Glossary

abasic site a location in DNA that lacks a purine or pyrimidine base
acceptable ceiling concentration as defined by the Occupational Safety and Health Administration, the level of an air contaminant to which an employee may be exposed at any time during an 8-hour shift, except for a time period and up to a concentration not exceeding the maximum duration and concentration listed as the acceptable maximum peak above the acceptable ceiling concentration for an 8-hour shift
acinar cells cells in the pancreas that secrete enzymes
acne of short duration, rapidly progressing, or of high severity; in testing of rodents, refers to administration of an agent in a single dose
adduct a complex that forms when a chemical binds to a biological molecule, such as DNA or a protein
adenine one of the two purine bases in DNA; pairs with thymine
adenocarcinoma a malignant tumor of epithelial tissue in which the cells form a gland-like structure
adenoma a benign neoplasm of epithelial tissue in which the cells form glands or gland-like structures
adenomatous poly a benign polyp originating in the epithelium of the rectum, colon, or stomach
adipose tissue fatty tissue
adjuvant therapy therapy involving both a primary treatment and an additional treatment that enhances the action of the primary treatment
adrenal cortex the outer portion of the adrenal gland
adrenal gland a hormone-secreting organ located above each kidney
adrenal medulla the inner portion of the adrenal gland
aerobic pertaining to biological processes that require oxygen
aerodigestive tract the combined organs and tissues of the respiratory tract and the upper part of the digestive tract
aerodynamic diameter a physical property of a particle or fiber of irregular shape that describes its aerodynamic behavior (how it moves through air) based on that of an idealized spherical particle of a given diameter
aerosol a dispersed suspension of fine particles in a gas
agonist a drug that can bind to the cellular receptors for another drug or natural substance and produce a physiological effect typical of that drug or substance
alanine transaminase an enzyme involved in metabolism, elevated blood levels of which are an indicator of liver damage
albinism an organism with deficient pigmentation in skin, eyes, and hair
aldehyde any organic compound containing the group \(-\text{CHO}\), which yields acids when oxidized and alcohols when reduced
aliphatic pertaining to or denoting organic compounds in which carbon atoms form open chains
alimentary tract the digestive tract
alkali-labile sites locations where DNA damage results in single-strand breaks under alkaline conditions
alkene a chemical compound containing a carbon-carbon double bond and having the general formula \(\text{C}_n\text{H}_{2n}\), where \(n\) is the number of atoms
alkyld a synthetic resin used in paints and mold castings
alkylating agent a compound that forms chemical bonds with DNA, interfering with DNA replication; some alkylating agents are used as anti-cancer drugs
allele any one of a series of two or more variants of a gene that occupy the same position (locus) on a chromosome
alloy a substance made by combining two or more metals or a metal and another material
alpha 2u globulin (\(\alpha_2\) globulin) nephropathy a mechanism of carcinogenicity associated with kidney tumors in male rats, but not females, and not considered relevant to carcinogenicity in humans
alveolar of or pertaining to the alveoli of the lungs
alveoli usually referring to small, sac-like pouches in the portion of the lungs where gas exchange with the blood occurs; also, sac-like structures in certain glands or in the jaws where the teeth arise
alveolitis inflammation of the alveoli
ambient air outdoor air to which the general public is exposed
ameloblastoma a tumor arising from cells that form tooth enamel
amenorrhea the absence or abnormal cessation of menstruation
amine an organic compound derived from ammonia (\(\text{NH}_3\)) by the replacement of one or more hydrogen atoms (H) by organic groups
amino acid one of a class of organic compounds that form the main constituents of protein
amyloidosis the accumulation in body tissues of amyloid, an abnormal material consisting of protein fibers and carbohydrate
anabolic steroid a synthetic derivative of the male hormone testosterone used to promote growth and repair of body tissues
anaerobic pertaining to biological processes that do not require oxygen or that take place only in the absence of oxygen
analgesic a pain-relieving agent that does not cause loss of consciousness
analogue a compound that resembles another compound in structure, but is not necessarily an isomer
analyte a substance whose chemical constituents are being identified and measured
analytical grade the highest available purity of a chemical
anaplastic (of cancer cells) dividing rapidly and having little or no resemblance to normal cells
androgen any steroid hormone that promotes masculine characteristics
anemia the condition of having fewer circulating red blood cells than normal
anesthetic a substance used to prevent the sensation of pain
aneuploidy the condition of having an abnormal number of chromosomes
angiogenesis the development of blood vessels
angiosarcoma a malignant tumor arising from the lining of a blood vessel
anionic pertaining to an ion that carries a negative charge
anthropogenic caused by humans
antibiotic a drug that kills or inhibits the growth of bacteria
antibody a protein produced by the immune system to detect and remove a foreign substance
anticonvulsant a drug that lessens the severity of convulsions
antigen a molecule capable of inducing an immune response by the host organism
anthelminthic a drug used to treat parasitic infestations caused by helminths (parasitic worms) (also called anthelmintic)
antimicrobial a substance that kills microbes (bacteria, fungi, and protozoa), stops their multiplication or growth, or otherwise prevents their pathogenic action
antimitotic therapy treatment of cancer by inhibition of mitosis (cell division)
antineoplastic inhibiting the survival and proliferation of tumors
antioxidant a substance that inhibits chemical oxidation of another material
antiseptic a substance that inhibits the growth of microorganisms on living tissue
aplastic anemia a condition in which the body does not produce enough new blood cells
apoptosis programmed cell death, a normal process whereby cells die in response to biochemical signals from within the body
aquaculture the production of food by growing plants or animals in water
aqueous pertaining to, containing, or dissolved in water
aquifer an underground layer of water-bearing permeable rock, rock fractures, or unconsolidated materials (gravel, sand, or silt) from which groundwater can be extracted in a water well
archaea members of a domain or kingdom of single-celled microorganisms, formerly classified as bacteria, whose cells lack a nucleus but which have unique characteristics separating them from bacteria and eukaryotes
aromatic pertaining to cyclic flat organic molecules with unusual stability
aromatic amine an organic chemical compound consisting of an aromatic ring attached to an amine
aromatic hydrocarbon an organic chemical compound formed primarily from carbon and hydrogen atoms with a structure based on benzene rings
arsenical containing arsenic
arterial of or pertaining to arteries
arteritis inflammation of an artery
ascaricide a drug that treats roundworm infection
assay a procedure for measuring a property of a substance
astrocytoma a tumor of the brain or spinal cord originating in astrocytes, a type of glial cell
atomic weight the average mass of a given atom on a scale where 1 atomic mass unit equals 1/12 the average mass of a carbon atom
auditory sebaceous gland a sebaceous gland in the inner layer of the skin of the ear
autoignition temperature the lowest temperature at which a substance will spontaneously ignite
autoimmune disease a condition in which the body is harmed by its own immune system (also called autoimmune disorder or autoimmunity)
autoimmune hemolytic anemia a blood disease in which the body produces antibodies that destroy its own red blood cells
azo pertaining to compounds containing the azo group –N=N– as part of their structure

B

B cell a type of white blood cell that makes antibodies (also known as a B lymphocyte)
bacteria members of a kingdom or domain of single-celled microorganisms whose cells do not contain a nucleus
bactericide an agent that kills bacteria or inhibits their growth
bacteriophage a virus with specific affinity for bacteria
bacteriostat an agent that inhibits the growth of bacteria
bacteriostatic inhibiting the growth of bacteria
bacterium the singular form of “bacteria”
basal cells cells that line the deepest layer of the epidermis
bases in genetics, nitrogen-containing compounds that are components of DNA and RNA

benign tumor an abnormal mass of tissue that does not spread beyond normal tissue boundaries
beta-catenin (β-catenin) a protein involved in regulating cell-to-cell adhesion and gene transcription; mutations of the beta-catenin gene are associated with cancer
betel quid an addictive mix of betel leaf, areca nut, and slaked lime that is chewed in some Pacific and Asian cultures
bile a fluid produced in the liver and stored in the gallbladder that aids in digestion, especially of fats
bile duct a tube through which bile passes from the liver to the gallbladder or from the gallbladder to the small intestine
bilirubin a pigment produced by the breakdown of heme from red blood cells
bioaccessibility the fraction of the total amount of a substance that is potentially available for absorption into the bloodstream
bioaccumulation the process by which a material in the environment accumulates within an organism
bioassay a test to determine the potency or concentration of a substance by measuring its effect on animals, isolated tissues, or microorganisms
bioavailability the extent to which a substance is absorbed into the bloodstream following exposure or administration
bioconcentration accumulation of a chemical in the tissues of an organism (e.g., a fish) to concentrations greater than in the surrounding medium (e.g., water)
biodeterioration breakdown of a substance by microorganisms
biomonitoring measurement of the amounts of toxic chemical compounds, elements, or their metabolites in the human body
biotransformation conversion of molecules from one form to another within an organism
bonded diamonds diamond particles embedded in a metal or resin binding matrix
bronchi the plural of “bronchus”
bronchiolar of or pertaining to the bronchioles
bronchiole a small division of a bronchus
bronchoalveolar of or pertaining to the bronchial tubes and the alveoli in the lungs
bronchoalveolar lavage a procedure in which saline solution is introduced into the terminal bronchioles of the lungs and then removed to obtain a sample of the cells, microorganisms, fluids, and particles present
bronchogenic carcinoma a malignant tumor originating in the bronchi of the lungs
bronchus one of the larger passages conveying air within the lungs
buccal of or pertaining to the cheek
buccal cavity the space within the mouth that lies between the teeth and the cheek
Burkitt lymphoma a form of non-Hodgkin lymphoma that originates in B cells (B lymphocytes)

