Electronic Supplementary Material (ESI) for RSC Advances.

3D-printed bioactive ceramic scaffolds with MoSe2 nanocrystals as photothermal agents for bone tumor therapy

Xin Zhang,[†a,] Yingzhi Li,[b] Xiaoming Dong,[b] Hao Wang,[b] Bo Chen,[b] Ruiyan Li,[b*] Yanguo Qin,[b*] Orest Ivasishin,[a,c]

a Key Laboratory of Automobile Materials of MOE, Department of Materials Science and Engineering, International Center of Future Science, Jilin University, Changchun 130012, China.

b Department of Orthopedics, The Second Hospital of Jilin University, Jilin University, Changchun 130041, PR China

c G. V. Kurdyumov Institute for Metal Physics, Kyiv, Ukraine

*Corresponding author

Ruiyan Li, liyandii@msn.cn

Yanguo Qin, qinyg@jlu.edu.cn

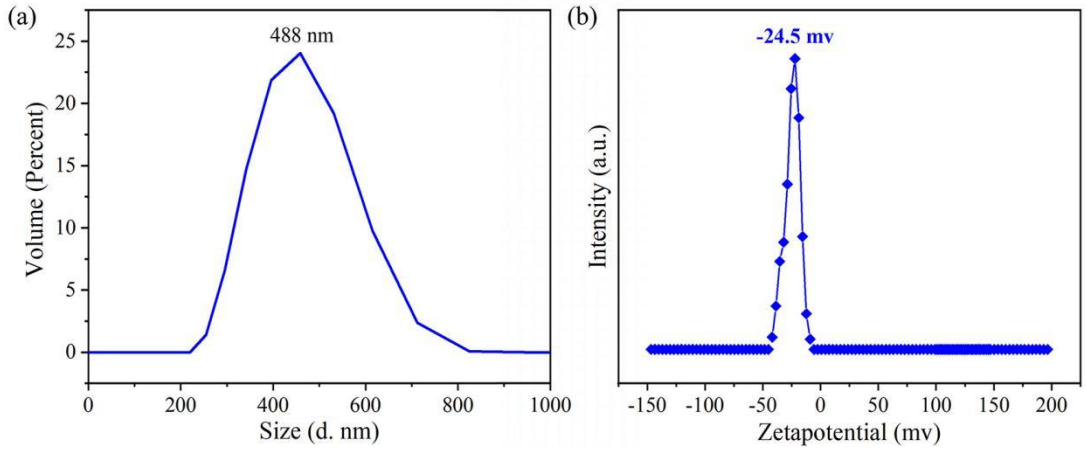

Fig. S1 Particle size and Zeta potential of MoSe2 nanocrystals in aqueous solution.

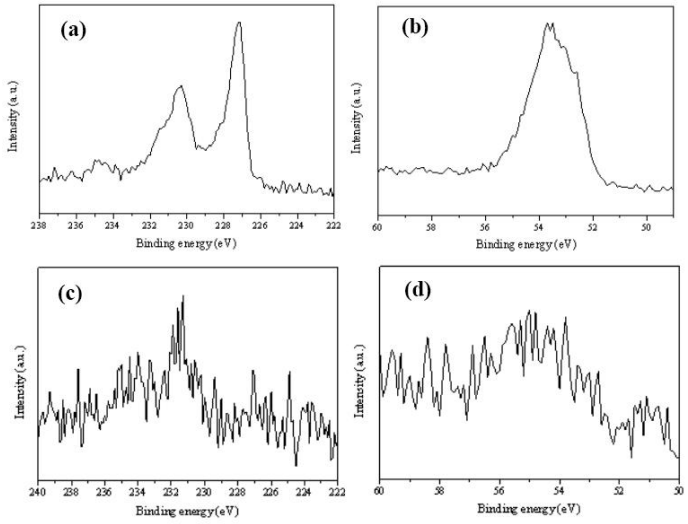

Fig. S2 XPS characteristic spectra for (a) Mo and (b) Se electrons of MoSe2 nanoparticles, and (c) Mo and (d) Se electrons of 12MS-BRT scaffolds, which demonstrated valence state of +4 and −2 for Mo and Se in the newly formed MoSe2 layer on the scaffolds.

