Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B.

Supporting Information

A simultaneous 3D printing process for fabrication of bioceramic and cell-laden hydrogel core/shell scaffolds for bone tissue regeneration

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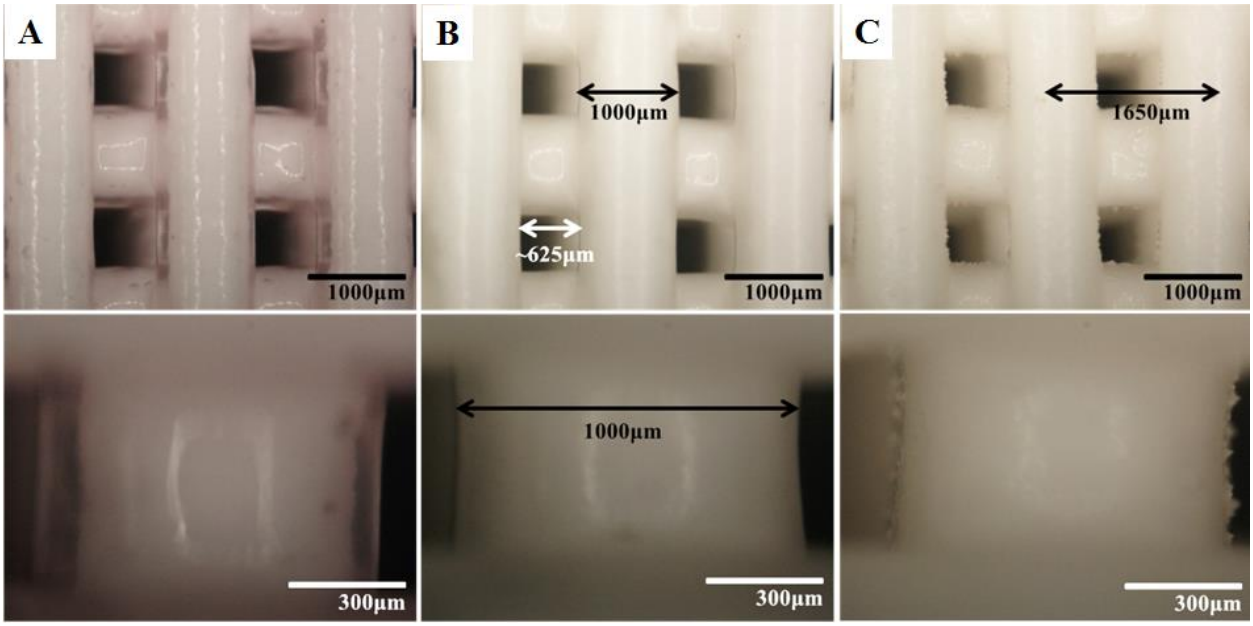
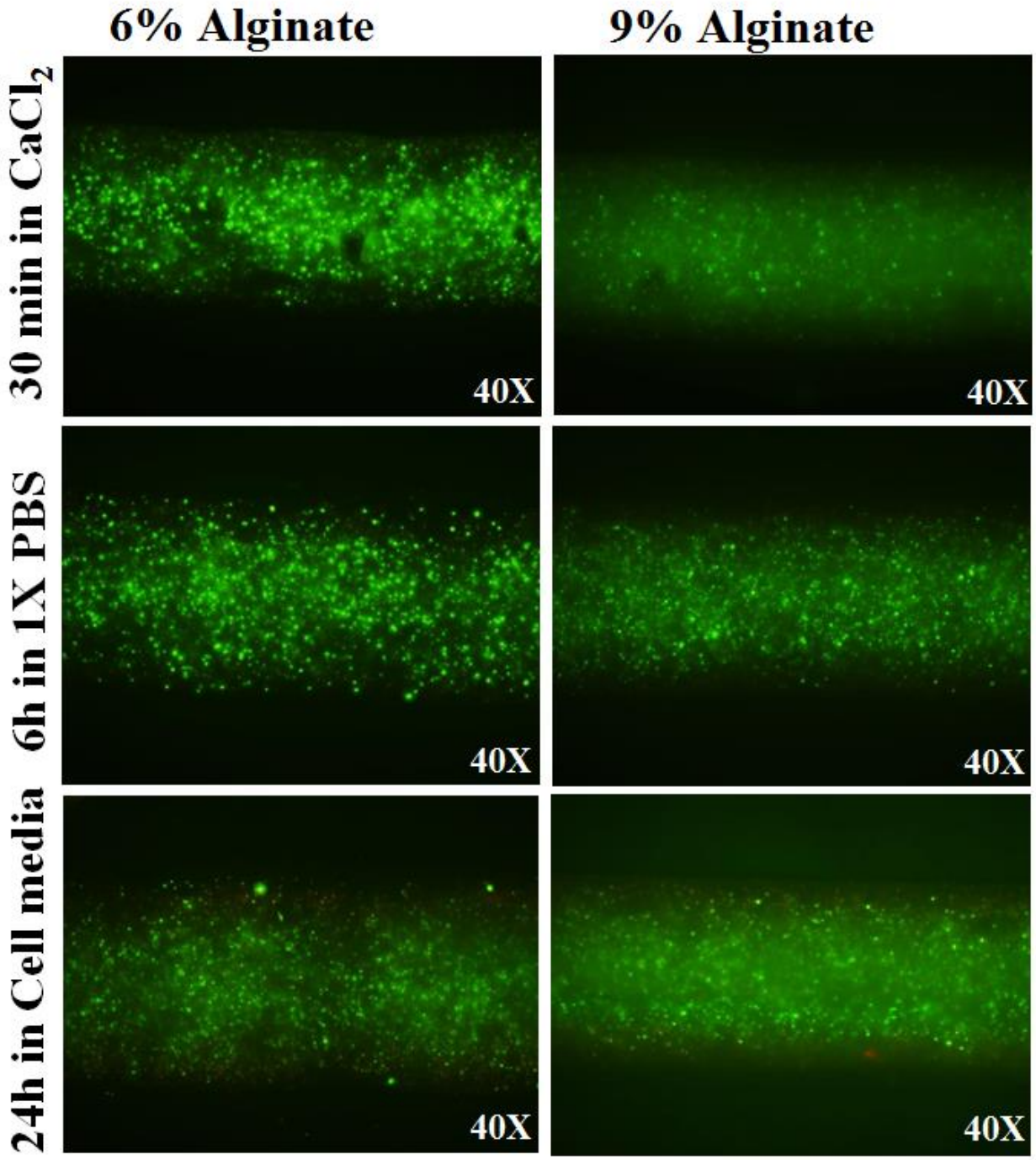
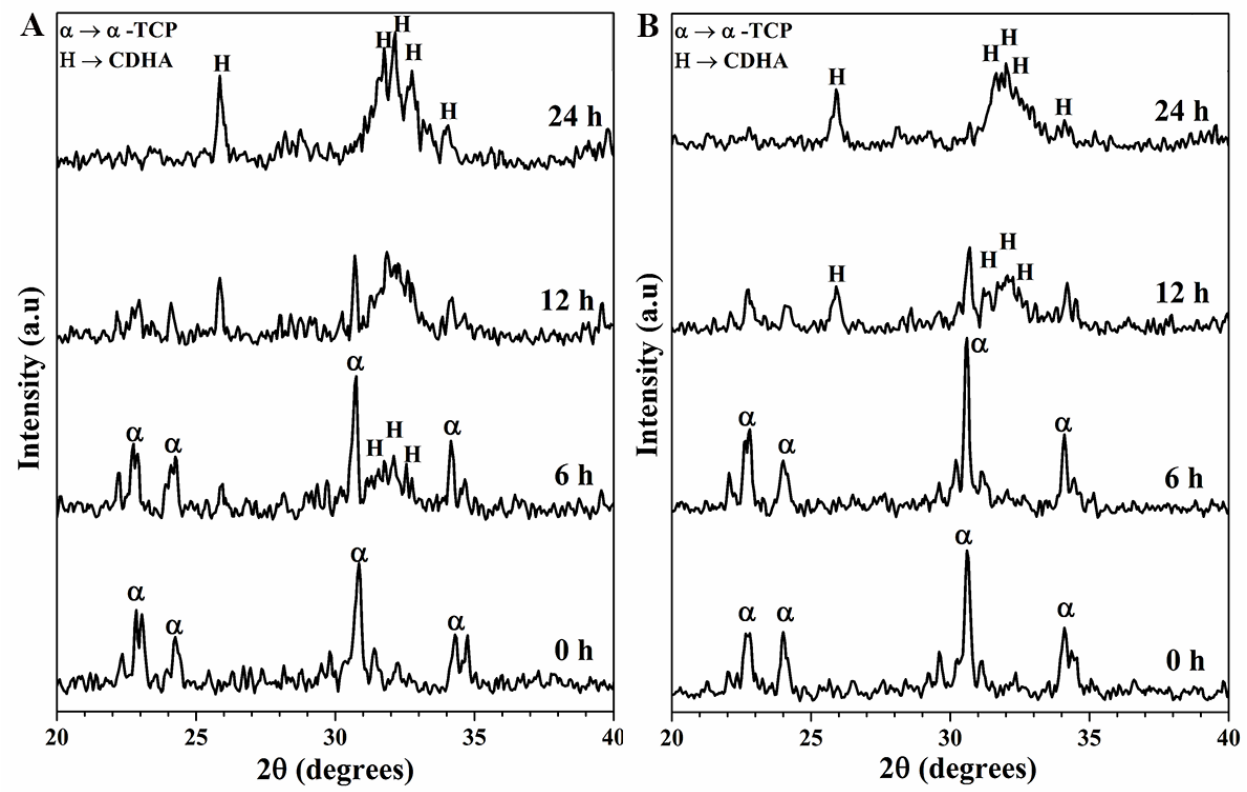


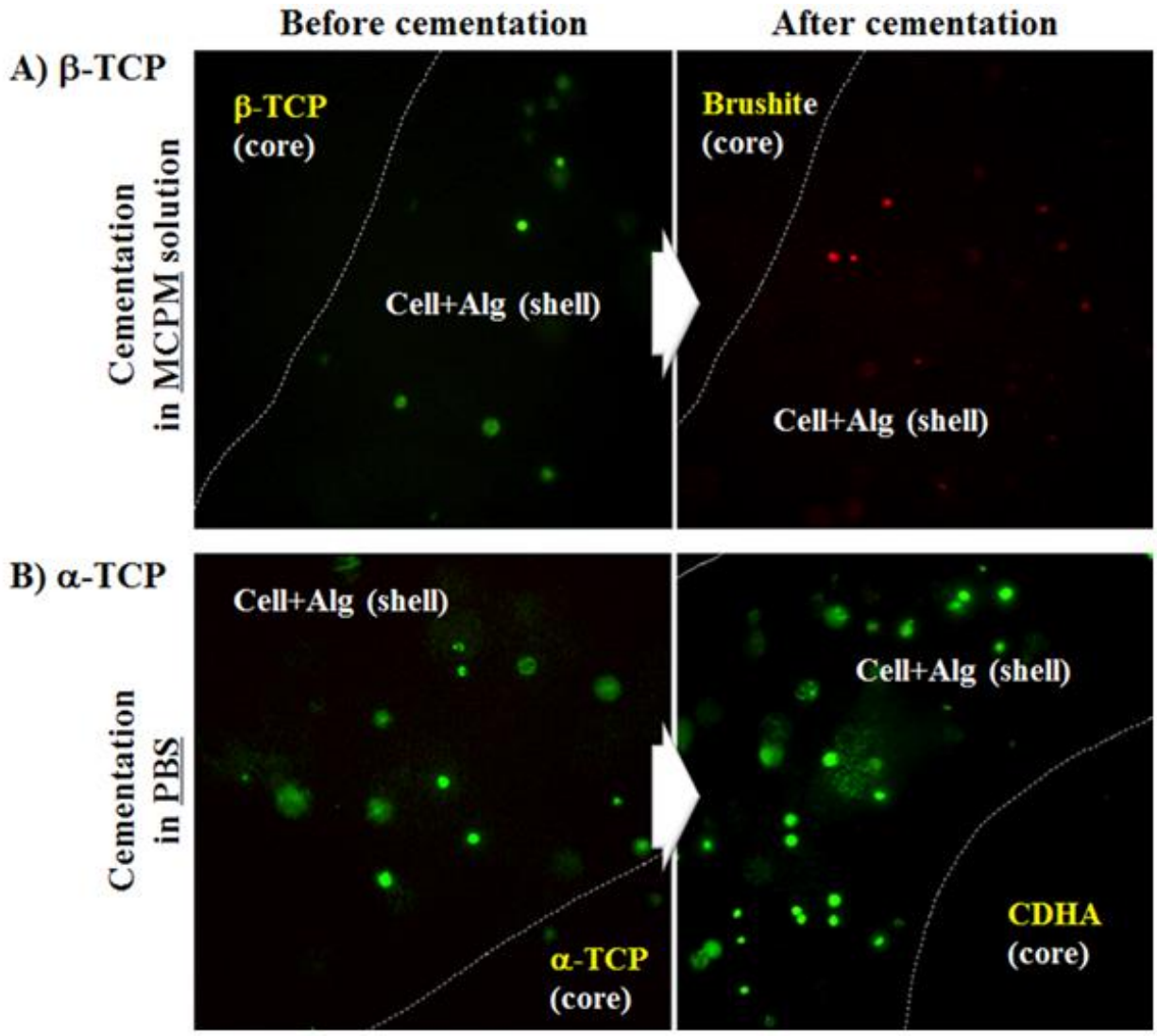
