Ce sujet sera étudié en deux temps :
1/ pour la première semaine, lire l'article jusqu'à la fin et préparer les questions jusqu'au n° 13, ainsi que les phrases à traduire à la p. 19,
2/ les questions à partir du n° 14 seront traitées la semaine d'après.

Drugs : History and basics of pharmacotherapy

Introductory questions
1. Look at the following list of drugs and decide which drugs are used to treat or prevent what type of disease or condition.

Drug	**Condition**
Digitalis	Diabetes
Cyclosporin	Heart disease
Cimetidine	Cancers
Insulin	Ulcers
Streptokinase and aspirin	Graft rejection
Cytotoxic drugs	Heart attacks

2. What do you think is the major disadvantage of taking drugs ?
a) addiction
b) side effects
c) the placebo effect
d) immunosuppression
e) resistance

VOCABULARY *in context*. Match the following definitions with words from the reading passage below, then give an appropriate translation in French.
1. *A physician (doctor) specializing in the diagnosis and treatment of injury, deformity, and disease by manual and instrumental means :* _____
2. *A person licensed to practice medicine; a medical doctor; A person who practices general medicine as distinct from surgery :* _____
3. *Something used in the performance of an operation; an instrument :* _____
4. *A small, straight knife with a thin, sharp blade used in surgery and dissection :* _____
5. *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 :* _____
6. *To accomplish, carry out, execute :* _____
7. *To draw off (a liquid) by a gradual process; To cause liquid to go out from; empty :* _____
8. *A localized collection of pus, formed by tissue disintegration and surrounded by an inflamed area :* _____
9. Intelligent, brilliant, astute : _____
10. (Not) in any way : _____
11. Not functioning properly : _____
12. *Thick, sticky, stringy mucus secreted by the mucous membrane of the respiratory tract, as during a cold or other respiratory infection :* _____
13. *Any of various often aromatic plants used especially in medicine or as seasoning :* _____
14. *The science of the composition, structure, properties, and reactions of matter, especially of atomic and molecular systems :* _____
15. *A substance with a distinct molecular composition :* _____

Doctors have always divided themselves into surgeons and physicians. The surgeon's tool is the scalpel; the physician's tool has traditionally been the drug. The surgeons were originally barber-surgeons who cut people's hair and performed other cutting procedures (such as draining abscesses) at the same time. The physicians thought that they* were cleverer and more cultured than the surgeons. In fact, people did not think of surgeons as doctors at all ! In ancient times, physicians did not touch the human body directly. They* decided what was wrong with the patient by asking questions and looking at body fluids such as urine, phlegm and vomit. In ancient times, physicians used **herbs** to treat patients. More recently, as the sciences of chemistry and pharmacology developed, they* began to use artificial chemicals or **drugs**.

***What do the following words refer to ?**
a. *"that they* were cleverer and more cultured"* → "They" refers to …
b. *"They* decided what was wrong with the patient by asking questions and looking at body fluids"* → "They" refers to …
c. *"they* began to use artificial chemicals or drugs"* → "They" refers to …

True or False ? (Be ready to explain)
i. Modern physicians touch their patients' bodies.
ii. Modern physicians open the human 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.

WHAT -- HOW (×2)

1. ***The difference*** **between physicians and surgeons.** ***The ways in which*** **physicians and surgeons treat patients.** → …

operate -- on -- by -- instrumental -- use -- in order to

Unlike surgeons, who …

2. *Ways in which* the physician's methods have changed. → …

treated -- with -- now – i.e. artificial -- Moreover, -- not use to -- bodies -- directly -- as -- nowadays

Whereas in the past, …

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

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

16. *To function; operate. To have the desired effect. :* _____

17. 1. From then (the past) until now or between then and now. 2. Because : _____

18. *A pathological condition resulting from infection, genetic defect, or environmental stress, and characterized by an identifiable group of symptoms. A (pathological) impairment of the normal state of the living body or one of its parts that interrupts or modifies the performance of the vital functions and is a response to environmental factors (as malnutrition, industrial hazards, or climate), to specific infective agents (as worms, bacteria, or viruses), to inherent defects of the organism (as genetic anomalies).* SYN. *: sickness, illness :* _____

19. Responsible for oneself; independent of outside help or control : _____

20. *To restore to health :* _____

21. *Various fat-soluble or water-soluble organic substances essential in minute amounts for normal growth and activity of the body and obtained naturally from plant and animal foods. various organic substances that are essential in minute quantities, act especially as coenzymes and precursors of coenzymes in the regulation of metabolic processes but do not provide energy or serve as building units. :* _____

22. *A small pellet or tablet of medicine, often coated, taken by swallowing whole or by chewing :* _____

23. *In good physical condition :* _____

24. *Adequately or properly nourished :* _____

25. Enormous : _____

26. *To expel air from the lungs through the glottis, as the result of an involuntary muscular spasm in the throat or to clear (open) the air passages :* _____

27. *To reduce the incidence or severity of something :* _____

28. *An unhealthy condition of body or mind* SYN. *: sickness :* _____

29. *A substance containing no medication and given to reinforce a patient's expectation to get well. An inactive substance used as a control in an experiment or test to determine the effectiveness of a medicinal drug :* _____

30. *Inactive. Deficient in active properties; especially lacking a usual or anticipated chemical or biological action :* _____

31. *To ease, lighten, or reduce (pain, anxiety, etc.). To free (a person) from pain, discomfort, anxiety, etc :* _____

32. *To have a distinct flavor :* _____

33. *Authentic, real, true :* _____

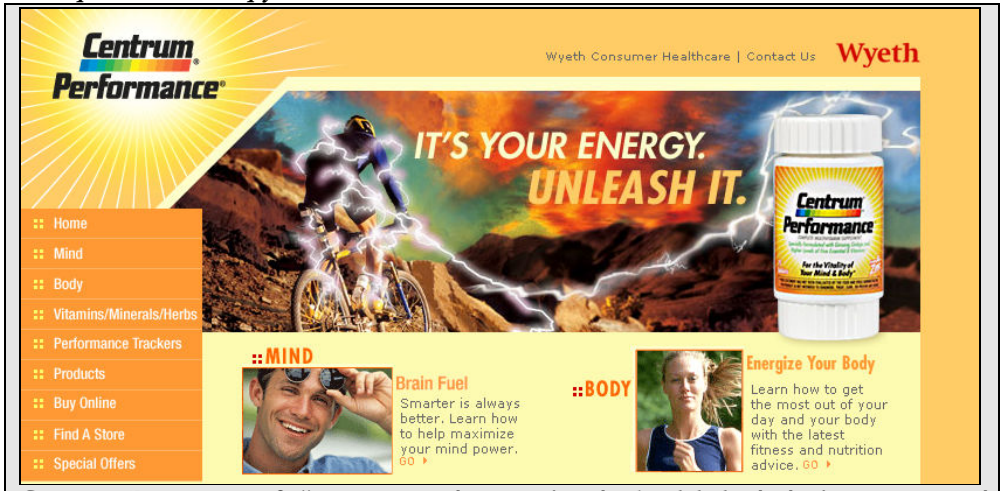
34. *An experiment to test quality, value, or usefulness. Any of a number of repetitions of an experiment :* _____

35. To seem or appear : _____

36. Not one or the other : _____

37. *To make progress :* _____

38. *Having a major effect; important; too closely correlated to be attributed to chance and therefore indicate a systematic relationship :* _____



Centrum Performance® *"A premium multivitamin formulated with higher levels of* ***energy*** *essential nutrients to help* ***energize*** *your body everyday.* Centrum Performance is a premium multivitamin specially formulated with* ***energy****-essential nutrients your body needs every day. It contains higher levels of B vitamins, which help convert food into* ***energy*** *and help maintain nervous system function.* Plus, it has Ginseng and Gingko Biloba that can help your body cope with physical and mental* ***stress****.* Centrum Performance-It's Your* ***Energy****. Unleash It."*[1]

Most of the herbs which the ancient physicians gave to their patients did not work. But since[2] many diseases got better on their own, people thought that the physician's drug had cured the patient. Many modern drugs also do not work. **Vitamin pills** often make a person feel better when he is tired or stressed, but this* is a psychological effect, not a pharmacological one*. Vitamin pills only really benefit people who have a vitamin deficiency. In developed countries today, vitamin deficiency is very rare. Vitamin pills do not cure stress. Yet healthy, well-fed people spend a lot of money on vitamin pills, and the companies who sell these* pills make a huge profit. **Cough medicines** might suppress a person's cough, but they* do not make the illness get better more quickly. Almost all coughs get better on their own after a few days. The patient thinks that the cough medicine has cured him.

