Diet Induced Neuroplasticity That Drives Us to Eat More

12:00 - 13:00, Friday, Oct 12, 2018
Room 385, Geography Building, Zhongbei
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Abstract:

In an environment rich in easily accessible palatable foods, the ability to withhold food consumption is of key importance for maintaining a healthy body weight. We know the brain’s ‘reward system’ responds to the sight, smell and taste of food and can override the homeostatic system, which matches food intake with energy balance. Indeed, dopamine (DA) from the ventral tegmental area (VTA) promotes ingestive behaviors by increasing motivation or saliency of food cues. Further, the orbitofrontal cortex (OFC) receives input from DA neurons and is important for monitoring the current value of rewards and thus plays a critical role in satiety to food of the same sensory properties. Here, we show data demonstrating that synapses in the VTA or OFC are modified by diet experience. In addition, diet or obesity can alter food approach behaviours as well as reward devaluation. Taken together, these studies demonstrate how the type of food or obesity itself can rewire circuits in the brain important for non-homeostatic food seeking.