

# 3<sup>rd</sup> International Conference and Exhibition on **Neurology & Therapeutics**

September 08-10, 2014 Hilton Philadelphia Airport, USA

## Endocannabinoids and the neural regulation of food reward

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Endocannabinoids are a class of lipid-derived signaling molecules found throughout central and peripheral tissues in mammals where they mediate many physiological functions at the interface of feeding, reward, and energy balance. For example, some of our work suggests that the endocannabinoid system-which is comprised of the endocannabinoids, their biosynthetic and degradative enzymes, and their cognate receptors (i.e., cannabinoid CB1 and CB2 serves an important role in the brainstem sensory relay node, the parabrachial nucleus, in controlling the intake of fatty and sweet foods. More recently, investigations from our laboratory using the rat sham-feeding model reveal a surprising role for peripheral endocannabinoids in maintaining intake of energy-dense foods based on their taste properties. Sham feeding isolates the cephalic-phase (i.e., oral exposure) of feeding from its post-ingestive consequences by allowing liquid diets that are consumed to drain out of the stomach via surgically implanted gastric cannulae and thus, not reach the intestine. Oral exposure to dietary fats robustly drives endocannabinoid signaling selectively in the proximal small intestine. This effect was (a) macronutrient specific, because carbohydrate or protein failed to engage endocannabinoid signaling, and (b) organ specific, because tasting fats failed to modify endocannabinoid levels in other central and peripheral tissues. Furthermore, pharmacological blockade of this signaling event in the intestine inhibited the intake and preference for dietary fats. Collectively, these studies suggest that endocannabinoids in the gut exert a powerful regulatory control over the consumption of fatty foods based on their taste qualities, and is a novel target for anti-obesity therapeutics.

### Biography

Nicholas V DiPatrizio received his Bachelor's degree from Temple University and a Biomedical PhD in the Neurosciences from Drexel University College of Medicine in Philadelphia. He is currently a Postdoctoral Fellow in the Department of Anatomy and Neurobiology at the University of California, Irvine, School of Medicine, and a recipient of an NIH K99/R00 Pathway to Independence Award from NIDA.

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