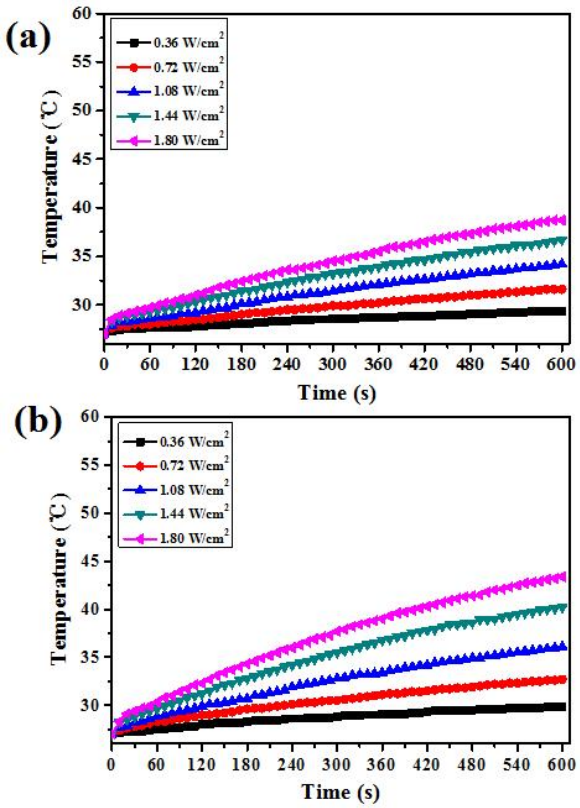

Fig. S3 Temperature rise curves of water (a) and BRT scaffolds (b) at different laser power densities.

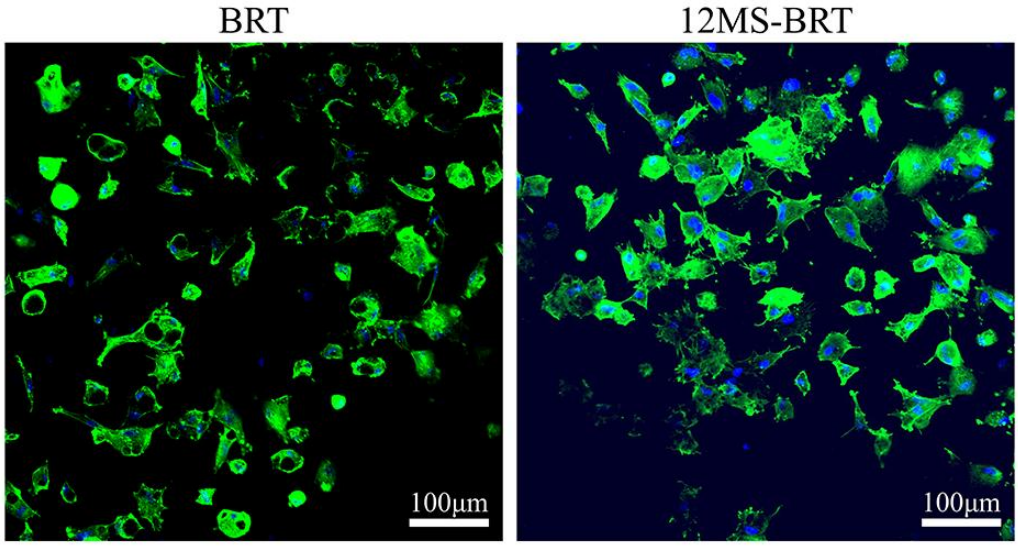

Fig. S4 CLSM images of F-actin and nuclei of BMSCs on the BRT and 12MS-BRT samples.

