PCEM 2 – ANGLAIS MÉDICAL

1ER TEXTE – MARS 2008

TRAVAIL DE PRÉPARATION. Il est demandé aux étudiants d'effectuer le travail suivant comme préparation au cours.

1. VOCABULAIRE : POUR CHAQUE DÉFINITION INDIQUER LE MOT EN ANGLAIS ET SA TRADUCTION EN FRANÇAIS. NB. *Il ne s'agit en aucun cas de deviner les mots, ceux-ci sont soulignés dans le texte et suivent le même ordre que les définitions. Il est inutile d'ailleurs de recourir au dictionnaire pour les traductions puisqu'un lexique figure à la fin du texte (En revanche, si vous ne connaissez pas certains mots non soulignés, le dictionnaire peut toujours être utile).*

2. QUESTIONS NUMÉROTÉES DE 1 À 17 : POUR CHAQUE INFORMATION DEMANDÉE,

—(1.) FORMULER D'ABORD UNE QUESTION. NB. *Certains mots qui figurent en italique dans les amorces ne sont pas a priori utilisables tels quels dans les questions. Il faut soit les modifier (p. ex. : The production of enzymes in the pancreas. → What enzymes does the pancreas produce ?), soit les supprimer.*

—(2.) PUIS UTILISER LES MOTS SUGGÉRÉS DANS LES CADRES POUR RÉDIGER UNE RÉPONSE. *Les mots proposés pour chaque réponse doivent servir de guide et non pas d'obstacle. Ils proviennent d'une réponse type, qui n'est pourtant pas la seule envisageable. Les étudiants sont encouragés à utiliser le plus de mots possible pour que leurs réponses soient complètes, cependant il n'est pas toujours indispensable d'utiliser tous les mots, et les étudiants peuvent les modifier s'ils en éprouvent le besoin.*

3. "True or False ?" : La réponse à ces questions peut être "*vrai*", "*faux*" mais encore "*imprécis*", "*incomplet*", "*vrai pour la première moitié seulement*" etc. En règle générale, des précisions supplémentaires seraient opportunes, il ne suffit pas de citer une phrase du texte mot pour mot.

*Il est impératif de faire les questions personnelles à la fin de chaque section du texte (***Make up one original question of your own…***) car ce sont celles qui serviront de base à la discussion en cours. Toute question, si simple ou compliquée soit-elle, sera acceptée.*

Anatomy

VOCABULARY *in context*. Match the following definitions with words from the reading passage below, then give an appropriate translation in French.

1. *The entire material or physical structure of an organism, especially of a human. :* _____
2. To a high degree or extent, extremely : _____
3. To be composed of, to be formed of : _____
4. The smallest structural unit of an organism that is capable of independent functioning, consisting of one or more nuclei, cytoplasm, and various organelles, all surrounded by a semipermeable cell membrane. : _____
5. To succeed in doing; bring to pass. To put in effect : _____
6. To keep in existence; maintain. : _____
7. Scientific study of living organisms. : _____
8. The science of the structure of living organisms : _____
9. 1. the science which treats of the functions of the living organism and its parts, and of the physical and chemical factors and processes involved. 2. the basic processes underlying the functioning of a species or class of organism, or any of its parts or processes. _____
10. Relative position or rank on a scale. A relative degree : _____
11. A constituent element or part. : _____
12. A differentiated part of the body that performs a specific function. : _____
13. The condition or fact of being related; connection or association. : _____
14. The study of the structures of the body that can be seen with the naked eye. Also called macroscopic anatomy. : _____
15. The pursuit of knowledge, as by reading, observation, or research. : _____
16. The eye unassisted by an optical instrument. : _____
17. Throughout the course or duration of. At some time in : _____
18. The act or an instance of cutting apart or separating tissue, especially for anatomical study : _____
19. An implement used to facilitate work, especially to a relatively small precision tool used by trained professionals. Syn. tool. : _____
20. The branch of biology that deals with the formation, structure, and activity of macromolecules essential to life, such as nucleic acids, and especially with their role in cell replication and the transmission of genetic information. : _____
21. 1. Relating to the study of the chemical substances and vital processes occurring in living organisms. 2. Relating to the chemical composition of a particular living system or biological substance. : _____
22. Attracting notice as being unusual or extraordinary. In such a way as to elicit comment because it is unusual or extraordinary : _____
23. Union of male and female gametes to form the diploid zygote, leading to development of a new individual. : _____
24. A coming into being; act or process of being born. : _____
25. The speed or frequency with which an event or circumstance occurs per unit of time, population, or other standard of comparison. : _____
26. To become slow or slower. : _____
27. The time or state of being a child. The period of life between infancy and puberty. : _____
28. Up to or at a specified time; yet. All the same; nevertheless. : _____
29. The process of growing. The progressive increase in size of a living thing, especially the process by which the body reaches its point of complete physical development. : _____
30. To take place. : _____
31. Beyond in time; later than or after : _____
32. The period of time after physical growth has stopped and an organism is fully developed : _____
33. To participate in personally; undergo. To live through, to undergo an emotional sensation : _____
34. The process of growing old or maturing. The gradual changes in the structure of a mature organism that occur normally over time and increase the probability of death. : _____

The human body is a complex, highly organized structure made up of unique cells that* work together to accomplish the specific functions necessary for sustaining life. The biology of the human body includes structure (anatomy) and function (physiology).

Anatomy is organized by levels, from the smallest components of cells to the largest organs and their* relationships to other organs. Gross anatomy is the study of the body's organs as seen* with the naked eye during visual inspection and when the body is cut open for examination (dissection). Cellular anatomy is the study of cells and their components, which* can be observed only with the use of special techniques and special instruments such as microscopes. Molecular anatomy (often called molecular biology) is the study of the smallest components of cells at the biochemical level.

Anatomy and physiology change remarkably between fertilization and birth. After birth, the rate of anatomic and physiologic changes slows, but childhood is still a time of remarkable growth and development. Some anatomic changes occur

past adulthood, but the physiologic changes in the body's cells and organs are what contribute most to what we experience as aging.

***What do the following words refer to ?**

a. *" that* work together to accomplish "* → "That" refers to…
b. *"and their* relationships to other organs"* → "Their" refers to…
c. *"the study … as* seen with the naked eye"* → "As seen with the naked eye" refers to …
d. *"and their* components"* → "Their" refers to …
e. *"which* can be observed only with the use of special techniques"* → "Which" refers to …

True or False ? (Be ready to explain).

i. *Another name for "cellular anatomy" is histology.*
ii. To study the body's organs, doctors mainly practice visual inspection and dissection.

Questions : (1) Ask questions about the following points, then (2) let someone else answer in a complete sentence (3) using as many of the suggested terms as possible.

WHAT -- HOW

1. **Techniques *that* gross anatomy involves. *The difference between* the techniques of cellular anatomy and gross anatomy.** → …

studying -- by simple -- and dissection -- whereas -- observation -- and -- such as -- required for -- and cellular -- a.k.a. -- anatomy

Gross anatomy …

2. **Make up one original question of your own relating to this section of the article, and write a 2-3 line answer to it using information either from the article or from outside sources.**

For example :
--Is the study of anatomy an important part of medicine ? Why ?

--How are anatomy and physiology related ? Can you give some examples ?

--Which areas of the body do you know best ?

--What is the best way to study anatomy ?

--Are there other levels of study between gross anatomy and cellular anatomy ?
--etc.

