

# Creation of robust in vitro models to study liver disease

**Commonly used acronym:** iPSC-liver

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## Organisation

**Name of the organisation** Katholieke Universiteit Leuven (KUL)

**Department** Development and Regeneration

**Country** Belgium

**Geographical Area** Flemish Region

## SCOPE OF THE METHOD

<b>The Method relates to</b>	Human health
<b>The Method is situated in</b>	Basic Research, Translational - Applied Research
<b>Type of method</b>	In vitro - Ex vivo
<b>Species from which cells/tissues/organs are derived</b>	Human
<b>Type of cells/tissues/organs</b>	Liver

## DESCRIPTION

### Method keywords

iPSC

3D in vitro model

NAFLD/NASH

## Scientific area keywords

liver disease

DILI

NASH

regeneration

## Method description

We developed *in vitro* models to study liver disease, such as liver inflammation and fibrosis, as seen in non-alcoholic fatty liver disease/non-alcoholic steatohepatitis (NAFLD/NASH); or hepatitis viral infection; or to enhance our ability to detect drugs that cause acute or repeat dose drug induced liver injury (DILI) assessment, and this in medium to high throughput format. The 2D and also 3D models consist of (i) longer-term stable functioning iPSC-derived hepatocytes that can be damaged by a compound /insult; iPSC-derived macrophages; endothelial cells and hepatic stellate cells that can respond to this damage. The cells also contain built-in stress reporter genes to allow high-content image-based definition of cell stress. Finally, the model can be down-scalable to 96 (or 384) well format allowing medium/high throughput drug screening.

## Lab equipment

Biosafety cabinet incubator FACS qRT-PCR robotised stem cell platform high content imaging.

## Method status

Internally validated

Published in peer reviewed journal

## REFERENCES, ASSOCIATED DOCUMENTS AND OTHER INFORMATION

Coordinated by



Financed by