C

C cell a type of cell of the thyroid gland that secretes calcitonin (also called parafollicular cells)
calcitonin a hormone that participates in regulation of calcium metabolism
cancer a general term used to indicate any of various types of malignant tumors
candidiasis an infection caused by the yeast-like fungus Candida albicans, most commonly involving the skin, mouth, respiratory tract, and vagina
capsid the protein outer shell of a virus
carbide  a chemical compound consisting of carbon and a more electrically positive element

carbonization  the process of converting an organic compound to carbon or to a residue derived from carbon

carcinogen  any substance that causes cancer

carcinogenesis  the process by which normal tissue becomes cancerous

carcinogenic  having the power, ability, or tendency to cause cancer

carcinogenicity  the power, ability, or tendency to cause cancer

carcinoma  a malignant tumor originating from epithelial tissue

carcinoma in situ  a carcinoma that has remained in the place where it originated and has not spread to adjacent tissues

cardiac  of or pertaining to the heart

cardiovascular  of or pertaining to the heart and blood vessels

capillaries  the smallest blood vessels, which form a network for the exchange of oxygen, metabolic waste products, and carbon dioxide between blood and tissue cells

carina  a projection of the lowest tracheal cartilage where the airway divides into the right and left primary bronchi

cartilage  a firm but flexible connective tissue that forms most of the embryonic skeleton and in adults is found in the larynx, respiratory tract, external ear, and joints

case-control study  a study in which selected individuals with a specific diagnosis (cases) are compared with individuals without that diagnosis (controls) from the same population

case-comparison study  a term previously used as a synonym for case-control study

case series  a collection of patients with common characteristics, used to describe some aspect of a disease, treatment, exposure, or diagnostic procedure

catabolism  the breakdown of complex molecules in living organisms to form simpler ones

catalysis  the acceleration of a chemical reaction by a catalyst

catalyst  a material that increases the rate of a chemical reaction while remaining unchanged at the end of the reaction

catalyze  to increase the rate of a chemical reaction by functioning as a catalyst

cation  an ion carrying a positive electrical charge

causalgia  persistent pain resulting from injury to a peripheral nerve (also known as complex regional pain syndrome)

cecum  the sac-like part of the large intestine between the small intestine and the colon

cell  (in biology) the smallest structural and functional unit of a living organism, consisting of cytoplasm and a nucleus enclosed in a membrane

cellular  (in biology) of, pertaining to, or consisting of cells

cemented carbide  carbide particles embedded in a matrix of binding metal

central nervous system  the part of the nervous system consisting of the brain and spinal cord

cerebral ependymoma  a tumor originating from cells lining the central canal of the spinal cord or the ventricles of the brain

cerebrospinal fluid  a watery fluid found in the brain and around the spinal cord

cervix  a neck-like structure or constriction; most often used to refer to the neck of the uterus

cetane number  an indicator of the combustion speed of diesel fuel (the diesel equivalent of octane)

characteristic hazardous waste  a solid waste having the property of ignitability, corrosivity, reactivity, or toxicity, as defined under the Resource Conservation and Recovery Act

chelating agent  a substance whose molecules can form several bonds to a single metal ion; can be used to remove an ion from participation in biological reactions and is often used to remove toxic metals from the body

cchelation  formation of a complex involving a metal ion and a chelating agent

Chemical Data Reporting Rule  periodic reporting by manufacturers to the U.S. Environmental Protection Agency of exposure-related information on the types, quantities, and uses of chemical substances produced domestically and imported into the United States (formerly the Inventory Update Rule)

chemical intermediate  a chemical formed or used during the process of producing another chemical

chemiluminescent immunoassay  a technique in which antibodies are detected by labeling of the antigen or antibody with a molecule capable of emitting light during the chemical reaction between the antigen and antibody

chemosterilant  a chemical compound that causes an organism to become sterile

chemotherapeutic  related to the treatment of disease with chemical agents

chemotherapy  treatment of disease with chemical agents

chiral  (of a molecule) asymmetric in such as way that a structure and its mirror image cannot be superimposed

chlamydia  a sexually transmitted infection caused by the bacterium Chlamydia trachomatis

cholangio-  (prefix) of or pertaining to the bile ducts

cholesteatoma of the nasal cavity  a cyst resulting from the abnormal formation of keratin

choroidal melanoma  a malignant tumor arising from melanocytes in the choroid (the middle, vascular layer of the eyeball)

chromatid  one copy of a newly copied chromosome, still joined to the other copy

chromophobe adenoma  a benign pituitary-gland tumor that does not secrete hormones

chromosomal aberration  any abnormality in chromosome number or structure

chromosome  a thread-like structure in the nucleus of a cell made of protein and DNA and containing genetic instructions encoded in genes

chronic  continuing for a long period of time; in testing of rodents, refers to exposure schedules longer than three months

circulatory system  the system involved in circulating blood and lymph throughout the body, consisting of the cardiovascular system (blood, blood vessels, and the heart) and the lymphatic system (lymph, lymphatic vessels, and lymph nodes)

cirrhosis of the liver  a progressive disease in which normal liver tissue is replaced with scar tissue, impairing liver function

cis-activation  activation of a gene by an activator DNA sequence located on the same chromosome as that gene

clade  a group of genotypes that share a common ancestor

Clara cells  secretory cells found in the epithelium of the terminal bronchioles

clastogen  an agent with the ability to cause chromosome breaks

clastogenic  able to cause chromosome breaks

clitoral glands  in rodents, sebaceous glands of the folds of skin covering the clitoris, equivalent to the foreskin of the penis (also called the preputial glands of the clitoris)

cocoa  a thick black liquid produced by distilling coal

coaltar–tungsten carbide hard metal  a composite of tungsten carbide particles with a metallic cobalt powder as a binder, pressed into a compact, solid form at high temperatures (also called hard metal)
co-carcinogenicity enhancement of the activity of a carcinogen by another agent that is not itself carcinogenic
codon a sequence of three adjacent bases in a strand of DNA or RNA that codes for a specific amino acid
coenzyme a nonprotein compound that is necessary for the functioning of an enzyme
cofactor a contributory cause of a disease
cohort study a study that compares a group of people with a second group similar except with respect to one factor (usually the suspected cause of a disease)
colitis inflammation of the colon
colon the part of the large intestine extending from the cecum to the rectum
colorectal of or pertaining to the colon and rectum or to the entire large intestine
colposcopic examination the use of a special illuminated magnifying glass to examine the vulva, vagina, and cervix
commercial grade the degree of purity of a chemical produced for and adequate for commercial uses
condylomata acuminata genital warts, caused by certain subtypes of human papillomavirus
confidence interval a range of values defined so that there is a specified probability that the value of a parameter lies within it (usually 95%)
confounding factor a factor that obscures the relationship between a presumed cause and its presumed effect; the effect of the confounding factor cannot be logically separated from the effect(s) of other causal factor(s)
congener one of two or more chemicals related to each other by origin, structure, or function
congenital existing from birth
conjugated bound together; in organic chemistry, a molecular structure or substructure containing alternating double and single bonds between pairs of adjacent atoms
conjugation the process of becoming conjugated
conjunctiva the membrane that lines the eyelid and covers the front part of the eyeball
connective tissue structural tissue that connects, supports, or surrounds other tissues or organs
contaminant an impurity; in the environment, a chemical that is not ordinarily present and that may have deleterious effects on organisms
control group in a study, a group of subjects closely resembling the treatment group, but not receiving the treatment, and thereby serving as a comparison group against which to measure the effects of the treatment
controls in a study, members of a control group (also called control subjects)
copolymer a polymer consisting of two or more different monomers
core proteins (in viruses) proteins directly associated with the nucleic acid of viruses
cortex the outer layer of an organ
cortical of or pertaining to the cortex
corticosteroid a drug used to reduce inflammation
covalent binding formation of a chemical bond that involves the sharing of a pair of electrons between atoms
covalently through the formation of a covalent bond
creatinine a waste product of muscle metabolism, measured in blood and urine to assess kidney function
cryptococcosis an infection caused by inhaling the fungus Cryptococcus neoformans, which may spread from the lungs and infect the membrane surrounding the brain and spinal cord
cryptosporidiosis an intestinal infection caused by the parasite Cryptosporidium parvum
cystadenocarcinoma an adenocarcinoma that forms cysts
cystadenoma an adenoma that forms cysts
cytochrome a class of proteins containing the heme group, whose main function is electron transport
cytochrome P450 a group of enzymes involved in drug metabolism and found in high levels in the liver
cytogenetic of or pertaining to the cellular constituents involved in heredity
cytokine any of a number of hormone-like substances secreted by cells of the immune system that act nonenzymatically to regulate immune responses
cytothemegalovirus a common herpesvirus that rarely causes symptoms but may cause serious disease in infants or in adults with weakened immune systems
cytopathic pertaining to an infectious agent that causes a diseased condition in cells, or to the effects of such an agent
cytoplasm the contents of a cell outside of the nucleus
cytosine one of the two pyrimidine bases in DNA; pairs with guanine
cytosol the fluid portion of the cytoplasm
cytosolic of or pertaining to cytosol
cytotoxic toxic to cells
cytotoxicity the ability to have toxic effects on cells
cytotoxic T cell a type of immune cell that kills cancerous, infected, or damaged cells
cross-linking 1. the extension of chemical bonds in more than one direction, which strengthens polymers 2. the reaction of an agent with two different positions in a DNA molecule or with both DNA and protein, to form an adduct
dam the female parent of a domestic animal
defoliant a chemical spray or dust that causes plants to lose their leaves prematurely
defhydrogenation the removal of one or more hydrogen ions or protons from a molecule
deliquescent tending to melt or dissolve; especially, tending to gradually dissolve and liquefy by attracting and absorbing moisture from the air
density amount of mass per unit volume; for solids and liquids, generally expressed in grams per cubic centimeter at room temperature; for gases, generally the calculated ideal gas density in grams per liter at 25°C and one standard atmosphere of pressure
dermal of or pertaining to the skin
dermatitis inflammation of the skin
dermatomyositis an inflammation of the skin, subcutaneous tissue, and muscles, involving death of muscle fibers
dermis the inner layer of the skin
diabetes a disorder of carbohydrate metabolism characterized by inadequate secretion or utilization of insulin, excessive urination, and excessive amounts of sugar in the blood and urine
diamine an organic compound containing two amine groups
diazo pertaining to a compound containing two linked nitrogen atoms as a terminal functional group
differentiated cells cells that have lost or have a limited capacity to transform into other cell types (in contrast to stem cells)
dimer a chemical structure formed from two similar units

