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Rui Castro completed his PhD degree in Pharmacy (Biochemistry) by the Faculty of Pharmacy, University of Lisbon (FF/UL) in 2006, having spent a total of 12 months at the Department of Medicine, University of Minnesota Medical School, MN, USA. In 2007, he was awarded with a European Association for the Study of the Liver (EASL) Grant to study the role of microRNAs during liver regeneration at the University of Minnesota. Castro is Assistant Professor at FF/UL since 2015. Early 2021, Castro started his own group at iMed.ULisboa – Liver Disease Diagnostics and Therapeutics Lab. The research being developed by Castro combines his solid background in the modulation of liver cell function by bile acids with his most recent discoveries in the microRNA field, to answer fundamental questions on the pathogenesis, diagnostic, and therapeutic targeting of liver diseases. In this regard, Castro's lab is taking advantage of well-established in vitro and in vivo models of disease, as well as human patient biopsies and clinical data, combined in multi-layered translational approaches, to ultimately bring microRNA-associated health technologies to the clinical setting. In particular, the role of microRNAs and extracellular vesicles (EVs) in inter-organ communication in the setting of obesity and metabolic disease; as well as its exploration for the diagnosis, treatment, monitoring and prevention of liver disease, constitutes a key research objective. He is member of the Executive Committee of iMed.ULisboa and E-Learning Education Committee member at both United European Gastroenterology (UEG) and EASL.

MicroRNAs as biomarkers: scientific plausibility and pathophysiological role

microRNAs (miRNAs) are well established players in NASH pathogenesis, contributing for liver lipotoxicity, oxidative stress, metabolic inflammation and fibrogenesis. Preclinical pharmacological-based modulation of such miRNAs display a broad range of actions on whole-body metabolism, inspiring new efforts in achieving its safe, successful translation into the clinic. Noteworthy, the role of miRNAs as biomarkers and diagnostic tools in NASH is increasingly evident, constituting an attractive alternative to liver biopsy. Circulating miRNA signatures have been described to identify steatohepatitis and fibrosis, further allowing for stratification of disease severity. Large multicentre collaborations are likely to lead to the discovery of clinically relevant diagnostic miRNA panels for NASH.