

Drug Delivery Application of L_3 Phases Silicates –HAp composite

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L_3 phase hybrid gel based on interpenetrating network of thermosensitive poly(*N*-isopropylacrylamide) gels shows highly controlled drug release pattern between room-temperature and body-temperature. To elevate the biocompatibility of the hybrid gel, hydroxyapatite which is known the chemical and crystallography properties closely resemble hard tissue such as bone and tooth materials was blended. A sustainable positive thermo-responsive drug release profile is obtained. When the temperature rises, the polymer gel shrinks, squeezing the drug into the porous channels, and at the same time, opening the pore to the outside media. The drug slowly diffuses out of the porous channels. The overall release rate can be adjusted by changing the composition of the composite.