

Supplementary Information

Combinatorial effect of nano whitlockite/nano bioglass with FGF-18 in an injectable hydrogel for craniofacial bone regeneration

**Sivashanmugam Amirthalingam¹, Seunghun S. Lee², Mahalakshmi Pandian¹,
Janarthanan Ramu³, Subramania Iyer³, Nathaniel S. Hwang^{2,4*}, Jayakumar
Rangasamy^{1*}**

¹Centre for Nanosciences and Molecular Medicine, Amrita Vishwa Vidyapeetham, Kochi-682041, India

²School of Chemical and Biological Engineering, the Institute of Chemical Processes, Seoul National University, Seoul, 151-742, Republic of Korea

³Department of Plastic and Reconstructive Surgery, Amrita Institute of Medical Sciences and Research Centre, Amrita Vishwa Vidyapeetham, Kochi 682041, India

⁴ BioMAX/N-Bio Institute and Institute of BioEngineering, Seoul National University, Seoul, Republic of Korea

*Corresponding Author

E-mail: rjayakumar@aims.amrita.edu (Dr. R.Jayakumar)

Tel: +91-484-2801234. Fax: +91-484-2802020

E-mail: nshwang@snu.ac.kr (Dr. Nathaniel S. Hwang)

Tel: +82-02-880-1635.

Gene	Forward	Reverse
18s	5'CGC TCT CTG CTC CTC CTG TT3'	5'CCA TGG TGT CTG AGC GAT GT3'
RUNX2	5'ACT GGG CCC TTT TTC AGA3'	5'GCG GAA GCA TTC TGG AA3'
ALP	5'ACG TGG CTA AGA ATG TCA TC3'	5'CTG GTA GGC GAT GTC CTT A3'
Col IA	5'GTC ACC CAC CGA CCA AGA AAC C3'	5'AAG TCC AGG CTG TCC AGG GAT G3'
OCN	5'GCC TTT GTG TCC AAG C3'	5'GGA CCC CAC ATC CAT AG3'

Table S1: Primer sequences for RT-PCR study^{1,2}.

