奈米幾丁聚醣藥物載體之製備及應用研究=Preparation and application of Nano Chitosan drug carriers

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摘 要

本研究目的在製備出奈米級的幾丁聚醣藥物載體，首先將市售幾丁聚醣溶於鹽酸中，並調整成適當之酸鹼值，乾燥後便得可溶於水的幾丁聚醣鹽酸鹽。再將幾丁聚醣鹽酸鹽混和不同濃度之架橋劑-綠梔子素與消炎止痛藥-待克菲那配製成溶液，進行噴霧乾燥得到奈米幾丁聚醣/待克菲那藥物載體，並對產物作粒徑及物性分析、細胞毒性、穿透實驗及藥物釋放之評估。 由場發射電子顯微鏡觀察，各樣本平均粒徑約在300 nm。利用富立葉紅外線光譜儀偵測發現，樣本中含有藥物時，在1456 cm-1處出現特徵吸收，且當架橋劑濃度增加時，在1540 cm-1之胺基吸收峰減小，顯示幾丁聚醣鹽酸鹽顆粒中有藥物待克菲那的存在，與架橋劑有架橋反應生成。將藥物載體與腸道上皮細胞（Caco-2）進行細胞毒性及穿透評估，發現藥物載體在濃度 100 ug/mL以下對Caco-2 細胞無明顯毒性。而由TEER實驗結果發現，樣本D有較佳的穿透能力達50 %，若樣本保存不善造成吸濕，顆粒變大則無法順利通過細胞間隙，細胞經過trypan blue染色後發現，樣本並未對細胞造成傷害。由藥物釋放研究發現，在前1小時小於50 %附著於表面的待克菲那會先被釋放出來，且隨時間增長藥物濃度也逐漸上升，因此確認幾丁聚醣藥物載體具有緩釋藥物之能力。

關鍵詞 : 幾丁聚醣 ; 藥物載體 ; 噴霧乾燥 ; 藥物釋放

目錄

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