中国药理学与毒理学杂志 2012 26 (5): 674-679 ISSN: 1000-3002 CN: 11-1115/R

综述

肿瘤干细胞理论及肿瘤干细胞分离和鉴定研究进展

宋东颖[1, 2], 王毅[2], 孙岚[1], 张英鸽[1]

1. 军事医学科学院毒物药物研究所纳米药理毒理重点实验室, 北京 100850;
2. 吉林大学药学院, 吉林 长春 130021

收稿日期 2011-9-2 修回日期 2011-10-31 网络版发布日期 2012-10-11 接受日期

摘要 肿瘤是当今社会对人类健康和生命危害最大的疾病之一, 即使在人类医学科技迅速发展的今天, 对于肿瘤的治疗仍是一大难题, 其根本原因是对肿瘤的发生、发展、转移和复发的机制尚不清楚。近些年来, 研究人员通过对肿瘤细胞表面标志物、增殖能力和致瘤能力等的深入研究, 提出了肿瘤干细胞理论, 即肿瘤中存在着少数具有无限自我更新能力和异种免疫缺陷动物致瘤能力的干细胞样肿瘤细胞, 它们在肿瘤的发生、生长和转移等生物学过程中起着决定性的作用, 该理论的提出给肿瘤治疗提供了新的思路和策略。本文将对肿瘤干细胞理论的形成和发展过程, 肿瘤干细胞的特性以及肿瘤干细胞的分离和鉴定最新研究进展进行综述。

关键词 肿瘤 肿瘤干细胞 生物学特性 分离鉴定

分类号 R73-3 R965.2

Progress in tumor-stem cell theory and tumor stem cells isolation and identification

SONG Dong-ying[1,2], WANG Yi[2], SUN Lan[1], ZHANG Ying-ge[1]

1. Key Labortory of Nanopharmacology and Nanotoxicology, Institute of Pharmacology and Toxicology, Academy of Military Medical Sciences, Beijing 100850, China;
2. School of Pharmacy, Jilin University, Changchun 130021, China

Abstract

Tumors have long threatened human health and life, but the treatment of tumors remains a serious challenge despite the advances in medical science and technology . The most important cause of the incurability of tumors is the lack of knowledge of the mechanisms for the development, progress, metastasis and relapse. Based on extensive investigations into suface markers, proliferation capabilities and tumor generations, scientists have proposed a new theory, known as "tumor-stem-cell theory". Research proved that in tumor cells there is a rare population of stem-like cells which have the ultimate self-renewal, multi-differentiation and tumorrigenic capacity. Scientists found that the tumor-stem cells play a critical role in tumorigenesis, tumor-growth, metastasis and relapse. The "tumor-stem cell theory" has provided scientists with a new strategy to research treatment methods of tumors. This review introduces the origin and development of "tumor-stem cell theory" and features of cancer-stem cells, and addresses the latest research on isolation and identification of cancer-stem cells.

Key words tumor cancer stem cells biological characteristics isolation and identification

DOI: 10.3867/j.issn.1000-3002.2012.05.014

通讯作者 张英鸽 zhangyg58@126.com