dissociation constant (pK_a) a measure of the strength of an acid based on the equilibrium constant (K_a) for dissociation of a weak acid in a water solution

dissolution the act or process of dissolving

distant tumor a tumor located elsewhere than at the site where the abnormal growth originated

distillation separation or purification of the components of a material by gradually increased heating and removal of the components that vaporize at different boiling points

dominant lethal mutation assay an assay that identifies mutagens by measuring a chemical’s ability to cause embryonic death due to chromosome breakage in parental germ cells

dorsal pertaining to the back or posterior of an organ or organism

dose-response relationship a relationship between the dose or concentration of a chemical, biological, or physical agent to which an organism is exposed and the degree of the monitored effect of that agent

duodenum the first section of the small intestine, extending from the stomach to the jejunum

dysplasia abnormal tissue growth or development

dimorphous of a pair of compounds whose molecular structures have a mirror-image relationship to one another

discordant a coiled tube that stores sperm newly created by the testis

distal to or pertaining to or consisting of epithelium

diverticulum a pouch or pocket in the wall of an organ or body cavity

ecto- pertaining to or originating outside of the body or biological system

ecosinophilic granuloma complex a group of inflammatory skin lesions in cats

epidemiology the study of the occurrence and distribution of disease in populations

epidermis the outer layer of the skin

epidermoid tumor squamous-cell carcinoma (also called epidermoid carcinoma)
epididymis a coiled tube that stores sperm newly created by the testis

epigentic pertaining to changes in gene expression or phenotype caused by mechanisms other than changes in the underlying DNA sequence

epilepsy a neurological disease usually characterized by seizures involving convulsions and loss of consciousness

epithelial of or pertaining to or consisting of epithelium

epithelium tissue that lines the body surface and cavities, consisting of cells joined by small amounts of cementing substances

epoxidized soybean oil a collection of organic compounds from soybean oil chemically converted for use as a plasticizer and stabilizer in polyvinyl chloride plastics

erythema redness of the skin produced by congestion of the capillaries

erthrocytes red blood cells

esophagus the passage through which food travels from the throat to the stomach

esthesio-neuroepithelioma a nasal tumor consisting of cells of sensory-nerve epithelium (also called olfactory neuroblastoma)
estrogen any of a group of female sex hormones

estrus the recurrent, restricted period of sexual receptivity in female mammals other than humans

etheric of, pertaining to, or containing ether

etiolic assigning or seeking to assign a cause

eukaryote an organism whose cells contain a nucleus and undergo mitosis; includes all organisms except bacteria and archaea

eukaryotic of or pertaining to a eukaryote

Ewing sarcoma a malignant tumor of the bone

exocrine of or pertaining to glands that secrete their products onto an epithelial surface via a duct

exogenous developed or originating outside of the body or biological system

extrahepatic located or originating outside of the liver

extranodal lymphoma any lymphoma originating outside of the lymph nodes

exposure-response relationship a relationship between the dose or concentration of a chemical, biological, or physical agent to which an organism is exposed and the degree of the monitored effect of that agent

Fanconi anemia a congenital disorder resulting in reduced numbers of red and white blood cells and platelets and associated with heart, kidney, and limb malformations, skin pigment changes, spontaneous chromosome breakage, and a predisposition to leukemia

feedstock the raw material supplied to a processing plant to create an end product

Fenton reaction the oxidation of iron(II) by hydrogen peroxide to form a hydroxyl radical

ferrous of, pertaining to, or containing iron

ferruginous body a mineral particle to which pulmonary macrophages have added an iron protein coat; used as an indicator of exposure to specific dusts or fibers
fiber  a particle with a length-to-width ratio of at least 3:1
fibroadenoma  a benign tumor formed of glandular and connective tissue
fibroblast  the most common type of connective-tissue cell
fibroma  a benign tumor originating in fibrous connective tissue
fibrosarcoma  a malignant tumor originating in fibrous connective tissue
fibrosis  thickening and scarring of connective tissue, usually as a result of injury
flash point  the lowest temperature at which enough vapor of a combustible liquid forms to ignite momentarily in air
flocculant  a substance that promotes the clumping of particles
flocculation  the process by which fine particles in a liquid clump together
flux  1. the rate of mass flow across a unit area  2. chemical agent used as a cleaning, purifying, or flowing agent in smelting, welding, soldering, or brazing
follicular cell  a modified epithelial cell that secretes fluid
follicular dendritic cell  a cell of the immune system that is found in lymphoid tissue and is able to trap antigens bound to antibodies
forestomach  a non-glandular expansion of the alimentary canal between the esophagus and the glandular stomach, found in rodents, but not in humans
formalin  a solution of formaldehyde in water typically containing 37% formaldehyde by mass and 10% to 15% methanol as a stabilizer
free radical  an atom or molecule that has at least one unpaired electron and is therefore unstable and highly reactive (also called a radical)
frit  a wholly or partially fused material used as a basis for glazes or enamels
fumigant  a pesticide in vapor or gaseous form used to kill pests or disinfect materials
fungi  the plural of "fungus"
fungicide  a pesticide used to control, prevent, or kill fungi
fungus  a lower plant that feeds on other organic matter and lacks the chlorophyll and tissue differentiation of higher plants

**G**

gallbladder  a small organ where bile from the liver is stored before being released into the small intestine
gastric  of or pertaining to the stomach
gastrointestinal tract  the part of the digestive system consisting of the stomach and intestines
gavage  in studies with animals, the introduction of material through a tube passed through the mouth into the stomach (also called gastric, stomach, or oral intubation)
gene  a unit of hereditary information; the portion of a DNA molecule that contains, coded in its nucleotide sequence, the information determining the sequence of a single chain of amino acids that make up a protein or part of a protein
genitourinary  of or pertaining to the genital and urinary organs
genome  the complete set of genes or genetic material present in a cell or organism
genomic  of or pertaining to the genome
genomics  the study of the structure, function, evolution, and mapping of genomes
genotoxic  having the ability to damage a DNA molecule
ngenotoxicity  the ability to damage a DNA molecule
-genotype  the genetic constitution of an individual organism
germs  cells that give rise to sperm and eggs
gestation  pregnancy; in mammals, the period from fertilization of the egg to birth
gestational trophoblastic tumor  a rare tumor arising during pregnancy from cells that would normally develop into the placenta
gland  an aggregation of cells specialized to secrete or excrete certain biologically important materials
glandular  of or pertaining to a gland or glands
glandular stomach  the muscular sac between the esophagus and the small intestine containing glandular tissue that secretes mucus, hydrochloric acid, and digestive enzymes
glass fiber  a general term referring to reinforcing glass filament, glass wool, or superfine glass fiber
glass wool  a fibrous product formed by blowing or spinning molten glass and collecting the resultant fibers as a tangled mat
glial cells  cells that form the interstitial tissue of the brain, spinal cord, and retina (the light-sensitive layer of tissue at the back of the eyeball)
glioma  any tumor derived from glial cells
glomerulonephritis  any of several diseases characterized by injury to the part of the kidney that filters blood to form urine
glucagon  a hormone secreted by the islet cells of the pancreas that works to raise the level of glucose in the bloodstream

glucagonoma  a glucagon-secreting tumor of the islet cells of the pancreas

**glutathione**  a compound that functions as a coenzyme in oxidation–reduction reactions in cells

-glutathione S-transferase  any member of a family of enzymes involved in reactions that play a key role in detoxification of many substances
gonadotropin  any hormone that acts on the reproductive organs or system
gonorrhea  a sexually transmitted disease caused by the bacterium Neisseria gonorrhoeae that if untreated can lead to severe pelvic infections and sterility
grand mal epilepsy  a form of epilepsy characterized by seizures involving loss of consciousness and generalized convulsions

