Unit 1  
1. A full appreciation of the physiology of a living organism must be based on a  
sound knowledge of its anatomy. Anatomy does not merely study the separation  
of parts, but the accurate description of the morphologies and functions of  
different organs.  
对生物生理学的全面了解必须基于解剖学的系统知识。解剖学不仅仅是研究  
人体各部分的分离;还要准确的描述各个器官的形态和生理功能。  
2. Our daily food intake must match requirements and any excess must be excreted  
for balance to be maintained.  
我们每天摄入的事物必须满足需要;任何多余的东西必须排出体外才能维持  
平衡。  
3. The process of stabilization of the internal environment is called homeostasis and  
is essential if the cells of the body are to function normally. 内环境稳定的过程称之为体内平衡;体内平衡也是机体的细胞正常发挥作用所必  
不可少的。  
4. Human cells have the ability to break down large molecules to smaller ones to  
liberate sufficient energy for their activities.  
人类细胞有将大分子分解成小分子的能力;从而为自身活动释放足够的能量。  
5. As long as normal conditions are maintained in this internal environment, the  
cells of the body continue to live and function properly.  
只要这种内环境正常的条件得以维持;机体的细胞就能继续生存并发挥正常  
功能。  
Unit 2  
1. Biochemistry asks how the thousands of different biomolecules interact with each other to  
confer the remarkable properties of living organisms.  
生物化学探寻的是数千种不同的生物分子如何相互作用;以赋予生物体具备显著的特性。  
2. Enzymes are catalysts that accelerate the rates of biological reactions. Each enzyme is very  
specific in its function and acts only in a particular metabolic reaction.  
酶是能加速生物学反应速率的催化剂。每一种酶都有专一的功能并且仅在特定代谢反应中发挥作用。  
3. One of the most fruitful approaches to understand biological phenomena has been to purify  
an individual chemical component, such as a protein, from a living organism and to  
characterize its chemical structure or catalytic activity.  
用以了解生物学现象的最有效的方法之一是从生物体中纯化出单一化学成分;例如蛋白质;并对其化学结构或催化活性进行表征。  
4. The chemical principles that govern the properties of biological molecules include the  
covalent bonding of carbon with itself and with other elements and the functional groups that appear in common biological molecules, etc.  
决定生物分子特性的化学原理包括碳与自身或其他元素的共价结合和一般生物分子中出现的功能基团等。  
5. The basic unit of DNA is a linear polymer of four different monomeric subunits,deoxyribonucleotides, arranged in a precise linear sequence.  
脱氧核糖核酸的基本单位是由四种不同的脱氧核糖核苷酸单一亚单位以精确的线性序列进行排列而构成的线性聚合物。  
Unit 3  
1. Although the existence of microbes was determined almost three hundred years  
ago, the study of microbiology is only getting started compared with zoology and  
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botany.  
尽管三百年前人们就确定世界上存在微生物;但与动物学和植物学相比;微  
生物学研究还只是刚刚开始。  
2. In ancient times, the existence of microbes was hypothesized and they might be  
the responsible agent of diseases, which was pure speculation(推断) as there was  
no microscope at the time.  
在古代, 人们认为有微生物存在而且微生物可能是传染病的致病原;但当时  
没有显微镜;所以这一切纯属猜测。  
3. The first one who suggested taxonomic classification(分类法) of bacteria and  
discovered spores is Ferdinand Cohn, a botanist who studied algae and  
photosynthetic bacteria. He established bacteriology.  
第一位提出对细菌分类和发现孢子的人是植物学家费南?科恩;他对藻类和  
光合细菌进行了研究;创建了细菌学。  
4. Microbes may be tiny, but the field of microbiology is relatively huge, which  
encompasses many subdisciplines affecting people’s life and health a lot.  
微生物体积虽小;但微生物学领域却很大;其中包括很多分支学科;对人类  
生活和健康产生了重大影响。  
5. Some of microbes may cause diseases but not all microbes are detriment, such as  
some of them used in industrial fermentation(发酵) to make wine and  
vinegar(醋).  
