

New research suggests that gingival stem cells can be used in tissue regeneration

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The International and American Associations for Dental Research (IADR/AADR) published a paper titled "Gingivae Contain Neural-crest- and Mesoderm-derived Mesenchymal Stem Cells." The paper, written by lead author Songtao Shi, Center for Craniofacial Molecular Biology, Ostrow School of Dentistry, University of Southern California, Los Angeles, USA, is published in the OnlineFirst portion of the IADR/AADR *Journal of Dental Research*.

Gingivae represent a unique soft tissue that serves as a biological barrier to cover the oral cavity side of the maxilla and mandible. Recently, the gingivae were identified as containing mesenchymal stem cells (GMSCs). However, it is unknown whether the GMSCs are derived from cranial [neural crest cells](#) (CNCC) or the mesoderm.

In this study, Shi and his team of researchers demonstrated that around 90 percent of GMSCs are derived from CNCC and 10 percent from the mesoderm. In comparison with mesoderm MSCs (M-GMSCs), CNCC-derived GMSCs (N-GMSCs) show an elevated capacity to differentiate into [neural cells](#) and chondrocytes as well as to modulate immune cells. When transplanted into mice with dextran sulfate sodium-induced colitis, N-GMSCs showed superior effects in ameliorating inflammatory-related disease phenotype in comparison with the M-GMSC treatment group.

Further research is required to understand the interaction between the neural crest cell derived and mesoderm derived gingivae [mesenchymal](#)

[stem cells](#) (N-GMSCs and M-GMSCs) in terms of their functional roles in gingival immune defense and wound healing.

"The tooth and surrounding tissues are a rich source of stem cells, and this JDR manuscript demonstrates that gingivae contain highly proliferative stem cells from two different embryonic origins and that these cells exhibit distinct behaviors," said JDR Associate Editor Jacques Nör. "These results suggest that gingivae, an easily accessible tissue, are an attractive source for stem cells that can be used in [tissue regeneration](#)."

More information: jdr.sagepub.com/content/early/recent

Provided by International & American Associations for Dental Research

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