



3<sup>rd</sup> EDITION

# 癌症的 分子基础

## The Molecular Basis of Cancer

(原书第三版)

(美) John Mendelsohn  
Joe W. Gray

Peter M. Howley  
Craig B. Thompson

Mark A. Israel  
等 原著

许兴智 佟伟民 李静 杨跃 丛羽生 等 译



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## 内 容 简 介

癌症作为重大非传染性疾病,其防治在国家中长期科技规划中得到了重要支持,本书全面系统地阐述了癌症的分子基础和最新进展,为癌症的研究提供理论支持。全书共分5篇59章,包括癌变和癌症遗传学、癌症生物学、分子病理和诊断、癌症的分子病理过程、癌症治疗的分子基础等内容。

本书内容丰富,兼顾基础研究与临床,可供从事癌症研究的科研人员、临床肿瘤科与放射治疗科的医护人员参考使用。也可作为肿瘤专业研究生的教材使用。

The Molecular Basis of Cancer, 3<sup>rd</sup> Edition

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## 序

分子生物学已经使我们对癌症发病机制的认知发生了改变,而对恶性肿瘤的研究则改变了我们对控制正常细胞生长与增殖的分子和遗传过程的认知。

至 1995 年,知识的扩增呈现大爆炸之势,让我们觉得有必要为研究人员、学生以及各领域的临床护理人员编写一本教科书——《癌症的分子基础》。如今本书已出版至第三版,目标仍然是解释癌症而不仅仅是描述癌症。在过去的十年里,我们对于癌症的发现和观察手段极速地发展,形成了现在理解癌症的基础,而在此之前,直到 20 世纪 90 年代,我们对癌症的了解还仅仅停留在纯粹的描述阶段。

我们选了五位编者,他们都是在癌症分子研究领域极富专长与名望的教育家,由他们共同设计了章节的顺序,引导读者了解癌变的基础遗传和分子机制、癌细胞生长和转移的分子和生物学特性、个性化风险评估和早期检测的新技术、常见癌症分子异常的描述,以及治疗新手段的分子基础。

编写本书的目的不是详细描述癌症的临床表现或特定治疗的诊断和管理,而是为临床医生和看护癌症病人的专业人员更好地理解和治疗疾病提供科学支撑。虽然本书的章节次序安排是从发病机制到治疗设计,但每一个章节都独立成章。因此对生物医学领域的实验室工作人员和临床研究人员,以及需要理解控制恶性肿瘤细胞的获得功能和失去功能的分子机制的高年级学生和实习生来说,这本教科书也有同等的,甚至更大的益处。

癌症源于遗传学与表观遗传学上的改变,这些改变或加强,或消减了介导正常细胞活动的信号通路的活性。一旦修复遗传改变的能力受损就可能促使细胞累积遗传变异,导致恶化。因此,癌细胞周围的分子对一个变异细胞变成肿瘤有重要影响。

我们从癌症研究中得到了一个惊人的发现:尽管细胞谱系极其多样化,但它们调节生长与分化采用的是共同的分子通路。在多种肿瘤中反复观察到的是,控制这些分子通路的关键是基因累积突变或基因表达改变。显然肿瘤会这种遗传异常是因为这让肿瘤在特定微环境中最有利于逃避正常的调节机制。

癌症不仅仅是个体转化细胞的紊乱,而是这些紊乱的细胞增殖成肿块,同时吸纳血液供应,侵入周边组织并转移。

这些复杂过程的分子基础对了解此类恶性疾病的自然历史和治疗设计是非常重要的。

在本书的第三版中,我们增加了全新的章节来介绍实验室新技术,使研究人员能鉴定癌症的遗传和分子异常,发现能预测患癌风险和治疗结果及治疗选择的生物标记物。

本书最后一章探讨了临床研究程序和还处在探索阶段的新治疗制剂,我们希望这些制剂能针对特定遗传、分子和抗原靶点。

现今最激动人心的消息是临床医生和实验室科学家之间已开始积极合作,他们的共同目标是将遗传学和分子生物学的新知识应用于疾病诊断、治疗和预防。可以预计,在未来 10 年中我们将有机会从数以百计的、针对恶性细胞特定异常的新生物和化学制剂中,选择部分用于临床研究的研究。本书介绍的知识将为那些对生物技术革命的新产物感兴趣的人们,对这些产物的理解和评估,以及评价新治疗手段提供理论基础。

本书所有的编者都为自己能与其他优秀的研究人员一起参编本书感到高兴。他们对于能将自己的专业知识按教科书的形式来表述感到兴奋。而这要求他们花费更多的时间和精力,在此我们对他们的奉献表示感激。我们希望至少正向我们设定的目标前进。本书的出版同时也得到了爱思唯尔出版社专业人员的帮助和鼓励,对一如既往帮助我们的耐心的办公室秘书们一并致以我们的谢意。

