

Reducing organ transplant side effects

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A new research project aims to use personalized anti-rejection medication to reduce the health risks that organ transplant patients experience following surgery.

Third-year Ph.D. student Sarah Dart, from The University of Western Australia's Medical School, said her research aimed to optimize immunosuppressant drug use, by analyzing how the [immune system](#) responds to an organ following transplantation.

"Developing personalized [treatment strategies](#) is important, because patients have unique immune responses to donated organs, regardless of whether they are a genetically identical match to the organ donor," Ms Dart said.

"After organ transplant surgery, patients undergo ongoing medical assessment and take immunosuppressant drugs for their lifetime. This leaves patients vulnerable to contracting infectious diseases, such as COVID, and at greater risk of developing cancer.

"These [severe side effects](#) can be mitigated by minimizing the number of immunosuppressant

drugs each patient needs to take or optimizing those drugs to better target specific immune cells."

The research involves looking at immune cells from transplanted organs under the microscope to analyze how each cell responds to immunosuppressant drugs.

"Using fluorescent proteins called antibodies, which bind to different immune cells, we can identify and track what happens to the cells within the transplanted organ," Ms Dart said.

"Immune cells are important to protect organs from infections and cancer but play a big role in transplant rejection.

"By understanding the effects of different types of anti-rejection medication on the [immune cells](#) in the organ, we can identify strategies to better balance the positive and negative impacts of the cells."

Ms Dart said more than 1,600 Australians were currently waiting for a new organ, with almost 12,000 people who could benefit from a transplant.

"By improving the management of post-surgical treatments for patients, we improve their quality of life and reduce their risk of infections and cancer," she said.

"This also improves the longevity of transplanted organs, reducing the number of replacement transplants and freeing up space on waitlists."

Provided by University of Western Australia

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