

# A human micro-liver system for reliable safety and efficacy testing

# CRACK IT Solutions

Researchers at the University of Naples seek partners to further develop and validate a novel human liver-on-a-chip platform to investigate the safety and efficacy of chemicals and drugs.

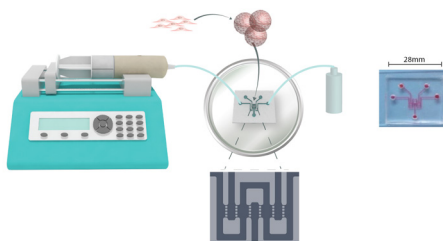
## What could the Solution be used for?

Composed of 3D human hepatocyte-like engineered microtissues dynamically cultured in a microfluidic device, the liver-on-a-chip model could be applied as an effective tool to test the safety (drug-induced hepatotoxicity) and efficacy of new pharmaceutical compounds, non-pharmaceutical chemicals and nutraceuticals.

There is potential to also co-culture the liver microtissues with several non-parenchymal liver cells (e.g. Kupffer cells, stellate cells or sinusoidal endothelial cells) separately, or in direct cell-cell contact, to mimic the endothelial-parenchymal interface of liver sinusoids

## Need for collaboration

Industrial partnerships are sought to further develop/characterise and validate the device to test new molecules or drugs. Partners should be able to provide advice, compounds, and preclinical and clinical datasets with which to validate the model for hepatotoxicity and efficacy screening. Partnerships are also sought with food companies to provide nutraceuticals to test in the system.



## 3Rs impact assessment

Current *in vivo* hepatotoxicity studies typically evaluate liver histopathology and measure clinical chemistry markers. These studies use large numbers of animals, are low throughput, and are not always predictive of effects in humans. Identifying hepatotoxic compounds earlier in development would significantly reduce the number of compounds progressing to animal studies.

For more information or to contact the Solution provider: <https://crackit.org.uk/human-micro-liver-system-reliable-safety-and-efficacy-testing>



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