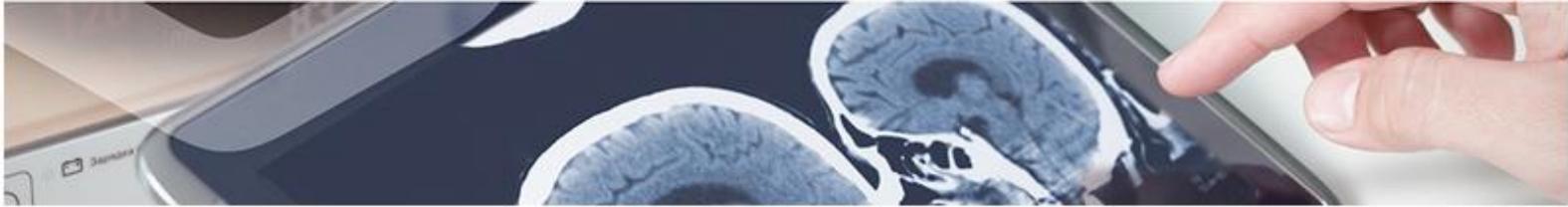
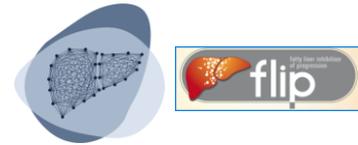


ICT

Magnetic Resonance Image software for non-alcoholic fatty liver disease diagnosis (DeMILI®)

A research group of the Andalusian Public Health System, in collaboration with the University of Seville, has developed a novel software package to detect and stage liver diseases such as steatohepatitis and fibrosis in non-alcoholic fatty liver disease (NAFLD).



Description

Currently, NAFLD is the most prevalent liver disease in the developed world, as it is considered the extrahepatic manifestation of the metabolic syndrome. Its prevalence raises to 20-30% and is expected to increase by 50% in 2030 worldwide. Prevalence is extremely high in morbid obesity (90%), diabetes (70%) and dyslipidemia (50%) with an incidence of 2 new cases per 100 people/ year.

NAFLD encompasses benign simple steatosis without fibrosis, non-alcoholic steatohepatitis (NASH), that could develop progressive liver disease, and cirrhosis. It is crucial to differentiate between these two distinct entities since NASH is the foremost feature of systemic processes, especially related to cardiovascular diseases, to provide an appropriate patient's therapeutic management.

Liver biopsy, the current gold standard, is an invasive method, with inherent sampling error, inter- and intra-observer variability and associated with morbidity and major complications. Moreover, it is a very expensive method costing around 1,900 € Furthermore, conventional diagnosis image-based methods like ultrasonography, magnetic resonance image (MRI) and computed tomography or serum-based methods are unable to diagnose steatohepatitis and diagnostic accuracy decreases when applied to medium or low fibrosis stages.

DeMILI® is a novel non-invasive software package which allows detecting and staging steatohepatitis (NASHMRI®: sensitivity: 77%, specificity: 90%, diagnostic accuracy: 91%) and fibrosis (FibroMRI®: sensitivity: 87%, specificity: 63 %, diagnostic accuracy: 83%). DeMILI® performs a powerful analysis of Magnetic Resonance studies and processes data extracted from multiple image samples throughout the whole liver. DeMILI® also yields a diagnostic prediction according to the information obtained using advanced physical analysis and mathematical modelling tools.



Advantages

1. Non-invasive diagnostic tool which replaces the gold-standard method (liver biopsy).
2. Powerful validated tool which is easy to be performed, innocuous, low cost, enables volumetric analysis of the whole liver, extensible to other liver diseases and allows simplified screening of patients at risk.
3. Further applications currently under development: Exploration of liver damage in other diseases (viral & autoimmune hepatitis, alcoholic steatohepatitis, hepatotoxicity), evaluation of surrounding tissue in hepatocellular carcinoma and monitoring of patients' evolution.



Intellectual Property

This technology is protected by intellectual property rights.



Aims

We are looking for a partner interested in a license or/and collaboration agreement to further validate and exploit this innovative technology.



Classification

Area: ICT- Software/ Diagnostics

Pathology: Metabolic diseases & Endocrinology; Digestive diseases