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Thermo-sensitive chitosan copolymer-gold hybrid nanoparticles as a nanocarrier for delivery of erlotinib

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Highlights

- Chitosan copolymer-gold hybrid (CGH) NPs were obtained by autoreduction of auric cations.
- The engineered thermo-sensitive chitosan copolymer could reduce auric cations.
- The erlotinib release from CGH NPs showed a thermo-responsive pattern.
- The NPs were efficiently up-taken by A549 cells.
- The synthesized CGH NPs, could be used as smart injectable material.

Abstract

Here, using (poly(*N*-isopropylacrylamide)-*co*-oleic acid)-*g*-chitosan ((PNIPAAm-*co*-OA)-*g*-CS), CS copolymer-gold hybrid nanoparticles (CGH NPs) were synthesized by autoreduction of auric cations (HAuCl₄) in aqueous solution in the absence of any other reducing agent. The engineered thermo-sensitive CS copolymer with free amino groups could reduce auric cations and stabilized the resultant NPs. CGH NPs were prepared using different concentrations of CS copolymer (0.1-1% w/v) and HAuCl₄ (50-500 μL, 0.2% w/v). They were characterized in

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