Universidad de Navarra
Facultad de Ciencias

MÁSTER EN INVESTIGACIÓN BIOMÉDICA
Research Project Proposal
Academic year 2026-2027

Project Nº 38

Title: *Role of miR-146b-5p in the pathogenesis of metabolic dysfunction-associated steatotic liver disease (MASLD) and liver cancer*

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Summary

Metabolic dysfunction-associated steatotic liver disease (MASLD) is the most common liver disease in the Western world, encompassing a wide spectrum of hepatic lesions. While simple steatosis constitutes the earliest and less severe stage, progression towards metabolic dysfunction-associates steatohepatitis (MASH) greatly increases the susceptibility to the development of cirrhosis and hepatocellular carcinoma (HCC). Currently, the only therapeutic options with curative potential are surgical tumoral resection and liver transplantation. Therefore, new therapeutic approaches are urgently needed to avoid disease progression and to treat patients. MicroRNAs (miRNAs/miRs) are key regulators of MASLD pathogenesis and progression. In a multi-omic characterization of animal models of MASLD, we identified miR-146b-5p to be upregulated in several experimental animal models of MASLD, from simple steatosis to HCC. Interestingly, CES2, potentially targeted by miR-146b-5p, correlated negatively with levels of some triglycerides and oleic acid, positively correlating with phosphocholines. Of note, miR-146b-5p was also increased in HCC tumors compared with adjacent non-tumorous liver tissue, highlighting its potential role as a driver of carcinogenesis in MASLD. Therefore, our aim is to unveil the role of miR-164b-5p in MASLD pathogenesis and progression. In order to accomplish this project, we will: 1) validate the expression miR-146b-5p in distinct murine models of MASLD and MASLD-associated HCC and in patients; 2) investigate the effect of miR-146-5p in modulating metabolism, inflammatory responses and cell death in *in vitro* models. Overall, the results obtained from this project may have a great translational value, allowing to describe novel therapeutic targets to MASLD and liver cancer.

yes	X
no	

Does the project include the possibility of supervised animal manipulation to complete the training for animal manipulator?