褐藻醣膠/Tat 胜肽自組裝奈米粒作為血管新生抑製劑用於癌症轉移

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一、前言

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摘要

血管新生由促血管新生和抗血管新生生長因子以及細胞因子之間的平衡控制，靶向腫瘤抑制血管新生已經證實可有助於癌症治療。細胞穿透胜肽可將多種大分子穿過細胞膜，在診斷和治療的領域中扮演重要的角色。由天然和合成聚合物製成的奈米顆粒可以透過調整聚合物特性和表面化學性質，來控制藥物釋放於疾病特定部位，作為在疾病部位連續釋放所包覆的治療化合物之來源。褐藻醣膠是一種海藻多醣，由硫酸化岩藻糖殘基組成，其對血管新生存在矛盾的論點，取決於分子量和硫酸化程度。本研究測試不同分子量及種類的褐藻醣膠，對人類臍靜脈內皮細胞抗血管新生之效果，結果顯示昆布與墨角藻褐藻醣膠相比，不管是高分子量與低分子量皆具有較佳抑制血管結構形成的能力。接著，使用抑制血管新生效果最佳的大分子量昆布及墨角藻褐藻醣膠與 Tat 胜肽自組裝形成奈米粒，兩種 Tat/Fu 奈米粒子的界面電位皆為負，表明混合過程產生褐藻醣膠外殼的奈米粒子。由 FTIR、CD 圖譜得知 Tat 胜肽之胺基所帶的正電會與褐藻醣膠中帶負電的硫酸酯基團交互作用自組裝形成奈米粒，昆布褐藻醣膠奈米粒子在不同 pH 環境中很穩定，而墨角藻褐藻醣膠奈米粒子則具有 pH 敏感性，期望此兩種劑型自組裝奈米粒子能作為血管新生抑製劑用於癌症轉移。

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