《细胞力学进展》

图书基本信息

书名：《细胞力学进展》

13位ISBN编号：9787040317305

10位ISBN编号：7040317303

出版时间：2011-5

出版社：高等教育出版社

页数：284

《细胞力学进展》

内容概要

《细胞力学进展(英文版)》从交叉学科的角度系统地介绍和总结了细胞力学和细胞物理研究领域的前沿课题和最新进展。其显著的特点是用分子力学和复杂连续介质力学的方法研究和计算细胞的演变和分化；将定量的数学力学分析方法与实验手段相结合来探讨细胞的生物物理特性。
《细胞力学进展(英文版)》适合作为从事分子生物学、生物工程和力学、软物质力学和物理、计算力学，以及生物化学和医学的科研人员和研究生的参考书。
《细胞力学进展(英文版)》的主编是美国加州大学伯克利分校的李少凡教授和南非科学院院士、开普半岛科技大学的孙博华教授。

《细胞力学进展》

书籍目录

《细胞力学进展》

章节摘录

版权页：插图：In this method.the fluid flow through a chamber 8urface coated with a cellmonolayer iS used to study response of cells to fluid flow；a cellular probe iSused to measure this response.Several cell types such as vascular endothe-lial cells and osteocytes are physiologically exposed to fluid flow and shearstress.Cells sense these external forces and react accordingly；this process iscrucial for many regulatory processes.For example，endothelial surface layerhas multifaceted physiological functions and behaves as a transport barrier，as a porous hydrodynamic interface in the motion of red and white cells inmicrovessels，and as a mechanotransducer of fluid shearing stresses to theactin cortical cytoskeleton of the endothelial cell.Endothelial cells adoptan elongated shape in the flow direction if they are subjected to a shear flow.A similar situation exists for osteocytes in bone where mechanosensing con-trols bone repair and adaptive restructuring processes.It iS believed thatstrain.derived flow of interstitial fluid through lacuno-canalicular porositymechanically activates the osteocytes.There are three candidates stimulat-ing cells：wall shear stress.streaming potentials.and chemotransport.Controlling the wall shear stress and measuring its effect on fluid transport.bone cell nitric oxide，and prostaglandin production can be used to study thenature of the flow-derived cell stimuli.Fluid shear stress rate iS also animportant parameter for bone cell activation.

《细胞力学进展》

编辑推荐

《细胞力学进展(英文版)》是“十二五”国家重点图书。

《细胞力学进展》

精彩短评

1、全书由几篇兼顾综述和实验的论文组成。要注意的是本书是从力学和数学模型的角度来进行研究的，对于信号转导和生化过程只是略微提及。
2、介绍近期进展，学了不少东西，很有启发性。
3、书的质量很好，价格也便宜，很划算。

《细胞力学进展》