Technology offer IP-017

AI-based method for quantifying macrovesicular steatosis in donor liver

New diagnostic method that enables the objective quantification of macrovesicular steatosis in pre-transplant donor liver sections using machine learning algorithms and image analysis. The technology employs pre-trained models and a web interface to identify characteristic cellular patterns, facilitating the assessment of organ viability. It is useful for preventing post-transplant complications associated with livers with high steatosis.

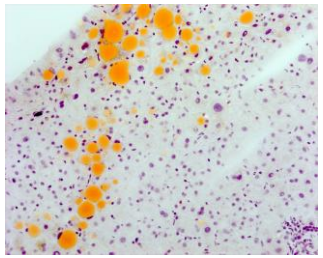

Figure. Microscopic image of a donor liver infiltrated with fat vacuoles (orange)

State of development

TRL-7 Real-world validation

Objective of the collaboration

License

Industrial Property

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Contact

Innovation Unit at IMIB

innovacion@imib.es

Market needs

The assessment of macrovesicular steatosis in donor livers is imprecise and variable, making rapid decision-making in transplants difficult. Hepatic fat affects organ viability and post-transplant function. Excessive accumulation increases the risk of complications and transplant failure. Current methods are manual and slow, limiting clinical efficiency. There is an urgent need for precise tools that enable the prevention of post-transplant complications through objective quantification of steatosis.

Technical solution from IMIB

The web application uses machine learning algorithms to objectively quantify macrovesicular steatosis in Sudan-stained liver sections, facilitating the identification of relevant cellular patterns. In in vitro tests, the pre-trained models deliver rapid and accurate results in under an hour, surpassing the precision of conventional manual methods. In studies with donor liver samples, the tool has demonstrated robustness and reliability, supporting organ viability assessment and optimizing pre-transplant decision-making.

Benefits

- Objective quantification of steatosis, more accurate than manual methods.
- Rapid results in under an hour with pre-trained models.
- Validated in multiple donor liver samples, reliable for clinical decision-making.
- Optimizes resources and reduces costs associated with errors or delays in transplants.

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