Some are tiny, some are huge, some have little heads with big ears and some have big heads with little ears. The skeletal and muscular systems of the different dog breeds, while similar, do reflect refinements that characterize the breed (Fig. 1). For example, a dog with a long neck may have longer vocal cords and thus a deeper bark, while a shorter neck and shorter vocal cords produces a higher-pitched bark.

The anatomy of the dog reflects its history as an omnivorous animal, able to derive nutrition from a variety of sources. Its huge teeth illustrate its close relationship to the wolf and remind us of its carnivorous ancestry.

A dog's skeleton is formed so the dog can run fast, hunt and chase. For example, a dog's shoulder blades are not tightly connected to its skeleton, so the dog has potential for greater motion and flexibility. Of course, not all dogs have the exact same type of bones. Since humans have been breeding dogs for centuries, bones may vary in length and thickness, depending on the breed.

The two basic skull shapes for dogs are a narrow head and long face like the borzoi, or a short head and wider face, like the pug. Of course, between those extremes lie an enormous number of variations.

Of a dog's 42 teeth, six pairs are incisors and two pairs are canine teeth. The remaining teeth are molars. Traditionally, the most important teeth for the dog were the incisors and the canines, because they helped the dog rip and bite his food. With domestication and prepared diets, a full set of functioning teeth is no longer a life and death issue for most pet dogs.

A dog's claws are fairly strong.They help the dog to run, maneuver and dig and offer some protection. They also help to provide stability to the feet. However, a dog's claws just don't seem to be to a cat that needs claws to climb away from danger. Unlike cats' claws, which can be retracted and are very sharp, a dog's claws are more like humans fingernails and cannot be retracted.

The smaller claws that are located on the inside of the legs above the other claws are called dewclaws. They actually represent the first digit or toe on a dog, located a short distance up the les on the inside surface, and are not used for walking.Although they may have been functional in

the past, dewclaws no longer serve a purpose for the dog. Some dogs may be born,with front dewclaws only, or any combinations of front and back. Dewclaws are prone to getting snagged and ripped, so many breeders prefer to have them removed when the puppies are just days old.

Most dogs are built for endurance, not speed, and their muscles reflect this. Collectively, the muscles are the largest organ system in the dog's body. Although the dog's muscles are not quite as well-built as those of his close cousin, the wolf, some breeds have been bred to run faster than thirty miles an hour.

The tongue is one of the most important muscles in the dog's body. It serves several purposes: helping food get to the throat; cleaning the coat; panting; licking owners and ice cream cones.

A dog's panting is similar in function a human sweating. Panting helps lower the dog's body temperature by the evaporative action of moving cool air over the tongue. The result is a cooler dog, provided the air is cooler than the dog.

The histology and embryology are two independent courses with mutual contact. They are along with the emergence of the microscope from the macroscopical to microcosmic development.
组织学和胚胎学是彼此独立又相互联系的两门课程。在人类对宏观世界到微观领域的认识不断发展的过程中，出现了显微镜，进而诞生了组织学和胚胎学。
Histology is a course that studies the micro-structure under the optical microscope and the ultra-structure with the electronic microscope and related function. The embryology is a course to study the individual occurrence.
组织学主要研究机体在光学显微镜下的显微结构和电子显微镜下的超微结构及这些结构的功能。胚胎学则是研究个体发生的科学。
The cell is defined as the smallest basic structure of higher organisms capable of independent existence. Even today the Protozoa represent single celled organisms.
胞是具有独立生存能力的高级生物体的最小结构单位。原生动物至今仍然保持着单细胞结构。
However, the higher organisms consist of tissues and organs. Tissues are groups of cells of similar function and origin that form functional units (and also intercellular connective tissue in most cases).
但高级生物体是由组织和器官构成的。组织是由功能相似、同源的一群细胞构成（多数细胞间还有结缔组织进行维系）。
The organs represent an even greater measure of complexity and are composed of various tissues. At an even. higher level of organization there are the organ systems composed of several organs (such as the gastrointestinal system, respiratory system, cardiovascular system, endocrine system,
器官是由各种组织组成的更复杂的结构。在一个较高级的生物体中，若干个器官组成系统（如胃肠道系统、呼吸系统、心血管系统和内分泌系统）。
Thus the body can be seen to be formed of different levels of organization, with increasing levels of complexity and each of which plays important roles in the physiological homeostasis of the body.
这样，生物体可以看成是由不同层面、越来越复杂的组织构成，这些组织在生理性自体调节下扮演着重要角色。
The name "histology" is derived from the Greek word for a tissue "histos", and "logos" the study of. Today the concept of histology as a subject includes far more than just the study of tissues, but includes understanding of the structure and function of cells, tissues, organs and organ systems, which can better be described as "microscopic anatomy"
组织学”这一名词来源于希腊语 “histos”（组织）和“—logos”（等于“学科、研究”）。现代组织学作为一门学科，其研究内容远远超出了单纯研究组织的范围，而拓展到研究细胞、组织、器官和系统的结构和功能，被认为是微观解剖学。
It is evident from the title that the study of histology or microscopic anatomy involves the use of microscopes (light and electron) as basic tools.
由字面显而易见，学习组织学或微观解剖学要借助显微镜（光学和电子显微镜）作为基本研究工具。

