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Presentation Abstract

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Title: Real-time glucose dynamics in rat lateral hypothalamus (lh) during deprivation-induced feeding: modulation by the CB-1 antagonist rimonabant

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Abstract: The lateral hypothalamus (LH) is a key neural substrate for central glucose-sensing and feeding. Pathological changes in LH activity may heighten feeding and result in obesity. Since glucose utilization is coupled to neuronal activity, we investigated the dynamic changes of extracellular glucose in the LH (1 sec/sample) using an enzyme immobilized biosensor coupled to a wireless potentiostat (Pinnacle Technology). Diet-induced Obese rats were food-deprived for 24 hrs before given ad lib access to chow. Ten minutes after the start of the feeding bout an increase in glucose signal 25% from baseline occurred, and peaked a further 45% 2 hours later. To investigate whether the glucose signal in LH could be modulated by pharmacological manipulation of feeding, animals were given the CB-1 receptor antagonist rimonabant (10mg/kg, s.c.). Pretreatment of Rimonabant alone increased the glucose signal by a similar magnitude as the initial food-deprived feeding response at 10 minutes. Two hrs after Rimonabant treatment 24 hr-food deprived animals were presented with food. Rimonabant robustly blunted the deprivation-induced feeding and the glucose response to feeding. These studies suggest that glucose biosensors can be used to understand in vivo LH glucose dynamics, which may

correlate with neuronal activity and/or food consumption in a time course and resolution not possible with classic microdialysis techniques.

Disclosures:

C.R. Yang , Eli Lilly and Co., A. Employment (full or part-time); **P.A. Ardayfio**, Eli Lilly and Co., A. Employment (full or part-time).

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