

利用交聯劑結合具多功能性奈米載體於標靶並抑制胃幽門螺旋桿菌之應用探討

**Multifunctional nanoparticles composed of genipin-cross-linked  
fucose-chitosan/heparin for targeting and eradication of *Helicobacter pylori***

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*Helicobacter pylori* is a significant human pathogen that recognizes specific carbohydrate receptors, such as the fucose receptor, and produces the vacuolating cytotoxin, which induces inflammatory responses and modulates the cell-cell junction integrity of the gastric epithelium. The clinical applicability of topical antimicrobial agents was needed to complete the eradication of *H. pylori* in the infected fundal area. In the present study, we combined fucose-conjugated chitosan and genipin-cross-linking technologies in preparing multifunctional genipin-cross-linked fucose-chitosan/heparin nanoparticles to encapsulate amoxicillin of targeting and directly make contact with the region of microorganism on the gastric epithelium. The results show that the nanoparticles effectively reduced drug release at gastric acids and then released amoxicillin in an *H. pylori* survival situation to inhibit *H. pylori* growth and reduce disruption of the cell-cell junction protein in areas of *H. pylori* infection. Furthermore, with amoxicillin-loaded nanoparticles, a more complete *H. pylori* clearance effect was observed, and *H. pylori*-associated gastric inflammation in an infected animal model was effectively reduced.

Keywords: fucose-conjugated chitosan, genipin-cross-linked nanoparticles, *Helicobacter pylori*, gastric inflammation, infected animal model