In addition to understanding the histology and ultrastructure of cells, tissues and organs, it is also necessary to complement the morphological observations with an understanding of the biochemistry, physiology and biophysics of these structures. Basic tissues of the body include: epithelium, connective tissue,

muscle tissue, and nerve tissue.除了理解各种细胞、组织和器官的组织学和超微结构，利用对这些结构的生物化学的、生理学的和生物物理学知识的了解，协助对其进行形态学观察，也同样很有必要。机体是由4种基本组织构成的：上皮组织、结缔组织、肌肉组织和神经组织

Gametogenesis is the process that results in the production of mature gametes (eggs and sperm). It includes the mitotic proliferation the germ cells, their migration to the developing gonad, reduction from a diploid to a haploid cell via the process of meiosis, and maturation events that result in the production of viable eggs and sperm.

配子的发育过程是产生成熟配子（卵子和精子）的过程。包括生殖细胞的有丝分裂、运输到性腺、通过减数分裂由二倍体变为单倍体并最终发育成具有生殖能力的卵子和精子等过程。

Primordial germ cells are the diploid progenitors of the gametes. Primordial germ cells are migratory cells. They migrate from the epiblast through the wall of the yolk sac endoderm and along the dorsal mesentery of the hindgut into the underlying mesenchyme of the genital ridges.

原始生殖细胞是二倍体配子的起源，是可以移动的细胞。它们从卵黄囊外胚层穿过卵黄囊内胚层，然后沿着尾肠肠系膜背部下降到下面生殖器背脊的间叶细胞（通称为初级性细胞索）。

As the germ cells make their way to the genital ridges they increase in number through mitotic proliferation. Upon arrival at the genital ridges, they continue to mitotically proliferate for the next few weeks, ultimately generating approximately 7 million primordial germ cells.

在初级生殖细胞下降到生殖器背脊的过程中，生殖细胞通过有丝分裂大量繁殖。到达生殖器背脊后的几周时间内，生殖细胞继续经有丝分裂大量繁殖，最后产生大约700万个原始生殖细胞。

After this period of proliferation they initiate either the female pathway of development, oogenesis, or the male pathway of development, spermatogenesis.

通过这一过程，生殖细胞开始按照性别分化，或通过雌性的发展途径形成卵子或通过雄性的发展途径形成精子。

The process of oogenesis begins before birth but is not completed until after birth. Two different aspects of oogenesis must be considered; oocyte growth, which involves the maturation of the oocyte and the accumulation of those materials that constitute the maternal contribution to early development, and the process of meiosis which results in the production of a haploid gamete.

卵子的发生过程始于出生前但直到出生后才能完成。这主要包括两个方面：一是卵母细胞的发育，包括卵母细胞的成熟和为早期受精卵的发育积累原料；二是通过减数分裂产生单倍体卵子。

The body has two immune systems: innate immunity and adaptive immunity.

Innate immunity refers to antigen-nonspecific defense mechanisms that a host uses immediately or within several hours after exposure to almost any antigen. This is the immunity one is born with and is the initial response by the body to eliminate microbes and prevent infection.

机体具有两个免疫系统，即先天性免疫和适应性免疫。

先天性免疫是指非特异抗原防御机制，宿主在接触几乎任何抗原后都可以立刻或在几个小时内启用此机制。人出生时即可拥有此免疫，此免疫是机体消灭微生物和预防感染的最初应答反应。

Unlike adaptive immunity, innate immunity does not recognize every possible antigen. Instead, it is designed to recognize a few highly conserved structures present in many different microorganisms.