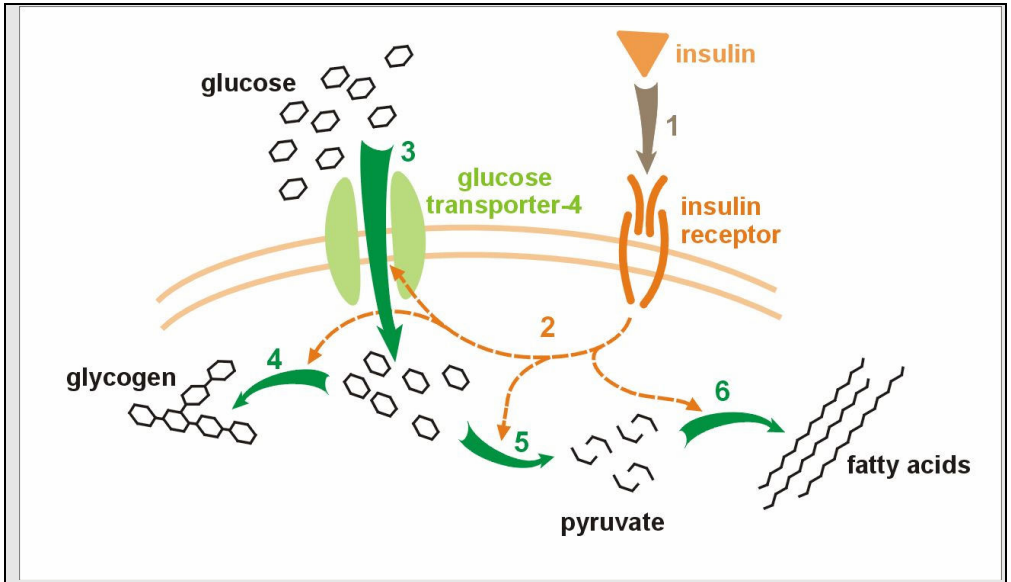
Cells

VOCABULARY *in context*. Match the following definitions with words from the reading passage below, then give an appropriate translation in French.

35. *Be composed of :* _____
36. *Individual, particular, characteristic :* _____
37. *Physical dimensions, proportions :* _____
38. *To a certain degree :* _____
39. *A female gamete; an ovum :* _____
40. *All that is contained in a volume; everything inside :* _____
41. *To join; connect :* _____
42. *Biochemistry. A molecular structure or site on the surface or interior of a cell that binds with substances such as hormones, antigens, drugs, or neurotransmitters :* _____
43. *To act in response to or under the influence of a stimulus :* _____
44. *1. A substance used in the diagnosis, treatment, or prevention of a disease or as a component of a medication. 2. A chemical substance, such as a narcotic or hallucinogen, that affects the central nervous system, causing changes in behavior and often addiction :* _____
45. *To receive; include Syn. to absorb :* _____
46. *To permit; to make possible :* _____
47. *To come into existence; produce an effect Syn. happen, occur :* _____
48. *Inside the limits; in the interior; internally :* _____
49. *One of the parts or spaces into which an area is subdivided; A section :*_____
50. *To expend; use :* _____
51. *To begin and carry through to completion; do :* _____
52. *The process by which a cell divides to form two daughter cells :* _____

Often thought* of as the smallest unit of living organisms, a cell is made up of many even smaller parts, each* with its* own function. Human cells vary in size, but all* are quite small. The largest*, a fertilized egg, is too small to be seen with the naked eye.

Human cells have a **membrane** that holds the contents together. However, this membrane is not just a sac. It* has **receptors** that identify the cell to other cells. The receptors also react to substances produced in the body and to drugs taken into the body, selectively allowing these* substances or drugs to enter and leave the cell. Reactions that take place at the receptors often alter and control a cell's functions. An example of this* is when insulin binds to receptors on the cell membrane to maintain appropriate blood sugar levels and to allow glucose to enter cells.

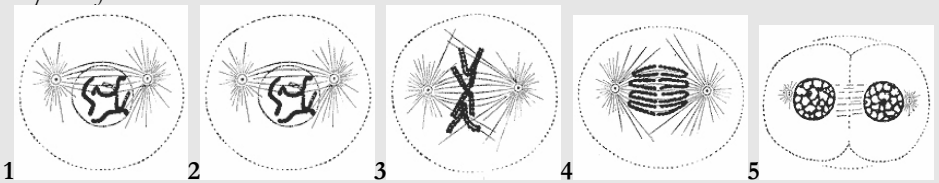


Effect of insulin on glucose uptake and metabolism. *There are special transporter proteins in cell membranes through which glucose from the blood can enter a cell. These transporters are, indirectly, under insulin control in certain body cell types (e.g., muscle cells). Activation of insulin receptors leads to internal cellular mechanisms that directly affect glucose uptake by regulating the number and operation of protein molecules in the cell membrane that transport glucose into the cell. Insulin binds to its receptor (1) which in turn starts many protein activation cascades (2). These include : translocation of Glut-4 transporter to the plasma membrane and influx of glucose (3), glycogen synthesis (4), glycolysis (breakdown of glucose to release energy in the form of ATP) (5) and fatty acid synthesis (6). Two types of tissues are most strongly influenced by insulin, as far as the stimulation of glucose uptake is concerned: muscle cells (myocytes) and fat cells (adipocytes).*

Within the cell membrane are two major compartments, the **cytoplasm** and the **nucleus**. The cytoplasm contains structures that consume and transform energy and perform the cell's functions. The nucleus contains the cell's genetic material and the structures that control cell division and reproduction. Inside every cell are mitochondria. **Mitochondria** are tiny structures that provide the cell with energy.

Cell division (Mitosis)

S-phase (Interphase, *not shown*) : *DNA synthesis or replication occurs. At the beginning of the S stage, each chromosome is composed of one coiled DNA double helix molecule, which is called a chromatid. At the end of this stage, each chromosome has two identical DNA double helix molecules, and therefore is composed of two sister chromatids.*



1 2 3 4 5

1. Prophase : *Chromatin condenses together into chromosomes. The replicated chromosomes have two sister chromatids.*

2. Prometaphase : *Microtubules which have radiated from the two centrosomes located at the opposite poles of the cells invade the nuclear space as the nuclear membrane dissolves.*

3. Metaphase : *The chromatids line up along the equator of the cell and are attached to spindle fibres, which begin to drag the chromatids apart.*

4. Anaphase : *The proteins that bind sister chromatids together are cleaved, allowing them to separate.*

5. Telophase : *A new nuclear envelope forms around each set of separated sister chromosomes. Both sets of chromosomes unfold back into chromatin.*

Cytokinesis : *The membrane cleaves to form two separate cells. Each daughter cell has a complete copy of the genome of its parent cell.*

***What do the following words refer to ?**

f. *"thought* of as the smallest unit"* → "Thought of as" describes …
g. *"each* with its* own function"* → "Each" and "its" refer to …
h. *"all* are quite small"* → "All" refers to …
i. *"The largest*, a fertilized egg…"* → "The largest" means the largest …
j. *"It* has receptors that identify the cell"* → "It" refers to …
k. *"selectively allowing these* substances … to enter and leave the cell"* → "These substances" refers to …
l. *"An example of this*"* → "This" refers to…

True or False ? (Be ready to explain).

iii. Cells are the smallest units of living organisms.
iv. The cell's genetic material is contained in the nucleus in the form of chromosomes.
v. Substances such as hormones or drugs enter or leave the cell through receptors[1].

