

Fig. S1. Schematic for the synthesis procedure of class II silica/chitosan hybrid sol.

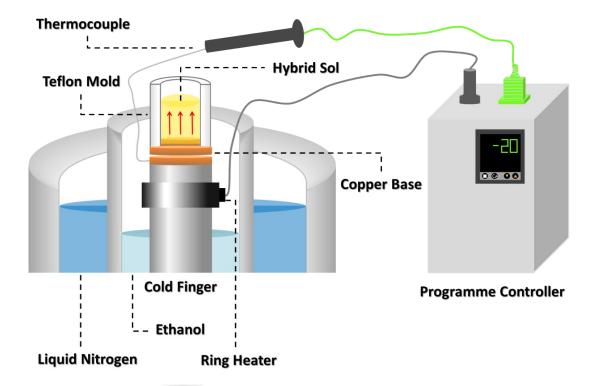


Fig. S2. Illustration of the cross section of a freeze casting system with a programme controller for the fabrication of silica/chitosan hybrid scaffolds. The freezing kinetics can be controlled using a programme controller to adjust the associated parameters such as cooling rate and final frozen temperature. This can be achieved by the thermocouple being placed under the copper base of the mold to detect the instant sol temperature and feed it back it to the programme controller. The ring heater was placed around the metallic rod (cold finger) to generate, adjust and conduct the heat through the copper base to the sol according to the feedback from the programme controller.

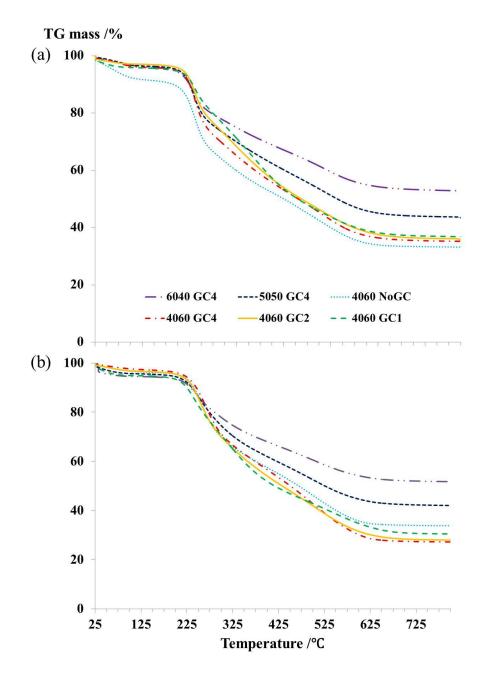


Fig. S3. TGA thermograms of freeze cast silica/chitosan scaffolds with various compositions (a) before and (b) after the four-week TRIS dissolution test.

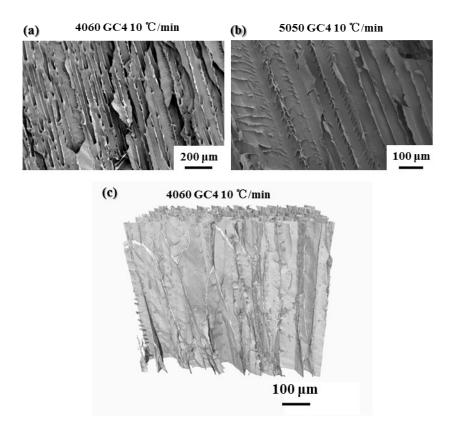


Fig. S4. (a) (b) SEM and (c)  $\mu$ CT image of the freeze cast scaffolds fabricated with various compositions, showing another type of oriented microstructure compared to those presented in Fig. 7.