

<<医学机能实验学>>

图书基本信息

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### 前言

为使医学教育逐渐同世界接轨，双语教学在我们国家已经倡导和推行多年，但至今仍然缺乏令人满意的医学机能实验学教科书。

英文原版教材价格较高，且与中国目前的教学内容不甚吻合。

基于对英语双语医学机能实验学教材的广泛需求，科学出版社组织我校教师出版了本书。

由于缺乏经验和英语水平所限，虽是改编，实属不易。

各位编委在担任繁重的医学教研工作的同时，夜以继日、辛勤劳作，在较短时间内完成了初稿和互审。

本书编委们在沟通信息和编写过程中做了大量卓有成效的工作。

在最后定稿期间，我们又邀请了知名专家对全书的英语修辞和语法提出了建议和修改，在此表示衷心地感谢。

本书在章节内容衔接上，尤其是英语语言表达上，疏漏和错误之处在所难免。

恳请同道和学生在实际使用过程中，不断提出意见，以期再版时进一步完善。

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### 内容概要

《医学机能实验学（英文版）》为机能学实验的英文教材，全书共分为五章，主要包括生理学、病理生理学、药理学实验中常见的、经典的实验内容，另外还涉及了相关的实验仪器、动物实验的基本操作技术等，内容较为详尽，图文并茂，通俗易懂。

本教材可作为国内医学院校留学生机能学实验教学的教材，也可作为国内医药院校、综合性大学等相关专业学生学习机能学实验的英文教材及教师和相关人员的教学参考书。

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## 章节摘录

插图：Inbred strains can only be acquired after breeding for 20 generations continuously if starts from hybrids. After 20 generations, individual variance is very small as their genes have been purified. Inbreeding coefficient (  $F$  ) is often used to represent strain purity. First generation of sibling inbreeding can reduce heterozygosity by 19%, which means homozygosity is increased by 19%. Inbreeding coefficient could reach 98.6% in theory within 20 generations. However, more methods to examine the genetic homozygosity are needed to determine strain purity in addition to inbreeding coefficient. Inbred strains are used to be called 'pure strains'. There have been 250 inbred strains for albino mice till 1980. Development of inbred strains for experimental animals like albino rats and albino mice have greatly promoted biological and medical experimental research, especially tumor research. ( 2 ) Mutant strains: Mutant strains can be established by mutation of individual gene, introduction of certain gene or multiple backcross to keep the genetic features. These individuals have same genetic defect or pathosis, such as dwarf, atrichia, obesity, amyotrophy, caligo lentis and retina degeneration. Currently available mutant strains with certain diseases are listed: anaemia mouse, tumor mouse, leukaemia mouse, diabetic mouse, hypertension mouse and athymic mouse, etc. ( 3 ) F1 hybrid: The first generation offsprings of two inbred strains is called F1 hybrid. It has both the features of inbred strains and the hybrid ascendancy. F1 hybrid has merits like vigorous vitality, high reproductive rate, fast growth, strong body constitution and disease resistance. It has same experimental effects as inbred animals. F1 hybrid is also called systemic hybrid animals. ( 4 ) Closed population: It is the population relatively maintaining the same blood relationship developed by random breeding within one strain for more than 5 years. In our country, closed populations of New Zealand albino rabbit and cyanochroia blue rabbit have been bred in a great quantity and can be used in teaching and research experiments. ( 5 ) Impure strain: It is the hybrid animals by random breeding. Hybrid animals have vigorous vitality, strong adaptability, high reproductive rate, grow fast and are easy to be taken care of. Reproducibility of experimental results with these animals is not good due to big individual variances and irregular responses. Impure strains are suitable for screening experiments as there are the most sensitive and insensitive individuals at the two extreme ends. They are also economic and most often used in teaching experiments.

2. Classification according to biological features ( 1 ) Abiotic animals ( germfree animals ) : Abiotic animals are the experimental animals free of microorganisms and parasites in any parts on the body surface or in corpore ( including the skin, fur, digestive system, respiratory system, urinary system, genital system, hematological system, circulation system and the brain ) . These animals are taken out by uterine-incision delivery and bred under aseptic conditions at constant temperature and humidity with aseptic food and drinking water.

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