

Sustained Drug Release on PNIPAm-integrated HAP

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A hybrid temperature-responsive hydroxyapatite-poly(N-isopropylacrylamide) (HAP-PNIPAm) gel has been synthesized by the interpenetration of PNIPAm into a sintered HAP disk through a radical initiated polymerization of NIPAm monomers under nitrogen atmosphere, and shows a sustained positive thermosensitive release profile when the temperature was maintained above the LCST. The sustained release is caused by the attractive interaction between Ca ion in HAP and carboxylate of indomethacin drug. This concept can be applied for biodegradable polymers in osteophoresis.