《生物数学 第2卷 第3版》

图书基本信息

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内容概要

《生物数学(第2卷)(第3版)》是近代生物数学方面的名著。第三版，在原来版本的基础上做了全面修订。近年来这个科目的茁壮成长和新知识点的不断涌现，新的版本将原来的一卷集分成上下两卷，扩大了知识容量，第二卷绝大多数是新增知识点。书中对生物学中的反应扩散方程和形态发生学的数学理论及最新研究成果作了全面介绍，是学习与研究生物数学的一部不可多得的参考书。

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章节摘录

版权页： 插图： A phenomenological concept of pattern formation and differentiation called posi-tional information was proposed by Wolpert (1969,see the reviews in 1971,1981).He suggested that cells are preprogrammed to react to a chemical (or morphogen) concen-tration and differentiate accordingly,into different kinds of cells such as cartilage cells.The general introductory paper by Wolpert (1977) gives a very clear and nontechnical description of development of pattern and form in animals and the concepts and applica-tion of his positional information scenario.Although it is a phenomenological approach,with no actual mechanism involved it has given rise to an immense number of illuminat-ing experimental studies,many associated with the development of the limb cartilage patterning in chick embryos and feather patterns on other bird embryos,such as the quail and guinea fowl (see,for example,Richardson et al.1991 and references there).A literature search of positional information in development will produce an enormous number of references.Although it is a simple and attractive concept,which has resulted in significant advances in our knowledge of certain aspects of development,it is not a mechanism. The chemical prepattern viewpoint of embryogenesis separates the process of development into several steps； the essential first step is the creation of a morphogen concentration spatial pattern.The name 'morphogen' is used for such a chemical because it effects morphogenesis.The notion of positional information relies on a chemical pre-specification so that the cell can read out its position in the coordinates of chemical concentration,and differentiate,undergo appropriate cell shape change,or migrate accordingly.So,once the prepattern is established,morphogenesis is a slave process.Positional information is not dependent on the specific mechanism which sets up the spatial prepattern of morphogen concentration.This chapter is concerned with reaction diffusion models as the possible mechanisms for generating biological pattern.

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精彩短评

1、生物数学领域最好的参考书，虽然英文原版已经出版10年了，但任然很具有参考价值。以前看电子版的，不是很方便，特别是公式多的地方。第一卷出来以后一起买！

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