

Heart cells cultured in the lab

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See the heart cells in action

Scientists have moved a step closer to creating functioning heart tissue for transplants in the lab.

They have grown three types of human heart cells from cultures derived from embryonic stem cells.

When a mix of the cells was transplanted into mice with simulated heart disease, the animals' heart function was significantly improved.

The study, by a team of Canadian, US and UK scientists, features in the journal Nature.

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Dr Gordon Keller
McEwen Centre for Regenerative Medicine

The researchers created the cells by supplying embryonic stem cell cultures with a cocktail of growth factors and other molecules involved in development.

By supplying the right growth factors at the right time, they encouraged the cells to grow into immature versions of three different types of cardiac cell.

The three cell types they created - cardiomyocytes, endothelial cells and vascular smooth muscle cells - are each important constituents of heart muscle.

Researcher Dr Gordon Keller, from the McEwen Centre for Regenerative Medicine in Toronto, said: "This development means that we can efficiently and accurately make different types of human heart cells for use in both basic and clinical research.

"The immediate impact of this is significant as we now have an unlimited supply of these cells to study how they develop, how they function and how they respond to different drugs.

"In the future, these cells may also be very effective in developing new strategies for repairing damaged hearts, following a heart attack."

Jeremy Pearson, associate medical director at the British Heart Foundation, said: "This research provides another promising indication that we are steadily getting closer to the day when stem cells will be used successfully to repair damaged hearts in patients."

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