

Diagnostic for kidney transplant graft dysfunction

[2024-019]



THE UNIVERSITY OF
SYDNEY

Medical technology



> TRL 3-4
> Clinical trial

Problem

Post-kidney transplant complications threaten graft function, increase risk to complications such as infection and cardiovascular disease and potentially result in a need to return to dialysis. Current diagnostic methods require invasive biopsies to accurately determine the cause of the dysfunction. Biopsies place an increased risk to patients, reduces patient access to care and results in later diagnosis preventing earlier treatment. A non-invasive, accurate diagnostic method is critically needed to improve patient care and outcomes.

Solution

Our technology offers a non-invasive diagnostic alternative by analysing urinary cells with multispectral autofluorescence. In trials, it distinguished between acute tubular necrosis (ATN), graft rejection, or non-rejection associated interstitial fibrosis and tubular atrophy (IFTA) with over 90% accuracy. This innovation promises to enhance clinical decision-making and patient quality of life, while reducing the need for invasive biopsies.

Intellectual Property Status

This technology is the subject of an Australian provisional patent application.

Inventors

Sonia Saad, Carol Pollock, Hon Lin Henry Wu, Ewa Goldys, Yandong Lang, Aline Knab, Akanksha Bhargava, Yuan Tian, Shannon Handley

Potential Commercial Applications

- Integration into routine patient monitoring in clinical settings, for early detection of transplant rejection and other post-transplant complications.
- Adoption by transplantation centres for post-operative care to enhance patient follow-up and personalise treatment plans
- Utilisation in pharmaceutical trials to assess the efficacy of new immunosuppressive therapies in preventing transplant rejection, by providing non-invasive biomarkers of kidney function.
- Incorporation into telehealth services, allowing for remote monitoring of kidney transplant patients and reducing the need for in-person consultations.



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Contact Commercialisation Office

Name: Emma-Louise Hunsley

Position: Commercialisation Manager – Sydney Biomedical Accelerator

Email: emma-louise.hunsley@sydney.edu.au | Phone: 0437468275

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