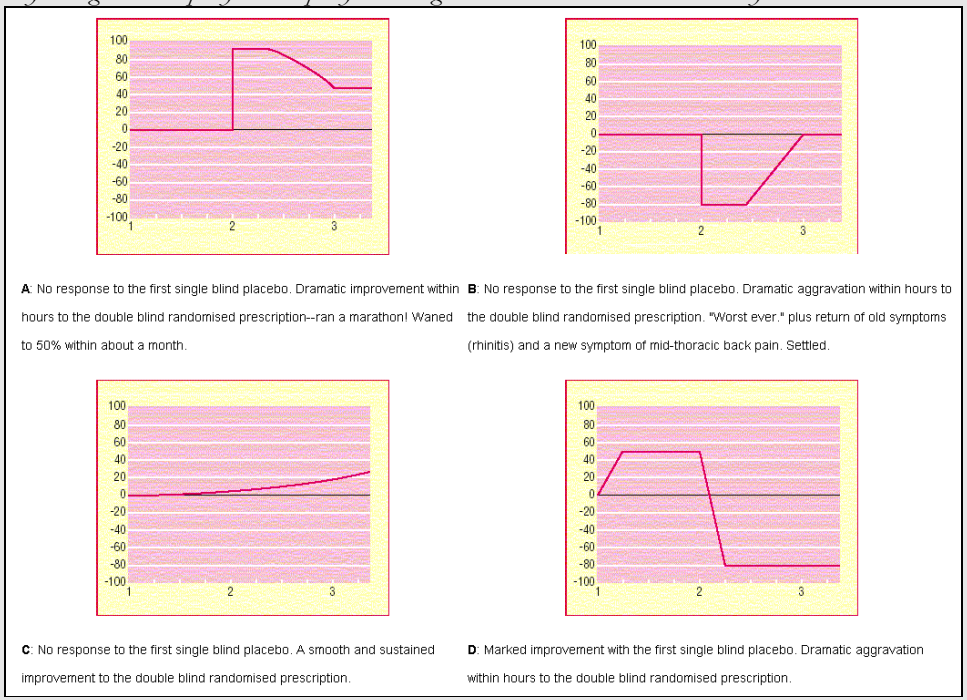
[1] © 2007 Wyeth Consumer Healthcare http://www.centrumperformance.com/products/index.asp

[2] NB. since = 1. From then until now or between then and now ; 2. Inasmuch as, because / *1. depuis (que), 2. puisque…*

Vicks NyQuil Cough *"NyQuil® Cough gives you all-night cough relief so you can sleep.* Active Ingredients *Dextromethorphan HBr 15 mg (Cough suppressant) Doxylamine succinate 6.25 mg (Antihistamine)* Inactive Ingredients *Alcohol, citric acid, FD&C Blue No. 1, FD&C Red No. 40, flavor, high fructose corn syrup, polyethylene glycol, propylene glycol, purified water, saccharin sodium, sodium citrate."* [3]

The psychological benefit of taking a drug is called the **placebo effect**. The drug works because the patient and the doctor believe that it* will work. Completely inert pills can relieve symptoms such as pain or tiredness in many patients. For some patients, red pills work better than white ones*, and medicines which taste bad work better than those* which taste good. There is only one way of proving that a drug has a genuine effect. The physician must do a **placebo-controlled trial** with a group of patients who all have the same illness. He should give the real drug to half the patients, and give a placebo drug -- an inert pill which looks and tastes identical to the real drug -- to the other half. Neither the doctor nor the patient should know which pill is which*. All the patients will probably improve a little, because of the placebo effect. The drug only works if the patients who are taking the real drug improve significantly more than the patients who are taking the placebo drug.

Double-blind trials *In a double-blind experiment, neither the individuals nor the researchers know who belongs to the control group and the experimental group. Performing an experiment in double-blind fashion is a way to lessen the influence of the prejudices and unintentional physical cues on the results (the placebo effect, observer bias, and experimenter's bias). Random assignment of the subject to the experimental or control group is a critical part of double-blind research design. The key that identifies the subjects and which group they belonged to is kept by a third party and not given to the researchers until the study is over.*[4]



These graphs are scanned from charts completed interactively by four different patients and their doctor at three visits, a month apart, during a randomised double blind study of a treatment for asthma. Point 1 on the horizontal axis marks the first visit when each patient had a single blind placebo. Four weeks on at point 2 the patient has been given, randomised and double blind, either a second placebo, or active medication. The challenge is to determine who got an active medication at the second visit compared with those who received a second placebo.[5]

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

d. *"but this* is a psychological effect"* → "This" refers to …

e. *"not a pharmacological one*"* → "One" refers to …

[3] ©2007 Procter & Gamble http://www.vicks.com/1.2_NyQuil.php

[4] http://en.wikipedia.org/wiki/Double_blind

[5] *Reilly DT, Taylor MA. Individual patients and their responses -- OPICS published in pages 26-28 of Developing Integrated Medicine. RCCM Research Fellowship in Complementary Medicine. Complementary Therapies in Medicine 1993;1 Suppl 1:1-50* http://www.studentbmj.com/issues/02/02/education/12.php

f. *"the companies who sell these* pills make a huge profit"* → "These pills" refers to …
g. *"they* do not make the illness get better more quickly"* → "They" refers to …
h. *"the patient and the doctor believe that it* will work"* → "It" refers to …
i. *"better than white ones*"* → "Ones" refers to …
j. *"those* which taste good"* → "Those" refers to …
k. *"Neither the doctor nor the patient should know which pill is which*"* means that the doctor and the patient should not know …

True or False ? (Be ready to explain)

iii. Vitamin pills and cough syrups are effective against symptoms, but not against pathogens.
iv. "Randomization" means that patients are assigned to the experimental group or the control group by a computer.
v. In some trials, both the control group and the experimental group are given a placebo.

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… FOR -- WHY -- WHO(M) -- HOW (×2)

4. ***The motivation that makes*** **people take vitamin pills.** ***The reason*** **vitamin pills are mostly unnecessary in Western societies.** ***People that*** **vitamins really benefit. →** …

vitamin -- for -- effect -- i.e. -- to relieve – or – However, -- mostly -- because -- only -- really -- who -- vitamin -- which is -- in -- developed

Many people …

5. ***The effectiveness of*** **cough medicines. →** …

coughs -- but -- not actually -- given that -- most -- usually

Cough medicines only …

6. ***The only way of proving that*** **a medication is effective.** NB. *prove/proved/proven* **→** …

only -- when -- taking -- real -- significantly -- than -- those who -- in -- trial

The effectiveness of …

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

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

39. *Painful, inflamed, irritated :* _____

40. *The anterior portion of the neck; The portion of the digestive tract that lies between the rear of the mouth and the esophagus and includes the fauces and the pharynx :* _____

41. *A group (as kingdom Procaryotae or kingdom Monera or the former class Schizomycetes) of prokaryotic unicellular round, spiral, or rod-shaped single-celled microorganisms that are often aggregated into colonies or motile by means of flagella, that live in soil, water, organic matter, or the bodies of plants and animals, and that are autotrophic, saprophytic, or parasitic in nutrition and important because of their biochemical effects and pathogenicity . SYN. : germ, microorganism, microbe :* _____

42. *Any of various inflammations of the tonsils, pharynx, or larynx characterized by pain in swallowing :* _____

43. *A substance, such as penicillin or streptomycin, produced by or derived from certain fungi, bacteria, and other organisms, that can destroy or inhibit the growth of other microorganisms. They are widely used in the prevention and treatment of infectious diseases :* _____

44. *To order the use of (a medicine or other treatment) :* _____

45. *A peripheral or secondary effect, especially an undesirable secondary effect of a drug or therapy :* _____

46. Undesired : _____

47. *Having a turning sensation and a tendency to fall :* _____

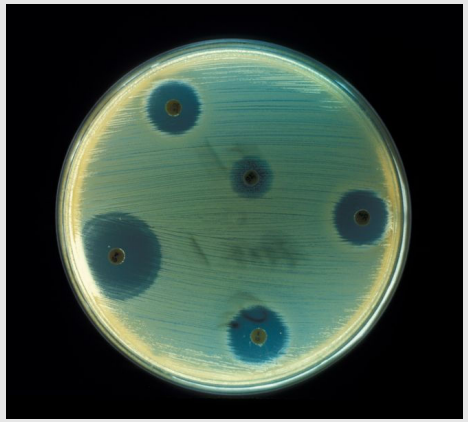
48. *Excessive and frequent evacuation of watery feces, usually indicating gastrointestinal distress or disorder :* _____

49. *An eruption of spots on the skin, usually temporary :* _____

50. *Without danger; Incapable of causing injury or damage; inoffensive :* _____

51. Effective. Strong : _____

The placebo effect is responsible for many illogical treatments in medicine today. Until a few years ago, everyone thought that sore throats were caused by bacteria in the throat. A person who got a sore throat went to the doctor to get an **antibiotic** (a drug which kills bacteria). Today, we know that most sore throats are not caused by bacteria, and antibiotics do not make them* better. Like coughs, sore throats get better on their own. Placebo-controlled trials have shown that an inert pill cures most sore throats just as quickly as an antibiotic. But many patients still think they* need an antibiotic, and many doctors still prescribe antibiotics for sore throats simply for their* placebo effect. The modern physician should try to teach his patients that minor illnesses do not need drugs.

1.  2. 

1. Alexander Fleming's photo (1929) of the dish with bacteria and Penicillin mold
2. *Staphylococcus aureus* - Antibiotics test plate.