有些微生物能引发疾病;但不是所有的微生物都是有害的;如一些微生物可  
用于工业发酵;制作酒和醋等。  
Unit 4  
1. The science of the effects of drugs on the body is called pharmacology, and the scientists  
who study it are pharmacologists. Pharmacology is not a science that can be studied on its own, but that closely related to other branches of science. Pharmacologists should not only understand the normal process that take place in the body, but know how the functions of the body are affected by disease.  
研究药物作用于人体的科学叫药理学;研究这门学问的科学家便是药理学家。药理学不是一门能够独立研究的科学;而是与其它学科紧密相关的。药理学家不仅要了解人体内进行的正常反应过程;还应懂得机体功能是怎样受疾病影响的。  
2. For physicians and medical students, the scope of pharmacology is not so expansive as its  
common definition. The clinician is interested primarily in drugs that are useful in the  
prevention, diagnosis, and treatment of human disease, or in the prevention of pregnancy.  
医生和医学生对药理学的理解和要求没有其定义范畴那么广泛。临床医生的主要兴趣在于药物对人类疾病的预防、诊断及治疗;或者在避孕方面所起的作用。  
3. All physicians should share the responsibility to resolve kinds of sociological problemscaused  
by the abuse of drugs, properly used, drugs are great blessing to mankind; improperly used, they could destroy human race. When a patient, particularly the elderly is prescribed  
frequently to take more than one therapeutic agent, drug interactions resulting in toxicity will occur.  
所有医生都应该负起责任解决药品滥用所引起的各种社会问题。药物用得恰当;将是人类的一大福音;用得不当;则可能毁了人类。病人,特别是老年病人(经常性使用一种以上治疗药物的话;往往会发生产生毒性药物的相互作用。  
4. At one time, it was essential for the physician to have broad botanical knowledge, because  
they had to possess the ability and skill to select proper plants from which to prepare his own  
crude medicinal preparations.  
以前;医师必须具备很广泛的植物学知识;因为他要懂得挑选适当的植物的能力和技巧; 2/7页  
并将它们制备成简单的药物制剂。  
5. The study of biochemical and physiological effects of drugs and their mechanisms of action is  
termed as pharmacodynamics, whose uniqueness lies mainly in that its attention is focused on the characteristics of the drug. As a broader science, it borrows freely from both the  
theories and experimental techniques of the drug. As a broader science, it borrows freely from both the theories and experimental techniques of physiology, bio chemistry,  
immunology, and pathology.  
对药物的生化生理作用及其活性机制的研究叫做药效学;该学科的独到之处主要在于其关注的要点是药物的特征。药效学作为一门边缘学科;大量借鉴了生理学、生物化学、免疫学、病理学等学科的理论和实验技术。  
Unit 5  
1. To fight against disease, the immune system generates proteins known as antibodies that  
bind to invading organisms. But the real case is that the immune system is not to develop a specialized antibody each time it is faced with a new pathogen. In fact, the immune system select the most effective one by mass screening of its antibody repertoire, thus identifying the ones that work best.  
为了对抗疾病;免疫系统生成了被称为抗体的蛋白质;它们附着于入侵细菌。但实际情况是免疫系统并不能在每次面对一个新的病原体时都制造出一种特殊的抗体:实际上;  
免疫系统是通过对其抗体库的大规模筛选而确定最有效的抗体。  
2. In a process called combinatorial chemistry, chemists generate a large number of related  
compounds and then screen the collection for the ones that could have medicinal value.  
在一种被称为“组合化学”的过程中;化学家们首先生成很多相关化合物;然后对它们进行筛选;来找到那些可能具有药用价值的化合物。  
3. In a parallel synthesis, chemists often use a so-called microtiter plate to assemble all the  
products separately in their own reaction vessels.  
在平行合成中;化学家们常常利用所谓的微量滴定盘将所有的产物都在其各自的反应容器中结集。  
4. A parallel synthesis and a split-and-mix synthesis are different with that in a parallel synthesis,all the products are assembled separately in their own reaction containers, while in a  
split-and-mix synthesis, the related compounds are mixed up in the same reaction vessel, which reduces the number of containers required.  