与获得性免疫不同的是，先天性免疫不能识别每一个可能的抗原。但它可以识别存在于许多不同种微生物上的一些高度保守的结构。
The structures recognized are called pathogen-associated molecular patterns and include LPS from the gram-negative cell wall, peptidoglycan from the gram-positive cell wall, bacterial DNA, N-formylmethionine found in bacterial proteins, double stranded RNA from viruses, and glucans from fungal cell walls.
这种被识别的结构被称为病原相关分子模型，它包括革兰氏阴性菌细胞壁上的脂多糖，革兰氏阳性菌细胞壁上的肽聚糖，细菌 DNA，细菌蛋白质中的N-甲酰甲硫氨酸，病毒的双股 RNA和真菌细胞壁的葡聚糖。
Most body defense cells have pattern-recognition receptors for these common pathogen-associated molecular patterns and so there is an immediate response against the invading microorganism. Pathogen-associated molecular patterns can also be recognized by a series of soluble pattern-recognition receptors in the blood that function as opsonins and initiate the complement pathways. In all, the innate immune system is thought to recognize approximately 10' molecular patterns.
多数机体防御细胞都有普通病原相关分子模型的模型识别受体，因而机体对侵入的微生物产生快速的应答反应。血液中一系列可溶性模型识别受体还可以识别病原相关分子模型，这些受体起到调理素作用，还可启动补体途径。总之，先天性免疫系统被认为可以识别约10°种分子模型。
The innate immune responses involve: phagocytic cells (neutrophils, monocytes, and macrophages); cells that release inflammatory mediators (basophils, mast cells, and eosinophils); natural killer cells (NK cells); and molecules such as complement proteins, acute phase proteins, and cytokines.
先天性免疫应答包括：吞噬细胞（嗜中性粒细胞，单核细胞和巨噬细胞），释放炎症介质的细胞（嗜碱性粒细胞，肥大细胞和嗜酸性白细胞），自然杀伤性细胞（NK cells）和一些分子，如补体蛋白、急相蛋白和细胞因子。
Examples of innate immunity include anatomical barriers, mechanical removal, bacterial antagonism, pattern-recognition receptors, antigen-nonspecific defense chemicals, the complement pathways, phagocytosis, inflammation, fever, and the acute phase response.
先天性免疫包括机体的解剖屏障，机械性排除，细菌对抗机制，模型识别受体，非特异性抗原防御化合物，补体途径，吞噬作用，炎症，发热和急相应答反应等。
Adaptive (acquired) immunity refers to antigen-specific defense mechanisms that take several days to become protective and are designed to react with and remove a specific antigen. This is the immunity one develops throughout life.
适应性（获得性）免疫就是指特异抗原防御机制，它需要几天时间才能与特异性抗原反应并消除之，起到保护作用。获得性免疫是人终生产生的免疫。
An antigen is defined as a substance that reacts with antibody molecules and antigen receptors on lymphocytes. An immunogen is an antigen that is recognized by the body as nonself and stimulates an adaptive immune response.
抗原就是指与抗体分子和淋巴细胞上抗原受体发生反应的物质。所谓免疫原就是被机体识别为异物，并可刺激获得性免疫应答反应的抗原。
For simplicity we will use the term antigen when referring to both antigens and immunogens. The actual portions or fragments of an antigen that react with antibodies and lymphocyte receptors are called epitopes.
简单起见，在谈到抗原和免疫原时我们将使用抗原一词。抗原中与抗体和淋巴细胞受体发生反应的部分或片段称为抗原决定簇
As we will see below, the body recognizes an antigen as foreign when epitopes of

that antigen bind to B-lymphocytes and T-lymphocytes by means of epitope-specific receptor molecules having a shape complementary to that of the epitope.
从下文我们将了解到，当抗原决定簇凭借抗原决定簇特异受体分子（其形状与抗原决定簇形状互补）与B淋巴细胞和T淋巴细胞结合时，机体把抗原识别为异物。
The epitope receptor on the surface of a B- lymphocyte is called a B-cell receptor and is actually an antibody molecule called surface immunoglobulin (sIg). The receptor on a T-lymphocyte is called a T-cell receptor (TCR).
B淋巴细胞表面的抗原决定簇受体被称为B细胞受体。确切地说，它是被称为表面免疫球蛋白（Slg）的抗体分子。T淋巴细胞上的受体被称为T细胞受体（TOR）。
It is thought that the human body has the genetic ability to recognize 10' ~10° different epitopes. In other words, the body has 10? ~10° distinct clones of both B-lymphocytes and T-lymphocytes, each with a unique B-cell receptor or T-cell receptor.
现已公认，人体具有识别10'～10°个不同抗原决定簇的遗传能力。换句话说，机体具有B和T淋巴细胞的10‘~109 个独特的克隆，每个克隆有一个独特的B细胞或T细胞受体。
In this variety of B-cell receptors and T-cell receptors there is bound to be at least one that has an epitope-binding site able to fit, at least to some degree, any antigen the immune system eventually encounters.
在各种B细胞受体或 T细胞受体中，肯定至少有一个受体具有抗原决定簇结合部位，在某种程度上，能结合免疫系统最终遇到的任何抗原。
With the adaptive immune responses, the body is able to recognize any conceivable antigen it may eventually encounter.
在获得性免疫应答中，机体能够识别任何最终遇到的可以想像到的抗原

