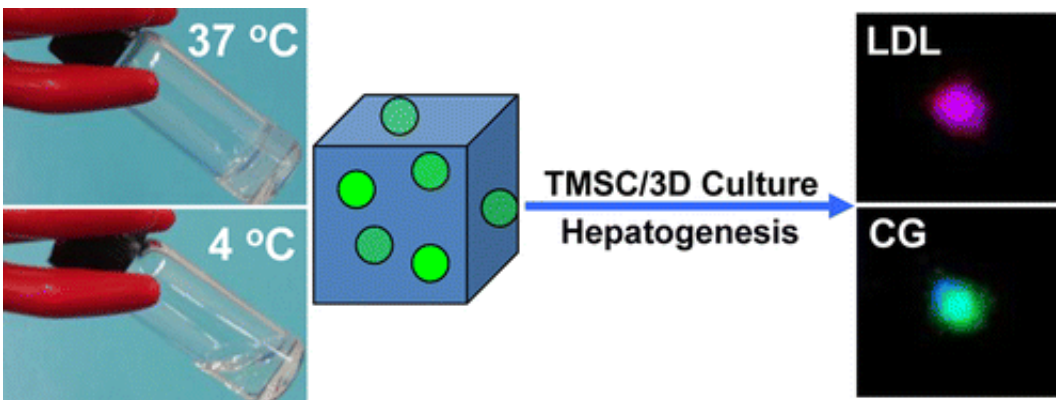


# Tonsil stem cells could someday help repair liver damage without surgery

September 24 2014



The liver provides critical functions, such as ridding the body of toxins. Its failure can be deadly, and there are few options for fixing it. But scientists now report in the journal *ACS Applied Materials & Interfaces* a way to potentially inject stem cells from tonsils, a body part we don't need, to repair damaged livers—all without surgery.

Byeongmoon Jeong and colleagues point out that currently, the only established method for treating [liver](#) failure or severe cases of [liver disease](#) is complete or partial transplantation. But the need is much greater than the number of available organs. Plus, surgery has inherent risks and a hefty price tag. A promising alternative in development is transplanting liver cells. One such approach involves using adult stem

cells to make liver cells. Stem cells from bone marrow could be used, but they have limitations. Recently, scientists identified another source of adult stem cells that could be used for this purpose—tonsils. Every year, thousands of surgeries are performed to remove tonsils, and the tissue is discarded. Now it could have a new purpose, but [scientists](#) needed a way to grow them on a 3-D scaffold that mimics real liver tissue. Jeong's team set out to do just that.

The researchers encapsulated tonsil-derived stem cells in a heat-sensitive liquid that turns into a gel at body temperature. They added substances called growth factors to encourage the stem cells to become liver cells. Then, they heated the combination up to a normal body temperature. The result was a 3-D, biodegradable gel that contained functioning liver cells. The researchers conclude that the same process has promise—with some further tweaking for ideal conditions—as an injectable tissue engineering technique to treat liver disease without surgery.

**More information:** Polypeptide Thermogels as a Three Dimensional Culture Scaffold for Hepatogenic Differentiation of Human Tonsil-Derived Mesenchymal Stem Cells, *ACS Appl. Mater. Interfaces*, Article ASAP. [DOI: 10.1021/am504652y](https://doi.org/10.1021/am504652y)

Provided by American Chemical Society

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