

## Supporting information

# Enhanced Osteogenesis of Dental Pulp Stem Cells in vitro In-duced by Chitosan–PEG Reinforced Calcium Phosphate Cement

Jae Eun Kim<sup>1†</sup>, Sangbae Park<sup>2†</sup>, Woong-Sup Lee<sup>3†</sup>, Jinsub Han<sup>1,4</sup>, Jae Woon Lim<sup>2</sup>, Seung Jeong<sup>2</sup>, Myung Chul Lee<sup>5</sup>, Woo-Young Yang<sup>6</sup>, Hoon Seonwoo<sup>7,8</sup>, B. Moon Kim<sup>3</sup>, Yun-Hoon Choung<sup>9</sup>, Kyoung-Je Jang<sup>10,11,\*</sup> and Jong Hoon Chung<sup>1,4,12,13,\*</sup>

<sup>1</sup> Department of Biosystems Engineering, Seoul National University, Seoul 08826, Korea; je6740@snu.ac.kr (J.E.K.); rhineop@snu.ac.kr (J.H.)

<sup>2</sup> Department of Biosystems & Biomaterials Science and Engineering, Seoul National University, Seoul 08826, Korea; sb92park@snu.ac.kr (S.P.); jwlim1130@snu.ac.kr (J.W.L.); jsw3055@snu.ac.kr (S.J.)

<sup>3</sup> Department of Chemistry, College of Natural Sciences, Seoul National University, Seoul 08826, Korea; kabigon@snu.ac.kr (W.S.L.); kimbm@snu.ac.kr (B.M.K.)

<sup>4</sup> BK21 Global Smart Farm Educational Research Center, Seoul National University, Seoul 08826, Korea; [rhineop@snu.ac.kr](mailto:rhineop@snu.ac.kr)

<sup>5</sup> Division of Engineering in Medicine Brigham and Women's Hospital Department Harvard Medical School, Cambridge, MA 02139, USA; [josephmyungchul@gmail.com](mailto:josephmyungchul@gmail.com)

<sup>6</sup> Dental Research Institute, Seoul National University, Seoul 08826, Korea; [yang0829@snu.ac.kr](mailto:yang0829@snu.ac.kr)

<sup>7</sup> Department of Industrial Machinery Engineering, College of Life Sciences and Natural Resources, Suncheon National University, Suncheon 57922, Korea; [uhun906@gmail.com](mailto:uhun906@gmail.com)

<sup>8</sup> Interdisciplinary Program in IT-Bio Convergence System, Suncheon National University, Suncheon 57922, Korea; [uhun906@gmail.com](mailto:uhun906@gmail.com)

<sup>9</sup> Department of Otolaryngology, Ajou University School of Medicine, Suwon 16499, Korea; [yhc@ajou.ac.kr](mailto:yhc@ajou.ac.kr)

<sup>10</sup> Division of Agro-System Engineering, College of Agriculture and Life Science, Gyeongsang National University, Jinju 52828, Korea;

<sup>11</sup> Institute of Agriculture & Life Science, Gyeongsang National University, Jinju 52828, Korea;

<sup>12</sup> Global Smart Farm Convergence Major, Seoul National University, Seoul 08826, Korea;

<sup>13</sup> Research Institute of Agriculture and Life Sciences, Seoul National University, Seoul 08826, Korea;

\* Correspondence: [jchung@snu.ac.kr](mailto:jchung@snu.ac.kr) (J.H.C.); [kj\\_jang@gnu.ac.kr](mailto:kj_jang@gnu.ac.kr) (K.-J.J.); Tel.: +82-2-880-4601 (J.H.C.); Tel.: +82-55-772-1898 (K.-J.J.)

† These authors contributed equally to this study.

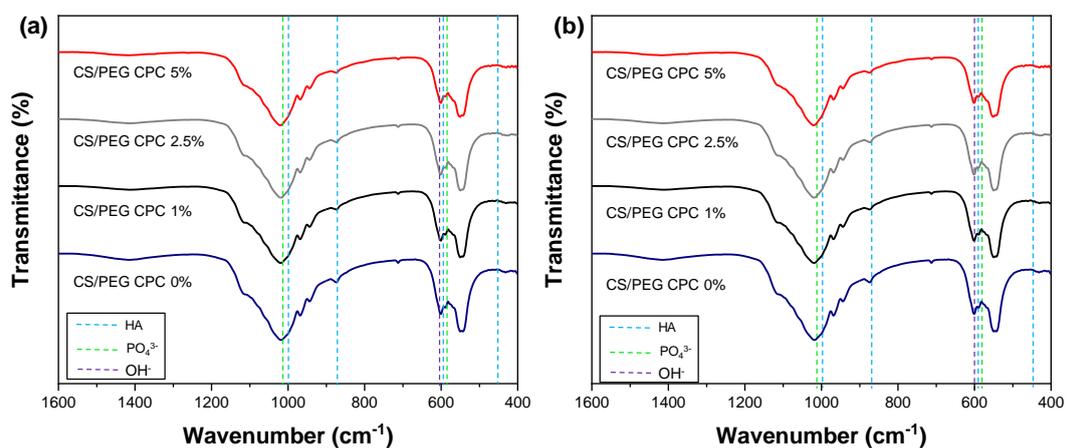
## **Table of Contents**

**1.0 Thermal analysis of CS/PEG CPC at high temperature autoclave**

**2.0 Quantification analysis of expression of OPN**

## 1.0 thermal analysis of CS/PEG CPC at high temperature autoclave

To analyze the thermal effect on CS/PEG CPC at high temperature, FT-IR spectra of CS/PEG CPC with various CS/PEG concentrations were recorded.



**Figure S1.** (a) The FT-IR spectra of CS/PEG CPC before and (b) after autoclaving (120°C at 1hours).

## 2.0 Quantification Analysis of OPN Expression

Quantification analysis of osteopontin expression (related to Figure 6). Comparing intensities of OPN with different samples using ImageJ. (n = 5, ANOVA, Duncan's multiple range test,  $p < 0.05$ ). Same letters indicate that there is no significant difference between samples.

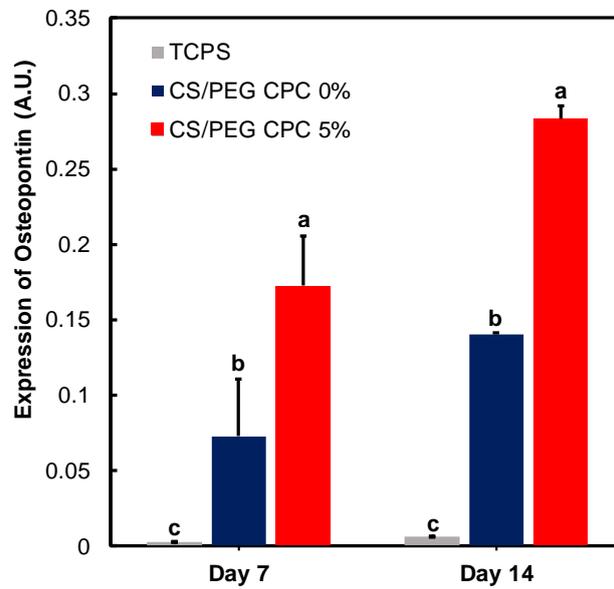


Figure S2. Quantification analysis of OPN expression