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全国高等学校教材

供临床医学专业及来华留学生 (MBBS) 双语教学用

# Biochemistry

## 生物化学

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N. V. Bhagavan Chung-Eun Ha

改编教学版  
Annotated Edition

● 主 编 张晓伟  
Chief Editor Xiaowei Zhang

● 副主编 梅文瀚 王秀宏  
Vice Chief Editor Wenhan Mei Xiuhong Wang



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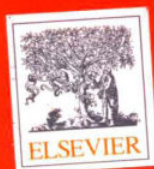
## 生物化学

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- 生理学
- 医学免疫学
- 生物化学**
- 组织学与胚胎学
- 医学微生物学
- 病理学
- 医学分子生物学
- 医学遗传学
- 医学细胞生物学
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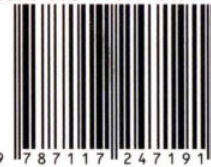
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1995年,我国首次招收全英文授课医学留学生,到2015年,接收临床医学专业 MBBS (Bachelor of Medicine & Bachelor of Surgery) 留学生的院校达到了 40 余家; MBBS 院校数量、规模不断扩张;同时,医学院校在临床医学专业五年制、长学制教学中陆续开展不同规模和范围的双语或全英文授课,使得对一套符合我国教学实际、成体系、高质量英文教材的需求日益增长。

为了满足教学需求,进一步落实教育部《关于加强高等学校本科教学工作提高教学质量的若干意见(教高[2001]4号)》和《来华留学生医学本科教育(英文授课)质量控制标准暂行规定(教外来[2007]39号)》等相关文件的要求,规范和提高我国高等医学院校临床医学专业五年制、长学制和来华留学生(MBBS)双语教学及全英文教学的质量,推进医学双语教学和留学生教育的健康有序发展,完善和规范临床医学专业英文版教材的体系,人民卫生出版社在充分调研的基础上,于2015年召开了全国高等学校临床医学专业英文版规划教材的编写论证会,经过会上及会后的反复论证,最终确定组织编写一套全国规划的、适合我国高等医学院校教学实际的临床医学专业英文版教材,并计划作为2017年春季和秋季教材在全国出版发行。

本套英文版教材的编写结合国家卫生和计划生育委员会、教育部的总体要求,坚持“三基、五性、三特定”的原则,组织全国各大医学院校、教学医院的专家编写,主要特点如下:

1. 教材编写应教学之需启动,在全国范围进行了广泛、深入调研和论证,借鉴国内外医学人才培养模式和教材建设经验,对主要读者对象、编写模式、编写科目、编者遴选条件等进行了科学设计。

2. 坚持“三基、五性、三特定”和“多级论证”的教材编写原则,组织全国各大医学院校及教学医院有丰富英语教学经验的专家一起编写,以保证高质量出版。

3. 为保证英语表达的准确性和规范性,大部分教材以国外英文原版教科书为蓝本,根据我国教学大纲和人民卫生出版社临床医学专业第八轮规划教材主要内容进行改编,充分体现科学性、权威性、适用性和实用性。

4. 教材内部各环节合理设置,根据读者对象的特点,在英文原版教材的基础上结合需要,增加本章小结、关键术语(英中对照)、思考题、推荐阅读等模块,促进学生自主学习。

本套临床医学专业英文版规划教材共 38 种,均为国家卫生和计划生育委员会“十三五”规划教材,计划于 2017 年全部出版发行。

In 1995, China recruited overseas medical students of full English teaching for the first time. Up to 2015, more than 40 institutions enrolled overseas MBBS (Bachelor of Medicine & Bachelor of Surgery) students. The number of MBBS institutions and overseas students are continuously increasing. At the meantime, medical colleges' application for bilingual or full English teaching in different size and range in five-year and long-term professional clinical medicine teaching results to increasingly demand for a set of practical, systematic and high-qualified English teaching material.

