Highly controlled drug release on silicified L_3-poly(N-isopropylacryl amide) gels integrated hydroxyapatite for hard tissue therapy

조민애[1,2], 박무언[1], 장정호[1,*]
[1]요업(세라믹)기술원; [2]고려대학교 화공생명공학과
(jhchang@kicet.re.kr*)

The hydroxyapatite porous scaffolds with silicified L_3-poly(N-isopropylacrylamide) gels by the integration of thermosensitive hybrid polymer have been prepared and demonstrated the highly controlled drug release for hard tissue therapy over a longer period of time due to the high degree of continuity in 3-D interconnected porous structure of silicified L_3-phase and HA. The silicified L_3 (sponge) phase gels based on liposome structure have been prepared, which allows the fabrication of L_3-PNIPAm gels by integration of thermosensitive polymer with high degree of continuity and contigunity in the pore and the network walls. A nanodiffusion mechanism affected by the polymer shrinkage and 3-D interconnected pores is proposed to achieve a remarkable thermo-sensitive on-off regulation for IMC delivery on L_3-PNIPAm gels.