<<方法与技术(上)>>

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前言

20世纪中叶以来,关于神经系统的研究从以往生物与心理学研究的边缘地位跃升,成为神经科学这一交叉学科。

这一新学科将生物化学、细胞生物学、解剖学、生理学、心理学、神经病学、精神病学等具有不同背景的科学家与临床医生们联系起来,研究令人激动的脑的秘密。

他们专注于探索神经元的功能机制。

澄清行为与认知的神经基础,了解神经系统疾病。

1969年神经科学学会的创建大大促进了该学科的发展,如今该学会已经拥有近37000名会员。

第一个针对神经科学的学术培训项目建立于医学院(1965年加州大学圣迭戈分校建立神经科学系,1966年哈佛大学建立神经生物学系)。

第一个本科生培训项目于1972年建立于.Amherst学院和Oberlin学院,后者培养了诺贝尔奖获得者RogeiSperry和三位神经科学会会长。

时至今日,全世界已经有超过300个神经科学系或相应的培养项目。

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内容概要

《神经科学百科全书》原书篇幅巨大,为所有神经科学百科全书之首。 由来自世界各地的2400多位专家撰稿人合力打造,覆盖了神经科学全部主要领域。 书中每个词条在收入书中之前均经过顾问委员会的同行评议,词条中均含有词汇表、引言、参考文献 和丰富的交叉参考内容。

主编为著名神经科学家、美国神经科学学会前主席Larry R.Squire。 内容平易,本科生即可读懂。

深度和广度独一无二,足可满足专家学者的需要。

导读版精选原书中的部分主题,按内容重新编排,更适合国内读者购买和阅读。

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章节摘录

插图: Protein chromophores that can be activated to initiatefluorescence emission from a quiescent state (a pro-cess known as photoactivation) or that are capable ofbeing optically converted from one fluorescence emis-sion bandwidth to another (photoconversion) repre-sent perhaps the most promising approach to their vivo investigation of protein lifetimes, transport, and turnover rates in neurons. Appropriately termedmolecular or optical highlighters, photoactivatedfluorescent proteins generally display little or no ini-tial fluorescence under excitation at the imagingwavelength, but dramatically increase their fluores-cence intensity after activation by irradiation at adifferent (usually lower) wavelength. Photoconver-sion optical highlighters, on the other hand, undergoa change in the fluorescence emission bandwidth pro-file on optically induced changes to the chromophore. These effects result in the direct and controlled high-lighting of distinct molecular pools within the cell. The ability to selectively initiate or alter fluores-cence emission profiles in photoconversion optical highlighter proteins renders these probes excellenttools for exploring protein behavior in living cells. Because the fluorescence intensity (or color spectrum) of highlighters occurs only after photon-mediated conversion, newly synthesized non-photo-activated protein pools remain unobserved and do not com-plicate experimental results. This signal indepen-dence from new protein synthesis could potentially enable the study of protein degradation kinetics intagged molecules by techniques such as optical pulselabeling and monitoring of the fluorescence overtime. Additional quantitative techniques, includingfluorescence-correlation spectroscopy, should proveuseful in measuring the mobility of photoactivatedoptical highlighters in small numbers, even down to the single-molecule level.

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编辑推荐

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