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# **McGraw-Hill Dictionary of BIOLOGY**

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**Sybil P. Parker**  
EDITOR IN CHIEF

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# How to Use the Dictionary

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## ALPHABETIZATION

The terms in the *McGraw-Hill Dictionary of Biology* are alphabetized on a letter-by-letter basis; word spacing, hyphen, comma, solidus, and apostrophe in a term are ignored in the sequencing. For example, an ordering of terms would be:

**aminoacetic acid**  
**amino acid**  
 **$\alpha$ -aminohydrocinnamic acid**  
**2-aminoisovaleric acid**  
**anti-infective vitamin**  
**Antilopinae**

## FORMAT

The basic format for a defining entry provides the term in boldface, the field in small capitals, and the single definition in lightface:

**term** [FIELD] Definition.

A field may be followed by multiple definitions, each introduced by a boldface number:

**term** [FIELD] 1. Definition. 2. Definition. 3. Definition.

A term may have definitions in two or more fields:

**term** [ANAT] Definition. [MYCOL] Definition.

A simple cross-reference entry appears as:

**term** . See another term.

A cross-reference may also appear in combination with definitions:

**term** [ANAT] Definition. [MYCOL] See another term.

## CROSS-REFERENCING

A cross-reference entry directs the user to the defining entry. For example, the user looking up "apical bud" finds:

**apical bud** See terminal bud.

The user then turns to the "T" terms for the definition.

Cross-references are also made from variant spellings, acronyms, abbreviations, and symbols.

**cAMP** See cyclic adenylic acid.

**carotin** See carotene.

**ID<sub>50</sub>** See infective dose 50.

## **ALSO KNOWN AS . . . , etc.**

A definition may conclude with a mention of a synonym of the term, a variant spelling, an abbreviation for the term, or other such information, introduced by "Also known as . . . ," "Also spelled . . . ," "Abbreviated . . . ," "Symbolized . . . ," "Derived from . . . ." When a term has more than one definition, the positioning of any of these phrases conveys the extent of applicability. For example:

**term** [ANAT] 1. Definition. Also known as synonym.

2. Definition. Symbolized B.

In the above arrangement, "Also known as . . ." applies only to the first definition. "Symbolized . . ." applies only to the second definition.

**term** [ANAT] 1. Definition. 2. Definition. [BOT] Definition.

Also known as synonym.

In the above arrangement, "Also known as . . ." applies only to the second field.

**term** [ANAT] Also known as synonym. 1. Definition

2. Definition. [BOT] Definition.

In the above arrangement, "Also known as . . ." applies to both definitions in the first field.

**term** Also known as synonym. [ANAT] 1. Definition

2. Definition. [BOT] Definition.

In the above arrangement, "Also known as . . ." applies to all definitions in both fields.

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## Field Abbreviations and Scope

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<b>ANAT</b>	anatomy
<b>BIOCHEM</b>	biochemistry
<b>BIOL</b>	biology
<b>BIOPHYS</b>	biophysics
<b>BOT</b>	botany
<b>CELL BIO</b>	cell biology
<b>ECOL</b>	ecology
<b>EMBRYO</b>	embryology
<b>EVOL</b>	evolution
<b>GEN</b>	genetics
<b>HISTOL</b>	histology
<b>INV ZOO</b>	invertebrate zoology
<b>MICROBIO</b>	microbiology
<b>MOL BIO</b>	molecular biology
<b>MYCOL</b>	mycology
<b>PALEOBOT</b>	paleobotany
<b>PALEON</b>	paleontology
<b>PHYSIO</b>	physiology
<b>PL PATH</b>	plant pathology
<b>SYST</b>	systematics
<b>VERT ZOO</b>	vertebrate zoology
<b>VIROL</b>	virology
<b>ZOO</b>	zoology

**anatomy**—The branch of morphology concerned with the gross and microscopic structure of animals, especially humans.

**biochemistry**—The study of the chemical substances that occur in living organisms, the processes by which these substances enter into or are formed in the organisms and react with each other and the environment, and the methods by which the substances and processes are identified, characterized, and measured.