Questions : (1) Ask questions about the following points, then (2) let someone else answer in a complete sentence (3) using as many of the suggested terms as possible.

WHAT -- WHERE

3. The functions *of* the cell membrane. → …

together -- and helps -- functions -- thanks to[2] -- which -- selectively -- or -- and leave

The cell membrane …

4. *The location of* the cellular structures that control energy consumption, cell division and other major functions. → …

including -- and -- of energy, -- out -- by -- contained within -- while[3] -- and -- controlled -- those contained -- in which -- also

The cell's primary functions, …

5. Make up one original question of your own relating to this section of the article, and write a 2-3 line answer to it using information either from the article or from outside sources.

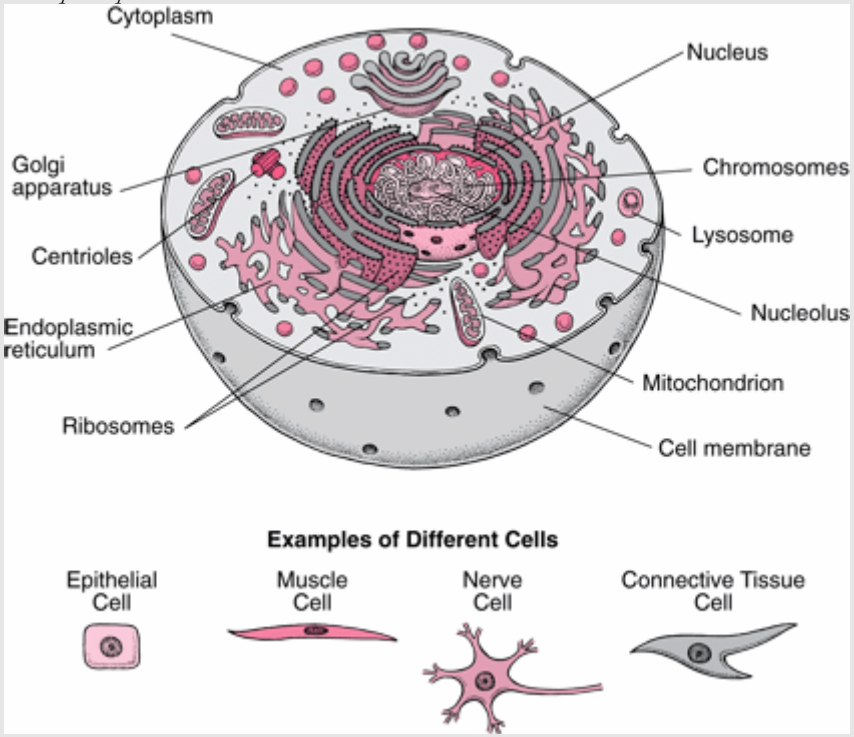
[1] Cf. infra : *Receptors : Ionotropic, Metabotropic*

[2] NB. thanks to = because of, on account of / *grâce à*

[3] NB. while = 1. *pendant que*, 2. *tandis que*

Inside a Cell

Although there are different types of cells, most cells have the same components. A cell consists of a ***nucleus*** *and* ***cytoplasm*** *and is contained within the cell* ***membrane****, which regulates what passes in and out. The nucleus contains* ***chromosomes****, which are the cell's genetic material, and a* ***nucleolus****, which produces ribosomes.* ***Ribosomes*** *produce proteins, which are packaged by the* ***Golgi apparatus*** *so that they can leave the cell. The cytoplasm consists of a fluid material and* ***organelles****, which could be considered the cell's "organs". The* ***endoplasmic reticulum*** *transports materials within the cell.* ***Mitochondria*** *generate energy for the cell's activities.* ***Lysosomes*** *contain enzymes that can break down particles entering the cell.* ***Centrioles*** *participate in cell division.*



Match the terms in the image above with their definitions below :

i. *The semipermeable membrane that encloses the cytoplasm of a cell :* _____

ii. *Two cylindrical cellular structures that are composed of nine triplet microtubules and form the asters during mitosis :* _____

iii. *A threadlike linear strand of DNA and associated proteins in the nucleus that carries the genes and functions in the transmission of hereditary information :* _____

iv. *Tissue arising chiefly from the embryonic mesoderm that is characterized by a highly vascular matrix and includes collagenous, elastic, and reticular fibers, adipose tissue, cartilage, and bone. It forms the supporting and connecting structures of the body :* _____

v. *The [complex, semifluid, translucent substance] outside the nucleus of a cell :* _____

vi. *A membrane network within the cytoplasm of cells involved in the synthesis, modification, and transport of cellular materials :* _____

vii. *Cells separated by very little intercellular substance and forming the covering of most internal and external surfaces of the body and its organs :* _____

viii. *A network of stacked membranous vesicles that functions in the formation of secretions within the cell :* _____

ix. *A membrane-bound organelle in the cytoplasm containing various hydrolytic enzymes that function in intracellular digestion :* _____

x. *A spherical or elongated organelle in the cytoplasm, containing genetic material and many enzymes important for cell metabolism, including those responsible for the conversion of food to usable energy :* _____

xi. *A cylindrical, multinucleate cell composed of numerous myofibrils that contracts when stimulated :* _____

xii. *The impulse-conducting cells that constitute the brain, spinal column, and nerves, consisting of a nucleated cell body with one or more dendrites and a single axon :* _____

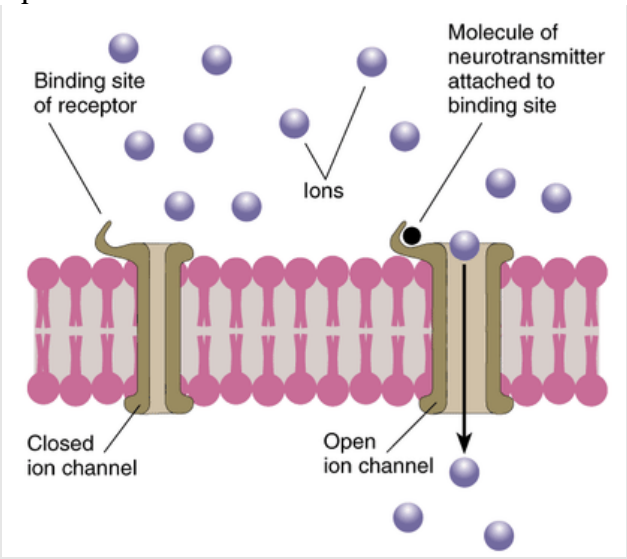
xiii. *A small, typically round, granular body composed of protein and RNA in the nucleus of a cell, usually associated with a specific chromosomal site and involved in ribosomal RNA synthesis and the formation of ribosomes :* _____

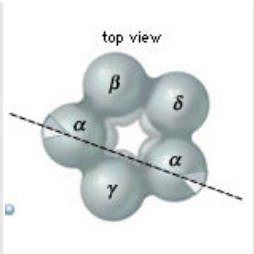
xiv. *A large, membrane-bound, usually spherical protoplasmic structure, containing the cell's hereditary material and controlling its metabolism, growth, and reproduction :* _____

xv. *A differentiated structure within a cell, such as a mitochondrion, vacuole, or chloroplast, that performs a specific function :* _____