-granulocytes  white blood cells characterized by the presence of granules containing enzymes and forming part of the immune system
granulosa-cell tumor  a slow-growing cancer originating in the cells that surround the eggs within the ovaries

guanine  one of the two purine bases in DNA; pairs with cytosine

**H**

half-life  the time required for the amount of a substance to be reduced to half its initial value through degradation or by elimination from an organism

halogenated  denoting a chemical compound that includes a halogen (fluorine, chlorine, bromine, iodine, or astatine)

Harderian gland  an accessory tear gland in all vertebrate animals that have a third eyelid (the nictitating membrane)

-hard metal  a composite of tungsten carbide particles with a metallic cobalt powder as a binder, pressed into a compact, solid form at high temperatures (also called cobalt–tungsten carbide hard metal)

hard palate  the bony front portion of the partition separating the mouth from the nasal cavity

healthy-worker effect  the phenomenon whereby workers usually have overall death rates lower than those of the general population, because the severely ill and disabled are generally excluded from employment

helicase  an enzyme that acts to unwind the double-stranded helical structure of nucleic acids
hemangioendothelioma a tumor originating in cells derived from the blood vessels and lining irregular blood-filled spaces (when malignant, also called hemangiosarcoma)

hemangioma a benign tumor made up of newly formed blood vessels

hemangiosarcoma a malignant tumor originating in cells derived from the blood vessels and lining irregular blood-filled spaces

hematocrit the percentage of red blood cells in whole blood, by volume

hematopoietic pertaining to the formation of blood or blood cells

eheme an iron compound that makes up the pigment portion of hemoglobin and is responsible for its oxygen-carrying properties

hemodialysis a medical procedure to remove waste products from the blood of a person with kidney failure (also called kidney dialysis)

hemoglobin the respiratory protein of red blood cells that transports oxygen from the lungs to the tissues and gives blood its red color

hemolymphoreticular of or pertaining to the network of cells and tissues of the blood and lymph nodes found throughout the body

hemolytic anemia a disease characterized by the abnormal breakdown of red blood cells

Henry's law the relationship that defines the partition of a soluble or partially soluble chemical between its gas and solution phases

Henry's law constant the ratio of the concentration of a chemical in solution to its equilibrium partial pressure in the gas phase; increases with decreasing solubility

hepatectomy having had the liver removed

hepatic of or pertaining to the liver

hepatitis an inflammation of the liver

hepatoblastoma a malignant liver tumor occurring in young children, consisting of embryonic tissue

hepatocellular of or pertaining to cells of the liver

hepatocellular carcinoma a malignant liver-cell tumor

hepatocyte a parenchymal liver cell

hepatotoxic a substance that is toxic to the liver

herbicide a substance that is toxic to plants, used to destroy unwanted vegetation

high-production-volume chemical as defined by the U.S. Environmental Protection Agency, any chemical produced in or imported into the United States in a quantity of 1 million pounds or more per year

high-throughput screening the use of automated methods to screen many chemicals at once for indicators of toxicity

histiocytic necrotizing lymphadenitis a benign and self-limiting disorder characterized by swollen lymph glands in the neck, with flu-like symptoms

histiocytoma a benign skin tumor originating in cells of the reticulendothelial system

histological pertaining to the study of the microscopic structure of animal and plant tissues

histology the study of the microscopic structure, composition, and function of tissues

histones proteins found in the nuclei of cells that help package DNA into chromosomes

histoplasmosis a respiratory infection caused by inhaling the spores of the fungus *Histoplasma capsulatum*

Hodgkin disease a form of malignant lymphoma characterized by painless progressive enlargement of the lymph nodes, spleen, and general lymphoid tissue (also called Hodgkin lymphoma)

hormone any of various chemical substances produced by the endocrine glands and that have specific regulatory effects on the activity of certain organs

host antigen a molecule that is capable of inducing an immune response by the same organism that produced the molecule (i.e., an autoimmune response)

hyaline vascular Castleman disease a form of Castleman disease characterized by increased numbers of vessels in the lymph nodes and damage to the vessels

hydrofluorocarbon any of several simple gaseous compounds that contain carbon, fluorine, and hydrogen

hydrolysis breaking apart of a chemical compound through reaction with water

hydrolyze to subject to hydrolysis

hydroxyl group the atom group –OH

hydroxyl radical the highly reactive neutral form of the hydroxide ion (OH–)

hydroxylation introduction of a hydroxyl group into an organic chemical compound

hypermethylation an increased level of methylation

hyperplasia abnormal proliferation of normal cells in normal arrangement in a tissue

hypertension excessive activity of the thyroid gland

hypertrophy an increase in the volume of a tissue or organ produced entirely by the enlargement of existing cells

hypnotic sleep-inducing; a drug that induces sleep

hypogonadism decreased functional activity of the testes or ovaries, resulting in retardation of growth and sexual development

hypoxia a condition in which the body tissues do not receive enough oxygen

hypoxia-inducible factor a transcription factor that responds to decreased levels of oxygen available in a cell by activating genes to produce proteins that increase oxygen delivery or help the organism adapt to low oxygen levels

iatrogenic of or pertaining to illness caused by medical examination or treatment

icosahedral having 20 equilateral triangular surfaces, 12 corners, and 30 edges

ileum the lowest section of the small intestine, between the jejunum and the large intestine

immortalize to enable cells to continue to proliferate indefinitely

immune response the mechanisms by which the body recognizes and defends against pathogens and foreign substances

immune surveillance patrolling of the body by the immune system to detect and destroy invading pathogens, and possibly host cells that become cancerous

immune system the system of biological structures and processes within an organism that protects against disease

immunoassay a procedure for detecting or measuring specific proteins or other substances through their properties as antigens or antibodies

immunodeficiency weakening or absence of the immune response due to reduced activity or decreased numbers of lymphoid cells

immunodominant pertaining to the part of an antigen that is most easily recognized by the immune system and thus most influences the specificity of the induced antibody

immunofluorescence assay a technique that uses a fluorescent dye to detect the presence of specific antibodies in blood serum

