

# Dental pulp cells for stem cell banking

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Defined sets of factors can reprogram human cells to induced pluripotent stem (iPS) cells. However, many types of human cells are not easily accessible to minimally invasive procedures.

In a paper published in the International and American Associations for Dental Research's [Journal of Dental Research](#), lead researcher K. Tezuka and researchers N. Tamaoki, H. Aoki, T. Takeda-Kawaguchi, K. Iida, T. Kunisada and T. Shibata all from the Gifu University Graduate School of Medicine, Japan; and K. Takahashi, T. Tanaka and S. Yamanaka, all from Kyoto University, Japan, evaluate dental pulp [cells](#) as an optimal source of iPS cells, since they are easily obtained from extracted teeth and can be expanded under simple culture conditions.

From all six cell lines tested with the conventional three or four reprogramming factors, iPS cells were effectively established from five lines. Furthermore, determination of the HLA types of 107 DPC lines revealed two lines homozygous for all three HLA loci and showed that if an iPS bank is established from these initial pools, the bank will cover approximately 20 percent of the Japanese population with a perfect match.

Analysis of these data demonstrates the promising potential of [dental pulp](#) cell collections as a source of cell banks for use in regenerative medicine. Direct reprogramming of patients' [somatic cells](#) would allow for [cell transplantation](#) therapy free from immune-mediated rejection. An alternative approach is to establish an iPS cell bank consisting of various human leukocyte antigen (HLA) types. Safety issues must be

considered as to which types of somatic cells should be used for such iPS cell banks.

"This work is significant in that it proposes the exciting potential of stem cell banking from readily available extracted teeth," said JDR Editor-in-Chief William Giannobile. "Although at an early stage of development, this innovation offers prospects for cell therapy approaches for the treatment of human disease."

**More information:** The complete research study is published in the Journal of Dental Research, and is available online at [jdr.sagepub.com/cgi/content/ab ... t/0022034510366846v1](http://jdr.sagepub.com/cgi/content/ab...t/0022034510366846v1)

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