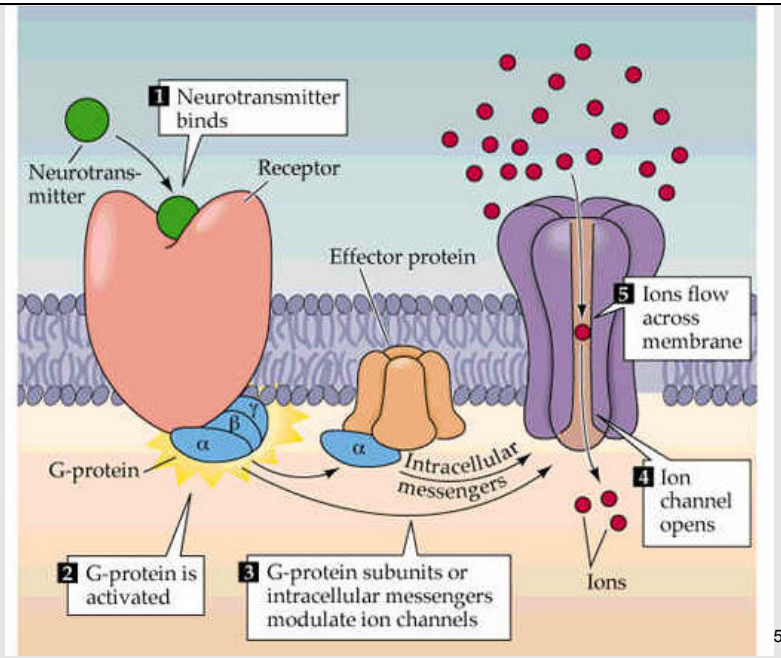
xvi. *A minute, round particle composed of RNA and protein found in the cytoplasm of living cells and active in the synthesis of proteins :* _____

Receptors





Ionotropic receptor[4] : *The Ligand-gated ion channels, also referred to as LGICs, or ionotropic receptors, are opened in response to binding of a chemical messenger. The prototypic ligand-gated ion channel is the nicotinic acetylcholine receptor, found in the central nervous system and the peripheral nervous system as well as in the neuromuscular junctions of somatic muscles. It consists of a pentamer of protein subunits, with two binding sites for acetylcholine, which alter the receptor's configuration and cause an internal pore to open. This pore allows Na^+ ions to flow down into the cell. With a sufficient number of channels opening, the intracellular Na^+ concentration rises to the point at which the positive charge within the cell is enough to depolarize the membrane, and an action potential is initiated.*



[5]

Transmembrane receptor[6] :

- *Receptors exist in different types, dependent on their **ligand** (i.e. the effector molecule, such as a neurotransmitter, hormone or drug, that binds to a site on a macromolecule's surface) and function :*
- ***Metabotropic** receptors (those which do not form an ion channel pore) are coupled to G proteins and affect the cell indirectly through enzymes which control ion channels. Ionotropic receptors contain a central pore which functions as a ligand-gated ion channel.*
- *Receptors typically respond only to a specific molecule or ligand. Many hormone receptors and neurotransmitter receptors are **transmembrane** proteins, embedded in the lipid bilayer of cell membranes, which allow the activation of signal transduction pathways in response to the activation by the binding molecule, or ligand.*
- *Signal **transduction** refers to the process by which a cell converts one kind of signal or stimulus into another. Upon binding to its receptor, a ligand initiates transmission of a signal across the plasma membrane by inducing a change in the shape or conformation of the intercellular part of the receptor.*

[4] Image source(s) : http://homepage.psy.utexas.edu/homepage/class/Psy332/Salinas/Neurotransmission/Neurotrans.html ; http://cache.eb.com/eb/image?id=54741

[5] http://www.arts.uwaterloo.ca/~bfleming/psych261/lec4se2.jpg

[6] Source(s) : adapted from http://en.wikipedia.org ; "Receptor (biochemistry)", "Signal transduction"

Cells *(continued)*

VOCABULARY *in context*. Match the following definitions with words from the reading passage below, then give an appropriate translation in French.

53. *For example :* _____
54. *The fluid consisting of plasma, erythrocytes, leukocyte, corpuscles and platelets that is circulated by the heart through the vascular system, carrying oxygen and nutrients to and waste materials away from all body tissues :* _____
55. *Without physical restriction; at liberty :* _____
56. *Solidly, durably, securely :* _____
57. *The membranous tissue forming the external covering of the body and consisting of the epidermis and dermis :* _____
58. *Rapidly; in a short time :* _____
59. *Cordlike bundles of fibers made up of neurons through which sensory stimuli and motor impulses pass between the brain or other parts of the central nervous system and the eyes, glands, muscles, and other parts of the body :* _____
60. *Functioning as a gland :* _____
61. *First in importance; principal :* _____
62. *A substance, usually a peptide or steroid, produced by one tissue and conveyed by the bloodstream to another to effect physiological activity, such as growth or metabolism :* _____
63. *Numerous proteins functioning as biochemical catalysts :* _____
64. *Two milk-secreting, glandular organs on the chest of a woman; the human mammary gland :* _____
65. *A long, irregularly shaped gland, lying behind the stomach, that secretes enzymes into the duodenum and insulin, glucagon, and somatostatin into the bloodstream :* _____
66. *A polypeptide hormone functioning in the regulation of the metabolism of carbohydrates and fats, especially the conversion of glucose to glycogen, which lowers the blood glucose level :* _____
67. *A covering or coating for an inside surface :* _____
68. *Two spongy, saclike respiratory organs occupying the chest cavity together with the heart and functioning to remove carbon dioxide from the blood and provide it with oxygen :* _____
69. *The viscous, slippery substance that consists chiefly of mucin, water, cells, and inorganic salts and is secreted as a protective lubricant coating by cells and glands of the mucous membranes :* _____
70. *The cavity lying at the upper end of the alimentary canal, bounded on the outside by the lips and inside by the oropharynx and containing the tongue, gums, and teeth :* _____
71. *To serve as a medium; transmit :* _____
72. *The electrochemical transmission of a signal that produces an excitatory or inhibitory response at a target tissue, such as a muscle or another nerve :* _____
73. *The portion of the nervous system consisting of the brain and spinal cord, to which sensory impulses are transmitted and from which motor impulses pass out, and which supervises and coordinates the activity of the entire nervous system :* _____
74. *The portion of the central nervous system that is enclosed within the cranium, continuous with the spinal cord, and composed of gray matter and white matter. It is the primary center for the regulation and control of bodily activities, receiving and interpreting sensory impulses, and transmitting information to the muscles and body organs. It is also the seat of consciousness, thought, memory, and emotion :* _____
75. *The thick, whitish cord of nerve tissue that extends from the medulla oblongata down through the spinal column and from which the spinal nerves branch off to various parts of the body :* _____

The body is composed of many different types of cells, each* with its* own structure and function. Some*, such as white blood cells, move freely, unattached to other cells. Others*, such as muscle cells, are firmly attached one to another*. Some cells, such as skin cells, divide and reproduce quickly; others, such as nerve cells, do not divide or reproduce except under unusual circumstances. Some cells, especially glandular cells, have as their* primary function the production of complex substances, such as a hormone or an enzyme. For example, some cells in the breast produce milk, some in the pancreas produce insulin, some in the lining of the lungs produce mucus, and some in the mouth produce saliva. Other cells have primary functions that* are not related to the production of substances – for example, muscle cells contract, allowing movement. Nerve cells generate and conduct electrical impulses, allowing communication between the central nervous system (brain and spinal cord) and the rest of the body.