immunogenic pertaining to a substance with the ability to cause an immune response
immunoglobulin any member of a class of proteins produced by lymphocytes that function as antibodies, recognizing, attaching to, and helping to destroy foreign substances
immunomodulator a chemical agent that alters the immune response or the functioning of the immune system
immunosuppression artificial prevention or reduction of the natural immune response, also used to describe the condition of acquired or congenitally lowered immune response
implantation insertion of a mass of material into an organism at a fixed site from which the mass does not move except by dissolving in the body fluids
incidence the rate at which new cases of a disease occur
inhalation drawing of air or other substances into the lungs
inhalation reference concentration as defined by the U.S. Environmental Protection Agency, the concentration of a chemical that one can breathe every day for a lifetime that is not anticipated to cause harmful non-cancer health effects
inhalation unit risk as defined by the U.S. Environmental Protection Agency, an estimate of the increased cancer risk from inhalation exposure to a concentration of 1 µg per cubic meter for a lifetime
initiation permanent alteration of a cell or group of cells, resulting in formation of tumors if the cells divide
initiator a chemical that permanently alters a cell or group of cells, resulting in formation of tumors if the cells divide
injection site the site, usually in the skin, at which a substance is injected into an organism
inorganic pertaining to materials or chemicals that do not contain carbon
in situ confined to the site of origin; “carcinoma in situ” refers to noninvasive cancer
in situ hybridization a technique to identify a specific DNA or RNA sequence in a portion or section of tissue by using a labeled complementary nucleic acid strand.
insoluble incapable of being dissolved in a particular solvent
insulin a hormone secreted by the islet cells of the pancreas that promotes the absorption of glucose from the bloodstream into muscles and fat tissue
insulinoma a usually benign insulin-secreting tumor of the islet cells of the pancreas
integrate an enzyme produced by a retrovirus that enables its genetic material to be integrated into the DNA of the infected cell
interferon a protein released by cells, usually in response to the entry of a virus, that has the ability to inhibit viral replication
International Organization for Standardization a nongovernmental organization made up of representatives from national standards bodies that serves as an international standard-setting body
interstitial pertaining to or situated in the spaces between tissues or the parts of an organ
intra-abdominal within the abdomen
intrabronchial within a bronchus
intracellular located or occurring within a cell or cells
intramedullary injection injection into the bone marrow
intramuscular injection injection into muscle mass
intraperitoneal injection injection into the peritoneal cavity
intrapleural injection injection into the pleura
intrathoracic implantation implantation within the thoracic cavity (the area that contains the heart and lungs)
intratracheal instillation introduction directly into the trachea (also called intratracheal administration or injection)
intravaginal within the vagina
intravenous injection injection into a vein
intrasaccular instillation introduction directly into the urinary bladder (also called intravesicular administration or injection)
in utero within the uterus
invasive spreading beyond the body tissue of origin
Inventory Update Rule the former name of the Chemical Data Reporting Rule
in vitro pertaining to a biological process taking place in a test tube, culture dish, or elsewhere outside a living organism
in vivo pertaining to a biological process taking place in a living organism
ion an atom or molecule that has a net positive or negative electric charge as a result of losing or gaining one or more electrons, and thus has unequal numbers of protons and electrons
ion channel a protein that acts as a pore in a cell membrane and permits the selective passage of ions into the cell
ionizing (adjective) having the ability to convert an atom or molecule into an ion or ions, typically by removing one or more electrons
iron-deficiency anemia a disease characterized by low or absent stores of iron in the body and low concentrations of iron in the blood
islet cells secretory cells found in the endocrine portion of the pancreas
isomer one of two or more forms of a chemical that have the same chemical formula but different structural arrangements
isotope one of two or more forms of the same chemical element that contain different numbers of neutrons
isozyme any of the chemically distinct forms of an enzyme that perform the same biochemical function
jaundice a yellowish staining of the skin, whites of the eyes, and deeper tissues caused by an excess of bilirubin in the blood
jejenum the middle section of the small intestine, between the duodenum and ileum
Kaposi sarcoma a malignant tumor occurring in the skin, in the lining of the mouth, nose, or throat, or in other organs caused by infection with Kaposi sarcoma herpesvirus (human herpesvirus type 8)
keratin a fibrous protein that is the key structural component of the outer layers of the skin, hair, and nails
keratinizing squamous-cell carcinoma squamous-cell tumors containing keratin in the cytoplasm
keratoacanthoma a benign skin tumor closely resembling squamous-cell carcinoma and having a central keratin mass
koilocyte a squamous epithelial cell that has undergone structural changes as a result of infection with human papillomavirus
koilocytosis the presence of koilocytes in a biological specimen
Kw the octanol-water partition coefficient, representing the ratio of the solubility of a compound in octanol (a nonpolar solvent) to its solubility in water (a polar solvent)
lactation the secretion of milk
laminating uniting superimposed layers of a material or materials
laryngeal or pertaining to the larynx
larynx a passage located between the pharynx and the trachea, containing the vocal cords (also called the voice box)
latency 1. the time between exposure to a carcinogen and the onset of cancer 2. the part of the viral life cycle when the virus lies dormant and does not reproduce itself or cause disease symptoms
latent virus a virus that remains in the host organism without undergoing replication
leachate the liquid produced from the decomposition of waste in a landfill
leiomyoma a benign tumor derived from smooth muscle
leiomyosarcoma a malignant tumor derived from smooth muscle
leukemia a cancer of the blood-forming tissues (the bone marrow and the lymphatic system) characterized by a marked increase in the number of abnormal white blood cells (leukocytes) in the bone marrow and peripheral blood
leukocyte a white blood cell (lymphocyte, granulocyte, or monocyte)
Leydig cell a cell in the testes that secretes the hormone testosterone
lipid any of the naturally occurring fats or waxes
lipophilic tending to combine with or dissolve in lipids
lipophilicity the ability of a chemical compound to combine with or dissolve in lipids
liposomal of or pertaining to an artificially prepared spherical vesicle composed of a lipid bilayer that can be used as a vehicle for administration of nutrients or drugs
listed hazardous waste a solid waste from common manufacturing and industrial processes that is listed as hazardous under the Resource Conservation and Recovery Act
locus in genetics, the specific location of a gene on a chromosome
log octanol-water partition coefficient (log $K_{ow}$) the logarithm of the octanol-water partition coefficient ($K_{ow}$); used as a relative indicator of the tendency of an organic compound to adsorb to soil
loss of heterozygosity loss of the normal allele at a gene locus with one normal and one abnormal allele
lupus a chronic inflammatory disease caused by autoimmunity
lymph a clear liquid collected from tissues throughout the body and returned to the blood via the lymphatic system
lymphatic of or pertaining to the lymph and lymph nodes and vessels
lymphoblast an immature lymphocyte
lymphocyte a mononuclear, nongranular white blood cell that is produced primarily by lymphoid tissue and participates in the immune response
lymphocytic leukemia leukemia involving immature white blood cells (lymphoblasts), usually of B-cell origin (also called lymphoblastic or lymphoid leukemia)
lymphohematopoietic pertaining to or involved in the production of lymphocytes and cells of blood, bone marrow, spleen, lymph nodes, and thymus
lymphoid of or pertaining to the organs and tissues of the lymphatic system
lymphoma any malignant tumor originating in lymphoid tissue
lymphopoietic pertaining to the formation of lymph
lymphoreticular of or pertaining to the cells or tissues of both the lymphatic and reticuloendothelial systems
lymphosarcoma a diffuse lymphoma
lysoosomal of or pertaining to lysosomes
lysosome an organelle in eukaryotic cells that contains digestive enzymes that break down food particles, worn-out organelles, and bacteria and viruses
lytic virus a virus that uses the cellular machinery of the host organism to replicate itself and kill the host cell, releasing a new generation of viruses
macrophage a type of white blood cell that engulf and digest debris and foreign particles
malignant tending to become progressively worse; life-threatening
mammal any of a class of warm-blooded higher vertebrates that nourish their young with milk secreted by mammary glands; includes humans
mammalian of or pertaining to mammals
mammary of or pertaining to the breast
mastodynia pain in the breast
medullary of or pertaining to the inner core of certain organs or body structures
megakaryocyte a large cell of the bone marrow that gives rise to platelets
melanin the pigment that gives skin, hair, and eyes their color
melanocytic pertaining to cells that produce the pigment melanin
melanoma any tumor consisting of melanin-pigmented cells
melanotic characterized by the presence of melanin
meningioma a slow-growing tumor of the meninges (the membrane covering the brain and spinal cord)
mesenchymal of or pertaining to the embryonic tissue that gives rise to connective tissue, blood cells, blood vessels, lymphatic cells, and reticuloendothelial cells
mesentery a membranous fold attaching various organs to the body wall
mesothelioma a tumor of the lining of the chest or abdomen
meta-analysis pooled statistical analysis of several similar studies
metabolism the range of biochemical processes that occur within living organisms, including both the buildup and breakdown of substances
metabolite a substance produced through metabolism
metaplasia the change of a mature cell in a given tissue to a cell type that does not normally occur in that tissue
meta-relative risk the relative risk calculated in a meta-analysis
metastasis the transfer of cancer cells from their site of origin to another part of the body not connected with the site of origin
methemoglobin a form of hemoglobin that cannot carry oxygen, as the result of oxidation of the iron atom
methemoglobinemia the presence of an abnormally large amount of methemoglobin
methylation addition of a methyl group (–CH$_3$) to a molecule
microbe a microorganism (bacterium, fungus, or protozoan)
microbial of or pertaining to microbes
microglioma a tumor originating from microglial cells (small cells forming part of the structure of the central nervous system)
microinvasive denoting a carcinoma in situ that invades adjacent tissues at the microscopic level
micronuclei the plural of “micronucleus”
microchromosome a nucleus separate from, and additional to, the main nucleus of a cell, produced during cell division by lagging chromosomes or chromosome fragments
microRNA a small, non-coding RNA molecule that prevents production of a particular protein by binding to and destroying the messenger RNA from which the protein would have been produced
microsomal of or pertaining to microsomes
microsomes vesicle-like fragments of endoplasmic reticulum formed from eukaryotic cells disrupted in the laboratory, containing cytochrome P450 and used to mimic mammalian metabolism in vitro
mineral wool generic name for fiber materials formed by spinning or drawing molten or synthetic minerals
miscible capable of being mixed without separation into distinct components
mitochondria organelles that occur in the cytoplasm of eukaryotic cells, containing genetic material and enzymes important for cell metabolism, including those that convert food to energy
mitogen a substance that induces mitosis
mitosis in cell division, the separation of duplicated chromosomes into two genetically identical daughter nuclei
mitotic pertaining to mitosis
molecular pathway a series of actions among molecules in a cell that leads to a certain cell product or function
molecular weight the sum of the atomic weights of all the atoms in a molecule
molecule an electrically neutral group of two or more atoms held together by chemical bonds
monoclinic denoting a crystal having three axes of unequal length, with two perpendicular intersections and one oblique intersection
monoclonal derived from a single ancestral cell
monocytes mononuclear phagocytic white blood cells
monomer a chemical subunit that is joined to other similar subunits so as to produce a polymer
mononuclear having one nucleus
mononuclear-cell leukemia a type of lymphocytic anemia common in rats, but rarely seen in humans (also called large-cell granular lymphocytic leukemia)
mononucleosis a disease characterized by excess monocytes in the blood, with flu-like symptoms
monovalent an atom, ion, or chemical group having a valence of 1
mucous containing, producing, or secreting mucus
multiple myeloma malignant tumors originating from mature lymphocytes in the bone marrow
mutagen any agent with the ability to cause mutations
mutagenicity the ability to cause mutations
mutation a permanent, transmissible change in genetic material
myasthenia gravis a neurological disorder causing muscular weakness and fatigue
mycobacterium avium complex an infection caused by two similar bacteria, Mycobacterium avium and M. intercellulare, occurring in people with compromised immune systems
mycosis fungoides a chronic malignant T-cell lymphoma of the skin
myelocytic leukemia leukemia arising from non-lymphocyte white blood cells in the bone marrow
myelodysplastic syndromes a group of disorders in which bone marrow does not produce enough mature blood cells (also called bone marrow failure disorder)
myelogenous leukemia leukemia involving immature red blood cells, granulocytes, monocytes, or platelets (also called myeloid leukemia or nonlymphocytic leukemia)
myeloid pertaining to, derived from, or resembling bone marrow
myeloma a tumor derived from B cells in the bone marrow
myelomonocytic leukemia leukemia involving monocytes and myeloblasts (immature granular leukocytes)
nanowire an electrical wire with a diameter of less than 100 nanometers (less than one tenth of a micrometer) and typically with a length more than 1,000 times its diameter
naseal cavity the air-filled space above and behind the nose
nasal turbinates thin, scrolled bony plates that project from the walls of the nasal cavity (also called nasal conchae or nasoturbinates)
nasopharyngeal of or pertaining to the nasopharynx
nasopharynx the upper part of the pharynx, behind the nasal cavity and above the soft palate
National Priorities List a list of hazardous waste sites eligible for long-term remedial action financed under the U.S. EPA Superfund program
natural killer cell a type of white blood cell that has the ability to destroy tumor cells or virus-infected cells without relying on memory of exposure to a specific pathogen
necrosis the death of tissue due to disease, injury, or failure of blood supply
negative control in an experiment, a group that has not received the experimental treatment and from which no response is expected
neonatal pertaining to or affecting the first four weeks after birth
neoplasia the abnormal proliferation of cells (tumor formation)
neoplasm a new growth resulting from abnormal proliferation of cells; a tumor
neoplastic pertaining to neoplasia (tumor formation)
nephroblastoma a rapidly developing malignant tumor of the kidney (also known as Wilms tumor)
nephrotic syndrome a kidney disorder characterized by swelling, excessive proteins in the urine, and elevated susceptibility to infections
nested case-control study a case-control study conducted within a cohort study, in which cases of a disease that occur within the cohort are identified, and the case subjects are compared with members of the cohort who have not developed the disease, who serve as control subjects
neural of or pertaining to the nerves
neuroblastoma a malignant tumor of the nervous system consisting chiefly of immature cells
neuroendocrine pertaining to or involving both the nervous system and endocrine secretion
neurogenic originating in or forming nervous tissue
neutron an elementary particle of matter that is electrically neutral and is found in the nucleus of all atoms except hydrogen
nodule a swelling or protuberance
nodular resembling or consisting of nodules
non-Hodgkin lymphoma a heterogeneous group of malignant lymphomas
nonhomologous recombination during the process of DNA repair, joining of chromosome fragments that do not contain corresponding DNA
nonpolar pertaining to molecules that have a symmetric distribution of charge, with no positive or negative poles, and that do not ionize in solution
nonoxynol 9 a spermicide widely used in contraceptive preparations
nuclei the plural of “nucleus”
nucleic acids large molecules, composed of nucleotides, that store and transmit genetic information; DNA and RNA
nucleocapsid the capsid of a virus with its enclosed nucleic acid
nucleoside a compound that consists of a purine or pyrimidine base linked to a sugar and found especially in DNA or RNA
nucleotide triphosphatase an enzyme required for viral replication