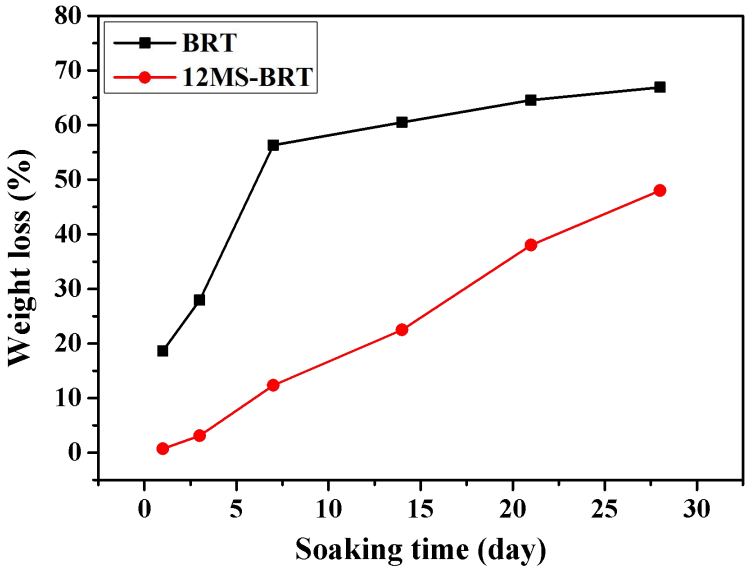

Fig. S5 Weight loss of BRT and 12MS-BRT scaffolds after soaking in Tris−HCl solution at 37 C for 28 days.

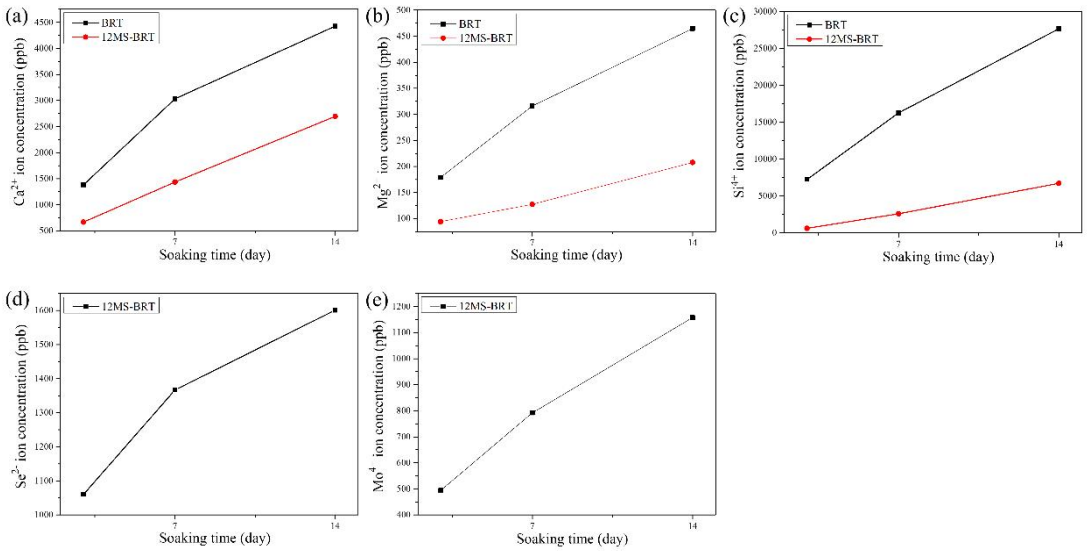

Fig. S6 The released Ca^{2+}(a)，Mg^{2+}(b)，Si^{4+}(c)，Se^{2-}(d) and Mo^{4+}(e) ions in the Tris-HCl solutions at each time point were quantified by inductively coupled plasma-atomic emission spectrometry.

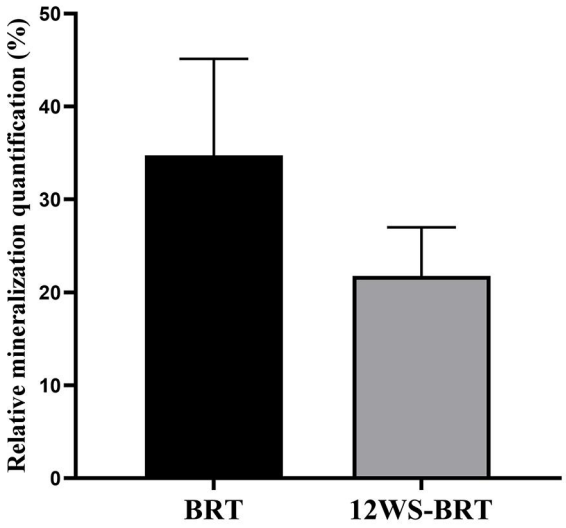

Fig. S7 The relative mineralization quantification of different groups at 14 days.