MARIE SKŁODOWSKA-CURIE POSTDOCTORAL FELLOWSHIPS 2024

EXPRESSION OF INTEREST FOR HOSTING MARIE CURIE FELLOWS

HOST INSTITUTION

NOVA Medical School | Faculty of Medical Sciences (NMS)

RESEARCH GROUP AND URL

Xenobiotic Metabolism lab (ToxOmics Research Unit)
Xenobiotic Metabolism lab

SUPERVISOR (NAME AND E-MAIL)

Michel Kranendonk (michel.kranendonk@nms.unl.pt)

SHORT CV OF THE SUPERVISOR

Michel Kranendonk received his PhD in Chemistry (Molecular Toxicology) from the Vrije Universiteit Amsterdam (Netherlands), for research performed at the UT Southwestern Medical Center at Dallas (US), Universidade NOVA de Lisboa (Portugal) and the Vrije Universiteit Amsterdam and conducted postdoctoral research at the Universidade NOVA de Lisboa. In 2010, he was appointed Principal Investigator at the NOVA Medical School (Universidade NOVA de Lisboa). In addition to his research career, currently heading the Xenobiotic Metabolism research group of the Research Center for Toxicogenomics & Human Health (ToxOmics), Michel Kranendonk is lecturer of multiple PhD and MSc programs in genetics, toxicology, and drug metabolism. He has supervised national and international students and postdoctoral scientists, and secured training and research funding from national and international sources. He is a past Special Co-editor of Frontiers in Pharmacology, and currently Associated Editor of Frontiers in Pharmacogenetics and Pharmacogenomics and Review Editor of Frontiers in Genetics. Additionally, he was an active participant of the EU Cost Action Pro EURO DILI Network (2018-2023) and is a member of the EASL DHILI consortium and the International Advisory Committee of the Cytochrome P450 Conferences. He is currently leading his research group in the Horizon Europe funded consortium Halt RONIN (2023-2027), focusing on the role of genetic variability in metabolic liver disease states.

5 SELECTED PUBLICATIONS

- Roadmap to DILI research in Europe. A proposal from COST action ProEuroDILINet. Lucena et al., Pharmacol Res 2024. 200:107046; doi: 10.1016/j.phrs.2023.107046
- The Complex Dynamic of Phase I Drug Metabolism in the Early Stages of Doxorubicin Resistance in Breast Cancer Cells. Barata et al. Genes 2022,13(11):1977. doi: 10.3390/genes13111977.
- The Central Role of Cytochrome P450 in Xenobiotic Metabolism-A Brief Review on a Fascinating Enzyme Family. Esteves et al., J Xenobiot. 2021, 11:94-114. doi: 10.3390/jox11030007.
- Advanced preclinical models for evaluation of drug-induced liver injury - consensus statement by the European Drug-Induced Liver Injury Network [PRO-EURO-DILI-NET]. Fernandez-Checa et al., J Hepatol. 2021;75(4):935-959. doi: 10.1016/j.jhep.2021.06.021.
- Interaction Modes of Microsomal Cytochrome P450s with Its Reductase and the Role of Substrate Binding. Esteves et al., Int J Mol Sci. 2020 Sep 11;21(18):6669. doi: 10.3390/ijms21186669

PROJECT TITLE AND SHORT DESCRIPTION

Development of multi-cellular type cell-models for the study of human liver disease

Currently effective 3D in vitro models of the human liver for the study of different hepatic disease states are missing. The project is focused on the development of human liver organoids which include the four most prevalent cell types. Subsequently, specific culturing procedures will be developed to obtain organoids which reflect appropriately the disease states of MASLD (metabolic dysfunction–associated liver disease) and MASH (metabolic dysfunction-associated steatohepatitis). These organotypic models will be used to study the role of specific metabolic pathways in the formation of these disease states, applying genome editing techniques (*e.g.*, CRISPR Cas) to manipulate and interrogate the most promising molecular targets involved in the mechanisms of disease progression. This project is set within a recently started Horizon Europe funded consortium “Halt-RONIN - Discovering chronic inflammation biomarkers that define key stages in the Healthy-

to-NASH transition to inform early prevention and treatment strategies" (Horizon 2020, Halt-RONIN - 101095679)

SCIENTIFIC AREA WHERE THE PROJECT FITS BEST*

Life Sciences (LIF)