

Broke a tooth? Grow another!

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(PhysOrg.com) -- To all those who have made deals with the tooth fairy in the past: you probably sold your teeth below their fair value.

Provided by Boston University

Dr. George Huang, Chair of Endodontics at the Boston University Henry M. Goldman School of [Dental Medicine](#) (GSDM), says those baby teeth and extracted third molars we are throwing away hold valuable dental stem cells.

“Our team found for the first time that we can reprogram dental stem cells into human embryonic-like cells called induced pluripotent stem (iPS) cells, which may be an unlimited source of cells for [tissue regeneration](#),” Dr. Huang says.

So far, scientists have had luck creating iPS cells from various cells in mice easily, but this hasn't been as easy in humans, until more recently. All three types of human dental stem cells the GSDM team tested are easier to reprogram than fibroblasts, which previously seemed to be the best way to make human iPS cells.

In a related study, Dr. Huang regenerated two major human [tooth](#) components—dental pulp and dentin—for the first time in a mouse experimental model. The mouse was used to supply nutrition for [human tissue](#) regeneration.

Using tissue engineering, researchers saw empty root canal space fill with pulp-like tissue with ample blood supplies. Dentin-like tissue regrew on the dentinal wall.

“The finding will revolutionize endodontic and dental clinical practice by helping to preserve teeth,” Dr. Huang says.”

The studies, iPS cells reprogrammed from mesenchymal-like stem/progenitor cells of dental tissue origin and Stem/progenitor cell-mediated de novo regeneration of dental pulp with newly deposited continuous layer of dentin in an in vivo model, appear in [Stem Cells and Development](#) and *Tissue Engineering*.

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