

Medicine, Nursing and Health Sciences

Biomedicine Discovery Seminar

Monash Biomedicine Discovery Institute



Diet regulates taste perception through conserved molecular pathways



Thursday 24 November 2016



12:00 – 1:00pm



Level 3 Seminar Room
15 Innovation Walk
Clayton campus

Abstract

Non-nutritive sweeteners like sucralose are consumed by billions of people. While animal and human studies have demonstrated a link between synthetic sweetener consumption and metabolic dysregulation, the mechanisms responsible remain unknown. In this study we use a diet supplemented with sucralose to investigate the long-term effects of sweet/energy imbalance. In flies, chronic sweet/energy imbalance promoted hyperactivity, insomnia, glucose intolerance, enhanced sweet taste perception and a sustained increase in food and calories consumed, effects that are reversed upon sucralose removal. Mechanistically, this response was mapped to the ancient insulin, catecholamine, and NPF/NPY systems and the energy sensor AMPK, which together comprise a novel neuronal starvation response pathway. Interestingly, chronic sweet/energy imbalance promoted increased food intake in mammals as well, and this also occurs through an NPY-dependent mechanism. We continue to characterize how diets with a sweet/energy imbalance trigger taste sensitization and increase the motivation to eat



Presenter

Assoc. Professor Greg Neely

Charles Perkins Centre
University of Sydney

About the presenter

Greg completed his PhD in human immunology at the University of Calgary, Canada and then a post doc in functional genomics at IMBA in Vienna Austria. Since 2010 Greg has run a functional genomics lab in Sydney Australia, first at the Garvan Institute, and more recently at the Charles Perkins Centre at the University of Sydney. His lab uses human genomics data (GWAS or EXOME) to focus high throughput functional validation of candidate disease genes in cell culture, mice, or fruit flies.



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