

Insular cortex metabolic sensors and anorexia nervosa

(project no. 38-14)

Authors

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Aim

This project will look at the role of the insular cortex in an experimental model of anorexia nervosa. Our goal is to identify novel neuronal circuits linked to the mechanisms of this disease. They could provide a neurobiological base for more targeted and efficient treatments.

Background

Neuroimaging studies in patients have suggested that a dysfunction of the insular cortex might be involved in the pathology of anorexia nervosa. This hypothesis is in agreement with the role of this brain area in physiological and psychological functions that are altered in anorexia nervosa, such as the perception of food signals, body image self-awareness, the stress response and reward processing. Neuronal circuits underlying these changes and their relevance to anorexia nervosa are however not clearly established.

Method

Our laboratory has recently identified neuronal circuits in the mouse insular cortex that respond to body metabolic changes. We made the hypothesis that a dysregulation of these metabolic-sensing circuits may play a key role in anorexia nervosa. To test this hypothesis we have developed a genetic mouse model that enables us to spot these brain circuits. We will use whole-cell electrophysiology, single-cell transcriptomics and morphological methods to identify them and optogenetics to assess their involvement in a mouse model of anorexia nervosa.

Execution

March 2015 - March 2016

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