In order to meet the teaching needs and to implement the regulations of relevant documents issued by Ministry of Education including "Some Suggestions to Strengthen the Undergraduate Teaching and to Improve the Teaching Quality" and "Interim Provisions on Quality Control Standards of International Medical Undergraduate Education (English teaching)", as well as to standardize and improve the quality of the bilingual teaching and English teaching of the five-year, long-term and international students (MBBS) of clinical medicine in China's higher medical colleges so as to promote the healthy and orderly development of medical bilingual teaching and international students education and to improve and standardize the system of English clinical medicine textbooks, after full investigation, People's Medical Publishing House (PMPH) held the writing discussion meeting of English textbook for clinical medicine department of national colleges and universities in 2015. After the repeated demonstration in and after the meeting, PMPH ultimately determined to organize the compilation of a set of national planning English textbooks which are suitable for China's actual clinical medicine teaching of medical colleges and universities. This set will be published as spring and autumn textbooks of 2017.

This set of English textbooks meets the overall requirements of the Ministry of Education and National Health and Family Planning Commission, the editorial committee includes the experts from major medical colleges and universities as well as teaching hospitals, the main features are as follows:

1. Textbooks compilation is started to meet the teaching needs, extensive and deep research and demonstration are conducted across the country, the main target readers, the model and subject of compilation and selection conditions of authors are scientifically designed in accordance with the reference of domestic and foreign medical personnel training model and experience in teaching materials.

2. Adhere to the teaching materials compiling principles of "three foundations, five characteristics, and three specialties" and "multi-level demonstration", the organization of English teaching experts with rich experience from major medical schools and teaching hospitals ensures the high quality of publication.

3. In order to ensure the accuracy and standardization of English expression, most of the textbooks are modeled on original English textbooks, and adapted based on national syllabus and main content of the eighth round of clinical medicine textbooks which were published by PMPH, fully reflecting the scientificity, authority, applicability and practicality.

4. All aspects of teaching materials are arranged reasonably, based on original textbooks, the chapter summary, key terms (English and Chinese), review questions, and recommended readings are added to promote students' independent learning in accordance with teaching needs and the characteristics of the target readers.

This set of English textbooks for clinical medicine includes 38 species which are among "13th Five-Year" planning textbooks of National Health and Family Planning Commission, and will be all published in 2017.

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# Preface

*Biochemistry* is an invaluable resource, presenting the concepts and details of molecular structure, metabolism, and laboratory techniques in a streamlined and engaging way. *Biochemistry* is designed in an effort to better integrate the principles of biochemistry into disciplines of basic and clinical sciences. The goal is to foster a more comprehensive understanding of health and disease.

Unique features of this textbook include: for each chapter, a list of key points or key words which outline the main concepts or questions that have been discussed in the chapter, following the text and a list of required readings and websites. The text also includes supplemental references where appropriate, to encourage readers to continue learning beyond the chapter material. Some questions are also listed to help students review or summarize the main content of the chapter. The textbook also includes the latest research on various aspects of biochemistry topics.

Every effort has been made to create an enjoyable and educational learning experience for the student. *Biochemistry* is clearly written with simple illustrations. The language of *Biochemistry* is made as accessible as possible for students learning the subject for the first time. To complement the straightforward language and organization of concepts in

the text, figures illustrate a single concept at a time to help students see main points without the distraction of excess detail.

We hope students cultivate a full understanding of the pathophysiologic processes of the body by examination at the molecular level. Pathways and processes are presented in a physiological context so students can see how biochemistry works in the body and under different conditions, and Disorders or Diseases in every chapter show students how the concepts they are studying impact human health.

We also promote problem-solving skills that are based on accurate and current information. In every chapter, we have listed required reading references and websites at the end of the text, so that the student may refer to the original literature. We hope that students can develop skills in the understanding of evidence-based medicine.

As clinicians, academicians, and researchers, the authors and their associates in the production of this textbook firmly believe that the new format of our text encourages students to embrace medical biochemistry and apply its principles to all areas of medicine. The versatility of this textbook also makes it appropriate for use by students pursuing various disciplines in basic and clinical sciences.

Xiaowei Zhang

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