

## Project Title: Targeting the carotid body to treat obesity

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### Summary: (1000 characters)

Obesity is a major cause of cardiovascular and metabolic disturbances, contributing to significant morbidity and mortality worldwide. The therapeutic options to treat this pandemic are clearly scarce. Data generated in my laboratory in the last couple of years strongly indicate that the carotid body (CB), an autonomic organ classically described as an O<sub>2</sub> sensor, is also deeply involved in metabolic homeostasis and body weight. We observed that chronic denervation of the CSN improves metabolic function and promotes weight loss in animal models of metabolic syndrome. We have also witnessed that CSN resection decreases sympathetic nervous system activity (SNA). These important observations lead to the innovative hypothesis behind this proposal, which is that CSN can be targeted to treat obesity and its comorbidities. This project aims to: 1) determine if obesity is caused by CB-mediated deregulation of SNA in the adipose tissue; 2) investigate the neuro-humoral mechanism that links adipose tissue to CB overactivation and to sympato-excitation; and to 3) investigate if, mechanistically, CSN promotes weight loss by increasing brown adipose tissue pads and thermogenesis. The clarification of weight loss-associated mechanisms induced by CSN denervation will open new doors for obesity treatment.

### Bibliographic references:

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