***What do the following words refer to ?**

m. *"each* with its* own structure and function"* → "Each" and "its" refer to …
n. *"Some*, such as white blood cells, move freely… Others*, such as muscle cells…"* → "Some" and "others" refer to …
o. *"firmly attached one to another*"* → "One" and "another" refer to …
p. *"as their* primary function"* → "Their" refers to …
q. *"those* in the pancreas produce insulin, those* in the lining of the lungs… and those* in the mouth…"* → "Those" refers to …
r. *"that* are not related to the production of substances"* → "That" refers to …

True or False ? (Be ready to explain).

vi. Like white blood cells, red blood cells move freely within the body unattached to other cells.

vii. Endocrine glands secrete substances within the body, whereas exocrine glands secrete substances outside the body.

Questions : (1) Ask questions about the following points, then (2) let someone else answer in a complete sentence (3) using as many of the suggested terms as possible.

HOW (×2) -- WHY -- WHERE -- WHAT SORTS OF

6. *The difference between* white blood cells and other types of cells. *The reason for this.* → …

cells -- to other -- thus -- freely -- within -- so as to[7] -- pathogenic

Unlike …

7. *The location of* glandular cells. *Examples of products* of glandular cells. → …

wherever -- such as -- or -- secreted -- e.g.[8] in -- where milk -- which -- insulin -- of the lungs -- protected -- or -- where -- secreted

Glandular cells …

8. *Means by which the* CNS communicates with other parts of the body. → …

the rest -- by means[9] of -- which -- to other -- by -- cells

The CNS …

9. Make up one original question of your own relating to this section of the article, and write a 2-3 line answer to it using information either from the article or from outside sources.

[7] NB. so as to = in order to / *afin de* (cf. so that)
[8] NB. e.g. = "exempli gratia" (lat.), for example / *par exemple*
[9] NB. a means = *un moyen*

Tissues and Organs

VOCABULARY *in context*. Match the following definitions with words from the reading passage below, then give an appropriate translation in French.

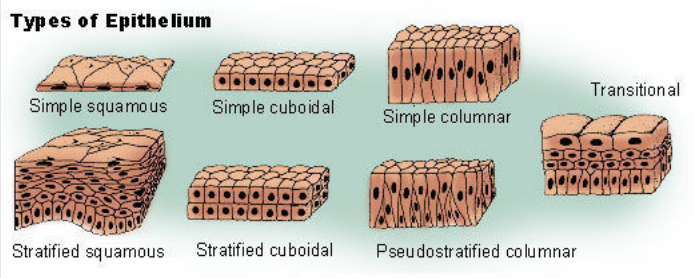
76. *Associated; Connected by common origin etc. :* _____
77. *To make a reference (by a specific name) :* _____
78. *Biology. An aggregation of morphologically similar cells and associated intercellular matter acting together to perform one or more specific functions in the body. There are four basic types : muscle, nerve, epidermal, and connective :* _____
79. *Exactly equal; Having such a close similarity or resemblance as to be essentially equal or interchangeable :* _____
80. *To function; operate :* _____
81. *A portion, piece, or segment that is representative of a whole; a specimen :* _____
82. *To move from a place; to take away; to extract :* _____
83. *An optical instrument that uses a lens or a combination of lenses to produce magnified images :* _____
84. *The removal and examination of a sample of tissue from a living body for diagnostic purposes :* _____
85. *Even if; despite the fact that :* _____
86. *Tissue arising chiefly from the embryonic mesoderm that is characterized by a highly vascular matrix and includes collagenous, elastic, and reticular fibers, adipose tissue, cartilage, and bone. It forms the supporting and connecting structures of the body :* _____
87. *Strong and resilient :* _____
88. *To connect; to cause to cohere or stick together :* _____
89. *To make available; supply; give :* _____
90. *A differentiated structure (such as an eye, a heart or a kidney) consisting of cells and tissues and performing a specific function :* _____
91. *Anatomy. The chambered, muscular organ that pumps blood received from the veins into the arteries, thereby maintaining the flow of blood through the entire circulatory system :* _____
92. *Anatomy. A large, reddish-brown, glandular organ located in the upper right portion of the abdominal cavity that secretes bile and is active in the formation of certain blood proteins and in the metabolism of carbohydrates, fats, and proteins :* _____
93. *The organ of vision having a lens capable of focusing incident light on an internal photosensitive retina :* _____
94. *The enlarged, saclike portion of the alimentary canal, one of the principal organs of digestion, located between the esophagus and the small intestine :* _____
95. *To compose, constitute; form :* _____
96. *Anatomy. A membranous structure in a hollow organ or passage, as in an artery or a vein, that folds or closes to prevent the return flow of the body fluid passing through it :* _____
97. *A quantity measured with respect to another measured quantity; A measure of a part with respect to a whole; a proportion; a speed :* _____
98. *A single complete pulsation of the heart :* _____
99. *The black circular opening in the center of the iris of the eye, through which light passes to the retina :* _____
100. *A transparent, biconvex body of the eye between the iris and the vitreous humor that focuses light rays entering through the pupil to form an image on the retina :* _____
101. *The transparent, convex, anterior portion of the outer fibrous coat of the eyeball that covers the iris and the pupil and is continuous with the sclera :* _____
102. *To perceive; To detect :* _____
103. *Though it may seem improbable :* _____
104. *A small, pear-shaped muscular sac, located under the right lobe of the liver, in which bile secreted by the liver is stored until needed by the body for digestion :* _____
105. *A bitter, alkaline, brownish-yellow or greenish-yellow fluid that is secreted by the liver, stored in the gallbladder, and discharged into the duodenum and aids in the emulsification, digestion, and absorption of fats. Also called gall :* _____
106. *To force out; To discharge from a receptacle :* _____
107. *On the outside; external :* _____
108. *The surface of a body organ or part :* _____

Related cells joined together are collectively referred to as a **tissue**. The cells in a tissue are not identical, but they* work together to accomplish specific functions. A sample of tissue removed for examination under a microscope (biopsy) contains many types of cells, even though a doctor may be interested in only one specific type.

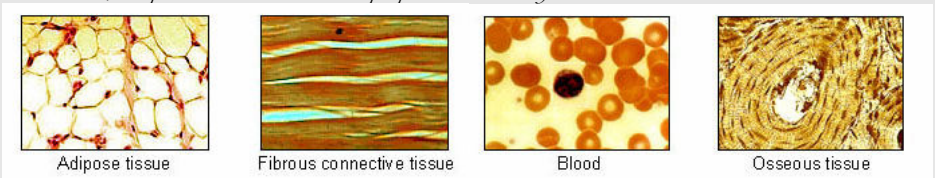
Connective tissue is the tough, often fibrous tissue that binds the body's structures together and provides support. It* is present in almost every organ, forming a large part of skin, tendons, and muscles. The characteristics of connective tissue and the types of cells it* contains vary, depending on where it is found in the body.