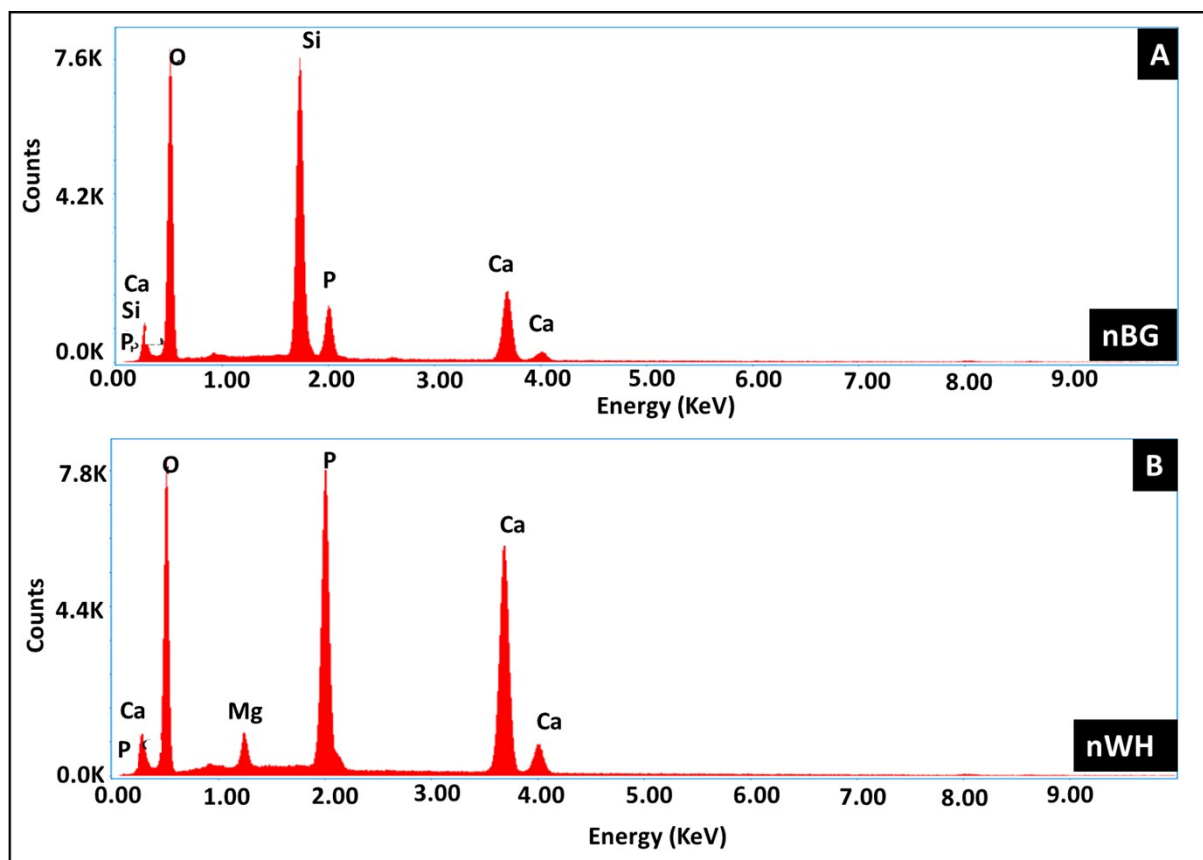


Figure S1: Elemental composition of nBG (A) and nWH (B).

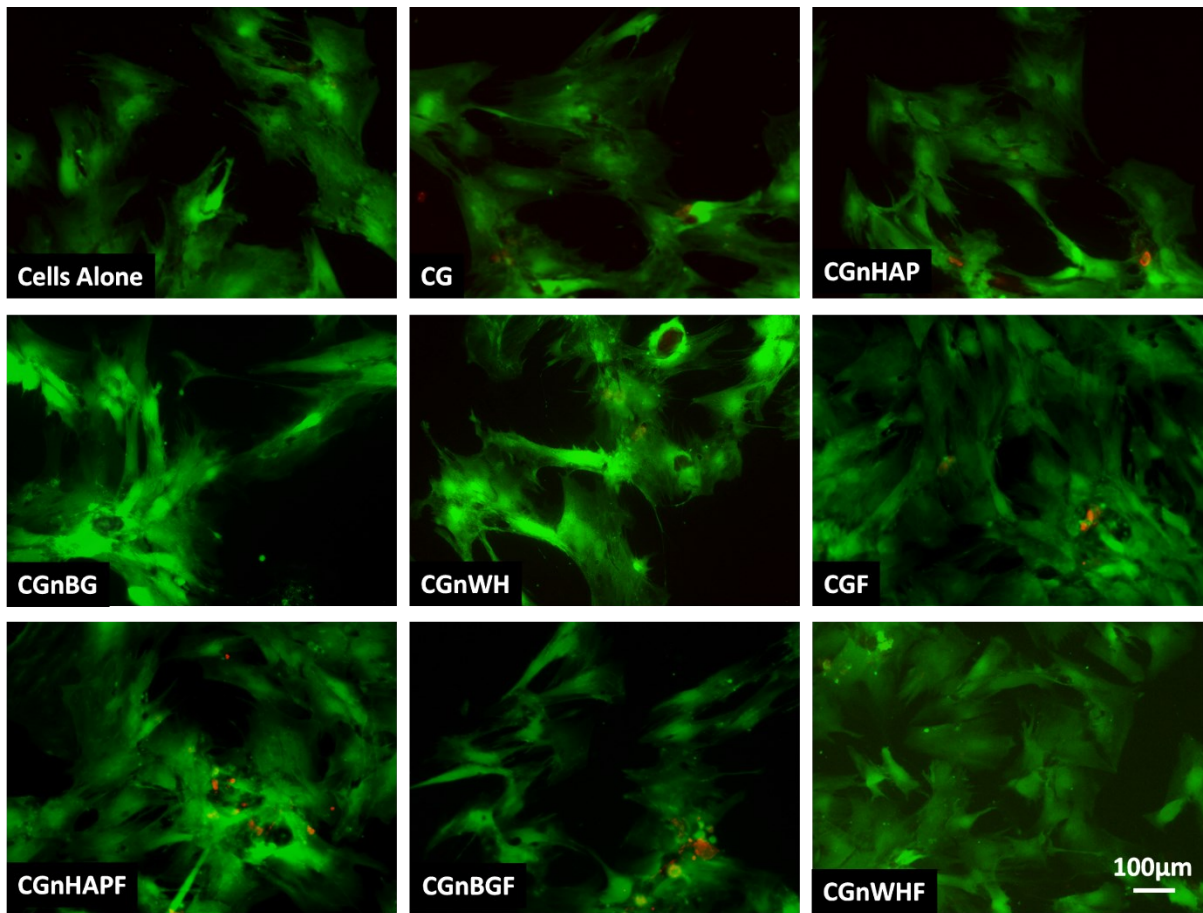


Figure S2: Live dead assay showing cell viability of hADSCs in the presence of prepared hydrogel after 48 hours.

