

Embryonic stem cells used to regenerate hair on mice in Japan

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A university lecturer in Japan has succeeded in regenerating hair on mice using embryonic stem cells, an achievement that could pave the way for the development of treatments for conditions including hair loss, it has been learned.

Details of the breakthrough, by Mariko Yamaki of Matsumoto Dental University, will be published in the May edition of The Japanese Society for Regenerative Medicine magazine.

The work involved taking [skin cells](#) and combining them with mesenchymal stem cells _ multipotent stem cells that develop into various organs of the body -- to regenerate [hair](#). Yamaki said it would be difficult to regenerate hair using only [embryonic stem cells](#).

Yamaki extracted mesenchymal stem cells taken from the teeth of mice embryos and mixed them with mice embryonic stem cells, which form the basis of skin cells. The clumps resulting from the mix were then nurtured.

It was later found that about 40 percent of the 48 clumps had one or two hairs growing from them. When protein, which quickens growth, is added, the hair growth rate increased to about 60 percent, Yamaki said.

Hair growth was observed on all 12 [mice](#) that had the clumps implanted on their back muscles.

Hair papillaries, which supply nourishment to the hair, also were found to have formed on the back muscle.

"If embryonic stem cells are combined with mesenchymal stem cells, which perform a number of other functions, a different organ can probably be created," Yamaki said. "The first thing I want to try to do is regenerate hair using human embryonic stem cells."

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