Antibiotic Resistance – *Because of the widespread use and misuse of antibiotics in modern society, bacteria are constantly exposed to these agents. Although many bacteria die when exposed to antibiotics, some develop resistance to the drugs' effects. For example, 50 years ago the bacterium Staphylococcus aureus (a common cause of skin infections) was very sensitive to penicillin. Over time, strains of Staphylococcus aureus developed an enzyme able to break down penicillin, making the drug ineffective. Researchers responded by developing a form of penicillin that the enzyme could not split, but after a few years the bacteria adapted and became resistant to even this modified penicillin. Taking antibiotics only when necessary (not for viral infections such as a cold or the flu) and for the full prescribed course helps limit the development of antibiotic-resistant bacteria.*

Side Effects and Allergies – *Common side effects of antibiotics include upset stomach, diarrhea, and, in women, vaginal yeast infections. Some side effects are more severe and, depending on the antibiotic, may disrupt the function of the kidneys, liver, bone marrow, or other organs. Some people who receive antibiotics develop colitis[6], an inflammation of the large intestine. The colitis results from a toxin produced by the bacterium Clostridium difficile, which grows unchecked when other antibacteria are killed by the antibiotics. Antibiotics can also cause allergic reactions. Mild allergic reactions consist of an itchy rash or slight wheezing. Severe allergic reactions (anaphylaxis) can be life threatening and usually include swelling of the throat, inability to breathe, and low blood pressure.*

All drugs have **side effects**. Even if the patient really needs a drug for his illness, he will probably get some unwanted symptoms before he gets better. Many drugs make the patient feel sick or dizzy. Some drugs cause diarrhea or skin rashes. Most of these* side effects are harmless, but more powerful drugs sometimes cause dangerous side effects and even death. This* is an even greater tragedy if the patient did not really need to take the drug. Ten percent of

[6] *For a related clinical case study see :* www.vhct.org/case899/index.html

all hospital beds are occupied by patients who are suffering from the side effects of drugs.

Serious Adverse Drug Reactions

Adverse Drug Reaction	Types of Drugs	Examples
Peptic ulcers or bleeding from the stomach	Corticosteroids taken by mouth or by injection (*not those applied to the skin in creams or lotions*)	*Hydrocortisone* *Prednisone*
	Nonsteroidal anti-inflammatory drugs (NSAIDs)	*Aspirin* *Ibuprofen*
Anemia (*resulting from a decreased production or increased destruction of red blood cells*)	Certain antibiotics	*Chloramphenicol*
	Some nonsteroidal anti-inflammatory drugs	
Decreased production of **white blood cells**, with increased risk of infection	Certain antipsychotic drugs	*Clozapine*
	Chemotherapy drugs	*Cyclophosphamide* *Mercaptopurine* *Methotrexate* *Vinblastine*
Liver damage	Some analgesics	*Acetaminophen (excessive doses)*
	Iron supplements (*excessive amounts*)	
Kidney damage	Nonsteroidal anti-inflammatory drugs (*repeated use of excessive doses*)	*Ibuprofen* *Ketoprofen* *Naproxen*
	Some chemotherapy drugs	*Cisplatin*
Confusion and drowsiness	Sedatives, including many antihistamines	*Diphenhydramine*
	Antidepressants (*especially in older people*)	*Amitriptyline* *Imipramine*

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

l. *"antibiotics do not make them* better"* → "Them" refers to …

m. *"they* need an antibiotic"* → "They" refers to …

n. *"simply for their* placebo effect"* → "Their" refers to …

o. *"Most of these* side effects are harmless"* → "These side effects" refers to …

p. *"This* is an even greater tragedy"* → "This" refers to …

True or False ? (Be ready to explain)

vi. *In many cases (e.g. sore throats), antibiotics can be considered as a placebo.*

vii. *Dizziness is a dangerous side-effect.*

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.

WHY -- WHAT… FOR -- WHO(M) -- HOW (×2)

8. ***The reason*** **it is illogical to prescribe antibiotics for a sore throat.** ***The motivation that makes*** **physicians prescribe antibiotics.** → …

to -- antibiotics -- for -- because -- kill -- whereas -- not caused -- However, -- many -- for -- effect

It is illogical …

9. ***The reason*** **it is important for physicians to convince patients that they do not need drugs for minor illnesses.** ***The potential danger of*** **certain drugs.** → …

convince -- not need -- minor -- because -- all -- effects -- and although -- many -- harmless -- such as -- or -- powerful -- can

It is important …

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

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

52. *Having a beneficial, practical utility :* _____
53. *Present and ready for use; accessible; obtainable :* _____
54. *A drug prepared from the seeds and dried leaves of the foxglove plant, used in medicine as a cardiac stimulant. The dried leaf of the common European foxglove (D. purpurea) that contains the active principles digitoxin and gitoxin, that is a powerful cardiotonic acting to increase the force of myocardial contraction, to slow the conduction rate of nerve impulses through the atrioventricular node, and to promote diuresis, and that is used in standardized powdered form especially in the treatment of congestive heart failure and in the management of atrial fibrillation, atrial flutter, and paroxysmal tachycardia of the atria :* _____
55. More (time) than : _____
56. *A structural or functional abnormality of the heart, or of the blood vessels supplying the heart, that impairs its normal functioning. An abnormal organic condition of the heart or of the heart and circulation. :* _____
57. *A protein hormone that is synthesized in the pancreas and secreted by the beta cells of the islets of Langerhans, that is essential for the metabolism of carbohydrates, lipids, and proteins, that regulates blood sugar levels by facilitating the uptake of glucose into tissues, by promoting its conversion into glycogen, fatty acids, and triglycerides, and by reducing the release of glucose from the liver, and that when produced in insufficient quantities results in diabetes mellitus. :* _____
58. *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 :* _____
59. *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 :* _____
60. *Relative position; A relative degree of intensity or concentration :* _____
61. *The concentration of glucose in the blood, measured in milligrams of glucose per 100 milliliters of blood :* _____
62. *To obtain a substance by chemical or mechanical action (pressure, distillation, or evaporation) :* _____
63. *A severe, chronic metabolic disorder caused by insufficient production of insulin and resulting in abnormal metabolism of carbohydrates, fats, and proteins. The disease, which typically appears in childhood or adolescence, is characterized by increased sugar levels in the blood and urine, excessive thirst, frequent urination, acidosis, and wasting :* _____
64. In less time than : _____
65. To live; spend; pass (a life) : _____
66. Eliciting or deserving regret; regrettable : _____
67. *Orally :* _____
68. *The membranous tissue forming the external covering or integument and consisting of the epidermis and dermis :* _____
69. Not any more. Not now as in the past. : _____
70. *The science concerned with putting scientific knowledge to practical uses, divided into different branches, as civil, electrical, mechanical, and chemical :* _____
71. *To make or manufacture; create :* _____
72. *To specify the genetic sequence for an amino acid or a polypeptide :* _____
73. Belonging to oneself or itself. Particular; individual. : _____
74. *A nucleic acid that carries the genetic information in the cell and is capable of self-replication and synthesis of RNA. It consists of two long chains of nucleotides twisted into a double helix and joined by hydrogen bonds between the complementary bases adenine and thymine or cytosine and guanine. The sequence of nucleotides determines individual hereditary characteristics. :* _____

1.

2.[7]

1. Digitalis purpurea (common Foxglove), *19th century illustration* **2. Digoxin** *Oral Solution USP, 0.05mg/mL Boerhinger Ingelheim Roxane Laboratories, Inc.*

The use of Digitalis purpurea extract for the treatment of heart conditions was first described by William Withering, in 1785, which is considered the beginning of modern therapeutics. It is used to increase cardiac contractility (it is a positive ***inotrope****) and as an* ***antiarrhythmic*** *agent to control the heart rate, particularly in the irregular (and often fast) atrial fibrillation.*

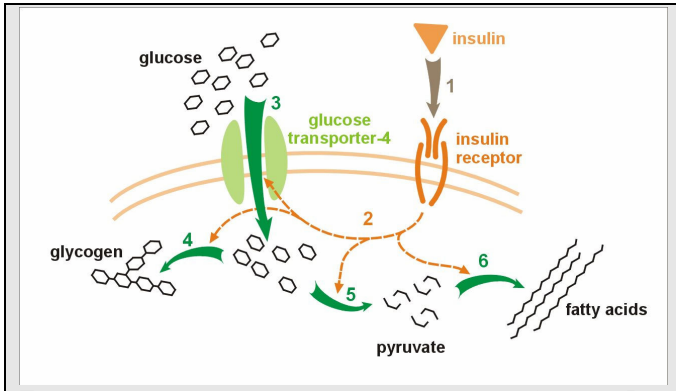
Digitalis works by increasing the intracellular concentration of calcium. The increased intracellular calcium gives a positive inotropic effect (i.e. it increases the strength of muscular contraction).

Digoxin also increases vagal (parasympathetic) activity, thus decreasing the conduction of electrical impulses through the AV node.[8] Abnormally rapid atrial rhythms can be caused by heart attacks, excessive thyroid hormones, alcoholism, infections, and many other conditions. During rapid atrial rhythms, electrical signals from the atria cause rapid contractions of the ventricles. Rapid ventricle contractions are inefficient in delivering oxygen and nutrients to the body, causing symptoms of weakness, shortness of breath, dizziness, and even chest pain. Digoxin alleviates these symptoms by blocking the electrical conduction between the atria and ventricles, thus slowing ventricle contractions.[9]

[7] Source : http://www.roxane.com/tpPortal/appmanager/touchpoint/rli/
[8] http://en.wikipedia.org/wiki/Digoxin
[9] http://www.medicinenet.com/digoxin/article.htm

There are, however, many useful drugs available today. A few of these* come from plants or herbs and have been used for many years. For example, the drug **digitalis** comes from the foxglove plant; physicians have used it* for over 200 years to treat heart disease. Digitalis is still the best drug available for some types of heart disease.

