
Gingival mesenchymal stem cells as a novel treatment modality for periodontal tissue regeneration

Grant Award Details

Gingival mesenchymal stem cells as a novel treatment modality for periodontal tissue regeneration

Grant Type: Inception - Discovery Stage Research Projects

Grant Number: DISC1-10718

Project Objective: To determine if gingival mesenchymal stem cells may be a novel treatment modality for periodontal tissue regeneration.

Investigator:

Name:	Alireza Moshaverinia
Institution:	University of California, Los Angeles
Type:	PI

Disease Focus: Bone or Cartilage Disease

Human Stem Cell Use: Adult Stem Cell

Award Value: \$194,483

Status: Active

Grant Application Details

Application Title: Gingival mesenchymal stem cells as a novel treatment modality for periodontal tissue regeneration

Public Abstract:**Research Objective**

To develop a novel regenerative and adhesive hydrogel encapsulating patient's' gingival stem cell which can potentially be used as an adhesive dental hydrogel for periodontal tissue regeneration.

Impact

Upon successful completion, this project will introduce a promising treatment approach for maxillofacial defects presenting an innovative treatment modality for periodontal tissue regeneration.

Major Proposed Activities

- Utilizing human GMSCs as a promising source for periodontal tissue regeneration.
- To optimize the biomechanical properties of the visible-light curable adhesive hydrogel for GMSCs encapsulation.
- To engineer light curable hydrogel loaded with GMSC/HAp microparticles aggregates or TGF- β 3 growth factor for periodontal tissue regeneration in vitro.
- To optimize and determine the functionality of GMSCs-hydrogel system via relevant animal model.

Statement of Benefit to California:

Periodontitis is a prevalent chronic destructive inflammatory disease affecting tooth-supporting tissues in humans. Approximately 50% of Americans have some form of periodontal diseases. In this proposal, we aim to engineer a novel regenerative and adhesive hydrogel containing patient's' gingival stem cell aggregates/hydroxyapatite microparticles and growth factor, which can potentially be used as an adhesive dental hydrogel for periodontal tissue regeneration.

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