

Taking rejection out of organ transplant operations

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Credit: Gary Barnes from Pexels

Organ transplant operations save lives. But for recipients, treatment does not end with an operation - they must take medication for the rest of their lives.

The EU-funded project ONE Study ('A unified approach to evaluating cellular [immunotherapy](#) in solid [organ transplantation](#)') is looking to change this through cell therapy - using cells themselves to stop a donor recipient's body from attacking the transplanted organ.

Since the first successful [kidney transplant](#) operation in 1954, the procedure has saved many people from death and improved the quality of their lives. Scientists realised early on that such operations require more than simply replacing a damaged organ with another - the recipient's immune system sees the new organ as a foreign invader, and quickly attacks it. White blood cells eventually destroy the organ in a process known as rejection.

The very first successful kidney transplant operation worked because the donated kidney came from the patient's identical twin. While this was a breakthrough, it was not a solution - not everyone has an identical twin with organs to spare.

The next breakthrough came in the 1960s, when doctors realised that they could prevent [rejection](#) by suppressing the patient's immune system. The same technique is used today. While it undoubtedly saves lives, the system is far from perfect. Immunosuppressant drugs reduce the patient's resistance to infections, have been linked to cancer, and can have other unwanted side effects. Patients also face a lifetime of taking drugs, which is not only inconvenient, but very costly.

The ONE Study team is looking to cell therapy for the solution. The researchers are currently developing a series of cells (haematopoietic [regulatory cells](#)) potentially able to regulate the [immune system](#). The next step will be to test the cells on donor patients.

The tests will be carried out in Regensburg and Berlin (Germany), Nantes (France), Milan (Italy) and London and Oxford (UK). Data will

be sent to one place for analysis in order to minimise variability in testing. The results will be used for a direct comparison of the feasibility, safety, cost and 'promise of effect' of each cell type.

By translating basic cell therapy research into clinical utility and deepening knowledge of how different immunoregulatory cells work, the ONE Study will also pave the way for other medical research, as will the development of new technologies for sorting and tracking cells, which are needed for cell-based therapies in general.

The hope is that this project will lead to cell therapy products for further clinical tests and eventual exploitation - ultimately reducing the need for immunosuppressive drugs in organ transplant recipients.

More information: www.onestudy.org/

Provided by CORDIS

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