N

nanofiber a fiber with a diameter of less than 100 nanometers (less than one tenth of a micrometer)
nanoparticle a particle with a diameter of less than 100 nanometers (less than one tenth of a micrometer)
nucleotides  the molecular subunits of nucleic acids, consisting of a purine or pyrimidine base, a sugar, and phosphoric acid
nucleus  a membrane-enclosed structure present in most eukaryotic cells, containing most of the cell's genetic material

---

oat-cell carcinoma  a type of lung cancer (also called small-cell carcinoma or small-cell bronchogenic carcinoma)
octanol-water partition coefficient (\(K_{ow}\))  the ratio of the solubility of a compound in octanol (a nonpolar solvent) to its solubility in water (a polar solvent)
ods ratio  a ratio of the odds of an event in one group to the odds of the same event in another group; an odds ratio of 1 indicates that the event is equally likely in both groups
odontoameloblastoma  a rare benign mixed tumor that is part ameloblastoma and part odontoma
odontoma  a benign tumor of the tissue that gives rise to teeth
offgassing  the release of gaseous chemicals from a solid material
olefinic  denoting any of a class of unsaturated open-chain hydrocarbons having at least one double bond
olfactory nerves  the nerves associated with the sense of smell
oligodendroglioma  a tumor derived from glial cells that support and insulate nerve fibers in the central nervous system
oncogene  a gene that contributes to the development of cancer; also used to refer to proto-oncogenes
oncogenic  having the ability to cause cancer
oncogenicity  the ability to cause cancer
opioid  1. (noun) any synthetic narcotic drug that binds to the same receptors in nerve cells as the naturally occurring alkaloids found in the opium poppy  2. (adjective) of or pertaining to the receptors for such substances
oral administration  administration of a drug or test substance by mouth
oral cancer slope factor  as defined by the U.S. Environmental Protection Agency, an estimate of the increased cancer risk from oral exposure to a dose of 1 mg/kg of body weight per day for a lifetime
oral cavity  the space within the mouth
oral reference dose  as defined by the U.S. Environmental Protection Agency, the amount of a chemical that one can ingest every day for a lifetime that is not anticipated to cause harmful non-cancer health effects
organelle  a structure that is enclosed within its own membrane inside a eukaryotic cell and has a particular function
organic  pertaining to the chemistry of carbon compounds
oropharynx  the soft palate, tonsils, and back of the tongue and throat
osteogenic sarcoma  a malignant bone tumor occurring most commonly in large bones and in areas of rapid bone growth
osteoporosis  an abnormal loss of bone density
ovary  one of the pair of female reproductive organs in which eggs are formed
ovulation  the release of an egg from an ovary
oxidant  an oxidizing agent
oxidase  an enzyme that catalyzes oxidation reactions with molecular oxygen participating as the electron acceptor (also called oxidoreductase)
oxidation state  a positive or negative number representing the number of electrons gained or lost by an element or ion in the reaction forming a particular chemical compound (also called oxidation number)
oxidation-reduction reaction  a chemical reaction involving a transfer of electrons or hydrogen between two substances, whereby one substance is oxidized and the other is reduced (also called a redox reaction)
oxidative stress  an imbalance between the production of reactive oxygen species and the ability of the body to detoxify them or counteract their effects
oxidize  1. (transitive verb) to remove one or more electrons from an atom, ion, or molecule  2. (intransitive verb) to become oxidized
oxidizer  an oxidizing agent
oxidizing agent  a chemical substance that accepts an electron from another substance in an oxidation-reduction reaction
oxidoreductases  enzymes that catalyze oxidation-reduction reactions (also called oxidases)

