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论文

结肠定位壳聚糖包衣氟尿嘧啶脂质体的制备、形态与体外释放

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摘要：

目的探讨药物结肠定位壳聚糖包衣脂质体的制备、形态及其在体外释药特性。方法用罗丹明B异硫氰酸(RBITC)和Bodipy-PC分别标记壳聚糖和磷脂,用前体脂质体方法制备氟尿嘧啶脂质体,利用激光扫描共聚焦显微镜观察壳聚糖包衣脂质体的形态;考察壳聚糖包衣脂质体在人工胃液、人工肠液和人工结肠液中的释放。结果 脂质体包衣前后粒径分别为2.071和2.750 μm。壳聚糖能较好地包覆脂质体;3种脂质材料不同的包封率分别为99%,61%,72%。未包衣的脂质体在人工胃液中4 h已释放完全,而包衣脂质体在人工胃液4 h释放6.3%,在人工肠液中8 h仅释放6.8%,但在人工结肠液中释药明显加快,*t*1/2为3.63 h。结论结肠定位壳聚糖包衣脂质体制备可行,在人工结肠液中,体外释放符合Higuchi方程。

关键词： 氟尿嘧啶 壳聚糖 前体脂质体 包衣脂质体 激光扫描共聚焦显微镜 形态 体外释放

Preparation, morphology and *in vitro* release of chitosan coated liposomes of fluorouracil for colon targeting

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Abstract:

AimTo prepare chitosan coated liposomes of fluorouracil for colon targeting and investigate their morphology and *in vitro* release. MethodsRhodamine B isothiocyanate and Bodipy PC were used to label chitosan and the liposomes, respectively. Laser confocal scanning microscopy was used to explore the structure of chitosan coated liposomes, and the release of chitosan coated liposomes in simulated gastric solution, simulated enteric fluid and simulated colon fluid were investigated. ResultsThe size of liposomes was measured by laser diffraction before and after polymer coating. The mean diameter of liposomes was in the range of 1.43-3.82 μm, whereas after coating 2.06-5.62 μm. For three types of liposomes, negatively charged, positively charged and neutrally charged, the entrapment rate was 99%, 61%, and 72%, respectively. The cumulative release of chitosan coated liposomes in simulated gastric fluid was only 6.28% in 4 h, and in simulated enteric fluid only 6.8% in 8 h. But in the simulated colon fluid contained β-glucosidase the release was rapidly increased to a $t_{1/2}$ of 3.63 h. ConclusionThe preparation technology of chitosan coated liposomes for colon targeting was feasible. *in vitro* release in the simulated colon fluid was fitted to Higuchi equation.

Keywords: chitosan proliposomes coated-liposome laser scanning confocal microscopy morphology *in vitro* release fluorouracil

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