SI 1. Optical images of core/shell structures. A: as-printed, B: after crosslinking with 2.5 wt% $CaCl_2$, C: after cementation in PBS. The dimensions of the scaffold do not change under any conditions. The strut distance is 1650 µm and the pore size is around 620-650 µm. The strut thickness is maintained at 1000 µm because a 1000 µm nozzle was used to fabricate this scaffold.



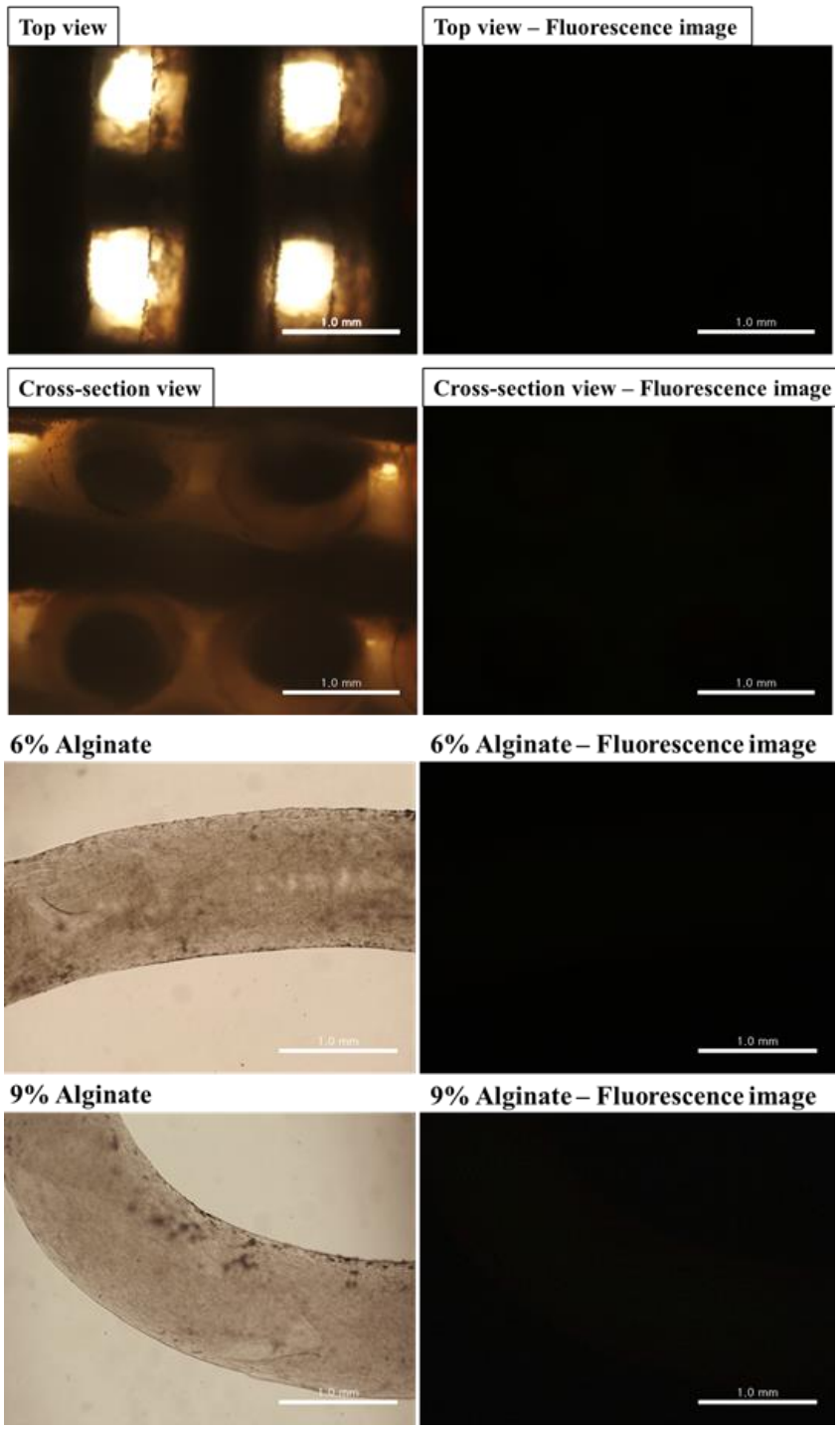
