

FOR IMMEDIATE RELEASE

**IADR contact: Ingrid L. Thomas
+1.703.299.8084 or ithomas@iadr.org**

June 17, 2010

Dental Pulp Cells for Stem Cell Banking

Alexandria, Va., USA – 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."

The complete research study is published in the *Journal of Dental Research*, and is available online at <http://jdr.sagepub.com/cgi/content/abstract/0022034510366846v1>.

In addition, a perspective companion article highlighting the ramifications of this research has also been published. Contact Ingrid L. Thomas at ithomas@iadr.org to request a PDF of this article written by N. Nakatsuji about stem cell banking.

About the International Association for Dental Research

The International Association for Dental Research (IADR) is a nonprofit organization with nearly 12,000 individual members worldwide, dedicated to: (1) advancing research and increasing knowledge to improve oral health, (2) supporting the oral health research community, and (3) facilitating the communication and application of research findings for the improvement of oral health worldwide. To learn more, visit www.iadr.org. The **American Association for Dental Research** (AADR) is the largest Division of IADR, with nearly 4,000 members in the United States. To learn more, visit www.aadronline.com.

About the *Journal of Dental Research*

The *Journal of Dental Research* is a multidisciplinary journal dedicated to the dissemination of new knowledge in all sciences relevant to dentistry and the oral cavity and associated structures in health and disease. At 3.966, the *JDR* holds the highest Five-Year Impact Factor of all dental journals publishing original research, with a cited half-life >10 years, reflecting the influential nature of the *Journal's* content. It also has the highest Eigenfactor Score in the field.