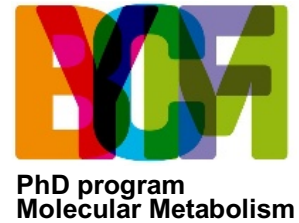


Guest lecture



Invitation to an interesting talk given by...

Dr. Raffaele Nicastro

University of Fribourg Department of Biology, Fribourg, Switzerland

Title: A crouton in a soup. How TORC1 signaling is fine-tuned by a swarm of small molecules?

Date: Thursday, June 1st 2023, 5:00 p.m.

Venue: University of Graz, Institute of Molecular Biosciences
Humboldtstrasse 46, ground floor, HS 46.01

host: DocFund MOBILES

Dr. Raffaele Nicastro

A crouton in a soup. How TORC1 signaling is fine-tuned by a swarm of small molecules.

In most eukaryotic organisms, the target of rapamycin complex 1 (TORC1) kinase regulates anabolic processes in response to nutritional and hormonal stimuli, transducing the signals of nutrient sufficiency to downstream effectors, promoting growth primarily through the activation of protein synthesis.

Several features of the regulation of the TORC1 signaling pathway have been extensively studied, and the role of specific amino acids on upstream regulators of the pathway has been reported in several organisms. However, virtually nothing was known about how metabolism impinges directly on the catalytic activity of the kinase. Recently, chemical-genetic screenings, proteomics and metabolomics pinpointed a series of small molecules and metabolic pathways that could directly regulate TORC1.

Altogether, these findings hint at a less simplistic picture of how a kinase is regulated, suggesting in particular that TORC1 is embedded in an environment of potentially catalytic activity-interfering small molecules. According to this view, the metabolic milieu may constrain TORC1 activity to ultimately tune down protein synthesis in accordance to a change in the nutritional status, fostering the idea of an unexplored layer of evolutionary ancient, non-enzymatic signaling.