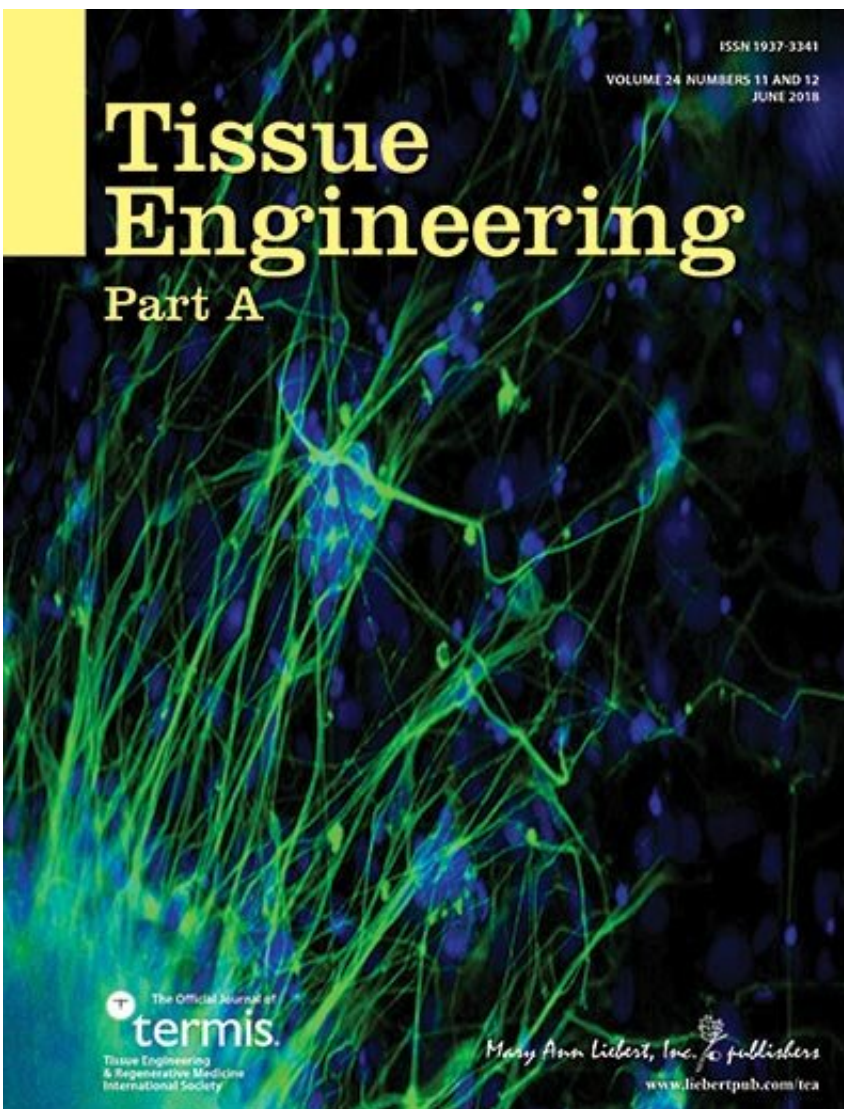


# Periodontal cell sheet technique promotes bone and ligament formation on dental implant

June 13 2018

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Credit: Mary Ann Liebert, Inc., publishers

Researchers used periodontal ligament (PDL)-derived stem cells to create a cell sheet, attached it to a titanium implant, and transplanted it into the mandibular bone of a dog, demonstrating the formation of a periodontal-like structure containing both cementum- and PDL-like tissue. The study, which shows the feasibility of combining a regenerative cell sheet with a titanium dental implant, is published in *Tissue Engineering, Part A*.

The article entitled "In Vivo Periodontium Formation Around Titanium Implants Using Periodontal Ligament Cell Sheet," describes the creation of a stem cell-containing cell sheet derived from a PDL. In the human mouth, the PDL helps protect against infection and the absorption of bone caused by mechanical stress. Coauthors Isao Ishikawa, DDS, Ph.D., Tokyo Women's Medical University (TWMU) and colleagues from TWMU and Tokyo Medical and Dental University, Japan and Chulalongkorn University, Bangkok, Thailand documented the formation of cementum, a thin bony layer that attaches the teeth to the jaw.

"This truly innovative work combines traditional dental implants with stem cell sheet technology, thus creating a particularly relevant solution to a widespread problem in dental health care," says Tissue Engineering Co-Editor-in-Chief John P. Fisher, Ph.D., Fischell Family Distinguished Professor & Department Chair, and Director of the NIH Center for Engineering Complex Tissues at the University of Maryland, College Park.

**More information:** Kaoru Washio et al, In Vivo Periodontium Formation Around Titanium Implants Using Periodontal Ligament Cell Sheet, *Tissue Engineering Part A* (2018). [DOI: 10.1089/ten.tea.2017.0405](https://doi.org/10.1089/ten.tea.2017.0405)

Provided by Mary Ann Liebert, Inc

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