The downside to the specificity of adaptive immunity is that only a few B-cells and T-cells in the body recognize any one epitope. These few cells then must rapidly proliferate in order to produce enough cells to mount an effective immune response against that particular epitope, and that typically takes several days. During this time the pathogen could be causing considerable harm, and that is why innate immunity is also essential.
获得性免疫的狭义特异性是指机体中仅有少数B和.T细胞可识别任何一种抗原决定簇，这些少数细胞必须快速增殖，以产生足够的细胞来建立起有效的抗特异抗原决定簇的免疫应答，这需要花费几天的时间。在此期间，病原可能会严重损伤机体，这就是先天性免疫为何如此重要的原因
Adaptive immunity usually improves upon repeated exposure to a given infection and involves: antigen-presenting cells (APCs) such as macrophages and dendritic cells; the activation and proliferation of antigen-specific B-lymphocytes; the activation and proliferation of antigen-specific T-lymphocytes; and the production of antibody molecules, cytotoxic T-lymphocytes (CTLs), activated macrophages and NK cells, and cytokines.
获得性免疫在重复接触特定感染时免疫能力提高，其中包括：抗原递呈细胞（APCs）如巨噬细胞和树突状细胞，抗原特异性B淋巴细胞的激活和增殖，杭原特异性T淋巴细胞的激活和增殖及产生抗体分子、细胞毒T淋巴细胞（CTLs）、激活的巨噬细胞和NK细胞，以及合成细胞因子。
There are two major branches of the adaptive immune responses: humoral

immunity and cell-mediated immunity.
Humoral immunity involves the production of antibody molecules in response to an antigen and is mediated by B-lymphocytes.
Cell-mediated immunity: Cell-mediated immunity involves the production of cytotoxic T-lymphocytes, activated macrophages, activated NK cells, and cytokines in response to an antigen and is mediated by T-lymphocytes.
获得性免疫应答有两个方面：体液免疫和细胞介导免疫。
体液免疫包括对抗原产生应答反应后合成抗体分子，由B淋巴细胞介导。
细胞介导免疫：包括产生细胞毒T淋巴细胞、激活的巨噬细胞、激活的NK细胞，以及应答抗原合成的细胞因子，并且是由T淋巴细胞介导的。
Infections can plague surgical patients in four major settings: (1) with primary surgical disease (e.g., osteomyelitis that occurs secondary to an open fracture, pyometra, peritonitis that occurs secondary to gastrointestinal perforation, or prostatic abscessation); (2) as a complication of a surgical procedure not commonly associated with infection; (3) as a complication of support procedures; and (4) with prosthetic implants. The bacteria that cause infections associated with primary surgical diseases are characteristic of the nonsterile source (eg., skin, urinary tract, or gastrointestinal tract).
外科病例感染主要发生在以下四个方面：（1）伴随原发性的外科疾病（如开放性骨折继发的骨髓炎，子宫蓄脓，胃肠穿孔继发的腹膜炎，或前列腺脓肿）：（2）通常不伴发感染的手术并发症；（3）支持疗法并发症；（4）假体性植入物。引起原发性外科疾病感染的细菌特征是有未灭菌的感染源（如皮肤、尿道或者胃肠道），

