

Therapeutic potential of dental-derived adult stem cells

Subhadra Dravida

Tran-Scell Biologics, India

Mesenchymal stem cells (MSCs) are multipotent stem cells which can differentiate into a variety of cell types. The potential of therapeutic MSCs for not just tooth regeneration but also for inter-lineage clinical applications mainly include stem cells from human exfoliated deciduous teeth (SHEDs), adult dental pulp stem cells (DPSCs), stem cells from the apical part of the papilla (SCAPs), stem cells from the dental follicle (DFSCs), periodontal ligament stem cells (PDLSCs), bone marrow derived mesenchymal stem cells (BMSCs) and Umbilical cord tissue derived stromal cells. Tooth development results from sequential connections between the oral epithelium and the underlying neural crest-derived mesenchyme. The regeneration of dental structures and/or entire teeth in the laboratory depends upon the manoeuvring of stem cells and co-factors requiring a synergy of cellular and molecular events that lead to the formation of tooth-specific hard tissues, dentin and enamel. Tooth loss compromises human oral health. Several prosthetic methods and dental implants are clinical therapies to tooth loss problems, which are thought to have safety and usage time issues. Dental pulp stem cell based tissue engineering is thought to be a promising integrated approach in guided tissue regeneration, osseointegration and anti-inflammatory roles across the body requirement.

suba.dravida@gmail.com