---

palate  the partition separating the nasal and oral cavities
pancreas  a large gland behind the stomach that secretes both hormones and enzymes involved in digestion and metabolism
pancreatic  of or pertaining to the pancreas
papillary  of or pertaining to a small, round, raised structure on a part or organ of the body
papilloma  a benign tumor derived from epithelium that can arise from skin, mucous membranes, or glandular ducts and that projects from the surrounding surface
paracrine  denoting a hormone secreted by a cell and diffusing a short distance to act on adjacent cells
paraformaldehyde  a polymer of formaldehyde
paranasal sinuses  four pairs of air-filled cavities surrounding the nasal cavity
parathyroid gland  any of four small glands located beside the thyroid gland
parenchyma  the functional cells of a gland or organ, as distinguished from its supporting tissue (the stroma)
parenchymal  of or pertaining to the parenchyma
parenteral  pertaining to administration of a substance by any route other than the alimentary canal
pars distalis  the major portion of the anterior lobe of the pituitary gland
particulate  pertaining to matter in the form of minute separate particles
pathogen  any infectious agent
pathogenesis  the process by which an agent causes disease
pathogenic  having the ability to cause disease
pathogenicity  the ability to cause disease
pathologist  an expert in the study of disease
pathology  the study of the nature of diseases
pelvis  1. the lower portion of the trunk of the body, between the hipbones  2. the renal pelvis
pemphigus diseases  a group of chronic, relapsing autoimmune skin diseases that cause blisters or sores of the skin and mucous membranes
perched aquifer  an aquifer that has a confining layer below the groundwater and sits above the main water table
perinatal  pertaining to or occurring during the period closely surrounding the time of birth
peripheral  away or farther from the center
peripheral blood  blood circulating throughout the body
peripheral nervous system  the part of the nervous system outside of the brain and spinal cord
peritoneal cavity the space within the abdomen that contains the intestines, stomach, and liver
peritoneum the lining surrounding the abdominal cavity and containing the internal organs in the trunk of the body
permissible exposure limit as defined by the Occupational Safety and Health Administration, the 8-hour time-weighted-average level of an air contaminant to which an employee may be exposed during any 8-hour shift of a 40-hour work week
peroxidized fats fats that have been damaged by oxygen free radicals, forming reactive aldehydes
peroxisome a cell organelle containing oxidative enzymes and performing essential metabolic functions
pesticide an agent intended to destroy a pest organism
pH a numeric scale of acidity and alkalinity, ranging from 0 to 14, where pH of less than 7 indicates acidity, pH of 7 indicates neutrality, and pH of more than 7 indicates alkalinity
phagocytic pertaining to phagocytosis or the cells responsible for phagocytosis
phagocytize (of a cell) to engulf and digest a solid substance
phagocytosis the process by which cells engulf and digest solid substances
pharmacokinetic pertaining to the fate of drugs within biological systems, including their absorption, distribution, metabolism, and elimination
pharyngeal of or pertaining to the pharynx
pharynx the passageway connecting the oral and nasal cavities to the larynx and esophagus
phenolic denoting a chemical compound consisting of a hydroxyl group (–OH) bonded directly to an aromatic hydrocarbon group
phenotype in genetics, a category or group to which an individual may be assigned on the basis of one or more observable characteristics that reflect genetic variation or interaction between the genes and the environment
pheochromocytoma a tumor derived from cells of the adrenal medulla
phlebotomy the practice of drawing blood from patients
photodecomposition photolysis
photolysis a chemical reaction in which a compound is broken down by light (also called photodecomposition or photodissociation)
photosensitizer a substance that causes an organism, cell, or tissue to become sensitive to light
pituitary gland an endocrine gland at the base of the brain that secretes several important hormones
placenta the organ in most mammals that connects the fetus with the mother’s uterus
plasma (of blood) the fluid portion of blood, excluding the blood cells
plasmablasts immune cells that are immature precursors of antibody-producing B lymphocytes
platelet a component of blood derived from bone-marrow cells that has a major role in clotting
pleomorphic able to assume different forms
pleura the secretory membrane surrounding the lungs and lining the chest cavity
pneumocystis pneumonia an infection caused by the fungus Pneumocystis jiroveci, resulting in inflammation and fluid buildup in the lungs
pneumonitis inflammation of lung tissue
polar pertaining to molecules that have an asymmetric distribution of charge, with positive and negative poles, and that ionize in solution
polycythemia vera a disease characterized by abnormal proliferation of all bone-marrow elements involved in blood formation, resulting in increased blood cell mass and total blood volume
polymer a chemical formed by the joining together of similar chemical subunits
polymerase chain reaction a technique used to make multiple copies of a segment of DNA
polymerization the chemical reaction by which a polymer is formed
polymorphism in the population of a species, the existence of two or more alleles of a gene that are too common to be due only to new mutations
polyp a new growth protruding from a mucous membrane
polypoid resembling a polyp
polypeptide a large protein that is cleaved into separate smaller proteins with different biological functions
positive control in an experiment, an agent known to have the effect being tested for, used to verify that the experiment is functioning correctly
postpartum occurring after childbirth
posttransplant lymphoproliferative disease a complication of organ transplantation characterized by proliferation of B lymphocytes, resulting from immunosuppression used to prevent organ rejection
preeclampsia a potentially fatal complication of pregnancy related to insufficient blood supply to the placenta and characterized by high blood pressure
prenatal existing or occurring before birth
preputial glands sebaceous glands of the foreskin of the penis
primary biliary cirrhosis a disease in which the bile ducts of the liver are slowly destroyed, resulting in liver damage
primary cancer cancer occurring at the tissue site where it originally developed
primate any member of an order of mammals that includes humans, apes, and monkeys
prokaryote a single-celled microorganism that lacks a nucleus or any other membrane-bound organelles such as mitochondria; its genome consists of a single large molecule of DNA, and it does not undergo mitosis during replication; prokaryotes consist of bacteria and archaea
prokaryotic of or pertaining to prokaryotes
promoter 1. a substance that is not itself carcinogenic but that amplifies carcinogenic effects of other substances (a tumor promoter) 2. a region of DNA that initiates gene transcription
promyelocytic leukemia leukemia involving predominantly granulocyte precursor cells
prophylactic (adjective) guarding from or preventing the spread of disease
prospective study a cohort study that follows over time a group of otherwise similar individuals who differ with respect to the factors under study, to determine how these factors affect the rates of a particular outcome
prostate a gland in males that surrounds the neck of the urinary bladder and the urethra and secretes a fluid component of semen
protease an enzyme that breaks proteins down into their component parts
proteomics the large-scale study of the functions, structures, and interactions of proteins, particularly the complete complement of proteins of a biological system
proton a stable positively charged particle that is a fundamental constituent of matter
proto-oncogene a normal gene that when altered by mutation becomes an oncogene
protozoan any of a large group of single-celled eukaryotic organisms that live in water or as parasites
providing a form of a virus that is integrated into the genetic material of a host cell and can be replicated with and transmitted from one cell generation to the next without destroying the cell
proximal tubule the first part of a tubule that makes up a functional unit of the kidney
psoriasis a chronic hereditary skin disease characterized by thick red patches covered with silvery scales
pyrimidine a type of nitrogen-containing base that is a component of DNA and RNA; cytosine or thymine
pyrolysis decomposition of a substance by heat in the absence of air
radical (in chemistry) an atom or molecule that has at least one unpaired electron and is therefore unstable and highly reactive (also called a free radical)
radioactive emitting or pertaining to the emission of ionizing radiation or particles from an atomic nucleus
radiotherapy treatment of disease with ionizing radiation, especially to kill malignant cells
reactive oxygen species chemically reactive molecule or free radical containing oxygen
recommended exposure limit an exposure limit that the National Institute for Occupational Safety and Health believes would be protective of worker safety and health over a working lifetime if used in combination with engineering and work practice controls, exposure and medical monitoring, posting and labeling of hazards, worker training, and personal protective equipment
regional screening level as defined by the U.S. Environmental Protection Agency, a concentration of an environmental contaminant, based on information on exposure and toxicity, used to determine the need for a response action
renal of or pertaining to the kidney
renal pelvis the funnel-shaped cavity in the central part of the kidney into which urine is discharged before passing into the urinary bladder
reportable quantity the quantity of a hazardous substance that triggers mandatory immediate reports to the National Response Center, state emergency response commissions, and local emergency planning committees if equaled or exceeded in releases to the environment
respirable fibers fibers that can reach the deepest part of the lungs, usually defined as particles with an aerodynamic diameter less than 3 μm, length greater than 5 μm, and aspect ratio of greater than 3:1
respiratory fraction the fraction of inhaled particles or fibers that is respirable
respiratory tract the structures and organs involved in breathing, including the nose, pharynx, larynx, trachea, and lungs
reticulendothelial system collectively, cells throughout the body that help filter out dead and toxic particles and identify foreign substances in the blood and tissues (also called the macrophage system or the mononuclear phagocyte system)
reticulum-cell sarcoma a malignant tumor derived from connective tissue
retinoblastoma a tumor of the retina (the light-sensitive layer of tissue at the back of the eyeball)
retrospective study an epidemiological study based on information collected from past records
retroviral of or pertaining to a retrovirus
retrovirus an RNA virus that can make a DNA copy of its genome and insert it into the host cell's DNA
reverse transcriptase an enzyme that catalyzes the formation of DNA from an RNA template
rhabdomyofibrosarcoma a malignant soft-tissue tumor that resembles fibrosarcoma but has characteristics of rhabdomyosarcoma
rhabdomyosarcoma a malignant tumor arising from skeletal muscle cells
rheumatoid arthritis a chronic disease of the joints, marked by inflammatory changes in joint structures
rhinitis inflammation of the mucous membrane of the nose
rhombic denoting a crystal having three axes of unequal length, each of which intersects at right angles with the others
risk assessment a systematic assessment of the likelihood that harm may occur from exposure to a hazard
rodent any mammal of the order Rodentia, which includes rats, mice, hamsters, gerbils, guinea pigs, hedgehogs, and other related species
rodenticide a substance used to kill rodents
salivary glands exocrine glands in the mouth that secrete saliva
sarcoma a type of tumor usually originating from connective tissue and usually malignant
schwannoma a tumor originating from Schwann cells (glial cells of the peripheral nervous system)
scleroderma hardening and thickening of the skin
scrotum the pouch that contains the testes and their accessory organs
sebaceous pertaining to a gland in the skin that secretes an oily substance into the hair follicles
secretory of, pertaining to, promoting, or produced by secretion
semen tube-like glands located behind the urinary bladder that secrete a fluid component of semen
sensitizer a substance capable of inducing an allergic response following exposure, such that it causes an allergic response on subsequent exposure
serological pertaining to measurement of the levels of pathogens or antibodies in the blood
seropositivity the state of having blood serum that tests positive for the presence of a given pathogen or antibody
seroprevalence the rate of seropositivity in a population
serum (of blood) the component of blood that is neither a blood cell nor a clotting factor
short-term exposure limit as defined by the National Institute for Occupational Safety and Health, a 15-minute time-weighted-average exposure that should not be exceeded at any time during a workday
sinonasal of or pertaining to the nasal and sinus cavities
sintering forming a solid and compact mass of material by heating or pressure without melting
sister chromatid exchange the exchange of genetic material between two identical sister chromatids during mitosis; measured as an assay for DNA damage
smooth muscle muscle tissue not under voluntary control, found in the walls of hollow organs
somatic cells all cells in the body except for the sperm and egg cells
somatic hypermutation a mechanism in which B cells undergo complex rearrangement of their DNA to code for antibodies
SOS chromotest an assay for whether a substance damages DNA in the bacterium E. coli
specific gravity the ratio of the density of a substance to the density of a standard substance, usually water for liquids and air for gases
spindle-cell sarcoma any sarcoma composed of spindle-shaped cells
spleen a large, vascular, lymphatic organ in the upper abdominal cavity that stores blood cells, removes worn out red blood cells and other debris, and initiates immune responses to antigens in the blood

