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TITLE: Effects of Ionic From Ca–Si–Mg Materials on Osteogenesis/Angiogenesis of hPDLs

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Group Author Abstracts:

ABSTRACT BODY:

Objectives: The goal of periodontal tissue engineering is to regenerate bone, root cementum and periodontal ligament. To achieve this aim, development of new bioactive materials play an important role in inducing in vitro osteogenic/angiogenic protein expression of periodontal ligament cells (hPDLs).

Methods: SiO2, CaO, and MgO were used as matrix materials and sintere at 1,400°C for 2 h. Cell proliferation and osteogenic/angiogenic protein expression of hPDLs were evaluate on material surface.

Results: The results have shown that Ca-Si-Mg cement promote the adhesion and proliferation of hPDLs. The Ca-Si-Mg cements significantly increased osteogenesis/angiogenesis-related protein expression (Col 1, Runx2, transforming growth factor beta 1, and bone morphogenetic protein 2) of hPDLs, compared to Ca-Si cements.

Conclusions: Therefore, Ca-Si-Mg cements could not only be used for bone tissue engineering, but also for periodontal tissue engineering due to their excellent in vitro osteogenic/angiogenesis.

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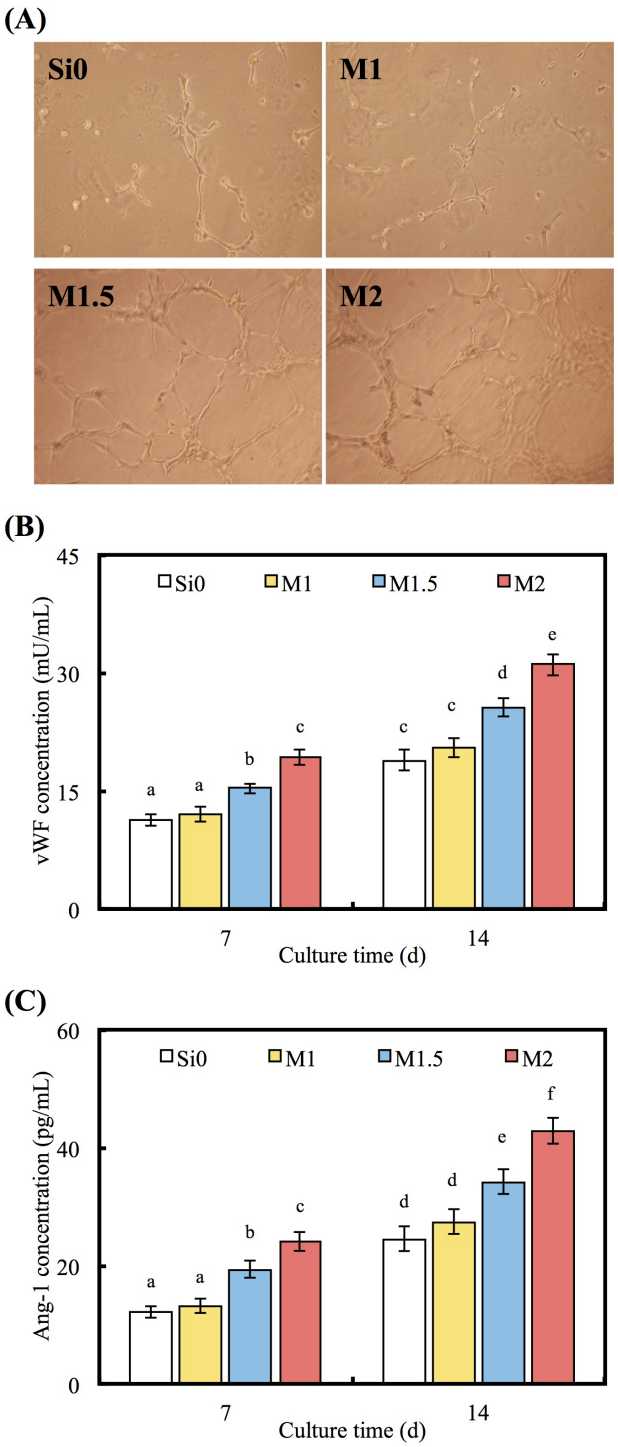

(A) The optical photos of hPDLs cultured with extracts. (B,C) The statistics of the angiogenic pritein expression.

IMAGE CAPTION:
(A) The optical photos of hPDLs cultured with extracts. (B,C) The statistics of the angiogenic pritein expression.
KEYWORDS: Calcium silicate, Tissue engineering, Periodontal ligament.
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