<<酶动力学>>

图书基本信息

书名：<<酶动力学>>

13位ISBN编号：9787030328984

10位ISBN编号：7030328981

出版时间：2012-1

出版时间：科学出版社

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页数：892

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内容概要

本书介绍并阐明了使酶科学兴旺发达一个多世纪的酶学原理及其最好的实验技术。
为了便于分子生命科学家、化学家、物理学家和工程师全面参与。
本书开辟了化学动力学、活性部位化学、酶分析技术和抑制剂设计等方面的论题。
本书引用了2600多篇经典的和现代文献。
重点放在稳态动力学和瞬态动力学上。
书中前所未有的一章是单分子酶动力学和生物力产生，因此，对生物化学、化学、分子生物学、生物工程学、药物学、植物科学和化学工程学等方面的研究生和高级研究人员来说，本书是最新、最详尽的单卷本酶学参考书。

作者简介

<<酶动力学>>

书籍目录

章节摘录

to show that the rate of this reaction is linearly dependenton the concentration of sugar. Berthelot （1862） and Berthelot and de Saint-Gilles （1862） reached the same cnclusion from studies on e.thyl acetate hydrolysis, and such observations led Guldberg and Waage （1867; 1979） to postulate that chemical reactions must be highly dynamic, with reactants and products relentlessly interconverting into each other, even at equilibrium. In advancing this principle, widely known as the Law of Mass Action, they suggested that the rate in each direction of a reversiblereaction depends on reactant concentration （often expressed as the intensive variable molarity） and not the amount of substance （commonly given by the extensive variable mole）. . As discussed at length in Chapter 3, the modernconceptual framework for the discipline known aschemical kinetics was founded late in the nineteenth century by the powerfully insightful contributions of theSwedish chemist Svante Arrhenius and the Germanchemist Jacob van't Hoff, who both became NobelLaureates 2in,chemistry. They and.German physical chemist Wilhelm Ostwald, the Nobelist credited for firstexpressmg reaction velocity as a change in reactant concentration per unit time （i.e., v = -d[Reactant]/dt）,established the enduring concept that catalysts promote reactivity without altering the equilibrium position of the overall chemical reaction. These investigators recognizedthat thermodynamics constrains catalysis: after eachcatalytic round, the catalyst releases its product andtherefore cannt exert any cumulative effect on the reaction's standard Gibbs free energy change AGo. Thisdiscovery increased the determination of chemists to discover catalytic substances and even to design artificialcatalysts endowed with special properties. Speed and yield are the essence of catalysis, but the idea that one may impart reactivity to otherwise unreactive substances lies at the heart of modern chemical enterprises. Nowhere is this more evident than in the Work of Fritz Haber, thenotorious German chemical engineer5 and NobelLaureate. Haber's research team overcame the virtualinertness of dinitrogen by carrying out some 20,000 experiments, utilizing thousands of catalyst preparations under a wide range of reaction conditions. They eventually settled on the use of iron filings to catalyze ammonia synthesis from N2 and H2 at high temperature （600-800K） and extreme pressure （300 atm）.

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编辑推荐

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