**biology**—The science of living organisms, concerned with the study of embryology, anatomy, physiology, cytology, morphology, taxonomy, genetics, evolution, and ecology.

**biophysics**—The hybrid science involving the methods and ideas of physics and chemistry to study and explain the structures of living organisms and the mechanics of life processes.

**botany**—That branch of biological science which embraces the study of plants and plant life, including algae; deals with taxonomy, morphology, physiology, and other aspects.

**cell biology**—The branch of biological science which deals with the structure, behavior, growth, and reproduction of cells and the function and chemistry of cells and cell components.

**ecology**—The study of the interrelationships between organisms and their environment.

**embryology**—The study of the development of the organism from the zygote, or fertilized egg.

**evolution**—The processes of biological and organic change in organisms by which descendants come to differ from their ancestors, and a history of the sequence of such change.

**genetics**—The science concerned with biological inheritance, that is, with the causes of the resemblances and differences among related individuals.

**histology**—The study of the structure and chemical composition of animal tissues as related to their function.

**invertebrate zoology**—A branch of zoology concerned with the taxonomy, behavior, and morphology of invertebrate animals.

**microbiology**—The science and study of microorganisms, especially bacteria and rickettsiae, and of antibiotic substances.

**molecular biology**—That branch of biology which attempts to interpret biological events in terms of the molecules in the cell.

**mycology**—A branch of biological science concerned with the study of fungi.

**paleobotany**—The study of fossil plants and vegetation of the geologic past.

**paleontology**—The study of life in the geologic past as recorded by fossil remains.

**physiology**—The branch of biological science concerned with the basic activities that occur in cells and tissues of living organisms and involving physical and chemical studies of these organisms.

**plant pathology**—The branch of botany concerned with diseases of plants.

**systematics**—The science of animal and plant classification.

**vertebrate zoology**—A branch of zoology concerned with the taxonomy, behavior, and morphology of vertebrate animals.

**virology**—The science that deals with the study of viruses.

**zoology**—The science that deals with the taxonomy, behavior, and morphology of animal life.

# A

**aspenmoor** [ECOL] A moor with elevated areas or mounds supporting dwarf shrubs and sphagnum, interspersed with low areas containing sedges and sphagnum, thus forming a mosaic.

**ardwolf** [VERT ZOO] *Proteles cristatus*. A hyenelike African mammal of the family Hyaenidae.

**abaca** [BOT] *Musa textilis*. A plant of the banana family native to Borneo and the Philippines, valuable for its hard fiber. Also known as Manila hemp.

**abactinal** [INV ZOO] In radially symmetrical animals, pertaining to the surface opposite the side where the mouth is located.

**abalone** [INV ZOO] A gastropod mollusk composing the single genus *Haliotis* of the family Haliotidae. Also known as ear shell; ormer; paua.

**A band** [HISTOL] The region between two adjacent I bands in a sarcomere; characterized by partial overlapping of actin and myosin filaments.

**abapertural** [INV ZOO] Away from the shell aperture, referring to mollusks.

**abapical** [BIOL] On the opposite side to, or directed away from, the apex.

**abaxial** [BIOL] On the opposite side to, or facing away from, the axis of an organ or organism.

**ajip** [VERT ZOO] A coarse wool from the fleece areas of lesser quality.

**abdomen** [ANAT] 1. The portion of the vertebrate body between the thorax and the pelvis. 2. The cavity of this part of the body. [INV ZOO] The elongate region posterior to the thorax in arthropods.

**abdominal regions** [ANAT] Nine theoretical areas delineated on the abdomen by two horizontal and two parasagittal lines: above, the right hypochondriac, epigastric, and left hypochondriac; in the middle, the right lateral, umbilical, and left lateral; and below, the right inguinal, hypogastric, and left inguinal.

**abducens** [ANAT] The sixth cranial nerve in vertebrates; a paired, somatic motor nerve arising from the floor of the fourth ventricle of the brain and supplying the lateral rectus eye muscles.

