

Transplanted livers help body defend against organ rejection, study finds

April 18 2018, by Heather Carlson

For decades, transplant experts have observed that liver transplant recipients often need less anti-rejection medication, known as immunosuppressive drugs, than recipients of other solid organs. Similarly, when patients receive a multiple-organ transplant that includes the liver along with any other organ, they need less immunosuppressive medication and have less incidence of rejection even if they are highly sensitive to cellular bad actors, known as antigens, from the donor organs.

The Mayo Clinic research explains why.

"This study shows that the liver transplant itself regulates the host's immune responses. Compared to the other organs, the liver is immunologically a very active organ, so it is capable of regulating the immune responses against itself, said lead author Timucin Taner, M.D., Ph.D., a [transplant surgeon](#) at Mayo Clinic.

When patients undergo a dual kidney-liver transplant, the liver has a protective effect on the kidney, the study found.

Researchers compared the blood samples of organ recipients a year after a [kidney transplant](#), liver transplant or kidney-liver transplant. It found that patients who received a liver and kidney at the same time, or a liver alone, had fewer of the cells that leap into action to defend the body from an invader—known as killer cells or T cells—, compared with people who had a kidney transplant alone. While the T cells of the [liver](#)

[transplant](#) recipients reacted to the donor organ cells weakly, their reaction to other antigens was preserved.

The research helps pave the way for ongoing studies on the transplanted livers' unique properties. The hope is that one day researchers will identify how the [liver](#) regulates the [immune response](#) and to mimic that to help patients receiving other types of transplants scale back their need for anti-rejection drugs.

Immunosuppression drugs are a necessary but difficult aspect of post-transplant care. Without it, the transplant would not be successful because the body would almost immediately reject the donor organ. But immunosuppression itself causes increased risk for infection, cancer and other issues. Future therapies may provide ways to target immune protection to the donated organ, and minimize the risks of immunosuppression for the patients.

Mayo Clinic's William J. Von Leibig Center for Transplantation and Regenerative Medicine is one of the largest integrated [transplant centers](#) in the world, with locations in Rochester, Minnesota; Phoenix; and Jacksonville, Florida.

April is Donate Life Month. More than 120,000 people are waiting for an [organ transplant](#) in the United States. Nearly 2,000 of those are children. Mayo Clinic has more than 3,000 patients on the waiting list for an organ [transplant](#). Every 10 minutes another name is added to the national waiting list. An average of 21 people die each day in the United States waiting for transplants that can't take place because of the shortage of donated organs.

More information: Timucin Taner et al. Donor-specific hypo-responsiveness occurs in simultaneous liver-kidney transplant recipients after the first year, *Kidney International* (2018). [DOI:](#)

[10.1016/j.kint.2018.01.022](https://doi.org/10.1016/j.kint.2018.01.022)

Provided by Mayo Clinic

Citation: Transplanted livers help body defend against organ rejection, study finds (2018, April 18) retrieved 26 April 2024 from <https://medicalxpress.com/news/2018-04-transplanted-livers-body-defend.html>

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