Types of tissue : *There are four basic types of tissue.*

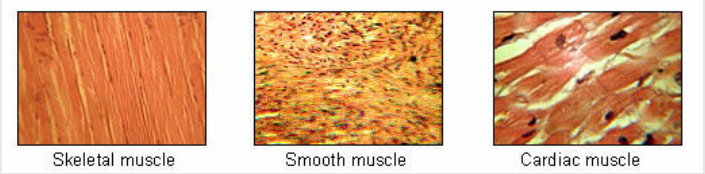
- **Epithelium** - *Tissues composed of layers of cells that cover organ surfaces such as surface of the skin and inner lining of digestive tract : the tissues that serve for protection, secretion, and absorption.*



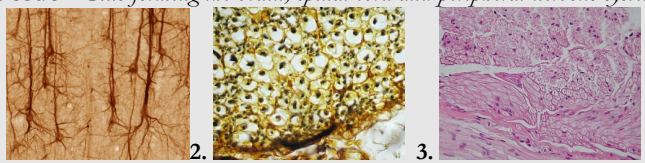
- **Connective tissue** - *Connective tissue holds everything together. These tissues contain extensive extracellular matrix (collagen fibers, proteins and minerals outside the cell). Blood, cartilage, and bone are usually considered connective tissue, but because they differ so substantially from the other tissues in this class, the phrase "connective tissue proper" is commonly used to exclude those three.*



- **Muscle tissue** - *Muscle cells contain contractile filaments that change the size of the cell. Muscle tissue also is separated into three distinct categories : visceral or smooth muscle, which is found in the inner linings of organs; skeletal muscle, which is found attached to bone in order for mobility to take place; and cardiac muscle which is found in the heart.*

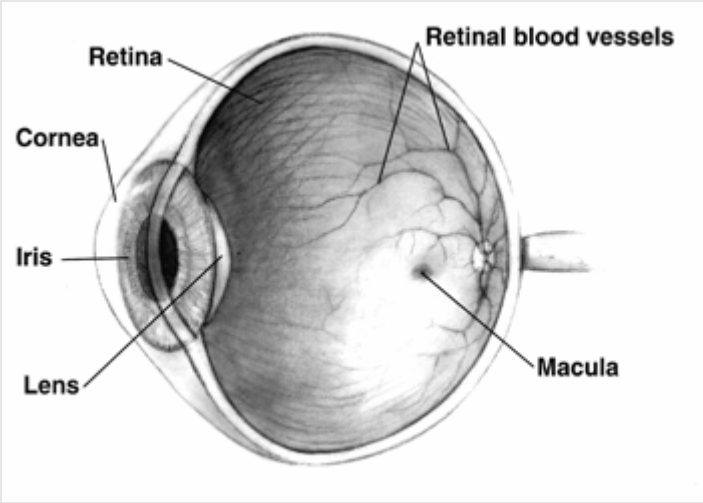


- **Nervous tissue** - *Cells forming the brain, spinal cord and peripheral nervous system.*



1. Pyramidal neurons in cerebral cortex, 2. Myelinated fibers in the spinal cord, 3. Peripheral nerve cross section

The body's functions are conducted by organs. Each organ is a recognizable structure – for example, the heart, lungs, liver, eyes, and stomach – that performs specific functions. An organ is made of several types of tissue and therefore several types of cells. For example, the heart contains muscle tissue that contracts to pump blood, fibrous tissue that makes up the heart valves, and special cells that maintain the rate and rhythm of heartbeats. The eye contains muscle cells that open and close the pupil, clear cells that make up the lens and cornea, cells that produce the fluid within the eye, cells that sense light, and nerve cells that conduct impulses to the brain. Even an organ as apparently simple as the gallbladder contains different types of cells, such as those* that form a lining resistant to the irritative effects of bile, muscle cells that contract to expel bile, and cells that form the fibrous outer wall holding the sac together.



Cross-sectional diagram of a human eye.
The cornea and lens help to converge light rays to focus onto the retina. The lens, behind the iris, is a convex, springy disk which focuses light onto the retina. The iris, between the lens and the first humour, is a pigmented ring of fibrovascular tissue and muscle fibres. Light must first pass though the centre of the iris, the pupil. The size of the pupil is actively adjusted to maintain a relatively constant level of light entering the eye. Too much light being let in could damage the retina; too little light makes sight difficult.

***What do the following words refer to ?**

s. *"they* work together to accomplish specific functions"* → "They" refers to …
t. *"It* is present in almost every organ"* → "It" refers to …
u. *"the types of cells it* contains vary"* → "It" refers to …
v. *"such as those* that form a lining"* → "Those" refers to …

True or False ? (Be ready to explain).

viii. Biopsies are mainly used to diagnose cancer.

ix. A synonym for the heart is the "myocardium".

x. Blood contains several different types of cells, and should therefore be considered as an organ.

Questions : (1) Ask questions about the following points, then (2) let someone else answer in a complete sentence (3) using as many of the suggested terms as possible.

HOW (×3) -- WHAT… FOR -- WHAT… LIKE -- WHERE -- WHAT (×5) -- WHICH

10. *The relationship* between cells in a tissue. → …

together -- and -- together -- specific -- thus -- and structurally -- to one another[10] – even though[11] -- identical

The cells that …

11. *The objective of taking* tissue samples. → …

often -- in order to -- that is,[12] -- of cells -- under -- for -- purposes

…

12. *The properties and location* of connective tissue. → …

and often -- although -- and -- depending on -- in which -- Indeed,[13] -- which -- together -- and provides -- almost every -- especially

Connective tissue is …

13. "Organs" *and their composition.* → …

of several -- which -- recognizable -- such as[14] -- or -- that -- specific -- (e.g. --)

Organs …

14. The "myocardium". *Other tissue types that* the heart contains. → …

tissue -- in -- which -- to -- blood -- however -- also -- which -- composed -- as well as[15] -- that control

The myocardium is the …

15. *The* cells *that* control the amount (quantity) of light that enters the eye. *The mechanism of perception & transmission of* images. Other types of cells *that* the eye contains. → …

iris -- pupil -- so as to -- amount of -- that enters -- perceived by -- -sensitive -- in -- and -- conducted to -- via -- In addition, -- contains -- secrete -- as well as -- of which -- composed

The muscle cells in …

16. *The actual complexity of* the gallbladder. → …

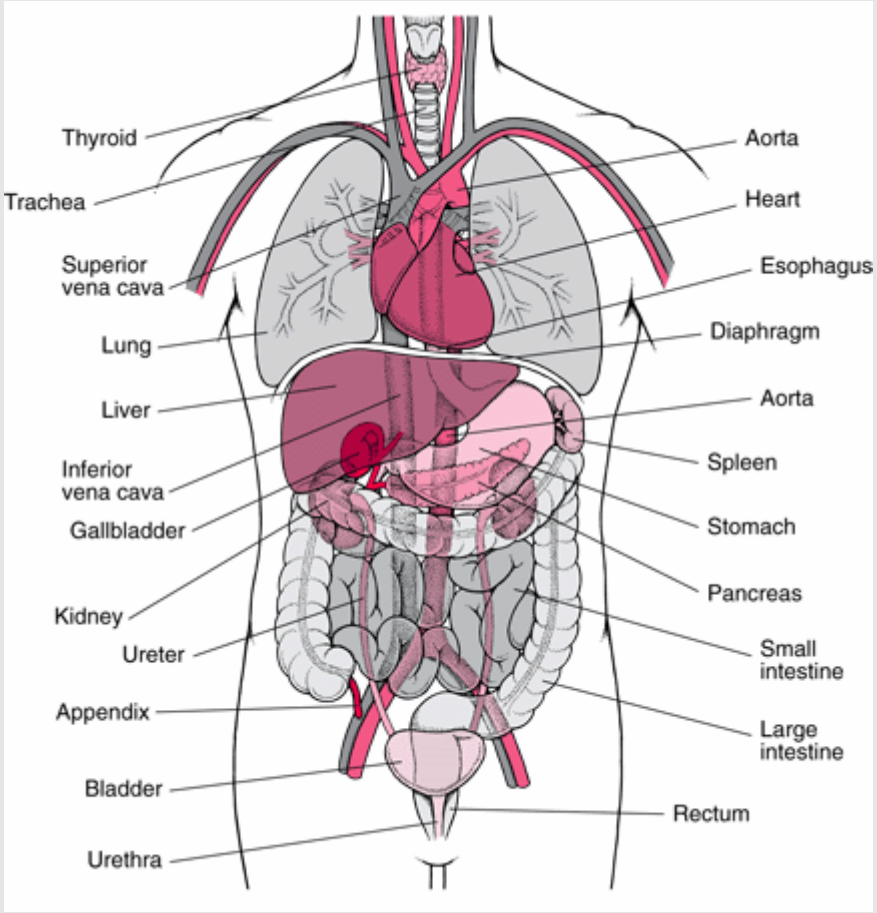
a simple -- actually -- several -- including -- as well as those -- protective -- and -- fibrous

