Technology offer IP-033

AI-based method to predict acute rejection in liver transplants

Non-invasive diagnostic method to predict acute rejection in recently transplanted liver patients. It uses the analysis of danger signals released in the organ preservation solution during cold ischemia, through an AI-based algorithm. This method enables the identification of patients who will experience acute rejection in the first few weeks post-transplant with high reliability (>91%). It is useful for preventing graft loss and reducing invasive procedures, improving liver transplant management.

State of development

TRL-4 Laboratory validation

Objective of the collaboration

License and/or co-development

Industrial Property

Patent in National Phase: EP, US, CA, AU, MX, JP, SA, BR, CO, KR, IN, AE

Priority date: 26/9/2022

Contact

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Market needs

Acute rejection after a liver transplant is a critical issue, with 35% of patients experiencing episodes in the first few weeks, which can lead to graft loss. This rejection is mediated by the dysregulation of the immune response, increasing the risk of early organ dysfunction. Current diagnostic options, such as invasive biopsies or analysis of circulating free DNA, are costly and complex. There is a clear need for non-invasive and more accessible methods that can detect and prevent acute rejection early, improving long-term liver transplant outcomes.

Technical solution from IMIB

The technical solution is based on the identification of danger signals released in the organ preservation solution during cold ischemia, before the implantation of the liver transplant. In vitro tests have shown that this analysis can predict with high reliability (>91%) which patients will experience acute rejection in the first few weeks post-transplant. In vivo trials, the AI platform used to process this data has proven effective in anticipating rejection, improving the clinical management of liver transplantation and reducing the need for invasive procedures.

Benefits

- Non-invasive diagnostic method with high specificity (>91%) to predict acute rejection in liver transplants, surpassing current invasive techniques.
- High accuracy in detecting danger signals in the organ preservation solution.
- Reduces hospital costs by avoiding invasive procedures and minimizing graft loss