**abduction** [PHYSIO] Movement of an extremity or other body part away from the axis of the body.

**abductor** [PHYSIO] Any muscle that draws a part of the body or an extremity away from the body axis.

**aberrant** [BIOL] An atypical group, individual, or structure, especially one with an aberrant chromosome number.

**Abies** [BOT] The firs, a genus of trees in the pine family characterized by erect cones, absence of resin canals in the wood, and flattened needle-like leaves.

**abiocoon** [ECOL] A nonbiotic habitat.

**abiogenesis** [BIOL] The obsolete concept that plant and animal life arise from nonliving organic matter. Also known as autogenesis; spontaneous generation.

**abiotic** [BIOL] Referring to the absence of living organisms.

**abiotic environment** [ECOL] All physical and nonliving chemical factors, such as soil, water, and atmosphere, which influence living organisms.

**abiotic substance** [ECOL] Any fundamental chemical element or compound in the environment.

**abjection** [MYCOL] The discharge or casting off of spores by the spore-bearing structure of a fungus.

**abomasum** [VERT ZOO] The final chamber of the complex stomach of ruminants; has a glandular wall and corresponds to a true stomach.

**aboral** [INV ZOO] Opposite to the mouth.

**abortive** [BIOL] Imperfectly formed or developed.

**abortive transduction** [MICROBIO] Failure of exogenous fragments that were introduced into a bacterial cell by viruses to become inserted into the bacterial chromosome.

**abranchiate** [ZOO] Without gills.

**abrupt** [BOT] Ending suddenly, as though broken off.

**abscisic acid** [BIOCHEM]  $C_{15}H_{22}O_4$ . A plant hormone produced by fruits and leaves that promotes abscission and dormancy and retards vegetative growth. Formerly known as abscisin.

**abscisin** See abscisic acid.

**abscission** [BOT] A physiological process promoted by abscisic acid whereby plants shed a part, such as a leaf, flower, seed, or fruit.

**absolute threshold** [PHYSIO] The minimum stimulus energy that an organism can detect.

**absorption** [PHYSIO] Passage of a chemical substance, a pathogen, or radiant energy through a body membrane.

**abstriction** [MYCOL] In fungi, the cutting off of spores in hyphae by formation of septa followed by abscission of the spores, especially by constriction.

**abterminal** [BIOL] Referring to movement from the end toward the middle; specifically, describing the mode of electric current flow in a muscle.

**Acala** [BOT] A type of cotton indigenous to Mexico and cultivated in Texas, Oklahoma, and Arkansas.

**acalyculate** [BOT] Lacking a calyx.

**Acalypterae** [INV ZOO] A large group of small, two-winged flies in the suborder Cyclorrhapha characterized by small or rudimentary calypters. Also spelled Acalypterae.

**Acalypterae** See Acalypterae.

**acantha** [BIOL] A sharp spine; a spiny process, as on vertebrae.

**Acanthaceae** [BOT] A family of dicotyledonous plants in the order Scrophulariales distinguished by their usually herbaceous habit, irregular flowers, axile placentation, and dry, dehiscent fruits.

**acanthaceous** [BOT] Having sharp points or prickles; prickly.

**Acantharia** [INV ZOO] A subclass of essentially pelagic protozoans in the class Actinopodea characterized by skeletal rods constructed of strontium sulfate (celastite).

**Acanthaster** [INV ZOO] A genus of Indo-Pacific starfishes, including the crown-of-thorns, of the family Asteridae; economically important as a destroyer of oysters in fisheries.

**acanthella** [INV ZOO] A transitional larva of the phylum Acanthocephala in which rudiments of reproductive organs, lemnisci, a proboscis, and a proboscis receptacle are formed.

**acanthocarpus** [BOT] Having spiny fruit.

**Acanthocephala** [INV ZOO] The spiny-headed worms, a phylum of helminths; adults are parasitic in the alimentary canal of vertebrates.

**Acanthocephalonema perstans** [INV ZOO] A tropical filarial worm, parasitic in man.

**acanthoeladous** [BOT] Having spiny branches.

**Acanthodes** [PALEON] A genus of Carboniferous and Lower Permian eellike acanthodian fishes of the family Acanthodidae.

**Acanthodidae** [PALEON] A family of extinct acanthodian fishes in the order Acanthodiformes.

**Acanthodiformes** [PALEON] An order of extinct fishes in the class Acanthodii having scales of osseous bone and dentine, one dorsal fin, and no teeth.

