

# SCIENTIFIC SEMINAR



## Miguel López

*CiMUS - Center for Research in  
Molecular Medicine and Chronic Diseases  
USC - University of Santiago de Compostela*

### **Obesity Wars: a New Hope, hypothalamic AMPK targeting**

Recent data demonstrate that AMP-activated protein kinase (AMPK) plays a major role in the modulation of energy balance at the whole-body level. AMPK is a cellular gauge that is activated in conditions of low energy, increasing energy production and reducing energy consumption. At central level, the AMPK pathway is a canonical route regulating energy homeostasis, by integrating peripheral signals, such as hormones and metabolites, with neuronal networks. Current evidence has linked hypothalamic and hindbrain AMPK with feeding, brown adipose tissue (BAT) thermogenesis and browning of white adipose tissue (WAT), both through modulation of the sympathetic nervous system (SNS), as well as glucose homeostasis. The relevance of these data is interesting since several agents with potential anti-obesity and/or antidiabetic effects, some of them currently being clinically used, such as metformin and liraglutide, exert some of their actions acting on AMPK, at peripheral or central level. Furthermore, the orexigenic and weight-gain effect of worldwide used antipsychotic drugs, like olanzapine, are also mediated by hypothalamic AMPK. Overall, this evidence makes hypothalamic AMPK signalling an interesting target for drug development, but is this feasible? In this talk, we will try to address it.

**CICbioGUNE**

MEMBER OF BASQUE RESEARCH  
& TECHNOLOGY ALLIANCE

**Friday**  
**October 21**  
**Atrio 800**  
**12.00H**