These infections are subject only to surgical treatment and not surgical prevention. Initial antibiotic selection is based on expected bacterial flora and later modified by culture and sensitivity results.
这些感染只能由外科治疗，而不能进行外科预防。治疗感染开始时选用什么抗生素应基于对菌群的预测，随后根据细菌培养和药敏试验结果进行调整。
Sites of surgical procedures not normally associated with infection become infected when bacteria are introduced from nonsterile surfaces, such as the skin, gastrointestinal tract, or urinary tract, to sterile tissues. All surgical procedures result in some bacterial contamination.
当细菌从未消毒的表面，如皮肤、胃肠道或尿道，进入术部的无菌组织时，通常情况下接触不到感染源的手术部位会被感染。全部手术过程被细菌污染。
Development of infection depends on the number and virulence of the bacteria, the competence of host defenses, and the amount of tissue damage and dead space resulting from the procedure. Infections can be minimized through meticulous surgical technique, copious wound lavage; closure of dead space, and appropriate antibiotic prophylaxis.
感染能否发展取决于细菌毒力及数量、宿主机体免疫力、组织损伤程度和手术死腔。感染的发生率可经谨慎的外科操作、大量的伤口冲洗、闭合死腔以及适当地使用抗生素而降到最低
Infection may be a complication of support procedures, particularly when extensive support procedures are performed in debilitated, traumatized, or immunocompromised patients. Intravenous catheters maybe associated with sepsis that persists until the catheters are removed.
Patients with prolonged intravenous catheterization should be monitored carefully for infection.

感染有可能因外科支持疗法而引发，尤其是对乏力、精神受创或免疫力低的病畜实施大量的支持疗法更易并发感染。静脉导管疗法直到导管移除前都可能引发败血症。长期施用静脉导管的病畜应细心监控感染

Cephalic catheters typically should be changed every 48 to 72 hours, although jugular catheters often last for 7 to 10 days if managed properly. Urinary catheters are a common source of infection in perioperative patients.

头部导管应每隔48~72h 更换一次。不过颈静脉导管在处理得当时可以维持7~10d。尿道导管是手术期间病畜感染的一个普通感染源。

Patients with indwelling urinary catheters are not protected from infection by systemic antibiotics. Indwelling urinary catheters should be connected to closed drainage systems to help prevent ascending infection.

病畜体内尿导管的感染不受全身抗生素的影响，体内尿导管应连接在闭合的排尿系统，以助于阻止上行感染。

Prolonged endotracheal intubation promotes the development of infection through the presence of a foreign body, disruption of the mucociliary apparatus, and disruption of an effective cough reflex.

长期使用气管内插管易因出现异物、破坏黏膜纤毛的功能和破坏有效的咳嗽反射而产生感染

Prosthetic implants are foreign substances used to support, rebuild, or in some fashion mimic the function of an anatomic structure (i.e., total hip replacement, polypropylene mesh, nonabsorbable suture, vascular prostheses, metallic implants, or methylmethacrylate bone cement). The presence of foreign material in contaminated or infected wounds significantly increases the chance for chronic infection and implant rejection. Antibiotic treatment is seldom successful until the implant is removed because implants inhibit medications and defense mechanisms from reaching bacteria. However, if sterile, biocompatible implants are placed using appropriate aseptic surgical technique and antibiotic prophylaxis, infection and subsequent implant rejection are rare. Transient bacteremia (e. g., such as occurs with ultrasonic dental prophylaxis) may seed porous implants (i. e., methylmethacrylate) with bacteria and cause an infection. Therefore patients with surgical implants that require such procedures should be treated beforehand with prophylactic antibiotics.

假体性植入物是作为一种异物来起到支持、恢复或替代某些解剖结构的功能（即髖骨整体替换、聚丙烯网膜、非吸收性缝线、人造血管、：金属埋植体、异丁酸甲酯骨黏合剂）。在被污染的或感染的创口内有外源性物质时会明显增加慢性感染和异物排斥反应的机会。在埋植物除去前用抗生素治疗感染很少能奏效，因为这些埋植体会阻止药物和机体防御机制接触细菌。然而，如果用恰当无菌的外科技术和抗生素预防的方法，将经消毒的、与机体相容的外植体植入体内，感染以及并发的异物排斥反应都少见。短暂的菌血症（如在使用超声波洁牙机预防牙病时发生）可能使多孔植入物（异丁烯酸甲酯）带有细菌并引发感染。有外科植入体的病高如需要类似的治疗步骤，需要先对其使用预防性抗生素。

Vaccines are basically of two types, live (attenuated) or inactivated (dead) vaccines. More recently, vaccines which contain selected virus proteins (e. g., hepatitis B vaccine) have been developed.

