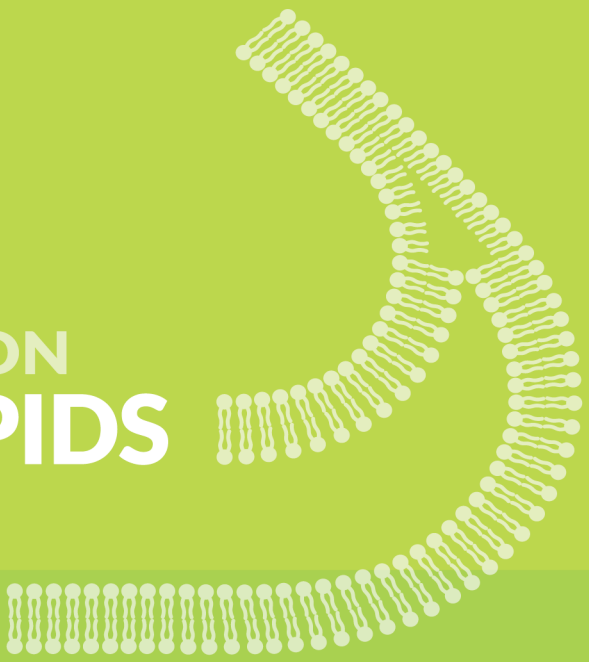
2nd WORKSHOP ON SPHINGOLIPIDS IN HEALTH AND DISEASE



The aim of this workshop on Sphingolipids in Health and Disease is to bring together researchers, students and health professionals to discuss the metabolism and functions of sphingolipids and their role in diseases. The workshop will focus on metabolic disorders of sphingolipid accumulation.

22th JULY 2022

DCM | UA AVEIRO

ORGANIZING COMMITTEE

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FREE REGISTRATION UNTIL 10th JUNE
www.sphingolipids2022.wixsite.com/website

Submit your scientific or clinical work
PRIZE FOR BEST COMMUNICATION

Artur Silva
Vice-rector of the University of Aveiro, Portugal
Welcome

Tony Futerman
Weizmann Institute of Science, Rehovot, Israel
"Sphingolipid accumulation in Gaucher disease"

Rosário Domingues
Chemistry Department University of Aveiro, Portugal
"The fate of sphingolipids and gangliosides under oxidative stress conditions unveiled by lipidomics"

João Paulo Oliveira
São João University Hospital Centre, Porto, Portugal
"Fabry disease: from genotypes to phenotypes"

João Gomes
Coimbra University Hospital Centre, Coimbra, Portugal
"Gaucher disease: a clinician's view of an underdiagnosed condition"

Selected oral presentations and poster session

dcm
universidade de aveiro
departamento de ciências médicas

Takeda

sanofi

From fibroblasts to cardiomyocytes and beyond

Ana Joana Duarte[1,2]; Diogo Ribeiro[1,2]; José Bragança[3]; Olga Amaral[1,2]
1 - Departamento de Genética Humana – UID Porto, Instituto Nacional de Saúde Doutor Ricardo Jorge (INSA, IP)
2 - Centro de Estudos de Ciência Animal (CECA), Universidade do Porto (UP)
3 - Faculdade de Medicina e Ciências Biomédicas, Universidade do Algarve (UAlg)

Fabry disease (FD) is one of the commonest Lysosomal Storage Disorders (LSDs) and is caused by mutations in the alpha-galactosidase A gene (GLA) from which results a deficient activity of the lysosomal hydrolase alphagalactosidase A (α-Gal A). This deficiency leads to progressive multisystemic accumulation of glycolipids, namely, globotriaosylceramide (Gb3) and globotriaosylsphingosine (lyso-Gb3), in plasma and in a wide range of cells, particularly in the relevant cells affected by the disease like cardiomyocytes. Our aim was to differentiate induced pluripotent stem cells (iPSCs) reprogrammed from FD patients' fibroblasts into cardiomyocytes, a cellular type usually targeted by this disease. For this purpose, we reprogrammed FD patients' cells and a normal control cell line using the non-integrative episomal vectors (Epi5). After achieving the iPSCs state, the cells were submitted to differentiation using specific cardiomyocytes effectors, and we obtained functional iPSC-cardiomyocytes (iPSC-CMs) that express relevant physiological markers and present contractility. The resulting iPSC-CMs will be analyzed against the initial FD fibroblast to see if the disease features are replicable in the new cell lines.
Another aim that was proposed in this work that is to correct the missense mutation here present (p.W287X) through Prime Editing (PE), a CRISPR-Cas9 derived method. One of the major advantages of this method is that PE mitigates the need of double strand breaks (DSB) repair machinery, which is notoriously error prone, so off-target effects are almost undetectable in comparison to Cas9 DSB-dependent repair system. At the present, we are preparing the PE experiments.