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Scientists Grow Blood From Stem Cells in Breakthrough

Los Angeles Times

Scientists said Tuesday they have devised a way to grow large quantities of blood in the lab using human embryonic stem cells, potentially making blood drives a relic of the past.

But experts cautioned that although it represented a significant technical advance, the new approach required several key improvements before it could be considered a realistic alternative to donor blood.

The research team outlined a four-step process for turning embryonic stem cells into red blood cells capable of carrying as much oxygen as normal blood. The procedure was published online by the journal Blood.

The ability to make blood in the lab would guarantee that hospitals and blood banks have access to an ample supply of all types of blood, including the rare AB-negative and O-negative, the universal donor.

It would also insure that patients are never at risk of contracting diseases such as hepatitis C or HIV, which can be acquired from donor blood, said Dr. Dan Kaufman, associate director of the University of Minnesota's Stem Cell Institute, who wasn't involved in the study.

"People don't usually think about these types of cells when they talk about human embryonic stem cell therapy, but it is important," Kaufman said. "There's more infections all the time, and the number of donors is more and more limited."

Researchers have tried to harness the so-called adult stem cells that are responsible for making blood in the body, but their methods were far too inefficient to be put to practical use, experts said.