药学学报 2008, 43(10) 985-991 DOI: ISSN: CN:

论文

碳纳米管作为药物载体的研究进展

于金刚;黄可龙;杨巧勤;刘素琴;唐金春

1. 中南大学 化学化工学院 功能材料化学研究所， 湖南 长沙 410083； 2. Department of Mechanical Engineering, University of Saskatchewan, Saskatoon SK S7N 5A9, Canada

摘要：

新型药物载体的开发对药物的研究具有举足轻重的作用。碳纳米管具有独特的中空结构和纳米管径，可用作药物载体。采用肽、蛋白、核酸及药物分子修饰的碳纳米管作为载体，可运载生物活性分子进入细胞且不产生毒性。本文综述了近年来修饰碳纳米管作为药物载体的研究进展，评述了碳纳米管的细胞穿透性能和细胞毒性，概述了碳纳米管功能化修饰的方法。随着碳纳米管在药物载体领域研究日趋深入，碳纳米管修饰方式与其细胞穿透性能的相互关系、尺寸效应将会深入研究。制备溶解性好、低毒性的修饰碳纳米管作为药物载体，将是今后研究的主要方向。

关键词： 碳纳米管 功能化修饰 药物载体 低毒性

Progress in the research of carbon nanotubes as drug carriers

YU Jin-gang; HUANG Ke-long; YANG Qiao-qin; LIU Su-qin; TANG Jin-chun

Abstract:

Research and development of new drug carriers are crucial to the research of drugs. Due to their unique hollow structure and nano-diameter, carbon nanotubes (CNTs) can be used as drug carriers. Functionalization of CNTs with peptides, proteins, nucleic acids or even drug molecules, the so obtained functionalized CNTs can be used as carriers to deliver bioactive molecules into cells without causing any toxicity. The research progress of CNTs as drug carriers in recent years is summarized, and the CNTs' cytotoxicity and their ability to penetrate cells are discussed, and the methods of functionalizing carbon nanotubes are also mentioned in the paper. Along with the advancement of CNTs in drug carriers system, the relationship between the way to functionalize CNTs and the so obtained modified CNTs' ability to penetrate into cells, including the effect of dimension, should be further studied. Preparation of functionalized CNTs with high solubility and low toxicity as drug carriers will be the main research areas in the near future.

Keywords: functionalization drug carrier low toxicity carbon nanotube

收稿日期 2008-03-14 修回日期 网络版发布日期

DOI:

基金项目:

通讯作者: 黄可龙

作者简介:

参考文献：

本刊中的类似文章

1．韩博;李晴暖;吴胜伟;李俊纲;陈文;李文新.多壁碳纳米管与甘草苷和异甘草苷的选择性吸附作用[J]. 药学学报, 2007,42(11): 1222-1226

2．孙玉琴;犹卫;高作宁.磺胺甲噁唑在多壁碳纳米管-Nafion修饰电极上的电催化氧化及电分析方法[J]. 药学学报, 2008,43(4): 396-401

3．孙延一;吴康兵;胡胜水.己烯雌酚在多壁碳纳米管修饰电极上的电化学行为及其电化学测定己烯雌酚在多壁碳纳

米管修饰电极上的电化学行为及其电化学测定[J]. 药学学报, 2003,38(5): 364-367

文章评论 (请注意:本站实行文责自负, 请不要发表与学术无关的内容!评论内容不代表本站观点.)

反馈人		邮箱地址	
反馈标题		验证码	6141