squamous cell a flat, scale-like epithelial cell

standardized incidence ratio the ratio of the observed to the expected incidence of a specific health outcome, based on the incidence in the larger population from which the study sample was taken

standardized mortality ratio the ratio of the observed to the expected number of deaths from a specific cause, based on the number of deaths from that cause in the larger population from which the study sample was taken

statistically significant in statistical hypothesis testing, likely not due to random chance

stem cell a simple, unspecialized cell that is able to develop (differentiate) into any kind of specialized cell

stereoisomers molecules containing the same numbers and kinds of atom groupings but in different spatial arrangements

steroid hormone any hormone secreted by the adrenal cortex, testes, ovaries, or placenta

stroma the supporting tissue of a gland or organ, as distinguished from its functional cells

stromal of or pertaining to the stroma

subchronic in rodent testing, refers to an exposure schedule lasting from one to three months (of a duration between acute and chronic)

subcutaneous beneath the skin

summary odds ratio a weighted combination of the odds ratios estimated from more than one study

superalloy an alloy capable of withstanding high temperatures, high stresses, and corrosive conditions

synergistic pertaining to the interaction of two agents to produce an effect greater than the sum of the agents' individual effects

systemic pertaining to or affecting the body as a whole

systemic lupus erythematosus a chronic autoimmune disease of the connective tissue that affects the skin, joints, kidneys, nervous system, and mucous membranes

T

t cell a white blood cell that matures in the thymus and differentiates into one of several types of T cells with various functions in the immune system (also known as a T lymphocyte)

technical grade the lowest purity standard applied to a chemical; contains impurities

teratogen an agent that causes physical defects in developing embryos following exposure of the mother during pregnancy

testosterone a steroid hormone that plays a key role in the development of male reproductive tissues and male characteristics

thoracic pertaining to or located in the chest

thorax the chest

threshold limit value the concentration of a substance to which a worker can be exposed routinely for a lifetime without adverse health effects

thymine one of the two pyrimidine bases in DNA; pairs with adenine

thymus a lymphoid gland located in the upper chest that produces T cells in the young of most vertebrates

thyroid gland an endocrine gland located at the base of the neck that produces hormones involved in regulating metabolism

time-weighted average the average concentration of a chemical measured over a period of time

topical pertaining to application of a substance directly to a specific part of the body, affecting only that part of the body

toxic of or pertaining to a poison

toxicity the quality, relative degree, or specific degree of being poisonous

toxicokinetics the study of the change in concentration of a chemical and/or its metabolite in the blood or body tissues over time

toxoplasmosis a disease resulting from infection with the protozoan parasite Toxoplasma gondii, which rarely causes symptoms but may cause serious disease in infants or in adults with weakened immune systems

trachea the cartilage-ringed tube that connects the larynx and bronchi (also called the windpipe)

tracheal of or pertaining to the trachea

tracheobronchial of or pertaining to the trachea and bronchi

trans-activation activation of a gene by a diffusible regulatory factor

transcript (in genetics) a sequence of RNA produced from a DNA template

transcription the first step in gene expression, where the genetic code of a particular segment of DNA is transcribed into RNA, which serves as a template for protein synthesis

transcription factor a protein involved in the process of transcription of DNA into RNA

transcriptomics the study of the complete set of all RNA transcripts produced in one cell or in a population of cells

transgenic pertaining to an organism whose genome includes DNA derived from an unrelated organism; also used to describe the foreign DNA

transition elements elements that have electrons in their two outermost orbitals that can bond with other elements, and therefore share a number of chemical properties (also called transition metals)

translocation a chromosome abnormality caused by transfer or exchange of DNA segments between two chromosomes that contain different genes from each other

transplacental through the placenta

transversion a mutation in DNA that involves substitution of a purine for a pyrimidine or vice versa

trichofolliculoma a benign tumor originating from a hair follicle

trichomoniasis infection by protozoan parasites of the genus Trichomonas

trigonal denoting a crystal that has three equal axes separated by equal angles that are not right angles

tubular adenocarcinoma a malignant tumor arising from the lining of the tubules of the kidney

tubular-cell adenoma a benign tumor arising from the lining of the tubules of the kidney (also called renal adenoma)

tumor a growth of abnormal tissue resulting from excessive cell division (also called a neoplasm)

tumorigenic having the ability to cause tumors

tumorigenicity the ability to cause tumors

tunica albuginea a dense white fibrous sheath that encloses a body part or organ

tunica vaginalis the membrane that covers the testis and the duct leading out of the testis

ulcer an open sore on an external or internal surface of the body

ulcerative colitis the chronic, recurrent occurrence of open sores in the colon

upper respiratory tract the nasal and oral cavities, pharynx, larynx, and trachea

ureter the tube that carries urine from the kidney to the urinary bladder
urinary bladder the sac in which urine is stored before being excreted

urinary tract the organs and ducts involved in producing and eliminating urine

urothelial of or pertaining to lining of the urinary tract, including the renal pelvis, ureters, urinary bladder, and urethra

urticaria pigmentosa the widespread accumulation of mast cells in the skin (mast cells are a type of white blood cell that play a role in inflammation and allergic reaction)

uterus in female mammals, the hollow muscular organ in which the embryo develops into a fetus

vagina the passage leading from the uterus to the outside of the female body

vaginal of or pertaining to the vagina

valence the combining power or affinity of an element, measured as the number of hydrogen atoms it combines with

vapor density the ratio of the weight of a given volume of one gas to the weight of an equal volume of another gas at the same temperature and pressure

vapor pressure the pressure exerted by a vapor in equilibrium with its solid or liquid phase

vascular of or pertaining to the blood vessels

vehicle in animal testing, the substance in which a test substance is dissolved or mixed for administration

vehicle control group in animal testing, a negative control group that receives only the vehicle, not the test substance

vertebrate any animal that has a spinal column; vertebrates include fish, reptiles, amphibians, birds, and mammals

vesicle a small sac containing liquid

viral load the concentration of virus particles in body fluids

virion the infectious form of a virus as it exists outside the host cell, consisting of a core of DNA or RNA surrounded by a protein coat

viscosity resistance to flow

viscous having a high resistance to flow

vitamin any of a group of substances that are found naturally in many foods, are necessary in small quantities for good health and normal development and functioning; designated by a capital letter and sometimes a number

vitiligo a chronic disorder in which white patches appear on the skin as a result of the loss of the cells that make pigment

volatilize 1. (transitive verb) to cause a substance to disperse in the form of vapor (evaporate) 2. (intransitive verb) to disperse in the form of vapor

Waldenstrom macroglobulinemia a chronic lymphoma originating in B cells

Wegener granulomatosis a progressive disease characterized by tumor-like lesions of the respiratory tract and inflammation of the bronchioles, progressing to inflammation of all organs of the body

western blot immunoassay a technique that uses antibodies to detect specific proteins in homogenates or extracts of tissue samples

white pulp the portion of the spleen consisting of lymphatic tissue, mainly white blood cells

Wilms tumor a rapidly developing malignant tumor of the kidneys, usually affecting children under age five

xenobiotic a chemical foreign to the organism or biological system in which it is found