

TO EAT OR NOT TO EAT... WHEN THE NOSE MATTERS!

Feeding behavior is regulated by a complex set of signals. Some of these signals come from the body itself and provide the brain with information on energy status. The brain area known to play a key role in this metabolic regulation is the hypothalamus, which can be somehow compare to the “fuel gauge” of the body. Other signals contributes to the regulation of feeding behavior, in particular those originate from the reward brain circuit: they might modulate the pleasure elicited by food’s consumption. Finally, several studies have suggested the existence of a dialogue between the systems processing metabolic and olfactory signals. When an individual is hungry, his olfactory sensitivity increases. Conversely, when he is satiated, the olfactory signals indicating the proximity of a food source are neglected. However, the neural circuitry linking the brain areas involved in feeding behavior to the olfactory regions is not well known.

Recently, a CSGA team has published a study providing insights about the anatomical projections between the brain areas involved in metabolic regulation and the ones involved in the perception of food odors. By using fluorescent tracing to investigate the neural networks in the mouse brain, the team has shown that the hypothalamus, a major site for regulation of food intake, sends projections onto the olfactory bulb. This study provides neuroanatomical support for behavioral and physiological observations. It paves the way for a better understanding of the neural mechanisms involved in feeding regulation.

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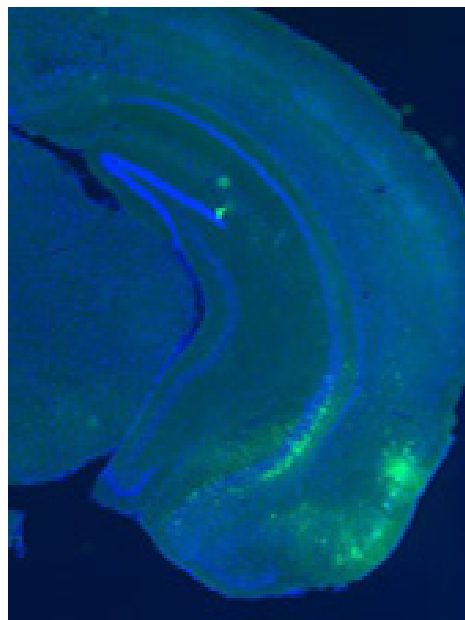
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To know more

Schneider NY, Chaudy S, Epstein AL, Viollet C, Benani A, Pénicaud L, Grosmaître X, Datiche F, Gascuel J. (2020). Centrifugal projections to the main olfactory bulb revealed by transsynaptic retrograde tracing in mice. *Journal of Comparative Neurology*, 528(11):1805-1819.

Key-words

Feeding behaviour; olfaction; odor; brain; neural circuits; neural tracers



Brain mouse section: the fluorescent tracer is observed on various brain areas. CSGA©