**Acanthodii** [PALEON] A class of extinct fusiform fishes, the first jaw-bearing vertebrates in the fossil record.

**acanthoid** [BIOL] Shaped like a spine.

**Acanthometridae** [INV ZOO] An order of marine protozoans in the subclass Acantharia with 20 or less skeletal rods.

**Acanthophis antarcticus** [VERT ZOO] The death adder, a venomous snake found in Australia and New Guinea; venom is neurotoxic.

**Acanthophractida** [INV ZOO] An order of marine protozoans in the subclass Acantharia; skeleton includes a lattice-work shell and skeletal rods.

**acanthopodous** [BOT] Having a spiny or prickly petiole or peduncle.

**acanthopore** [PALEON] A tubular spine in some fossil bryozoans.

**Acanthopteri** [VERT ZOO] An equivalent name for the Perciformes.

**Acanthopterygii** [VERT ZOO] An equivalent name for the Perciformes.

**acanthosoma** [INV ZOO] The last primitive larval stage, the mysis, in the family Sergestidae.

**Acanthosomatidae** [INV ZOO] A small family of insects in the order Hemiptera.

**acanthosphere** [BOT] A specialized ciliated body in *Nitella* cells.

**acanthostegous** [INV ZOO] Being overlaid with two series of spines, as the ovicell or oecium of certain bryozoans.

**acanthozoid** [INV ZOO] A specialized individual in a bryozoan colony that secretes tubules which project as spines above the colony's outer surface.

**Acanthuridae** [VERT ZOO] The surgeonfishes, a family of perciform fishes in the suborder Acanthuroidei.

**Acanthuroidei** [VERT ZOO] A suborder of chiefly herbivorous fishes in the order Perciformes.

**Acanth** [INV ZOO] The equivalent name for Acanthina.

**Acaridae** [INV ZOO] A group of pale, weakly sclerotized mites in the suborder Sarcoptiformes, including serious pests of stored food products and skin parasites of warm-blooded vertebrates.

**Acarina** [INV ZOO] The ticks and mites, a large order of the class Arachnida, characterized by lack of body demarcation into cephalothorax and abdomen.

**acarology** [INV ZOO] A branch of zoology dealing with the mites and ticks.

**acarophily** [ECOL] A symbiotic relationship between plants and mites.

**acarpellous** [BOT] Lacking carpels.

**acarpous** [BOT] Not producing fruit.

**aseous** [BOT] 1. Lacking a stem. 2. Being apparently stemless but having a short underground stem.

**acceleration globulin** [BIOCHEM] A globulin that acts to accelerate the conversion of prothrombin to thrombin in blood clotting; found in blood plasma in an inactive form.

**acceleration tolerance** [PHYSIO] The maximum g forces an individual can withstand without losing control or consciousness.

**acceleratory reflex** [PHYSIO] Any reflex originating in the labyrinth of the inner ear in response to a change in the rate of movement of the head.

**accessorius** [ANAT] Any muscle that reinforces the action of another.

**accessory bud** [BOT] An embryonic shoot occurring above or to the side of an axillary bud. Also known as supernumerary bud.

**accessory cell** [BOT] A morphologically distinct epidermal cell adjacent to, and apparently func-



tionally associated with, guard cells on the leaves of many plants.

**accessory gland** [ANAT] A mass of glandular tissue separate from the main body of a gland. [INV ZOO] A gland associated with the male reproductive organs in insects.

**accessory movement** See synkinesia.

**accessory nerve** [ANAT] The eleventh cranial nerve in tetrapods, a paired visceral motor nerve; the bulbar part innervates the larynx and pharynx, and the spinal part innervates the trapezius and sternocleidomastoid muscles.

**accessory sexual characters** [ANAT] Those structures and organs (excluding the gonads) composing the genital tract and including accessory glands and external genitalia.

