

## Wisdom Teeth As Source Of Stem Cells

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Researchers in Japan have successfully made stem cells from wisdom teeth, creating an alternative source of pluripotent cells for researching and treating disease and avoiding the ethical problems surrounding the use of embryonic stem cells.

Scientists at Japan's National Institute of Advanced Industrial Science and Technology, which is funded by the government, said they used wisdom teeth that had been frozen for three years after being removed from a 10 year old girl. Lead investigator of the project, Hajime Ogushi, told AFP news agency that their work was significant for two reasons. First, it avoids the ethical problem of using embryonic stem cells, and besides, wisdom teeth are usually thrown away, and second, it is easy to stock wisdom teeth.

[Last year scientists in the US and the Japan announced they had made stem cells using skin](#), the first real breakthrough to find an alternative to embryonic stem cells as a way to make pluripotent master cells that have the potential to become practically any cell of the body, under the right conditions. Many people welcomed the news, including the White House and the Vatican.

The scientists, led by Shinya Yamanaka at Kyoto University, made stem cells using fibroblasts taken from the skin of mice. They introduced four transcription genes in the fibroblast cells. These genes code for a range of transcription factor proteins that control the expression of other genes, effectively turning the cells into "master cells", or stem cells that like the embryonic kind, can become virtually any cell of the body.

In this latest project, Ogushi and colleagues extracted cells from the donated wisdom teeth, inserted three of the genes used by Yamanaka's team, and cultured the cells for just over a month in the lab. When they tested the cells they found them to be stem cells, Ogushi told AFP.

One application would be to use the cells to treat inherited bone disease, but Ogushi explained it will take at least 5 years of development and trials before the idea even gets into the clinical setting.

As to harvesting stem cells from wisdom teeth, Ogushi said there would be no problem with supply, since extraction of wisdom teeth is quite a common dental procedure. Having such a plentiful source of donors means scientists could produce stem cells with a range of genetic codes, increasing the chance that a patient's immune system will not reject the transplanted tissue or organ.

Another application could be that people who have their wisdom teeth out could arrange for them to be stored for future use as a source of stem cells already tailored to their own genetic code.

Last year, Japan announced it would be spending 10 billion yen, over 90 million US dollars, on stem cell research in the next 5 years. Japan is second only to the United States in the amount of money it spends on scientific research.

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Written by: Catharine Paddock, PhD

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