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## 译者序

癌症已经成为威胁我们生命的最大元凶之一。美国癌症协会([www.cancer.org](http://www.cancer.org))在2010年6月公布的《Cancer Facts & Figures》中预计美国在2010年约有150万例的癌症新病例、57万例的癌症死亡病例,其中30%的病例与吸烟直接相关,35%的病例与营养、运动和肥胖或者说我们个体的生活习性直接相关。其实,仅有不足15%的致癌因素是遗传性的(或者说来源于我们的父母),超过85%的致癌因素是可以预防的,其中戒烟、运动及健康均衡的饮食是最容易做到,也是最有效的防癌手段。因此,临床医生掌握癌症生物学知识,民众熟悉癌症基本知识都是十分必要的。

自从1971年美国总统尼克松向癌症宣战以来,在全世界科学家的共同努力下,我们在分子水平上对致癌机制有了相当充分的阐述,并将这些致癌的分子机理应用于癌症的分子诊断、抗癌新药的开发和治疗。《癌症的分子基础》一书对各种癌症(生物学、诊断和治疗)的分子基础做了全面系统的介绍,而不是简单描述癌症的临床表现或特定治疗的诊断和管理。因此,本书对临床医生、生物医学领域的实验室工作人员和临床研究人员、高年级生物医学及生物学学生来说是本不可多得的教科书;对广大民众熟悉癌症基础知识来说具有同等的,甚至更大的益处。

《癌症的分子基础》英文版由五位著名的生物医学家、临床医生及教育家负责召集上百位的相关学者编写的,全面覆盖癌症生物学、诊断及治疗的分子基础。同样的,本书第三版的中文版由资深的癌症基础研究专家和临床专家精心翻译,尽管如此,不当或错误之处在所难免,请不吝指正。

许兴智

2011年2月于德国耶拿

# 目 录

序

译者序

|      |                       |     |
|------|-----------------------|-----|
| I    | 癌变和癌症遗传学 .....        | 1   |
| 第1章  | 癌症:一种遗传疾病 .....       | 3   |
| 第2章  | 癌基因与信号转导 .....        | 15  |
| 第3章  | 抑癌基因 .....            | 27  |
| 第4章  | DNA 修复通路与人类肿瘤 .....   | 34  |
| 第5章  | 表观遗传学与癌症 .....        | 49  |
| 第6章  | 癌症和传染病原概述 .....       | 56  |
| 第7章  | 环境致癌 .....            | 74  |
| 第8章  | 动物模型——蝇、鱼和酵母 .....    | 94  |
| 第9章  | 癌症的遗传学小鼠模型 .....      | 104 |
| II   | 癌症生物学 .....           | 111 |
| 第10章 | 肿瘤干细胞 .....           | 113 |
| 第11章 | 生长因子受体介导的信号转导 .....   | 125 |
| 第12章 | 细胞生长 .....            | 136 |
| 第13章 | 细胞周期调控 .....          | 143 |
| 第14章 | 细胞生长和增殖中的新陈代谢 .....   | 154 |
| 第15章 | 细胞凋亡、细胞自噬和细胞坏死 .....  | 167 |
| 第16章 | 细胞衰老 .....            | 180 |
| 第17章 | 肿瘤微环境对肿瘤发展的影响 .....   | 186 |
| 第18章 | 肿瘤血管生成 .....          | 194 |
| 第19章 | 肿瘤浸润与转移 .....         | 204 |
| III  | 分子病例和诊断 .....         | 215 |
| 第20章 | 癌症基因组学 .....          | 217 |
| 第21章 | 转录组分析 .....           | 230 |
| 第22章 | 质谱技术在肿瘤生物学中的应用 .....  | 237 |
| 第23章 | 影像与肿瘤 .....           | 249 |
| 第24章 | 生物信息学 .....           | 263 |
| 第25章 | 癌症的早期检测——分子筛选 .....   | 274 |
| IV   | 癌症的分子病理过程 .....       | 285 |
| 第26章 | 淋巴瘤/骨髓瘤 .....         | 287 |
| 第27章 | 急性淋巴细胞白血病的分子遗传学 ..... | 294 |
| 第28章 | 急慢性髓性白血病的生物学 .....    | 303 |
| 第29章 | 儿童肿瘤的分子生物学 .....      | 315 |
| 第30章 | 肺癌的分子基础 .....         | 325 |
| 第31章 | 结直肠癌的分子异常 .....       | 335 |