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Dental stem cells and their applications

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Dental stem cells were first isolated from the dental pulp of teeth in the year 2000, and ever since their discovery these cells have been generating research and interest from the scientific stem cell community. Dental stem cells have been isolated from several areas: The dental pulp, the apical papilla, the dental follicle, deciduous teeth, and also the periodontal ligament. Dental stem cells are ectomesenchymal in origin, and are able to give rise to many different cell types and tissues, including neurons, osteocytes, chondrocytes, adipocytes, myocytes, endometrial cells, odontoblasts, and periodontal ligament cells. Dental stem cells are easier to program into induced pluripotent stem cells (iPSCs) compared to other types of postnatal stem cells, and offer an accessible, easy to harvest source of adult stem cells for use in research and clinical applications. Dental stem cells have been used in the regeneration of bone, cartilage, nervous tissue, and have also been used to regenerate dental structures including dental roots, dental pulp, periodontal ligament, and even entire teeth. Several private companies offer cryopreservation of the stem cells found in teeth.

Biography

Darcy M Benghenia, DDS, has been researching dental stem cells ever since their discovery in 2000. She is the Dental Director at the Dimensions Family Health and Wellness Center in Suitland, MD. She graduated from the University of Maryland Dental School and went to the University of California, Berkeley for her undergraduate studies. At Berkeley, she was a Howard Hughes Biological Research Scholar for her work in molecular biology and genetics. She has presented her dental stem cell lecture at scientific meetings across the Mid-Atlantic area and she is currently completing a book on dental stem cells.

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