疫苗基本上分两种，活（弱毒）疫苗或死（灭活）疫苗。后来，含有病毒选择性蛋白的疫苗被研发，如乙肝疫苗。

Many, however, are only at the experimental stage of development. Even more

recently have been experiments using DNA as a source of vaccination. Vaccines are administered by a number of routes, intramuscular, intradermal, subcutaneously, intranasal or oral.
然而，许多疫苗都处在试验阶段。近来，有人利用 DNA 作为资源研制疲苗。疫苗使用途径有许多种：肌肉、皮内、皮下注射、滴鼻或口服等。
It is generally accepted that live vaccines are the preferred vaccines. Initially, they were derived by continued passage of virulent wild type virus in tissue culture, this process selecting for avirulent viruses which will replicate in vivo but not cause disease.
通常认为，活疫苗是首选。起初，活疫苗是将毒力强的野生毒株经过组织传代培养而获得，此过程选择可在体内复制但并不引起疾病的无毒力病毒。
Such viruses could, however, revert back to wild type phenotype and indeed in some cases during the early years of their use did so.
然而，这种病毒可能返祖为野生表现型。早期使用这些疫苗时有些病例确实出现过返祖现象。
This rather empirical approach has now been replaced by the genetic "manufacture" of viruses with deleted or mutagenize genes. The risk of reversion with these vaccines is minimal. However, many are the original mutants created by tissue culture passage over 40 years ago.
这种带有经验主义的方法现在已经被带有剔除或诱变基因的遗传病毒产品所代替。这些疫苗返祖的危险性最低。然而，许多疫苗是 40多年前用组织传代法制造的原始突变体
Live vaccines have distinct advantages over killed. They require small amounts of input virus; they can induce local immunity; they may be given by the natural route of infection and they are usually cheaper.
与灭活疫苗相比，活疫苗有许多独特的优点，如病毒需要量少、可诱导局部免疫，可通过自然感染途径免疫，并且通常价格便宜。
The drawbacks to their use include reversion to virulence, ineffectiveness if not kept live (i. e. refrigerated or freeze dried), ineffectiveness in individuals with infections of the gut, where the polio virus vaccine will not grow, contamination with adventitious agents and limited use in immune suppressed patients. Recent experiments have shown that, for poliovirus type 3, reversion to a virulent form involves only two amino acid changes.
活疫苗应用的缺点包括毒力返祖、失活无效（如不冷藏或冻干）、对消化道疾病患富无效、脑脊髓炎病毒疫苗不能生长、易受其他制剂污染和限制在免疫抑制的病盲使用等。最近试验证明，脑脊髓炎3型病毒，仅涉及两种氨基酸突变就逆转成强毒力型。
The early polio vaccine still used in many countries typifies the approach to dead vaccination. High titers of wild-type virus are grown in tissue culture and inactivated chemically byl the use of, for example, 3-propiolactone or formaldehyde. The killed virus is administered parenterally (subcutaneously or intradermally) in order to stimulate an immune response. With no subsequent virus replication the immune response follows that of a "primary response" to an inert antigen. The necessary high levels of IgG are therefore stimulated only by multiple injections.
许多国家仍使用的早期脑脊髓炎疫苗是灭活疫苗的代表。高浓度野生型病毒在组织培养物中生长，再使用3-丙烯内酯或甲醛等进行化学灭活。灭活疫苗需通过非肠道法使用（皮下或皮内），以刺激免疫应答反应。此疫苗随后不发生病毒复制，对惰性抗原产生“初步应答”反应。通过多次注射可以刺激产生必要的高浓度 IgG。

Killed vaccines have the advantage of non-reversion to virulence, are not " inactivated" in the tropics; can be administered to immune suppressed patients and are usually not affected by "interference" from other pathogens (important in many developed countries) They are, however, expensive, do not stimulate local immunity, are considered dangerous f manufacture (prior to inactivation) and require multiple doses. The recently derived hepatitis A vaccine is a dead vaccine, primarily because it was technically impossible to develop an attenuated virus capable of liver growth but no disease.

灭活疫苗的优点是毒力不可逆转、热带地区不需“灭活”；可用于免疫抑制的病盲以及不受其他病原菌干扰（在许多发达的国家很重要）。然而，灭活疫苗比较昂贵、不能刺激局部免疫、生产危险（灭活前）并且需要多次接种。近来研制的甲型肝炎疫苗就是灭活疫苗，主要是因为从技术水平上还不能开发能够在肝内生长而又不引起疾病的活病毒

It is considered that the use of dead vaccines alone, which often allow some wild-type virus replication at local sites will not be sufficient to totally eradicate viruses from the world.