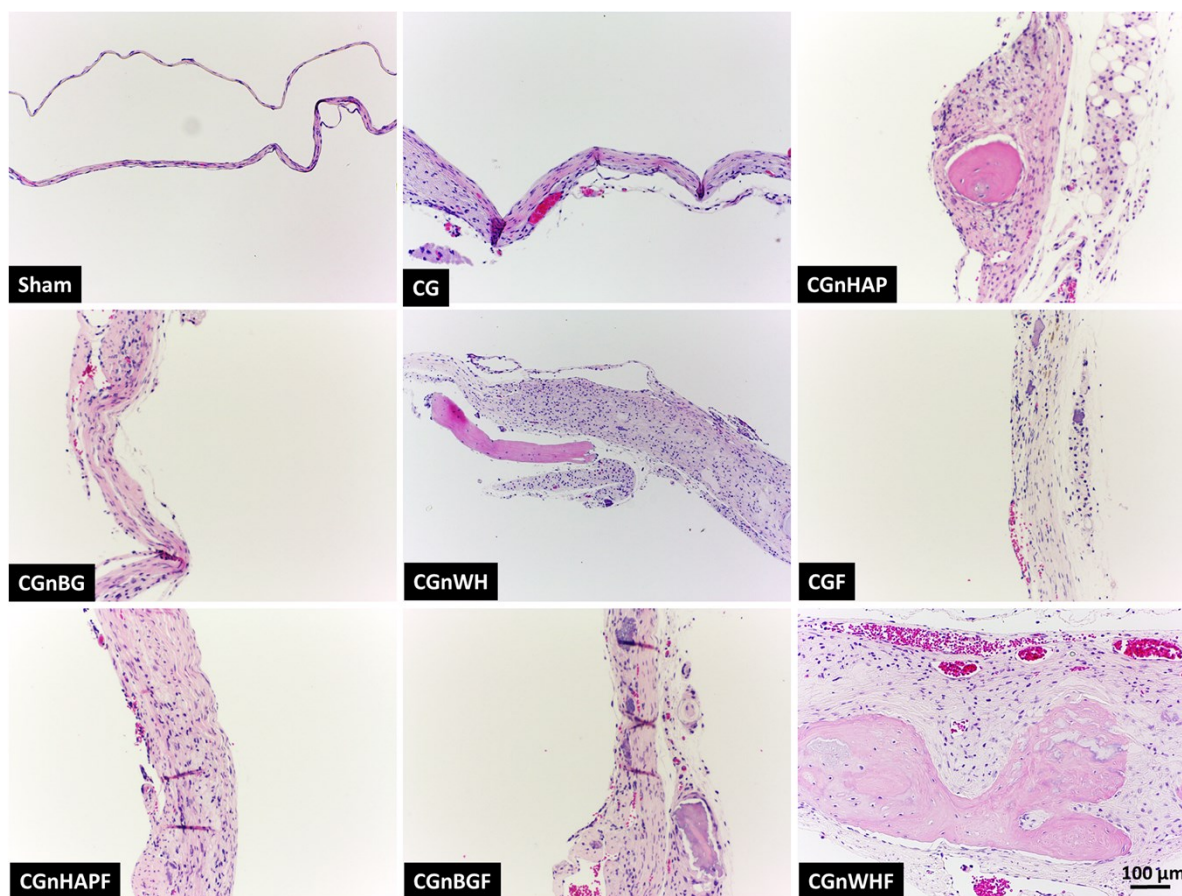


Figure S3: Magnified histological evaluation of tissues implanted with prepared hydrogels at 8 weeks by Hematoxylin & Eosin. Scale bar: 100 μ m.

References

- 1 I. Kim, S. S. Lee, S. H. L. Kim, S. Bae, H. Lee and N. S. Hwang, *Macromol. Biosci.*, 2019, **19**, 1800460.
- 2 S. Kwon, S. S. Lee, A. Sivashanmugam, J. Kwon, S. H. L. Kim, M. Y. Noh, S. K. Kwon and R. Jayakumar, *Polymers*, 2018, **10**, 914.