平行合成和分裂—混合合成的不同在于, 在平行合成中每个化合物都留在自己的反应器  
中;而在分裂—混合合成中;相关化合物都混合在同一容器中;这种方法极大地减少了所需容器的数量。  
5. At the end of a split-and-mix synthesis, all the molecules attached to a single bead are found  
to be of the same structure. Chemists pull out from the mixture the beads that bear  
biologically active molecules and then, use sensitive detection techniques to determine the molecular makeup of the compound attached.  
在分裂—混合合成过程结束时;可以发现所有附着于一个小珠上的分子结构都一样。化学家们从混合物中分离出具有生物活性分子的小珠, 然后利用灵敏的探测技术来确定附  
着的化合物的分子结构。  
Units 6  
1. Plant natural products have had, and continue to have, an important role as medicinal and  
pharmaceutical agents, not only as purified isolates and extractives, but also as lead  
compounds for synthetic optimization.  
植物天然产物已经并继续拥有作为医药和药剂的重要作用;不仅是纯化的分离物提取物;而且作为合成优化的先导化合物。  
2. Plant secondary metabolites also show promise for cancer chemoprevention, which has been  
defined as “the use of non-cytotoxic nutrients for pharmacological agents to enhance  
intrinsic physiological mechanisms that protect the organism against mutant clones of  
malignant cells”.  
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植物次生代谢产物也有希望用于肿瘤化学预防;即“利用无细胞毒营养物或药物增强内在生理机制以保护有机体;防止恶性肿瘤细胞的突变复制。  
3. Nevertheless, the vast majority of the world’s quarter of a million plant species has not been  
evaluated in pharmaceutical screens, and the small percentage that has been tested has generally been screened for activity against only a few therapeutic targets.  
然而;世界上25万种植物的绝大部分还没有进行药物筛选评价;一小部分已经进行测试的也只是对很少几种治疗靶标进行了活性筛选。  
4. Although many sampling programs designed to generate large numbers of samples for  
high-throughput screening programs have been characterized as random, it has been shown that they are neither truly random nor haphazard, but that sampling occurs without  
preconceived selection of species.  
尽管许多产生大量用于高通量筛选的样品的采样程序已经具有随机的特征;但是已有结果  
表明他们并不是随机的;也不是任意的;除非采样是在没有先入为主的种类选择下进行的。5. Three main research approaches are used in drug discovery and development processes: (1)  
bioactivity – or mechanism of action-directed isolation and characterization of active  
compounds, (2) rational drug design-based modification and analog synthesis, and (3)  
mechanism of action studies.  
在药物发现和开发程序中应用的三种主要思路是,生物活性或作用机制为导向的分离及活性化合物的鉴定;基于修饰或类似物合成的合理药物设计;作用机制研究。  
Unit 7  
1. Absorption is the process of a drug entering systemic circulation from its site of  
administration. Except direct injection into the blood vessels, other routes of  
administration involve the transport of cell membrane.  
吸收是药物自用药部位进入血液循环的过程。除直接注入血管者外;一般的  
给药方法都要经过细胞膜的转运。  
2. Drug absorption, especially those orally administered drugs, depends on many  
factors, such as the intrinsic characteristics of the drug, dosage form, food,  
patient age and the like.  
很多因素都可以影响药物的吸收,特别是口服药物的吸收;如药物本身的性  
质;剂型;食物;患者年龄等。  
3. The distribution of a drug in the body is uneven and is in a state of dynamic  
equilibrium, that is, it changes constantly with the absorption and elimination of  
the drug.  
药物在体内的分布多数是不均匀的;且处于动态平衡状态中;即随药物的吸  
收与排泄不断地变化着。  
4. After a drug enters the blood, it will more or less bind to plasma protein, but this  
binding is loose and reversible, and is always in a state of equilibrium.  
