

# FIBICO- RAPAMYCIN AND STATINS AS PROTECTORS AGAINST LIVER DAMAGE

## Abstract

A research group from the Andalusian Public Health System (SSPA) has developed an invention within the field of prevention and treatment of liver damage caused by hemolytic disorders.

## Description

The present invention describes that treatment with statins (molecules that inhibit lipid synthesis) reduces the accumulation of lipids in the liver, reducing the associated cytotoxic effects.

It further proposes pretreatment with rapamycin (also known as sirolimus) as a therapeutic option to reduce liver damage associated with heme accumulation in the liver by decreasing heme-mediated toxicity, the accumulation of lipid droplets in cultured hepatocytes.

Rapamycin is an autophagy inducer that decreased heme-mediated hepatotoxicity, lipid droplet accumulation, and perilipin 1 protein levels in liver cells. Rapamycin treatment also reduces the protein levels of SREBP1, the main transcription factor responsible for de novo regulation, and of DGAT2, one of the enzymes that regulates triglyceride synthesis.

All animal procedures were performed in accordance with the recommendations issued by the European Community and the protocol was approved by

the Animal Research Ethics Committee of the Jiménez Díaz Foundation Health Research Institute (IISFJD) and by the Community of Madrid.

All the work with animals took place in the Laboratory of Molecular and Cellular Biology in Renal and Vascular Pathology of the IIS-FJD of the Autonomous University of Madrid.

## Advantages

- Reduction of heme-mediated mortality, lipid content, and perilipin-1 expression.
- Increased expression of transporters involved in fatty acid uptake and deregulation of LDL transport.

## Industrial/ Intellectual protection

This technology is protected by national patent.

## Objective of the Collaboration

Seek a collaboration that leads to the commercial exploitation of the invention presented. The terms and conditions of the license agreement can be openly discussed if the technology presented is of interest

## Clasification

Activity/Type: Medications  
Pathology: Nephrology

## Representative Institution and Inventor

The main researcher behind the innovation is Juan Antonio Moreno Gutiérrez, researcher of the GE06 group Physiopathology of renal and vascular damage.

The development of the project has been possible thanks to the Andalusian Health Service and the University of Córdoba.

## Contact information

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