平成 29 年 7 月 31 日

大学院学生各位
To All Graduate Students

平成 **29** 年度

基盤医学特論　開講通知

Information on Special Lecture Tokuron AY2017

題目：Feeding, Nutrient Sensing and More…

講師：Greg S. B. Suh, PhD
Associate Professor, Korea Advanced Institute of Science and Technology/ Skirball Institute, NYU School of Medicine

日時：平成 29 年 8 月 24 日（木）　17:00－18:30
Time and Date: 17:00－18:30　24th Aug (Thu), 2017

場所：　環境医学研究所　北館セミナー室（東山キャンパス）
Room: Research Institute of Environmental Medicine, North Building, N201 (Higashiyama Campus)

＊関係講座部門等の連絡担当者：環境医学研究所・神経性調節学 山中　章弘（3864）
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使用言語：　英語　＊事前連絡は不要です。Lecture in English.　No registration required.

Sugars in the natural environment can be detected through taste-dependent and taste-independent modalities. Taste-dependent modalities consist mainly of peripheral chemosensory neurons such as sweet taste receptors, which primarily detect the orosensory value of sugar (i.e. sweetness). Evidence of a taste-independent modality - a post-ingestive sugar sensor - that detects the nutritional value of sugar has been shown in insects and mammals. However, the identity of the post-ingestive sugar sensor and the mechanism by which animals respond to the nutritional content of sugar independently of orosensory value is unknown. My laboratory identified six neurosecretory cells in the *Drosophila* brain that produce Diuretic hormone 44 (Dh44), a homologue of the mammalian corticotropin-releasing hormone (CRH), were activated by nutritive sugars and not by nonnutritive sugars. Flies in which the activity of these neurons or the expression of the *Dh44* gene was disrupted failed to select nutritive sugars over nonnutritive ones after periods of starvation. Notably, artificial activation of Dh44 receptor-1 neurons dramatically increased the rate of proboscis extension reflex (PER) responses, promoting food intake. This manipulation also resulted in frequent episodes of gut contraction and excretion. Together, we propose that the Dh44 system directs the detection, ingestion, and digestion of nutritive sugar through a positive feedback loop to continue consumption of nutritive sugar. Given its strong sequence homology, CRH and CRH-expressing neurons in the hypothalamus would offer similar functions in mammals. I will discuss the findings from our recent studies with mice.

参考文献

Dus M., Lai J., Gunapala K., Gunapala KM, Taylor TD, Hergarden AC, Geraud E., **Suh Greg S.** (2015). Nutrient Sensor in the Brain directs the action of the Brain-Gut Axis in Drosophila. *Neuron* 87, 139-151

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