Other drugs come from animals. For example, **insulin** is a hormone which is produced in the pancreas and which controls the blood sugar level. In 1922, two Canadian scientists discovered how to extract insulin from the pancreases of dogs. This* could then be given to people with diabetes (a disease in which the patient's pancreas cannot make enough insulin). Before then* diabetes killed most patients within a few months. Since the discovery of insulin, patients with diabetes can lead normal lives. Unfortunately, the patients cannot take insulin by mouth; they* must inject it* under the skin. Most insulin is no longer extracted from animal pancreases. Scientists have used the techniques of genetic engineering to make bacteria produce insulin. The gene which codes for insulin is attached to the bacterium's own DNA. Every time the bacterium reproduces, it* makes some insulin as well. This* is called **biosynthetic insulin.**



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, i.e. the metabolic breakdown of glucose that releases energy in the form of ATP (5) and fatty acid synthesis (6).

Effect of insulin on glucose uptake and metabolism. *In people with type 1 diabetes, a condition called diabetic ketoacidosis may quickly develop. Without insulin, most cells cannot use the sugar that is in the blood. Fat cells begin to break down, producing compounds called ketones. Ketones provide some energy but also make the blood too acidic (ketoacidosis). The initial symptoms of diabetic ketoacidosis include excessive thirst and urination, weight loss, nausea, vomiting, fatigue, and—particularly in children—abdominal pain. Breathing tends to become deep and rapid as the body attempts to correct the blood's acidity. The person's breath smells like nail polish remover – the smell of the ketones escaping into the breath. Without treatment, diabetic ketoacidosis can progress to coma and death, sometimes within a few hours.*

Long-Term Complications of Diabetes[10]

Tissue or Organ Affected	What Happens	Complications
Blood vessels	*Atherosclerotic plaque builds up and blocks large or medium-sized arteries in the heart, brain, legs, and penis. The walls of small blood vessels are damaged so that the vessels do not transfer oxygen normally and may leak*	*Poor circulation causes wounds to heal poorly and can lead to heart disease, stroke, gangrene of the feet and hands, erectile dysfunction (impotence), and infections*
Eyes	*The small blood vessels of the retina become damaged*	*Decreased vision and, ultimately, blindness*
Kidney	*Blood vessels in the kidney thicken; protein leaks into the urine; the blood is not filtered normally*	*Poor kidney function; kidney failure*
Nerves	*Nerves are damaged because glucose is not metabolized normally and because the blood supply is inadequate*	*Sudden or gradual weakness of a leg; reduced sensations, tingling, and pain in the hands and feet; chronic damage to nerves*
Autonomic nervous system	*The nerves that control blood pressure and digestive processes become damaged*	*Swings in blood pressure; swallowing difficulties and altered digestive function, with bouts of diarrhea*
Skin	*Poor blood flow to the skin and loss of feeling result in repeated injury*	*Sores, deep infections (diabetic ulcers); poor healing*
Blood	*White blood cell function is impaired*	*Increased susceptibility to infection, especially of the urinary tract and skin*
Connective tissue	*Glucose is not metabolized normally, causing tissues to thicken or contract*	*Carpal tunnel syndrome; Dupuytren's contracture*

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

q. *"A few of these* come from plants or herbs"* → "These" refers to …

r. *"physicians have used it* for over 200 years to treat heart disease"* → "It" refers to …

s. *"This* could then be given to people with diabetes"* → "This" refers to …

t. *"Before then* diabetes killed most patients"* → "Then" refers to …

u. *"they* must inject it* under the skin"* → "They" refers to …

v. *"they* must inject it* under the skin"* → "It" refers to …

w. *"it* makes some insulin"* → "It" refers to …

x. *"This* is called biosynthetic insulin"* → "This" refers to insulin …

[10] www.merck.com/mmhe/sec13/ch165/ch165a.html

True or False ? (Be ready to explain)

viii. Most insulin is no longer extracted from animal pancreases because the techniques are too complicated.

ix. Biosynthetic insulin is identical to human insulin.

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 – WHAT… FOR -- HOW (×2) -- HOW LONG

11. Digitalis*, its use and its history.* → …

stimulant -- that -- from -- plant -- and which -- to treat -- for -- more -- years

Digitalis is …

12. *The production of* insulin *in the past and nowadays.* → …

from animal -- whereas -- nowadays -- make -- produce -- by attaching -- which -- for insulin -- to -- DNA

In the past …

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

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

75. *A drug, $C_{10}H_{16}N_6S$, that inhibits acid secretion in the stomach and is used to treat gastrointestinal disorders, such as peptic ulcers :* _____

76. *A lesion in the wall of the stomach or duodenum resulting from the digestive action of the gastric juice on the mucous membrane when the latter is rendered susceptible to its action (as by infection or psychosomatic factors) :* _____

77. *A physiologically active depressor amine, $C_5H_9N_3$, released from cells in the immune system as part of an allergic reaction. It is a powerful stimulant of gastric secretion, constrictor of bronchial smooth muscle, and vasodilator. H1 receptors mediate contraction of smooth muscle and capillary dilation and H2 receptors mediate acceleration of heart rate and promotion of gastric acid secretion. :* _____

78. Relatively, moderately, reasonably : _____

79. *To take off, take away; eliminate :* _____

80. 1. The highest point; 2. conclusion, finish : _____

81. *The cordlike bundles of fibers made up of neurons through which sensory stimuli and motor impulses pass between the brain and the eyes, glands, muscles, and other parts of the body :* _____

82. Information pointing toward a possible solution. An indication of potential opportunity : _____

83. *To form or produce by chemical synthesis :* _____

84. *After a long time, finally, in the end :* _____

85. *The branch of medicine that deals with the diagnosis and treatment of injury, deformity, and disease by manual and instrumental means :* _____

86. *A fact or circumstance lending logical support : indication, sign, proof :* _____

87. *A mentally or emotionally disruptive or upsetting condition occurring in response to adverse external influences and capable of affecting physical health, usually characterized by increased heart rate, a rise in blood pressure, muscular tension, irritability, and depression. :* _____

88. 1. Having the flavor, aroma, or quality of spice. 2. Piquant; zesty. Syn. : hot, peppery : _____

89. 1 in a poor manner, badly, 2 with a low opinion; disparagingly : _____

90. *Containing, producing, or secreting mucus :* _____

91. *A covering or coating for an inside surface :* _____

92. *The beginning portion of the small intestine, starting at the lower end of the stomach and extending to the jejunum. :* _____

93. *1. to become well or healthy again; be cured 2. to become closed or scarred :* _____

94. *The preferred, standard, or first choice :* _____

95. *A group of anti-ulcer medications which work by binding to H+/K+ ATPase, an enzyme which is found on the secretory surface of parietal cells. It thereby inhibits the final transport of hydrogen ions (via exchange with potassium) into the gastric lumen. :* _____

96. Occurring or accepted widely. Syn. : common, generalized : _____

97. The act of using; application. The process of using or being used : _____

98. *Not involving medical complications (i.e. a secondary disease, an accident, or a negative reaction.). :* _____

99. *Counteracting or neutralizing acidity, especially of the stomach. :* _____

Most drugs today are made by chemical processes. In the 1970s, **cimetidine** was developed for the treatment of ulcers. Ulcers are often made worse by too much acid in the stomach. Until fairly recently doctors treated ulcers with a major operation. The surgeon removed part of the stomach and cut the nerves which stimulated the stomach to make acid. Cimetidine was the culmination of a project to develop a drug to suppress stomach acid secretion. Starting from the structure of histamine (which was known to stimulate the secretion of stomach acid) -- the only design lead, since nothing was known of the then hypothetical H2-receptor -- hundreds of modified compounds were synthesized, eventually resulting in the discovery of cimetidine. Cimetidine eliminated 80 percent of ulcers in eight weeks, so most patients did not need major surgery. Ten years after* its* introduction, it* had achieved sales of one billion dollars and had become the world's number one prescription drug[11]. Recurrence* rates[12], however, remained high (>70%) once treatment with cimetidine was stopped.

In 1984 two Australian scientists, Robin Warren and Barry Marshall published experimental evidence that most stomach ulcers and gastritis were caused by colonization with a bacterium, not by stress or spicy food as* had been assumed before. Their hypothesis was poorly received at first, but since the mid-1990s it* has been recognized that most ulcers are caused by *Helicobacter pylori*, a bacterium that infects the mucous lining of the stomach and duodenum. In gastric ulcer patients in whom *H. pylori* is detected, normal procedure is eradication* to allow the ulcer to heal. The standard first-line therapy is a one week triple-therapy with amoxicillin, clarithromycin (antibiotics) and a **proton pump inhibitor (PPI)**. Since the widespread use of PPI's in the 1990s, surgical procedures for uncomplicated peptic ulcers have become obsolete. Such a therapy has revolutionized the treatment of gastric ulcers and has made a cure to the disease possible, where previously symptom-control using antacids was the only option.