药物进入血液后或多或少地将与血浆蛋白结合;但这种结合是疏松的;可逆  
的;经常处于动态平衡。  
5. Bioavailability is the relative quantity and rate of drugs with different dosage  
forms which are absorbed and reach the systemic circulation; it is concerned with  
the intensity and speed of drug action.  
生物利用度是指不同剂型的药物能吸收进入体循环的相对份量及速度。它与  
药物作用的强度与速度有关。  
Unit 8  
1. Analytical chemistry aims to resolve two questions: what it is and how much it is, that is  
qualitative analysis and quantitative analysis. Qualitative analysis is to identify the elements, 4/7页  
ions and compounds contained in a sample while quantitative analysis is to determine the exact quantity.  
分析化学的核心任务在于解决两个问题,一个是有什么:另一个是有多少;也就是定性分析和定量分析。定性分析是指鉴别所含的物质而定量分析是测定物质的准确含量。  
2. Analytical chemistry has expanded beyond the bounds of just chemistry, and many have  
advocated using the name analytical science to describe the field. Even this term falls short of recognition of the role of instrumentation development and applications. One suggestion is that we use the term analytical science and technology.分析化学的发展已经超出了化学的边界;因此有人提议用分析科学来描述这个领域。但是;该名词忽视了仪器发展和应用的作用;有人建议使用“分析科学和技术”这一名词。  
3. Analytical chemists work to improve the reliability of existing techniques to meet the  
demands for better chemical measurements which arise constantly in our society. They adopt  
proven methodologies to new kinds of materials or to answer new questions about their  
composition and their reactivity mechanisms.  
分析化学家致力于提高已有技术的可靠性以更好的满足社会中频繁出现的化学检测的需求。他们将已证实的方法学应用于新型材料;或回答关于其组成及反应机理的新问题。  
4. Qualitative tests may be performed by selective chemical reactions or with the use of  
instrumentation. For example, the formation of a white precipitate when adding a solution of  
silver nitrate to a dissolved sample indicates the presence of chloride. Infrared spectra will give “fingerprints” of organic compounds of their functional groups.  
定性鉴别可能通过选择性的化学反应或者仪器分析来完成。例如当把硝酸银溶液滴加到一份溶解样品中;生成白色沉淀就说明了样品中存在氯离子。而红外光谱可以给出有机化合物或官能团的“指纹”  
5. The first phase in the testing of banned substances is called fast-screening phase, in which  
qualitative analysis such as GC or LC is adopted to test suspicious samples. In the second  
phase, GC-MS is employed for further testing of those suspicious samples. Finally,  
spectrophotometry or GC is applied for accurate quantification.  
违禁药物检查的第一阶段称作快速筛选阶段;通常采用气相色谱或液相色谱等定性分析方法检查出可疑样本:第二阶段使用气质联用对可疑样本进一步检测:最后;应用分光光度法或气相色谱进行准确定量。  
Unit 9  
1. The development of a new therapeutic agent involves a multidisciplinary group in many years  
of work;and with the development of genetic engineering and the production of monoclonal  
antibodies, it is likely that even more agents should be produced.  
新药研发涉及多学科研究人员多年的共同研究成果;并且随着遗传工程学和单克  
隆抗体技术的发展;人们必将研制出更多新药。  
2. The activity of biopharmaceuticals depends on their complicated conformation based on  
secondary, tertiary and quaternary structures. These structures cannot be fully defined with our present set of analytical techniques and approaches for potency testing.  
生物药剂的活性依赖于其二级、三级和四级结构基础上的复杂构象;并且这些构  
象采用目前的分析技术和方法还无法完全被确定并用于效能试验。  
3. Apart from the intravenous route of drug administration, where a drug is introduced directly  
into the blood circulation, all other routes of administering systemically acting drugs involve the absorption of drug from the place of administration into the blood.  
除了静脉注射这一给药途径可以直接进入血液循环外;所有其他全身性作用的药  
物的给药途径都涉及药物从给药地点吸收进入血液的过程。  
4. Biopharmaceuticals are pharmaceutical products consisting of (glyco) proteins, and theyhave  
a number of characteristics that set them aside from low molecular weight drugs.  
