



RESEARCH TOPIC MEM 16

Heart-to-liver cross-talk in heart failure Curriculum MEM

Laboratory name

Circadian Metabolism Lab

Pre-clinical Supervisor

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Abstract

Almost all aspects of our physiology are coordinated by our biological clock, a cell-autonomous system responsible for daily rhythms in behaviour, physiology and metabolism. At an organism-level, diurnal metabolism is tightly coordinated across tissues and growing epidemiological evidence indicates circadian misalignment as a critical risk factor for cardiovascular disease (CV). The projects will investigate heart-to-liver cross-talk in a model of heart failure, with the aim of characterizing the physiological significance and molecular mechanisms underlying this cross-talk.

Main technical approaches

Isolation and culture of primary hepatocytes and cardiomyocytes; In vitro assays for the study of circadian rhythms; Molecular biology techniques including Real-time PCR, Western Blot, ChIP; Use of Seahorse analyzer for metabolic analysis; In vivo metabolic assays.

Scientific references

C. M. Greco et al., Integration of feeding behavior by the liver circadian clock reveals network dependency of metabolic rhythms. Sci Adv 7, eabi7828 (2021).

Greco CM, Sassone-Corsi P. "Circadian Blueprint of Metabolic Pathways in the Brain" Nat. Rev. Neuroscience 2019 20(2):71-82

Type of contract

PhD scholarship of € 18.000 gross per year awarded by Humanitas University. This sum is exempt from IRPEF income tax according to the provisions of art. 4 of Law no. 476 of 13th August 1984, and is subject to social security contributions according to the provisions of art. 2, section 26 and subsequent sections, of Law no. 335 of 8th August 1995 and subsequent modifications.

Borsa di dottorato pari a € 18.000 annui lordi erogata da Humanitas University. Importo non soggetto a tassazione IRPEF a norma dell'art. 4 della L. 13 agosto 1984 n. 476 e soggetto, in



materia previdenziale, alle norme di cui all'art. 2, commi 26 e segg., della L. 8 agosto 1995, n. 335 e successive modificazioni.