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

Supporting information

Kaolin-reinforced 3D MBG scaffolds with hierarchical architecture and robust mechanical strength for bone tissue engineering†

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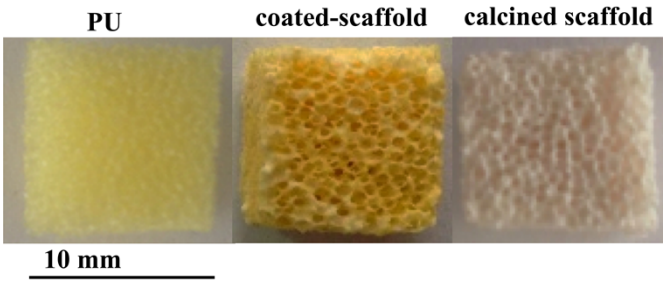

Fig. S1 Photographs of the PU sponge, PU sponge coated with MBG-10K slurry and calcined MBG-10K scaffold. It revealed a 3D uniform macrostructure replicated from PU sponge.

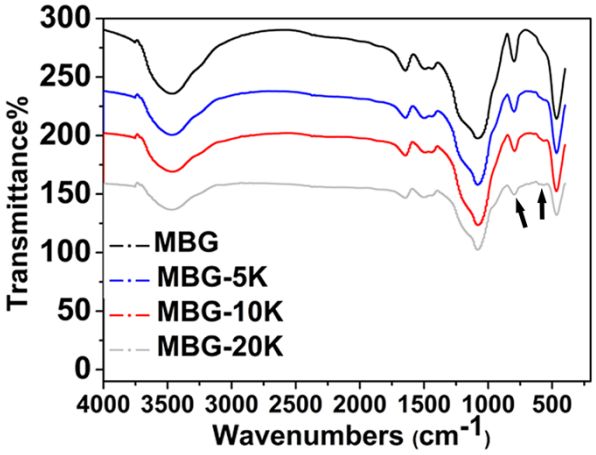

Fig. S2 FTIR spectra of the calcined MBG and MBG-XK scaffold. It further confirmed the successful incorporation of Kaolin into MBG matrix.

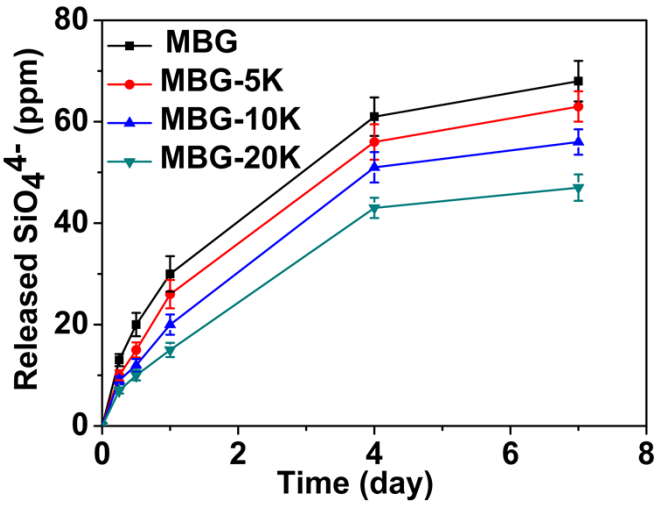

Fig. S3 Si concentration of MBG and MBG-XK scaffold after soaking in SBF for different time. It can be observed that the concentration of Si ions in SBF increase as soaking time increases. The initial SBF solution does not contain silicon ions, therefore the weight loss of the scaffolds can be calculated from the ionic dissolution of SiO_4^{4-} ions at different time by ICP.

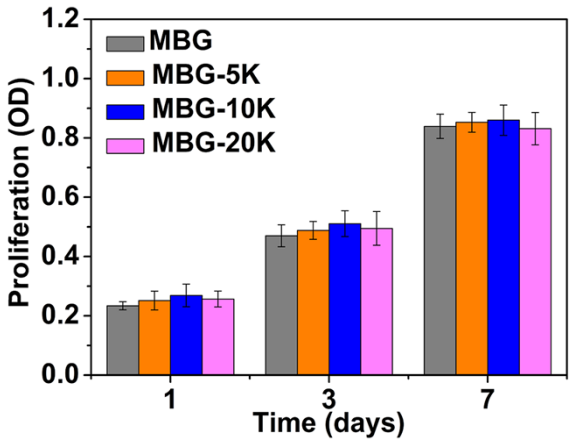

Fig. S4 MTT analysis of rBMSCs seeded on MBG and MBG-XK scaffolds. Compared with MBG, the MBG-XK scaffolds had no obvious toxicity on cell proliferation.

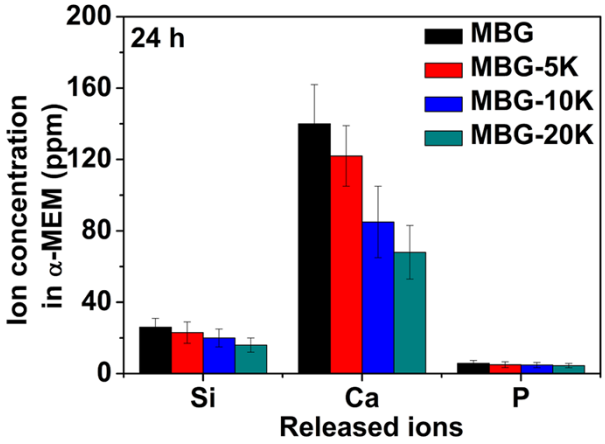

Fig. S5 Si, Ca, P concentration in α-MEM after incubation with MBG and MBG-XK scaffolds for 24 h. MBG-XK scaffolds have a slower rate of ion release than MBG scaffolds.

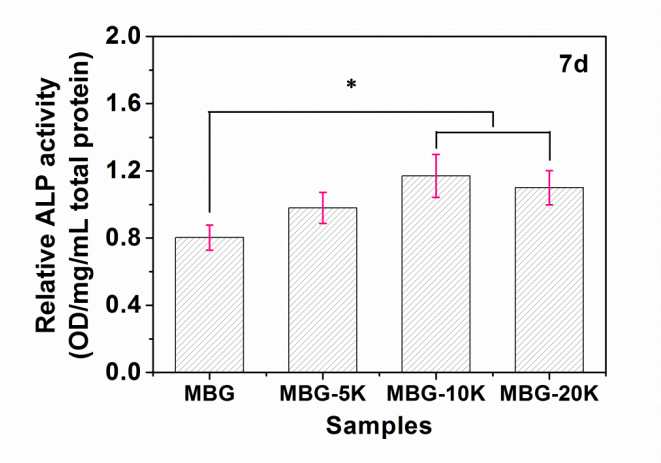

Fig. S6 The relative ALP activity of rBMSCs cultured with different scaffold extracts. Scaffold extracts were prepared by incubation in serum-free α-MEM culture medium at a concentration of 0.01 g/mL, followed by incubation at 37 °C for 24 h to obtain extracts. Cells were seeded into a 96-well tissue culture plate at a density of 3×10^3 cells/well and cultured for 1 d. The medium was then replaced with 100 μL extracts containing 10% FBS. After 7 days of culture, the ALP activity of rBMSCs cultured with different scaffold extracts was measured.