生物药剂是含有,糖(蛋白的药物制剂;它们具有许多与小分子量药物不同的特性。  
5. In safety testing and clinical test programs of biopharmaceuticals, questions have to be  
addressed regarding species specific responses, selection of dosing schedules and route of administration, and the possible occurrence of immunogenicity.  
在生物制剂安全性试验和临床试验计划中;必须将重点放在种属特异性应答、给  
药途径和给药方案的选择以及可能发生的免疫原性上。  
Unit 11  
1. The information the package insert contains is derived from data supplied by investigators  
and submitted by the pharmaceutical firm to the FDA, including the chemical structure of the  
drug, a summary of its pharmacological the toxicological action, its clinical indications and contraindications, precautions, reported adverse reactions, dosage recommendations, and available dosage forms.  
药品说明书中所包含的信息来自于调查人员提供的、由药品生产厂家提交给FDA的数据;包括药品的化学结构、药理/药毒性能的概说、临床适应症和禁忌症、注意事项;  
有报道的不良反应、建议用量和可用剂型。  
2. The physician may exercise his professional judgment in the use of any drug. However, if he  
deviates from the instructions in the package insert and adverse reactions occur, he must be prepared to defend his position in court if there is a malpractice suit.  
3. If a severe reaction occurred and litigation followed, how would a court react if a physician  
admitted to the use of this drug for the treatment of some diseases in view of the  
prohibitions in the package insert? Would the published clinical study, plus the physician’s judgment in prescribing the drug, suffice?  
4. The FDA cannot require a pharmaceutical firm to include a new use for the drug product in  
the insert even if it has been clinically tested and found useful for a given problem. But, if a new use for a drug is not yet included in the package insert, the manufacturer cannot  
advertise his product for that particular use.  
5. Today, the FDA’s regulatory scope and authority include ensuring the safety and purity of  
foods, drugs, medical devices, nutritional supplements, vaccines and cosmetics. Of particular concern to the anesthesiologist is the timely access to drug evaluation, pharmacologic, and medical device data. With the dramatic upsurge in the number of new prescription drugs and  
over-the-counter supplements, the need for up-to-date drug information has never been more crucial.  
Unit 12  
1. Formally, drugs were extracted from natural plants and animal sources, and the  
therapeutic use was based on traditional experience.  
以前;药物都是从天然植物和动物那儿提取的;治疗方法也是以传统经验为  
基础的。2. Drug development strategies involve serendipity, molecular roulette,  
programmed basic research with synthesis of specific chemical, etc. 药物研制策略包括偶然发现、分子随机组合、有计划的研究某一特定化学成分的  
合成等方法。  
3. When a drug is used by millions, there are certain to be adverse reactions even  
though the risk to any individual is small.  
当某种药物被数百万人使用时;肯定会有不良反应出现;尽管具体到个人这种危  
险性并不大。  
4. Pharmacological experiment on a new drug determines whether the drug has the  
desired profile of action in model system.  
新药的药理学实验将确定该药在模型系统中是否具备人们期待的药物功能。  
5. Chemists and biologists have now attached great importance to such fields of  
research as molecular biology and biochemical pharmacology.  
现在;化学家和生物学家非常重视分子生物学和生化药理学等研究领域。  
Unit 13  
1.  
药学服务强调优化药物治疗、使药物问题最小化和提高自我管理能力;其目的是获得最优疗效并提高病人的生活质量。  
2.  
糖尿病是一种代谢性疾病;其特点是由于胰岛素分泌缺陷、胰岛素作用缺陷或二者兼有而出现慢性高血糖;最终有可能导致并发症。  
3.  
干预组病人的药学监护过程包括三部分;分别是在医院、出院后和活动地点提供的药学监护。  
4.  
药学监护对患者健康相关的生活质量有明显益处和积极影响;在医院和社区进行药学监护是可行的。  
5.  
研究结果说明没有接受强化药学监护的患者;生活质量下降的风险更高。