[11] http://acswebcontent.acs.org/landmarks/tagamet/success.html

[12] http://www.pubmedcentral.nih.gov/picrender.fcgi?tool=pmcentrez&blobtype=pdf&artid=1352520

Helicobacter pylori *is a helical shaped Gram-negative bacterium that colonizes the mucus layer of gastric epithelium in the stomach, and also the duodenum. Helicobacter are the only known microorganisms that can thrive in the highly acidic environment of the stomach. Many cases of peptic ulcers, gastritis, and duodenitis are caused by H. pylori infection. However, many who are infected do not show any symptoms of disease. Infection may be symptomatic or asymptomatic (without perceptible ill effects). It is estimated that up to 70% of infection is asymptomatic and that about 2/3 of the world population are infected by the bacterium, making it the most widespread infection in the world. Actual infection rates vary from nation to nation - the West (Western Europe, North America, Australasia) having rates around 25% and much higher in the Third World. The bacteria have been isolated from feces, saliva and dental plaque of infected patients, which suggests gastro-oral or fecal-oral as possible transmission routes.*

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

y. *"Ten years after* its* introduction*" → "Ten years after" means around 19…

z. *"Ten years after its* introduction, it* had achieved sales of one billion dollars"* → "Its" and "it" refer to …

aa. *"Recurrence* rates, however, remained high"* → "Recurrence" means the recurrence of …

bb. *"as* had been assumed before"* → It had previously been assumed that …

cc. *"it* has been recognized"* → "It" refers to the fact that…

dd. *"normal procedure is eradication* to allow the ulcer to heal*" → "Eradication" means elimination of …

True or False ? (Be ready to explain)

x. *Cimetidine cures most ulcers in 8 weeks.*

xi. *In 1984, pharmaceutical companies had good reasons to be skeptical of Warren and Marshall's discovery.*

xii. *Warren and Marshall had to resort to drastic measures to convince skeptics of their hypothesis.*

xiii. *Even though most ulcers are caused by H. pylori, most people infected with H. pylori do not develop ulcers.*

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 (×4) -- WHEN – WHAT -- IS

14. ***The way*** **doctors used to treat stomach ulcers.** ***The period in which*** **cimetidine was developed. Results** ***that*** **cimetidine enabled doctors to obtain.** → …

cut -- nerves that -- production -- but -- which -- developed in -- physicians -- to reduce -- and -- without -- on

To treat stomach ulcers, surgeons …

15. ***The way*** **PUD was treated before the discovery of H. pylori.** ***The effectiveness of such*** **treatments before and after the discovery of H. pylori.** ***The possibility of curing*** **PUD permanently.** → …

…such as -- could -- temporarily -- but -- not really -- given that -- prevent -- Nowadays, -- obsolete -- since -- permanently -- with -- which -- mucous -- and -- eradicate

Before…

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

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

100. *An immunosuppressive drug obtained from certain soil fungi, used mainly to prevent the rejection of transplanted organs :* _____

101. *The integrated body system of organs, tissues, cells, and antibodies that neutralizes potentially pathogenic organisms or substances :* _____

102. *To protect against, stop :* _____

103. *Living tissue or an organ, surgically attached to a bodily part to replace a damaged part or compensate for a defect. The procedure of implanting or transplanting. :* _____

104. *A chronic, hereditary, recurrent dermatosis marked by discrete vivid red macules, papules, or plaques covered with silvery lamellated scales. :* _____

105. *A chronic systemic disease primarily of the joints, usually polyarticular, marked by inflammatory changes in the synovial membranes and articular structures and by atrophy and rarefaction of the bones. In late stages, deformity and ankylosis develop. :* _____

106. *An agent that destroys, dissolves or breaks up a thrombus :* _____

107. *To separate into pieces; divide; disperse :* _____

108. *A thick, viscous, or coagulated mass or lump formed within a liquid :* _____

109. *A proteolytic enzyme produced by hemolytic streptococci, capable of dissolving fibrin and used medically to dissolve blood clots :* _____

110. *An enzyme produced by the blood vessels that dissolves blood clots by converting plasminogen into plasmin: it is manufactured using recombinant DNA technology and used to prevent stroke, etc. :* _____

111. *Acute myocardial infarction typically resulting from an occlusion or obstruction of a coronary artery and characterized by sudden, severe pain in the chest that often radiates to the shoulder, arm, or jaw :* _____

112. *Muscular, elastic tubes that carry blood away from the heart to the cells, tissues, and organs of the body :* _____

113. On all sides; in the perimeter : _____

114. *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 :* _____

115. *To inflict severe injury; paralyze, harm, mutilate :* _____

116. *The act of dying; termination of life :* _____

117. *To diminish in extent, amount, or degree :* _____

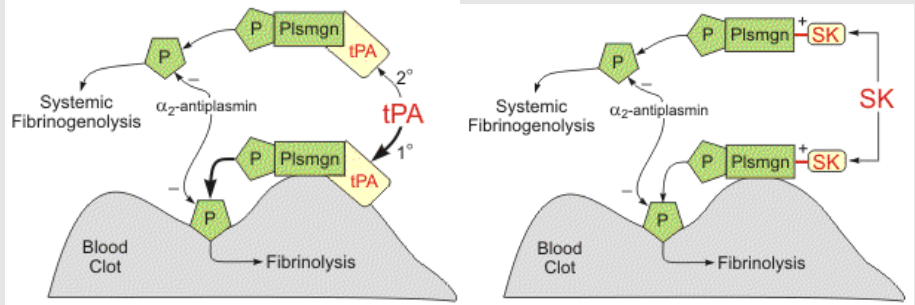
118. *A white, crystalline compound, $CH_3COOC_6H_4COOH$, derived from salicylic acid and commonly used in tablet form to relieve pain and reduce fever and inflammation :* _____

119. *A substance that hinders coagulation and especially coagulation of the blood :* _____

120. Recognized as an authoritative model; Normal or usual; Commonly used : _____

One of the most important advances of modern medicine is **cyclosporin,** an immunosuppressant drug (one which suppresses the body's immune system). It* is used to prevent graft rejection in transplants. Cyclosporin is also used in psoriasis and infrequently in rheumatoid arthritis and related diseases, although it is only used in severe cases. It has been investigated for use in many other autoimmune disorders.

Thrombolytics (that is, drugs which break up blood clots) including **streptokinase** and **t-PA (tissue plasminogen activator)** are another important new class of drugs. A heart attack is caused by a clot of blood in the arteries around the heart. If the blood clot is not removed quickly, the heart muscle will be permanently damaged. Without a thrombolytic, half of all patients with heart attacks will die. But if the physician gives streptokinase, the patient's risk of death is reduced by 20-30 percent. If the physician also gives **aspirin** (as an anticoagulant), the patient's risk of death is reduced by over 40 percent. Because heart attack is such a common cause of death, treatment with streptokinase and aspirin (which* became standard in the late 1980s) has already saved thousands of lives.



Mechanisms of Thrombolysis[13]. *Thrombolytic drugs dissolve blood clots by activating plasminogen, which forms a cleaved product called plasmin. Plasmin is a proteolytic enzyme that is capable of breaking cross-links between fibrin molecules, which provide the structural integrity of blood clots.*

[13] http://www.cvpharmacology.com/thrombolytic/thrombolytic.htm

Aspirin : mechanism of action in the body.

Aspirin or acetylsalicylic acid is often used as an analgesic (against minor pains and aches), antipyretic (against fever), and anti-inflammatory. It has also an antiplatelet ("blood-thinning") effect and is used in long-term low-doses to prevent heart attacks and cancer.

Aspirin has been known to work for over a hundred years. However, it was not until 1971 that a British pharmacologist John Vane, discovered how it works. He was awarded the Nobel prize in 1982 for his work. Aspirin targets a group of enzymes called ***Cyclooxygenases (COX)****. These enzymes catalyze a key step in the synthesis of prostaglandins.* ***Prostaglandins*** *are hormones that carry local messages to neighbouring cells (most other hormones carry messages throughout the body). COX-1 makes prostaglandins that are necessary for the synthesis of protective gastric mucus in the stomach and for proper blood flow in the kidneys. It also makes* ***thromboxane*** *which is responsible for the aggregation of platelets that form blood clots. So by inactivating this enzyme aspirin has a negative effect on the stomach and kidneys but a beneficial effect on the circulatory system. COX-2 makes prostaglandins that are involved in inflammation, pain, and fever. By destroying this enzyme, aspirin can reduce each of these three responses within our bodies.*

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

ee. *"It* is used to prevent graft rejection"* → "It" refers to …

ff. *"which* became standard in the late 1980s"* → "Which" refers to …

True or False ? (Be ready to explain)

xiv. Doctors give cyclosporin to treat graft rejection if it occurs following a transplant.

xv. Aspirin is more effective than streptokinase.

xvi. Aspirin is used as an analgesic to relieve the pain of heart attacks.