Although the gallbladder …

[10] NB. one another = *l'un et l'autre, l'un avec l'autre, l'un envers l'autre* (pronom réfléchi)
[11] NB. even though, although, though = *même si, quoique, bien que*
[12] NB. that is = in other words / *c'est-à-dire*
[13] NB. indeed = *en effet* (*sert à donner des précisions, des explications supplémentaires*, ≠ in fact)
[14] NB. such as = for example / *tel que*
[15] NB. as well as = in addition to / *aussi bien que, de même que, en plus de*

17. Make up one original question of your own relating to this section of the article, and write a 2-3 line answer to it using information either from the article or from outside sources.

Inside the Torso



Match the terms in the image above with their definitions below :

i. *The main trunk of the systemic arteries, carrying blood from the left side of the heart to the arteries of all limbs and organs except the lungs :* _____

ii. *A narrow vestigial process projecting from the cecum in the lower right-hand part of the abdomen : (*_____

iii. *A muscular membranous partition separating the abdominal and thoracic cavities and functioning in respiration. Also called midriff :* _____

iv. *The muscular, membranous tube for the passage of food from the pharynx to the stomach :* _____

v. *A small, pear-shaped muscular sac, located under the right lobe of the liver, in which bile secreted by the liver is stored until needed by the body for digestion :* _____

vi. *The chambered, muscular organ that pumps blood received from the veins into the arteries, thereby maintaining the flow of blood through the entire circulatory system :* _____

vii. *A pair of organs in the dorsal region of the abdominal cavity, functioning to maintain proper water and electrolyte balance, regulate acid-base concentration, and filter the blood of metabolic wastes, which are then excreted as urine :* _____

viii. *The portion of the intestine that extends from the ileum to the anus, forming an arch around the convolutions of the small intestine and including the cecum, colon, rectum, and anal canal :* _____

ix. *A large, reddish-brown, glandular organ located in the upper right portion of the abdominal cavity that secretes bile and is active in the formation of certain blood proteins and in the metabolism of carbohydrates, fats, and proteins :* _____

x. *Two spongy, saclike respiratory organs, occupying the chest cavity together with the heart and functioning to remove carbon dioxide from the blood and provide it with oxygen :* _____

xi. *A long, irregularly shaped gland, lying behind the stomach, that secretes enzymes that aid in digestion into the duodenum and insulin, glucagon, and somatostatin into the bloodstream :* _____

xii. *The terminal portion of the large intestine, extending from the sigmoid flexure to the anal canal :* _____

xiii. *The narrow, winding, upper part of the intestine where digestion is completed and nutrients are absorbed by the blood. It extends from the pylorus to the cecum and consists of the duodenum, the jejunum, and the ileum :* _____

xiv. *A large, highly vascular lymphoid organ, lying in the human body to the left of the stomach below the diaphragm, serving to store blood, disintegrate old blood cells, filter foreign substances from the blood, and produce lymphocytes :* _____

xv. *The enlarged, saclike portion of the alimentary canal, one of the principal organs of digestion, located between the esophagus and the small intestine :* _____

xvi. *A two-lobed endocrine gland, located in front of and on either side of the trachea in human beings, and producing various hormones, such as triiodothyronine and calcitonin :* _____

xvii. *A thin-walled tube of cartilaginous and membranous tissue descending from the larynx to the bronchi and carrying air to the lungs. Also called windpipe :* _____

xviii. *The long, narrow duct that conveys urine from the kidney to the urinary bladder :* _____

xix. *An elastic, muscular sac situated in the anterior part of the pelvic cavity in which urine collects before excretion : _____*

xx. *The canal through which urine is discharged from the bladder and through which semen is discharged in the male : _____*

xxi. *Two large veins that drain blood from the upper body and from the lower body and empty into the right atrium of the heart : _____*

- (not) at all / (pas) du tout
- (urinary) bladder / la vessie
- a great deal / une bonne quantité, beaucoup
- abdomen / 1. l'abdomen OU 2. la cavité abdomino-pelvienne
- abdominal cavity / la cavité abdominale
- abnormal / anormal
- according to / selon, en fonction de
- actually / en fait, en réalité
- adequate(ly) / suffisant (suffisamment), acceptable(ment), (de manière) satisfaisant(e)
- adrenal glands / les surrénales
- airway / une voie respiratoire
- allow / permettre, autoriser
- although / bien que
- amount / une quantité
- antibody / un anticorps
- antidiuretic (hormone) / antidiurétique
- anus / l'anus
- aorta / l'aorte (f.)
- artery / une artère
- as long as / tant que, à condition que
- atom / un atome
- autonomic nervous system / le système nerveux neurovégétatif
- backward(s) / en arrière
- bacterium (pl. bacteria) / une bactérie
- balance / l'équilibre
- barrier / une barrière
- be made up of (to make up) / être constitué de
- bile / la bile
- bind (together) / (re)lier, attacher
- biopsy / une biopsie
- blood / le sang
- blood vessel / un vaisseau sanguin
- bloodstream / le système sanguin, le sang
- bodily / corporel
- bone / l'os
- brain / le cerveau
- breakthrough / une percée, une découverte capitale
- breast / le sein
- breathing / la respiration., le souffle
- bronchus (pl. bronchi) / la bronche
- burn / brûler
- cancer / le cancer
- carry out / réaliser, exécuter
- CAT scan (Also called CT scan) / le scanner, la tomodensitométrie (TDM)
- cell division / la multiplication cellulaire
- cell membrane / la membrane cellulaire
- centriole / un centriole
- change / un changement
- chemical / une substance chimique
- chromosome / un chromosome
- cilium(pl. cilia) / un cil (NB le cil de la paupière = eyelash)
- compartment / un compartiment
- component / un composant
- conduct / conduire
- confine (to) / limiter, enfermer, confiner
- confines / les confins, les limites
- connective tissue /le tissu conjonctif
- consume / consommer
- contents (pl.) / le contenu
- cornea / la cornée
- cytoplasm / le cytoplasme
- decrease / diminuer, baisser, (se) réduire
- deep / profond
- dehydrated / déshydraté
- design / concevoir
- diagnosis / un diagnostic (NB. pl. = diagnosES; ne pas confondre avec le verbe "to diagnoSE")
- diaphragm / le diaphragme
- digest / digérer
- dilate / (se) dilater
- disease / une maladie, une pathologie
- dramatic / spectaculaire, remarquable
- drug / 1. un médicament 2. une drogue
- ear / l'oreille
- ear canal / le conduit auditif (externe)
- egg (cell) / un ovule
- enable / permettre à qqn. de, rendre qqn. capable de
- endocrine system / le système endocrinien
- endoplasmic reticulum / le réticulum endoplasmique, l'ergastoplasme
- enlist / mobiliser, faire appel à
- entire / entier
- enzyme / un(e) enzyme
- epinephrine (adrenaline) / l'adrénaline
- epithelium / l'épithélium
- esophagus / l'œsophage (m.)
- even / même…
- excrete / excréter
- exit / sortir
- expel / expulser
- extend (from … to) / s'étendre de… à
- extra / supplémentaire, en plus
- eye / l'œil
- fail to / échouer, manquer, ne pas réussir
- feces / le fecès
- fight / combattre
- firmly / fermement, bien (tenu, accroché etc.)
- flight / la fuite (aussi : le vol en avion etc.)
- float / flotter
- flow / couler, circuler
- free(ly) / libre(ment)
- frightened / effrayé
- fullness / la satiété
- gallbladder / la vésicule biliaire
- glandular / glandulaire, glanduleux
- Golgi apparatus / l'appareil de Golgi
- gross anatomy / l'anatomie macroscopique
- growth / une excroissance, une grosseur (aussi : la croissance)
- harm / du mal, du tort
- harmful / nuisible, nocif
- head / la tête
- heart / le cœur
- heart attack / une crise cardiaque, un infarctus du myocarde
- heartbeat / un battement du cœur, une pulsation
- hemorrhage / une hémorragie
- hold… together / maintenir ensemble, unir
- homeostasis / l'homéostasie
- hormone / une hormone
- hunger / la faim
- hydrochloric acid / l'acide chlorhydrique
- identical / identique
- impair / diminuer, affaiblir, détériorer
- impulse / 1. une impulsion 2. un influx nerveux
- include / inclure
- increase / augmenter
- infarction / un infarctus
- infection / l'infection
- inhale / inhaler, inspirer
- insulin / l'insuline (f.)
- intestinal / intestinal
- invasive / invasif
- its own / son propre…
- joint / une articulation
- keep / garder, maintenir
- kidney / le rein
- large intestine / le gros intestin
- layer / une couche, une épaisseur
- leak / fuir, s'échapper (liquide), (aussi : une fuite)
- lens / le cristallin (aussi : une lentille)
- level / un niveau
- life-threatening / qui peut être mortel
- ligament / un ligament
- limb / un membre
- line / recouvrir (l'intérieur)
- lining / un revêtement (intérieur)
- link with / relier à