有人认为，单独使用灭活疫苗常常使一些野生型病毒在局部复制，所以它不能全面充分地在全球根除病毒。

Attempts to produce these vaccines, often referred to as subunit vaccines have been prompted by a number of factors. Many viruses do not grow in tissue culture; some are considered by some scientists to be too dangerous for use as live or killed vaccines; the vaccine may become latent in the body and become reactivated; the vaccine may be poorly effective and have side effects.许多因素促使被称为亚单位疫苗的生产。许多病毒不能在组织培养物中生长；有些科学家认，有些病毒不管作为活疲苗还是死疫苗使用都太危险；疫苗可在体内潜伏，并可重新激活；有些疫苗效果较差并有副作用。

The basis of the approach is to develop a vaccine product which, when injected into the host, will induce protective immunity! The virus protein of choice for such a vaccine is usually a capsid or envelope protein, often the protein which binds to the cell receptor. These proteins can be extracted from the virion by chemical treatment, concentrated from the plasma of infected patients and inactivated, engineered by recombinant DNA technology or synthesized as a peptide (still experimental, but examples include foot and mouth disease virus)

人们努力的基础是研制一种注射给宿主时产生诱导保护免疫的疫苗产品。制造这种疫苗的病毒蛋白通常是病毒壳体或膜蛋白，常是结合细胞受体的蛋白。此蛋白可通过化学处理从病毒粒子中提取出来、可从病高的血浆中浓缩出来并灭活、可用重组 DNA 技术设计或合成为一种肽类（尚在试验中，包括口蹄疫病毒）。

These vaccines may suffer from some of the drawbacks of dead whole virion vaccines in as much as they do not replicate in the host. They are not good inducers of immunity and presentation of virus antigens in such a way as to optimally stimulate the immune system is a very important area of research. Antigens may be injected with adjuvants (immune, stimulating chemicals) or as chimeric proteins linked to e. g., host interleukins. Another approach under study at present is to introduce the selected viral gene into a virus vector. The vaccination virus is then used to vaccinate the host, the virus replicating and expressing a number of antigens(including the cloned gene product) which in turn stimulate immunity.

这些疫苗具有整个病毒粒子灭活疫苗的缺点，因为它们在宿主体内不能复制。这种疫苗不是很好的免疫诱导因子，而使用病毒抗原以能够更好地刺激免疫系

统，是研究的一个非常重要的方面。抗原可以结合佐剂（免疫刺激化合物）注射或作为结合宿主白细胞介素的嵌合蛋白使用。目前研究的另一种方法是把选择的病毒基因导入病毒载体中。用病毒载体免疫宿主，病毒复制并表达多种抗原（包括克隆基因产品），依次刺激机体产生免疫应答。

The only subunit vaccine in general use at present is the hepatitis B surface antigen which has been genetically engineered into and expressed by yeast cells. The vaccine is used routinely to induce protection against hepatitis B in members of the medical profession.

目前，通常使用的亚单位疫苗是乙型肝炎表面抗原，此抗原被导入酵母细胞并被表达。这种疫苗在许多医学领域内被用于日常诱导防御乙型肝炎的应答反应。

These appear to be an exciting innovative approach to vaccination. DNA-encoding antigenic portions of viruses (e. g., protective antigens) are inserted into a plasmid which can be injected into the host as "naked" DNA free of protein or nucleoprotein complexes. Host cells take up the DNA and may express the virally encoded proteins. Such vaccines stimulate excellent cytotoxic I-cell responses as the plasmid DNA provides internal adjuvant action through its"immunostimulating sequences", i. e. unmethylated CpG.. Experimental influenza vaccines in animals have proved effective in challenge experiments and clinical trials are underway with e. g., HIV.

这似乎是令人兴奋的、创新的疫苗生产方法。将DNA 编码的病毒抗原部分（如保护性抗原）插入质粒中，作为不含蛋白质或核蛋白复合体的裸露 DNA 注给宿主。宿主细胞获得 DNA 并表达有毒力的编码蛋白质。当质粒 DNA 通过“免疫刺激序列”提供内在佐剂作用时，这种疫苗极好地刺激细胞毒素的T-细胞应答反应。动物实验已经证明，流感疫苗在攻毒试验中有效，另一个例子是 HIV 的疫苗，有关它的临床试验正在进行中。

Parasites have to be controlled. 必须控制寄生虫

The instruments need to be sterilized. 器械必须消毒

These containers are waiting to be considered. 这些容器等待重新装料

These animals are liable to be attacked by germs. 这些动物易遭微生物侵袭

The microorganism can be eliminated by disinfectant. 该微生物可用消毒剂清除

Decay is accelerated by enzymes. 酶的作用加快了腐败

The animals used in the experiment were randomly divided into several groups. 受试动物被随机分为几组

Symptoms of pulmonary tuberculosis are usually fewer and milder than the extent of the disease would suggest.肺结核的症状通常要比疾病严重程度所该表现的为少，而且要轻微些