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 -- WHAT… FOR -- WHAT SORT -- WHY -- HOW

17. ***The*** **effect** ***of*** **cyclosporin on the body.** ***The use of*** **cyclosporin..→** …

the body's -- system -- used -- in -- to -- rejection

Since cyclosporin …

18. Drugs ***that*** **doctors give for heart attacks.** ***The reasons for doing this. The effectiveness*** **of this treatment. →** …

give -- such as -- and -- so as to -- clot -- which -- risk -- up to -- % -- and prevents -- from -- permanently

In a heart attack, …

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

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

121. *The treatment of cancer using specific chemical agents or drugs that are selectively destructive to malignant cells and tissues. :* _____

122. *Producing a toxic effect on cells. :* _____

123. *The pathological condition characterized by malignant neoplasms characterized by the proliferation of anaplastic cells that tend to invade surrounding tissue and metastasize to new body sites :* _____

124. 1 to give or cause (pain, wounds, etc.) 2 to impose (a punishment, etc. on or upon) : _____

125. Nevertheless; however. In contrast or opposition. : _____

126. In a general sense, generally speaking : _____

127. to make worse, less, weaker, etc.; damage; reduce : _____

128. To aim at or for. To take as an objective or object of attack : _____

129. As may be regretted ; as we can only regret : _____

130. *Aspecialist in science; especially, a person whose profession is investigating in one of the natural sciences, as biology, chemistry, physics, etc. :* _____

131. to have not yet (done something) : _____

132. *1. Threatening to life, as a disease; virulent. 2. Tending to metastasize; cancerous. Used of a tumor. :* _____

133. The process of growing, progressive development : _____

134. The action or process of substituting, of taking the place of something else : _____

135. To react positively or favorably : _____

136. *Medicine. A specified quantity of a therapeutic agent, such as a drug or medicine, prescribed to be taken at one time or at stated intervals. :* _____

137. Being the only one : _____

138. *the treatment of disease by means of radiation (as X rays) :* _____

139. *Pharmacologic inhibition of growth factors and their receptors, which enable proliferation and evasion of apoptosis which are integral to the cancer cell's ability to obtain blood supply, proliferate, and metastasize.*[14] *:* _____

140. An intensive drug treatment to kill cancer cells, but that also destroys the bone marrow and can cause other severe side effects, usually followed by bone marrow or stem cell transplantation to rebuild the bone marrow.[15] :_____

141. *A tumor composed of cells derived from hemopoietic (blood-forming) tissues of the bone marrow. :* _____

142. *Any of various usually malignant neoplasms of lymphatic and reticuloendothelial tissues that occur as circumscribed solid tumors and that are composed of cells that resemble lymphocytes, plasma cells, or histiocytes. :* _____

143. *Acute or chronic neoplastic diseases of the bone marrow in which unrestrained proliferation of white blood cells occurs, usually accompanied by anemia, impaired blood clotting, and enlargement of the lymph nodes, liver, and spleen :* _____

144. *To happen or occur again, especially after some lapse of time; appear at intervals :* _____

145. Despite the fact that, even if : _____

146. *Potentially mortal; extremely dangerous :* _____

147. *Physical harm or damage :* _____

148. *The soft, fatty, vascular tissue that fills most bone cavities and is the source of red blood cells and many white blood cells :* _____

149. For that reason; consequently : _____

150. *To save from immediate harm or danger by direct action :* _____

151. *To remove tissues or cells from a donor and preserve them for transplantation. :* _____

152. To put back, to give back : _____

153. *A generalized mother cell that has pluripotency (descendants may specialize in different directions), such as an undifferentiated mesenchymal cell that is a progenitor of both red and white blood cells. :* _____

154. *A portion, piece, or segment that is representative of a whole; a specimen :* _____

155. In the place of something; as a substitute or an equivalent : _____

156. To bring back to a former or normal condition, as by repairing, rebuilding : _____

157. *A number that typifies a set of numbers of which it is a function. An intermediate level or degree :* _____

158. Mathematical calculations. An amount represented in numbers : _____

159. 1. To hit sharply, as with the hand, the fist, or a weapon. 2. To afflict suddenly, as with a disease or an impairment : _____

160. *A generic concept reflecting concern with the modification and enhancement of life attributes, e.g., physical, political, moral and social environment; the overall condition of a human life. In health-care, a gauge of the impact on a patients life of a chronic illness or the long-term side-effects of a medical treatment :* _____

161. *A definite period or distinct phase, as of development of a disease :* _____

162. *Restoration of health; recovery from disease; medical treatment used to restore health :* _____

163. To resist or endure : _____

164. A systematic or orderly succession; a sequence : _____

165. *A feeling of sickness in the stomach characterized by an urge to vomit :* _____

166. *Incapable of producing offspring; sterile :* _____

167. The condition of being deprived, dispossessed of something : _____

168. The cost in life, sacrifice, etc., of obtaining some advantage : _____

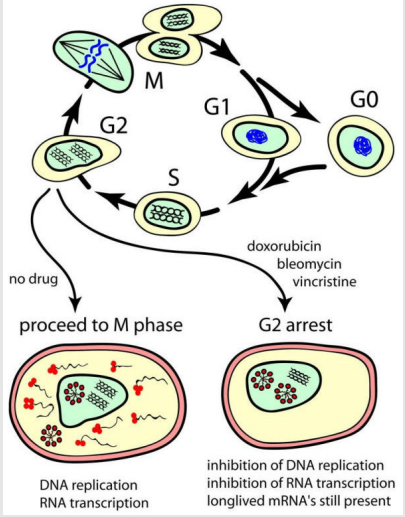
Chemotherapy is the use of chemical substances to treat disease. In its* modern-day use, it* refers primarily to cytotoxic drugs used to treat cancer.[16] Although an ideal chemotherapy drug would destroy cancer cells without harming normal cells, few such* drugs exist. Instead, in chemotherapy, drugs are designed to inflict greater damage on cancer cells than on normal cells. Nonetheless, all chemotherapy drugs affect normal cells and cause side effects. Broadly, most chemotherapeutic drugs work by impairing **mitosis** (cell division),

[14] *Adapted from :* http://www.medscape.com/viewarticle/507586_2

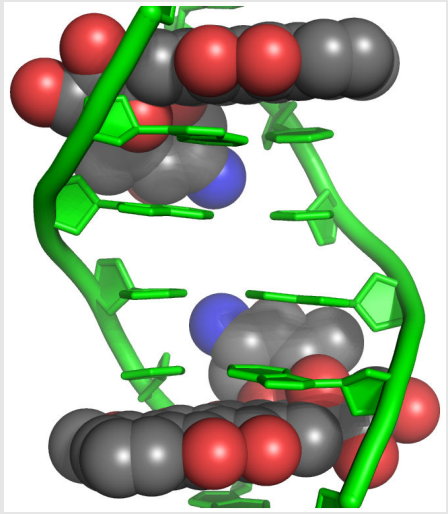
[15] Source : *National Cancer Institute* http://www.cancer.gov/Templates/db_alpha.aspx?CdrID=346522

[16] http://en.wikipedia.org/wiki/Chemotherapy

effectively targeting fast-dividing cells. Unfortunately, scientists have yet to be able to locate specific features of malignant cells that would make them* uniquely targetable[17]. This* means that other fast dividing cells such as those* responsible for hair growth and for replacement of the intestinal epithelium (lining) are also affected.



1.



2.

1. Effect of chemotherapy in cycling cells. *Cell replication occurs in a series of phases, called the cell cycle. The cell cycle phases are : resting (G0; nothing is happening), G1 (or gap 1; a growth phase), S (synthesis; the replication of DNA occurs), G2 (gap 2; another growth phase), and M (mitosis; the actual division from 1 cell into 2). Most chemotherapy agents kill cancer cells by affecting DNA synthesis or function, a process that occurs through the cell cycle. Each drug varies in the way this occurs within the cell cycle.*[18] *Drug-induced DNA damage results in G2/M checkpoint-arrest and inhibition of RNA transcription.*[19] **2. Doxorubicin** *is a drug widely used in cancer chemotherapy. It is commonly used in the treatment of a wide range of cancers. The exact mechanism of action of doxorubicin is complex, though it is thought to interact with DNA by intercalation. This inhibits the progression of the enzyme topoisomerase II, which unwinds DNA for transcription, preventing the DNA double helix from being resealed and thereby stopping the process of replication.*[20]

Not all cancers respond to chemotherapy. The type of cancer determines which drugs are used, in what combination, and at what dose. Chemotherapy may be used as the sole treatment or combined with radiation therapy and surgery.

Dose-intensity chemotherapy is a new but risky approach in which especially high doses of drugs are used. This* therapy is used for a few types of cancer (including some types of myeloma, lymphoma, and leukemia) that have recurred even though the person had a good response when first treated with drugs. However, dose-intensity chemotherapy can cause life-threatening injury to the **bone marrow**, which is essential for the formation of blood cells (hematopoiesis). Therefore, dose-intensity chemotherapy is commonly combined with bone marrow rescue strategies, in which marrow cells are harvested before and returned to the person after chemotherapy. In some cases, stem cells can be isolated from a blood sample and used instead of bone marrow to restore the bone marrow.

Five-Year Relative Survival Rates* by Stage at Diagnosis, 1995-2001

Site	All Stages %	Local %	Regional %	Distant %	Site	All Stages %	Local %	Regional %	Distant %
Breast (female)	88.2	97.9	81.3	26.1	Ovary†	44.6	93.6	68.1	29.1
Colon & rectum	64.1	90.4	67.9	9.7	Pancreas	4.6	16.4	7.0	1.8
Esophagus	14.9	31.4	13.8	2.7	Prostate‡	99.8	100.0	–	33.5
Kidney	64.6	90.6	60.	9.7	Stomach	23.2	58.0	21.9	3.1
Larynx	65.6	83.8	49.9	18.5	Testis	96.0	99.4	96.3	71.7
Liver§	9.0	19.0	6.8	3.4	Thyroid	96.6	99.5	96.4	60.0
Lung & bronchus	15.3	49.5	16.2	2.1	Urinary bladder	81.8	94.2	48.4	6.2
Melanoma of the skin	91.6	98.3	63.8	16.0	Uterine cervix	73.3	92.4	54.7	16.5
Oral cavity & pharynx	59.4	82.1	51.3	27.6	Uterine corpus	84.4	96.1	66.3	25.2

*Rates are adjusted for normal life expectancy and are based on cases diagnosed from 1995-2001, followed through 2002. †Recent changes in classification of ovarian cancer, specifically excluding borderline tumors, has affected 1995-2001 survival rates. ‡The rate for local stage represents local and regional stages combined. §Includes intrahepatic bile duct.

