signaling in the brain, 2) to understand how LMO4 is required to regulate calcium homeostasis in presynaptic neurons, and 3) to consider strategies that might help to restore metabolism and memory.