Thus, the concept of receptor implies that the same molecule that has the binding or recognition site can participate normally in the initiating event in cell activation.因此，受体的概念是具有结合或识别（化学信使）的位点，在正常情况下参与细胞活动启动的分子

The third column of Table 3 represents the concentrations of estrogen.表三第三栏表雌激素浓度

Though usually of a round shape，the nucleus may sometimes be elongated and rod-shaped，as in non-striated muscle cells，or irregular in shape，as in some white blood corpuscles细胞虽通常呈圆形，但有时亦可呈细长形或棒状，如平滑肌细胞核；细胞核还可呈不规则形，如白细胞

how acquired characters are inherited is yet to be found out获得性特征如何遗传

we all know that red blood cells carry oxygen from the lungs to the rest of the bod.

There is little doubt that antibiotics，particularly those of the broad spectrum，can reduce secondary bacterial infections.毫无疑问，抗生素特别是那些广谱抗生素，能够减少继发性的细菌感染
antibiotics 抗生素 nerve fiber神经纤维 microscope显微镜 vegetation植物 polyavitaminosis多种维他命缺乏症polyuria多尿症atom原子vitalism生命力说 aminoacid氨基酸acidosis酸毒症 trophia营养 uraemia尿毒症 atrophy萎缩 leucocytemia白细胞增多症 mycosis霉菌病embryology胚胎学 anthrax炭疽 androgen雄激素appendix阑尾hyperemia充血infectio感染pharmaco药物 therapia疗法enzyme酶bacteria细菌organism生物antibiotics抗生素 lymphocyte淋巴细胞 myeloblast成骨髓细胞monoblast单核细胞 megacaryo巨核erythro红血haemocyte血细胞microorganism微生物 acupuncture anaesthesia针刺麻醉 arteries动脉intestine肠tissue fluid组织液 cardiac failure心力衰竭tumor neoplasm肿瘤antibody抗体 canine犬的anatomy解剖学 omnivorous杂食动物skull颅骨incisor切齿 claw爪子pulmonary肺的 tuberculosis结核病 connective tissue结缔组织 histology组织学embryology胚胎学macroscopical宏观的protozoa原生动物 gastrointestinal肠胃的respiratory呼吸的cardiovascular心血管的 endocrine内分泌homeostasis动态平衡morphological形态学的 biophysics生物物理学gametogenesis配子形成gamete受精卵sperm精子 mitotic有丝分裂的proliferation增殖germ生殖细胞gonad性腺 diploid双倍的haploid单倍的meiosis减数分裂primordial原始的 epiblast外胚层sac囊endoderm内胚层dorsal脊的 mesentery肠系膜hindgut后肠mesenchyme间叶细胞 genital生殖的oogenesis卵子发生innate immunity先天性免疫opsonin调理素 adaptive immunity 获得性免疫complement补体pathogen病原 phagocytic cells吞噬细胞neutrophil嗜中性粒细macrophage巨噬细胞 peptidoglycan肽聚糖glucan葡聚糖monocyte 单核细胞receptor受体 basophil嗜碱性粒细mast cell 肥大细eosinophil嗜酸性白細inflammation炎症 cytokine细胞因子acute phase protein急性蛋白antagonism对抗性 immunogen免疫原epitope抗原决定簇immunoglobulin球蛋白proliferate增殖 antigen-presenting cells抗原递呈细胞dendritic树突状cytotoxic细胞毒的humoral体液avirulent无毒力的intradermal皮内的subcutaneously皮下地typify具有••特征mutagenize诱变mutant突变体adventitious外来的 polio (polioencephalitis) 脑脊髓炎propiolactone丙烯内酯 formaldehyde甲醛parenterally非肠道地sub-virion亚病毒粒子capsid病毒壳体 adjuvant佐剂的chimeric嵌合体的plasmid质粒cytotoxi细胞毒的 unmethylated非甲基化的influenza流感plague折磨瘟疫disruptio中断 gastrointestinal胃与肠的procedure程序，手续osteomyelitis骨髓炎 pyometra 子宫蓄脓 peritonitis 腹膜炎 prostatic 前列腺的 prosthetic 修复的 nonsterile有菌的virulence有毒，毒性competence能力meticulous细的精确的 debilitated疲惫不堪的prophylaxis预防intravenous静脉注射的sepsis 脓毒症 immunocompromised .免疫妥协的jugular颈部perioperative手术期间的 mucociliary黏液纤毛的.vascular脉管的aseptic.无菌的copious丰富的 catheter 导管catheterization导管插endotracheal气管内的