Local: An invasive malignant cancer confined entirely to the organ of origin. **Regional:** A malignant cancer that 1) has extended beyond the limits of the organ of origin directly into surrounding organs or tissues; 2) involves regional lymph nodes by way of lymphatic system; or 3) has both regional extension and involvement of regional lymph nodes. **Distant:** A malignant cancer that has spread to parts of the body remote from the primary tumor either by direct extension or by discontinuous metastasis to distant organs, tissues, or via the lymphatic system to distant lymph nodes.

Source: Surveillance, Epidemiology, and End Results Program, 1975-2002, Division of Cancer Control and Population Sciences, National Cancer Institute, Bethesda, MD, 2005.

American Cancer Society, Surveillance Research, 2006

In the 1940's only one cancer patient in four survived on the average. By the 1960's, that* figure was up to one in three. According to the American Cancer Society, the 5-year relative **survival rate** for all cancers diagnosed between 1995 and 2001 is now 65%. Not only[21] are those stricken* surviving, but they* are experiencing a better quality of life while under treatment. Surgery is less radical, and chemotherapy is producing fewer side effects (some of which* can be treated

[17] *One recent exception is Imatinib, the first member of a new class of agents that act by inhibiting particular enzymes (tyrosine kinase), instead of non-specifically inhibiting rapidly dividing cells. The genetic abnormality causing chronic myelogenous leukemia (CML) has been known for a long time to be a chromosomal translocation creating an abnormal protein, kinase BCR-ABL, leading to uncontrolled proliferation of the leukemia cells. Imatinib precisely inhibits this kinase.*

[18] http://www.oncolink.com/treatment/article.cfm?c=2&s=9&id=319

[19] http://www.biomedcentral.com/1471-2407/2/21

[20] http://en.wikipedia.org/wiki/Doxorubicin

[21] NB. *Après un circonstant négatif ("Never again…", "Nowhere in the world…") ou restrictif ("not only", "hardly ever") en début de phrase, on pratique l'inversion, d'où le schéma : Négation-Aux-Suj-Verbe. Cette construction ressemble à une question, mais il s'agit seulement d'une mise en relief de la négation où l'auxiliaire suit la négation.*

by new medications).[22] The improvement in survival reflects progress in diagnosing certain cancers at an earlier stage and the use of new and/or improved treatments.[23] A child with leukemia now has an 80 percent[24] chance of cure (up from 15% in the 1960s[25]), if he* can withstand the course of cytotoxic drugs. But these drugs still have serious side effects. They* suppress the bone marrow (which makes blood cells), and cause severe nausea. They* may also slow the child's rate of growth and make him infertile. More minor side effects include skin rashes and loss of hair. Of course, all these* problems are a small price to pay for the cure of the child's cancer.

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

gg. *" In its* modern-day use, it* refers…"* → "It" refers to …
hh. *"few such* drugs exist"* → "such drugs" refers to medications which …
ii. *"would make them* uniquely targetable"* → "Them" refers to …
jj. *"This* means that other fast dividing cells … are also affected"* → "This" refers to the fact that…

kk. *"such as those* responsible for hair growth and for replacement of the intestinal epithelium"* → "Those" refers to …
ll. *"This* therapy is used for a few types of cancer"* → "This therapy" refers to …
mm. *"By the 1960's, that* figure was up to one in three"* → "That figure" refers to the number of …
nn. *Not only are those stricken* surviving* → "Stricken" describes patients with…
oo. *"but they* are experiencing a better quality of life"* → "They" refers to …
pp. *"some of which* can be treated"* → "Which" refers to …
qq. *"if he* can withstand the course of cytotoxic drugs"* → "He" refers to …
rr. *"They* suppress the bone marrow … They* may also slow the child's rate of growth "* →"They" refers to …
ss. *"all these* problems are a small price"* → "These problems" refers to …

True or False ? (Be ready to explain)

xvii. The majority of chemotherapeutic drugs affect cell division (mitosis) or DNA synthesis.
xviii."Combined modality chemotherapy" describes the use of chemotherapy drugs in combination with other cancer treatments.
xix. Survival rates for many cancers have improved thanks to improved chemotherapy treatments.
xx. Nowadays surgery is less radical thanks to chemotherapy.
xxi. Chemotherapy suppresses the immune system, resulting in anemia, because chemotherapy drugs must be given intravenously.

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 SORT(S)/WHAT KIND(S) – WHAT –WHY (×2) -- HOW

20. The sorts of drugs that chemotherapy relies on. The cells that these drugs target. The reason for this. → …

greater -- on -- than -- relies on -- which -- mitosis -- thereby -- cells -- including -- but also -- and epithelial -- in -- (resulting in --), -- given that -- not yet -- which would -- possible to -- exclusively

So as to…

21. The risks of dose-intensity chemotherapy. The importance of harvesting bone marrow. → …

particularly -- in that -- usually -- all or most -- hence the importance -- strategies -- which involve -- or -- stem -- before -- in order to -- after -- has been

Dose-intensity chemotherapy…

22. *Improvements in* survival rates and quality of life among cancer patients. The reasons for this → …

from -- % to -- % -- due -- not only -- but also -- (ideally -- before --) -- so that -- more -- and -- less -- As a result, -- quality -- as well

Over the past 60 years,…

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

[22] http://www.medicinenet.com/script/main/art.asp?articlekey=157
[23] http://www.cancer.org/docroot/STT/stt_0_2006.asp?sitearea=STT&level=1
[24] http://www.emedicine.com/ped/topic2587.htm
[25] http://www.cancer.org/docroot/AA/content/AA_1_3_Milestones.asp

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

169. Certainty, assurance, confidence, conviction : _____
170. Nevertheless; however : _____
171. *Proficiency; a technique; a talent :* _____
172. *Physical or psychological hurt; injury; damage :* _____
173. *To abstain from doing something :* _____
174. *To fall down from exhaustion :* _____
175. *To continue to live after or in spite of an event :* _____
176. *A sensation of hurting, or strong discomfort, in some part of the body, caused by an injury, disease, or functional disorder, and transmitted through the nervous system :* _____
177. *A physician whose practice is not oriented to a specific medical specialty but instead covers a variety of medical problems in patients of all ages. Also called family doctor :* _____
178. *A small flat pellet of medication to be taken orally :* _____
179. *Introduction of a solution into the body through a vein for therapeutic purposes :* _____
180. More, additional : _____
181. Because of; as a result of : _____

Both doctors and patients often have great faith in drugs. Many people think that whenever someone is ill, he should take a drug. Yet most drugs which were used in the past, and many drugs which are still used today, do not really work. The science of medicine once depended more on the placebo effect than on the skills of physicians. Today, physicians know that the drugs they* give their* patients can sometimes do more harm than good. Most physicians now try to avoid using drugs if possible. But in some cases drugs can save the patient's life. Immunosuppressants, thrombolytics and cytotoxic drugs have reduced the mortality from major killers such as heart disease and cancer.

Case history 1

In 1961, John Brown had a heart attack. He developed sudden, severe pain in his chest and felt so weak that he collapsed. He went to a hospital in an ambulance. In those* days, there were no drugs which could improve Mr. Brown's chances of survival. The doctors could only give him morphine for the pain. He died two days later. He was only fifty-three.

Case history 2

In 1992, Alan Jenkins, aged fifty-five, collapsed with a heart attack. His general practitioner came quickly, and gave him an aspirin tablet while he waited for the ambulance to arrive. At the hospital, the doctors gave Mr. Jenkins an infusion of streptokinase into his vein, as well as the traditional drug morphine for pain. Within a week Mr. Jenkins was back home and walking about. After six weeks he was back at work. He now takes an aspirin every day to protect him against further damage due to blood clots.

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

tt. *"the drugs they* give their* patients"* → "They" and "their" refer to …
uu. *"In those* days, there were no drugs"* → "Those days" refers to …

True or False ? (Be ready to explain)

xxii. Aspirin was not invented until after 1961.
xxiii. Mr. Jenkins was given aspirin first because it is more effective than streptokinase.
xxiv. Aspirin and streptokinase are used to prevent damage (necrosis) during a heart attack.
xxv. Aspirin and streptokinase are used to prevent heart attacks.

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.

WHY (×2) -- HOW -- HOW LONG

24. ***The reason morphine*** **could not save Mr. Brown.** → …

not -- because -- only -- pain -- and -- not -- clots -- which -- muscle -- in -- attack

Morphine …

25. ***The time*** **it took Mr. Jenkins to recover from his heart attack.** ***The way aspirin*** **helped save Mr. Jenkins.** ***The reason*** **he continues to take aspirin every day.** → …

less than -- hospital -- and -- at home -- recover -- attack -- survive -- since -- which -- also -- continues to -- now -- in order -- clots

It took …

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

Find equivalents for the following sentences using MAKE+S+V or CAUSE+S+TO+V :

1) Les vitamines permettent à quelqu'un de se sentir mieux (font souvent que quelqu'un se sente mieux) lorsqu'il est fatigué ou stressé. → …

2) Les sirops (médicaments) antitussifs n'entraînent pas un rétablissement plus rapide (n'entraînent pas une amélioration plus rapide du malaise). → *Cough medicines* …

3) Beaucoup de médicaments provoquent chez le patient des malaises ou des vertiges. → …

4) Les scientifiques ont utilisé les procédés (les techniques) du génie génétique pour faire produire de l'insuline par des bactéries. → …

5) Aujourd'hui il y a de nombreux médicaments très efficaces (puissants) qui attaquent les cellules cancéreuses et font rétrécir la tumeur. → …

Combine the following elements to make suitable sentences using information from the preceding article.