SI. 2. Fluorescence image of cell-laden alginate at different concentrations and reaction conditions in PBS or cell culture medium.



SI. 3. Comparison of XRD peaks corresponding to α-TCP (A) and core/shell (B) scaffolds immersed for 0 (raw α-TCP powder), 6, 12, and 24 h in PBS. Conversion of α-TCP to CDHA is initiated by 6 h and is completed by 24 h, as can be seen as the emergence of peaks related to α-TCP (α) and CDHA (H). This process is delayed in the case of core/shell scaffolds, but no secondary phases were detected.



SI 4. Comparisons of images of live (green) and dead (red) cells before and after cementation. A) the cell-laden brushite-alginate core/shell scaffolds from β-TCP after a 1 h cementation in monocalcium phosphate monohydrate (MCPM) solution (pH=2.7) and B) the cell-laden calcium deficient hydroxyapatite (CDHA) core/shell scaffolds from α-TCP after a 6 h cementation in PBS (pH=7.4).



SI 5. Fluorescent images of Alginate hydrogel (both 6wt% and 9wt%) and Core-shell scaffolds without cells. Due to absence of cells in the hydrogels, no fluorescence could be observed even after staining with Live-Dead assay. This proves that hydrogel and ceramic core did not contribute to any fluorescence in the assay with cells.