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# Effect of immunosuppression agents on human hepatocyte and non- parenchymal liver cells apoptosis

## APOHEPI

### TE 120



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**PROGRAM 1: DEVELOPMENT OF THE NATIONAL RESEARCH SYSTEM**

**Subprogram 1.1 - Human Resources "Research projects for stimulating young independent teams (TE)", competition 2016**

**Financing contract nr: TE 120 from 10/10/2018**

**Project Registration Code: PN-III-P1-1.1-TE-2016-1109**

**Beneficiary: FUNDENI CLINICAL INSTITUTE BUCHAREST**

**Project Director: Lecturer Dr. Speranta Iacob**



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**Duration of project implementation:**

**24 months, from 10.10.2018 to 09.10.2020**

**Total value of the project:**

**450,000 lei**



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**The main objective** of the present project is to study the effect of immunosuppressant agents used in clinical practice in liver transplantation on apoptosis in monoculture of isolated human hepatocytes, human hepatic stellate cells (HSCs) and in co-culture of human primary hepatocytes and HSCs



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# Other specific objectives

- Ob 1: To study the apoptosis associated gene expression profile using defined genes arrays in monoculture of human hepatocytes, monoculture of HSCs and co-culture of hepatocytes and HSCs after treatment of cultures with various immunosuppression agents
- Ob 2: To study the apoptosis associated gene expression profile using defined genes arrays in monoculture of human hepatocytes, monoculture of HSCs and co-culture according to CYP3A5 genotypes
- Ob 3: To propose a patient profile that is more prone to fibrosis development following LT according to in vitro studies
- Ob 4: To propose a certain medication or combination of immunosuppressants that can be safely used on long term without fibrosis development as a translational approach of personalized medicine

# Methodology

- Hepatocyte and hepatic stellate cells isolation protocol
- DNA extraction
- RNA extraction and quantitative gene expression analysis
- Apoptosis assessment
- To achieve our objectives, we will use the infrastructure and logistics of Center of Excellence in Translational Medicine (CEMT), the new research Platform of Fundeni Clinical Institute. Please check the following link <http://erris.gov.ro/CENTER-OF-EXCELLENCE-IN-TRAN> to see the existent facility where the whole research will be conducted

# Work plan (24 months)

- **Stage I: Set-up of the experimental protocol**
- **Stage II: Development of human hepatocytes and hepatic stellate cells 2D and 3D culture systems according to the proposed protocols and apoptosis study**
- **Stage III: Statistical analysis of data and summary of results**

# Research team

- Project Leader (Speranta Iacob) - project coordinator, subjects enrolment, isolation and culture of hepatic cells, genetics and molecular biology studies;
- 2 postdoctoral researchers (Razvan Iacob, Codruta Popa) - isolation and culture of hepatic cells, genetics and molecular biology studies, FACS analysis;
- two young biology researchers (Manea Ioana, Uta Mihaela) with experience in the field of hepatic cells isolation and culture;
- the procurement of liver tissue fragments and immunohistochemical analyses will be conducted by (Luminita Stoica and vacant position).