1. Today physicians use drugs to help patients, but in the past they	• are vitamin pills and cough medicine (syrup).
2. Examples of modern drugs which do not work	• aspirin and streptokinase.
3. Antibiotics are drugs which	• by patients suffering from the side effects of drugs.
4. Nowadays it is important that physicians tell patients that minor illnesses	• dies within a few months.
5. The big disadvantage of powerful drugs	• do not need drugs.
6. Ten percent of all hospital accommodation is used	• has been used for a long time to treat heart disease.
7. Digitalis, which comes from the foxglove	• is streptokinase and aspirin.
8. The function of insulin is	• is their side effects.
9. Before 1922, most patients with diabetes	• kill bacteria
10. Thanks to cimetidine	• most patients do not need surgery for ulcers.
11. Nowadays the standard treatment for heart attacks	• patients suffering from cancer.
12. Cytotoxic drugs are given to	• there were no drugs available at the time for heart attacks.
13. Scientists who are working on cytotoxic drugs are trying	• to control the blood sugar level.
14. John Brown died because	• to produce drugs with less serious side effects.
15. What saved Mr. Jenkins's life was	• used herbs to treat patients.

- *abscess / un abcès*
- *antacid / un alcalin, un antiacide*
- *antibiotic / un antibiotique*
- *anticoagulant / un anticoagulant*
- *around / autour de*
- *artery / une artère*
- *aspirin / l'aspirine*
- *available / disponible*
- *average (on average) / la moyenne (en moyenne)*
- *avoid / éviter*
- *bacteria (pl.) bacterium (sg.) / une bactérie, des bactéries*
- *be wrong with / ne pas aller (comme il faut), mal marcher,*
- *blood clot / un caillot sanguin*
- *blood sugar level / le taux de glucose, la glycémie (NB. le terme "glycemia" en anglais fait référence à la présence de glucose dans le sang mais n'indique pas nécessairement sa concentration)*
- *bone marrow / la moelle osseuse*
- *break up (≠ break down) / disperser, dissoudre, briser*
- *broadly / en général, en gros*
- *by mouth / par voie orale*
- *cancer / le cancer*
- *chemical / une substance chimique*
- *chemistry / la chimie*
- *chemotherapy / la chimothérapie*
- *cimetidine / la cimetidine*
- *clever / intelligent, astucieux, habile*
- *code for / "coder pour" (anglicisme), encoder (le message génétique correspondant à une protéine)*
- *collapse / s'effondrer*
- *cough / tousser, la toux*
- *course / une série de, un traitement (par), un cours*
- *culmination / 1. le point culminant, 2. l'aboutissement*
- *cure / guérir (de), soigner*
- *cure / la guérison*
- *cyclosporin(e) / la cyclosporine, la ciclosporine*
- *cytotoxic / cytotoxique*
- *damage / endommager*
- *death (≠ dead) / la mort (ne pas confondre avec l'adjectif "dead" = sans vie)*
- *diabetes (mellitus) / le diabète*
- *diarrhea / la diarrhée*
- *digitalis / la digitaline*
- *disease / une maladie, une pathologie*
- *dizzy (to feel dizzy) / avoir la tête qui tourne, avoir des vertiges*
- *DNA -- de(s)oxyribo nucleic acid / l'ADN*
- *dose / la dose, le dosage*
- *drain / vider, drainer*
- *drug / 1. un médicament 2. une drogue*
- *due to / dû à*
- *duodenum / le duodénum*
- *engineering / l'ingénierie, le génie (civil, mécanique, génétique)*
- *even though / même si, bien que*
- *eventually / en fin de compte, au bout*
- *evidence (indénb.) / preuve, signe*
- *extract / extraire*
- *fairly / relativement, passablement*
- *faith / la foi, la confiance*
- *figure / une somme, un chiffre*
- *first line / (traitement) de choix, de première intention*
- *further / supplémentaire*
- *general practitioner / un (médecin) généraliste*
- *genuine / authentique*
- *graft / une greffe, un greffon*
- *growth / 1. la croissance, 2.2la pousse (ici : la pousse des cheveux)*
- *harm (to do harm to) / faire du mal, nuire*
- *harmless / inoffensif, anodin, sans danger*
- *harvest / récolter*
- *have yet to do / ne pas avoir fait encore, "il reste encore à…"*
- *heal / guérir, cicatriser*
- *healthy / en bonne santé*
- *heart / le cœur*
- *heart attack / une crise cardiaque, un infarctus du myocarde*
- *heart disease / une maladie cardiaque ou cardio-vasculaire*
- *herb / une herbe officinale, une plante médicinale, un simple (=plante médicinale)*
- *high-dose chemotherapy / la chimiothérapie à dose élevée, à forte dose*
- *histamine / l'histamine (f.)*
- *hormone / une hormone*
- *huge / immense, énorme*
- *illness / une maladie*
- *immune system / le système immunitaire*
- *impair / affaiblir, détériorer*
- *improve / (s')améliorer*
- *inert / inerte*
- *infertile / stérile*
- *inflict / infliger, faire subir*
- *infusion / une injection intraveineuse*
- *injury / des dommages, une blessure*
- *instead of / au lieu de*
- *insulin / l'insuline*
- *lead / mener (sa vie, une vie normale etc.)*
- *lead / un indice, une piste (de réflexion)*
- *leukemia / la leucémie*
- *level / le niveau, le taux*
- *life-threatening / potentiellement mortel*
- *lining / un revêtement (intérieur)*
- *look + adj. / paraître*
- *loss / la perte, la chute (des cheveux)*
- *lymphoma / le lymphome*
- *malignant / malin(igne)*
- *molecular targeting (molecular targeted cancer therapy) / le ciblage moléculaire*
- *mucous / muqueux, une muqueuse*
- *myeloma / le myélome*
- *nausea / la nausée*
- *Neither… nor / ni… ni*
- *nerve / un nerf*
- *no longer / plus maintenant, plus jamais*
- *nonetheless / néanmoins, cependant*
- *not… at all / pas du tout, même pas*
- *on (one's) own / sans aide, tout seul*
- *over / 1. plus de 2. pendant*
- *own (one's own) / (son) propre…*
- *pain / la douleur*
- *pancreas / le pancréas*
- *peptic ulcer (a.k.a PUD : peptic ulcer disease) / un ulcère (gastroduodénal)*
- *perform / réaliser, pratiquer*
- *phlegm / la glaire*
- *physician / un médecin (en général), un médecin généraliste*
- *pill / un comprimé, une pilule*
- *placebo / un placébo*
- *poorly / mal (reçu/perçu etc.)*
- *powerful / fort, puissant*
- *prescribe / prescrire, faire une ordonnance*
- *prevent / empêcher*
- *price / le prix*
- *produce / produire (ne pas confondre avec "product" = un produit)*
- *proton pump inhibitor / inhibiteur de la pompe à protons, inhibiteur de l'H+, K+-ATPase*
- *psoriasis / le psoriasis*
- *quality of life / la qualité vie, la qualité de la vie*
- *radiation therapy / la radiothérapie*
- *rash / une éruption, des plaques (d'urticaire), un "rash" (anglicisme)*
- *recur / réapparaître, revenir*
- *reduce / réduire*
- *relieve / soulager*
- *remove / enlever, retirer*
- *replacement / le remplacement, le renouvellement*
- *rescue / sauver, le sauvetage*
- *respond to / répondre, réagir, être sensible à*
- *restore / restaurer, remettre en état, régénérer*
- *return / rendre, remettre*
- *rheumatoid arthritis / la polyarthrite rhumatoïde*
- *sample / un prélèvement*
- *scalpel / un scalpel, un bistouri*
- *scientist / un scientifique*
- *side effect / un effet secondaire*
- *significant / significatif*
- *since / 1. depuis (que) 2. puisque*
- *skill / la compétence, le savoir-faire*
- *skin / la peau*
- *sole / seul, unique*
- *sore / douloureux, endolori*
- *sore throat / mal à la gorge, un mal de gorge, une angine*
- *spicy / épicé, piquant*
- *stage / un stade*
- *standard / courant, classisque, de référence*
- *stem cell / une cellule souche*
- *streptokinase / la streptokinase*
- *stress / le stress, la tension nerveuse*
- *strike, struck, struck (or stricken) / 1. frapper, cogner, 2. frapper, atteindre (d'une maladie)*
- *suppress / supprimer, éliminer, empêcher*
- *surgeon / un chirurgien*
- *surgery / la chirurgie*
- *survival / la survie*
- *synthesize / synthétiser*
- *tablet / un comprimé, un cachet*
- *target / cibler, prendre pour cible*
- *taste / avoir un goût (de) (aussi : goûter à)*
- *therefore / par conséquent*
- *throat / la gorge*
- *thrombolytic / un traitement thrombolytique, un fibrinolytique*
- *tool / un outil, un instrument*
- *t-PA (tissue plasminogen activator) / activateur plasminogène tissulaire*
- *trial / un essai, un test clinique*
- *uncomplicated / sans complications*
- *unfortunately / malheureusement*
- *unfortunately / malheureusement*
- *unwanted / non voulu, indésirable, non souhaité*
- *use / l'usage*
- *useful / utile*
- *vitamin / une vitamine*
- *well-fed / bien nourri*
- *widespread / généralisé, très répandu*
- *within / en moins de*
- *withstand / supporter, endurer*
- *work / fonctionner, agir*
- *yet / toutefois*