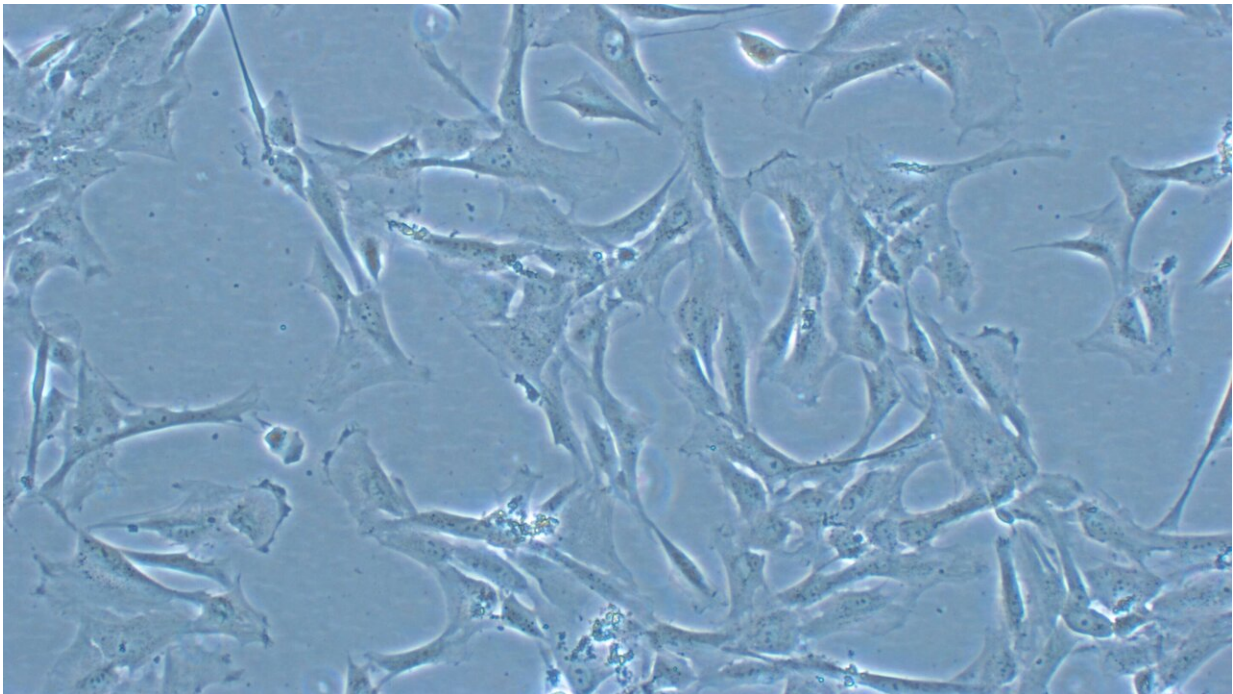


# Certain liver cells may help prevent organ rejection after transplant, study finds

January 21 2020, by Jay Furst

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Credit: Mayo Clinic

Mesenchymal stromal cells from fat tissue and bone marrow are widely used in therapeutic trials for their anti-inflammatory qualities, but new Mayo Clinic research finds that liver cells may be of greater value.

The study, published in *Liver Transplantation*, finds that liver mesenchymal stromal cells have immunoregulatory qualities that make

them more effective than similar cells derived from adipose, or fat, tissue and [bone marrow](#).

"This is very exciting, given that many ongoing trials around the world use mesenchymal stromal cells from bone marrow or [fat tissue](#)," says Timucin Taner, M.D., Ph.D., a Mayo Clinic transplant surgeon, and the study's principal investigator and first author. "If our findings are validated, liver mesenchymal stromal cells would be a much better option for those kinds of therapeutic applications."

The cells could be valuable in treating a wide range of diseases and conditions with underlying inflammation, such as organ rejection after transplantation, [inflammatory bowel disease](#) and other autoimmune disorders.

The liver is an immunologically active organ, and liver transplant recipients require much lower doses of anti-rejection medications than patients receiving other organs. "We have been interested in this phenomenon for a while, and have been studying the mechanisms of the liver's tolerance-inducing properties in transplant recipients," Dr. Taner says. "In this research, we found that liver mesenchymal stromal cells were much more potent than their counterparts from other tissues in their ability to control immune responses, which may explain why liver transplants are better tolerated."

It also may explain why the incidence of kidney rejection in patients who undergo a kidney-liver transplant is significantly lower than those of kidney-only transplant recipients. Similar results have been noted in other multiorgan transplants involving the liver, such as combined heart-[liver transplants](#).

Mesenchymal stromal cells, which are found in most liver tissues, have a capacity to regulate inflammation and tissue repair mechanisms. For this

study, liver mesenchymal stromal cells were generated in vitro from 12 biopsy specimens from people of various ages and both genders.

In each phase of experimentation, the liver mesenchymal stromal cells appeared superior to those from bone marrow and adipose tissue, regardless of the age or sex of the donor. Further research in humans will be needed to test the anti-inflammatory superiority of the cells, Dr. Taner says.

"We now need to go deeper and try to understand why and how liver mesenchymal stromal cells are different from mesenchymal stromal cells from other tissues," he says.

**More information:** Timucin Taner et al, Phenotypic, transcriptional and functional analysis of liver mesenchymal stromal cells and their immunomodulatory properties, *Liver Transplantation* (2020). [DOI: 10.1002/lt.25718](https://doi.org/10.1002/lt.25718)

Provided by Mayo Clinic

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