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&\FOLF ROLJRVDFFKDULGH PRGL¿FDWLRQ RI ODQWKDQLGH C nanostructural drug carriers via host-guest interactions

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Statement of the Problem: Carbohydrates are biological macromolecules involved in life activities, not only providing energy and intracellular tissue support, but also mediating the occurrence of in ammatory reactions, a ecting cell growth, division, di erentiation, and transduction of intercellular cell signaling. However, low targeted delivery and lack of uorescent labeling are two major problems with natural polysaccharide (GA) drugs. e purpose of this study is to describe the experience of designing a unique pH-sensitive drug carrier based on host-guest interaction between rhodamine and -cyclodextrin. is strategy can be extended to other pH-sensitive drug delivery system.

Methodology & eoretical Orientation: UCNPs were synthesized following Chemical protocol. Rhodamine was conjugated with Ganoderma applanatum polysaccharide (GAP) through reductive amination reaction to form rhodamine polysaccharide complex (R-GAP). e cytotoxicity of CD-UCNPs and R-GAP-CD UCNPs was examined using a methyl thiazolyl diphenyl tetrazolium (MTT) assay.

Findings: e UCNPs were synthesized using a typical solvothermal method and UCNPs were modi ed with -CD to form a water-solubility nanocarrier. Rhodamine was conjugated with GAP through reductive amination reaction to form R-GAP so that it makes the GAP uorescently trackable. R-GAP was loaded on CD-UCNPs and estimated the drug loading and releasing behaviors. e results revealed that it was a good pH-sensitive drug carrier and the maximum release amounts of R-GAP reach up to 67.2% a er incubated in PBS for 36 h at pH 5.5.

Conclusion & Signi cance: e strategy described in this work is simple and e ective to uorescently mark the GAP and can enhance the targeting delivery. is article give an evidence to improve natural polysaccharide antitumor drug e ciency by a proper modi cations.

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