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Adult stem cells could be used to grow human tissue

A team of American scientists claim to have found a new way to use gene cloning to cure diseases such as Alzheimer's and arthritis without using human embryos.

Anti-abortion groups think the development could be more ethically acceptable, but research is still in its early stages.

Until now, stem cells from early embryos were considered the only way to grow replacement tissue and organs.

But US scientists have discovered a stem cell in adults that could do the same, New Scientist magazine reports.

They now hope to find ways of turning these stem cells into tissues such as muscle, cartilage and brain cells that can be transplanted back into the patient.

“
An option such as this which doesn't involve the deliberate production and destruction of life is much better
”

Although the research has not been published in a scientific journal, it has been carried out by a highly respected team and received favourable reviews from those familiar with their work.

**Tom Horwood,
Catholic Church**

Ihor Lemischka of the US's Princeton University said: "The work is very exciting.

"They can differentiate into pretty much

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everything that an embryonic stem cell can differentiate into."

The cells were found in the bone marrow of adults by Catherine Verfaillie at the University of Minnesota.

Scientific potential

The cells, named multipotent adult progenitor cells (MAPCs) have the same potential as embryonic stem cells (ESCs).

Irving Weissman of the US's Stanford University said: "It's very dramatic, the kinds of observations Verfaillie is reporting.

"The findings, if reproducible, are remarkable."

Religious groups and "pro-family" organisations in the UK are among those who regularly raise concerns about the ethics of cloning tissue from embryos.

Tom Horwood from the Catholic Church said: "Over the last couple of years, researchers on both sides of the Atlantic have been looking at adult stem cells, so that's very much to be welcomed.

"An option such as this which doesn't involve the deliberate production and destruction of life is much better.

"What it needs is more support and finance."

The adult stem cells seem to grow indefinitely in culture, like ESCs.

Ethical debate

Some cell lines have been growing for almost two years and have kept their characteristics, with no signs of ageing, researchers claim.

The discovery of such "versatile adult stem cells" is likely to fan the debate about whether embryonic stem cell research is justified.

Anti-abortion groups argue the ethical concern is that the procedure involves creating an embryo for the sole purpose of providing a treatment for a disease.

They claim the adult stem cell development demonstrates alternatives to therapeutic

cloning have been constantly underplayed by the scientific community.

But scientists say that at this early stage of research it is prudent to keep all options open.

One expert is sceptical about the findings, questioning the nature of stem cells.



Verfaillie's team thinks MAPCs are rare cells present in the bone marrow that can be fished out through a series of enriching steps.

Human embryo: Cloning raises ethical concerns

But others think the selection process actually creates the MAPCs.

Neil Theise of New York University Medical School said: "I don't think there is a cell that is lurking there that can do this.

"I think Catherine has found a way to produce a cell that can behave this way."

Stem cell researchers say it is too early to tell whether the ultimate stem cell has been discovered and most believe research with embryonic stem cells must continue.

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