- liver / le foie
- lung /le poumon
- lysosome / un lysosome
- magnetic field / un champ magnétique
- magnetic resonance imaging (MRI) / l'IRM (imagerie par résonance magnétique)
- mainstay / un soutien, un support, une base, un pilier
- maintain / maintenir
- make up / constituer
- meal / un repas
- metabolism (metabolic rate) / le métabolisme
- microscope / le microscope
- mitochondrion / une mitochondrie
- mouth / la bouche
- mucus / les mucosités, le mucus
- muscle / le muscle
- muscle fiber / une fibre musculaire
- naked / nu
- neck / le cou
- need / un besoin
- neither … nor / ni (l'un) ni (l'autre)
- nerve / un nerf
- network / un réseau
- neuron (also called nerve cell) / un neurone
- neurotransmitter / un neurotransmetteur, un neuromédiateur
- noninvasive / non invasif
- normally / habituellement, d'ordinaire
- nose / le nez
- noticeable / sensible, visible
- nucleolus / le nucléole
- nucleus / le noyau
- nutrient / un nutriment
- obvious / évident
- occur / se produire, avoir lieu
- of course / bien sûr
- on the other hand / d'un autre côté, en revanche, d'autre part
- organ / un organe
- organelle / un organite
- outer / extérieur, externe
- overproduce / surproduire
- oxygen / l'oxygène (m.)
- pancreas / le pancréas
- perform / réaliser, effectuer
- pituitary gland / l'hypophyse (f.), la glande pituitaire
- pool / un étang, une mare
- powerful(ly) / puissant (puissamment), fort
- pressure /la pression
- prevent / empêcher
- primary / principal, premier (en importance)
- proceed / se passer, se dérouler, avancer (procéder)
- produce / produire
- proper / juste, correct
- provide / fournir
- pupil / la pupille
- quicken / accélérer, hâter
- quickly / rapidement, vite
- quite / 1. plutôt, assez 2. tout à fait
- radionuclide / un radionucléide
- radionuclide imaging / °la scintigraphie, °l'exploration radio isotopique, (°techniques de l'imagerie nucléaire)
- rate / 1. un taux, un niveau 2. le rythme
- react / réagir
- receptor / un récepteur
- rectum / le rectum
- refer to (as) / désigner, appeler (par le nom…)
- regulate / régler, réguler
- related / 1. apparenté 2. ayant un rapport, en rapport (avec)
- release / (re)lâcher, libérer
- remove / enlever, retirer
- rest / le repos
- result in / avoir pour résultat (ne pas confondre avec "result from" = résulter de)
- retain / retenir
- ribosome / un ribosome
- room for / (assez d') espace pour
- saliva / la salive
- sample / un échantillon, un prélèvement
- sense / (res)sentir, (a)percevoir
- size / la taille
- skin / la peau
- skull / le crâne
- slightly / légèrement
- slow (down) / ralentir
- small intestine / l'intestin grêle
- sound wave / une onde sonore
- speed (up) / accélérer
- spinal cord / la corde dorsale, le cordon médullaire, la moelle épinière
- spleen / la rate
- stimulate / stimuler
- stomach / l'estomac
- store / stocker, conserver, garder en réserve
- stroke / un accident accident cérébrovasculaire (vasculaire cérébral), une hémorragie cérébrale
- study j/ l'étude
- such as / tel que
- sugar / le sucre, les glucides
- supply / une provision, un approvisionnement, une alimentation (en…)
- surgical(ly) / chirurgical, par intervention chirurgicale
- survive / survivre
- sweep / balayer
- take in(to) / absorber, assimiler, ingérer (un aliment)
- take place / avoir lieu
- tendon / un tendon
- thin / mince, fin
- think of (as) / considérer comme
- thirst / la soif
- though (even though) / même si, quoique
- throat / la gorge
- thyroid gland / la thyroïde
- thyroid hormone / une hormone thyroïdienne
- tissue / le tissu
- tomography / la tomographie
- tough / dur, résistant
- trachea / la trachée
- travel / se déplacer
- tuberculosis / la tuberculose
- two thirds / les deux tiers
- ultimately / finalement, en fin de compte, en dernière analyse
- ultrasound (scan) / une échographie, un ultrason
- unable to+V / incapable de
- underproduce / produire insuffisamment
- unless / à moins que
- until / 1. jusque, jusqu'à ce que 2. (pas) avant
- ureter / l'uretère (m.)
- urethra / l'urètre (m.)
- urine / les urines
- use / l'usage, la consommation
- useful / utile
- valve / une valve, une valvule
- vena cava (pl. venae cavae) / une veine cave
- vermiform) appendix / l'appendice (m.)
- virus (pl. viruses) / un virus
- wall / une paroi
- waste / des déchets, des excréments
- wave / une onde
- way (to+V/of+V-ING) / une manière de, un moyen de
- widen / élargir, agrandir
- wind (through) / onduler
- windpipe (trachea) / la trachée
- within / à l'intérieur
- without / sans
- work / fonctionner, agir (travailler)
- x-ray / un rayon X