**accessory species** [ECOL] A species comprising 25-50% of a community.

**accidental species** [ECOL] A species which constitutes less than one-fourth of the population of a stand.

**accidental whorl** [ANAT] A type of whorl fingerprint pattern which is a combination of two different types of pattern, with the exception of the plain arch, with two or more deltas; or a pattern which possesses some of the requirements for two or more different types; or a pattern which conforms to none of the definitions; in accidental whorl tracing three types appear: an outer (O), inner (I), or meeting (M).

**Accipitridae** [VERT ZOO] The diurnal birds of prey, the largest and most diverse family of the order Falconiformes, including hawks, eagles, and kites.

**acclimated microorganism** [ECOL] Any microorganism that is able to adapt to environmental changes such as a change in temperature, or a change in the quantity of oxygen or other gases.

**acclimation** See acclimatization.

**acclimatization** [EVOL] Adaptation of a species or population to a changed environment over several generations. Also known as acclimation.

**accommodation** [ECOL] A population's location within a habitat. [PHYSIO] A process in most vertebrates whereby the focal length of the eye is changed by automatic adjustment of the lens to bring images of objects from various distances into focus on the retina.

**accommodation reflex** [PHYSIO] Changes occurring in the eyes when vision is focused from a distant to a near object; involves pupil contraction, increased lens convexity, and convergence of the eyes.

**acrescent** [BOT] Growing continuously with age, especially after flowering.

**accretion line** [HISTOL] A microscopic line on a tooth, marking the addition of a layer of enamel or dentin.

**accumbent** [BOT] Describing an organ that leans against another; specifically referring to cotyledons having their edges folded against the hypocotyl.

**accumulator plant** [BOT] A plant or tree that grows in a metal-bearing soil and accumulates an abnormal content of the metal.

**acellular** [BIOL] Not composed of cells.

**acellular gland** [PHYSIO] A gland, such as intestinal glands, the pancreas, and the parotid gland, that secretes a noncellular product.

**acellular slime mold** [MYCOL] The common name for members of the Myxomycetes.

**acentric** [BIOL] Not oriented around a middle point. [GEN] A chromosome or chromosome fragment lacking a centromere.

**acentrous** [VERT ZOO] Lacking vertebral centra and having the notochord persistent throughout life, as in certain primitive fishes.

**Acephalina** [INV ZOO] A suborder of invertebrate parasites in the protozoan order Eugregarinida characterized by nonseparate trophozoites.

**accephalocyst** [INV ZOO] An abnormal cyst of the *Echinococcus granulosus* larva, lacking a head and brood capsules, found in human organs.

**accephalous** [BOT] Having the style originate at the base instead of at the apex of the ovary. [ZOO] Lacking a head.

**Acer** [BOT] A genus of broad-leaved, deciduous trees of the order Sapindales, commonly known as the maples; the sugar or rock maple (*A. saccharum*) is the most important commercial species.

**acerate** [BOT] Needle-shaped, specifically referring to leaves.

**Acerentomidae** [INV ZOO] A family of wingless insects belonging to the order Protura; the body lacks tracheae and spiracles.

**acervate** [BIOL] Growing in heaps or dense clusters.

**acervulus** [MYCOL] A cushion- or disk-shaped mass of hyphae, peculiar to the Melanconiales, on which there are dense aggregates of conidiophores.

**acetabulum** [ANAT] A cup-shaped socket on the hipbone that receives the head of the femur. [INV ZOO] 1. A cavity on an insect body into which a leg inserts for articulation. 2. The sucker of certain invertebrates such as trematodes and tapeworms.

**acetaldehydease** [BIOCHEM] An enzyme that catalyzes the oxidation of acetaldehyde to acetic acid.

**acetic acid bacteria** See Acetobacter.

**acetic fermentation** [MICROBIO] Oxidation of alcohol to produce acetic acid by the action of bacteria of the genus *Acetobacter*.

**acetyl thiolkinase** [BIOCHEM] An enzyme that catalyzes the formation of acetyl coenzyme A from acetate and adenosinetriphosphate.

**acetoacetyl coenzyme A** [BIOCHEM]  $C_{25}H_{41}O_{18}N_2P_3S$  An intermediate product in the oxidation of fatty acids.

**Acetobacter** [MICROBIO] A genus of gram-negative, aerobic bacteria of uncertain affiliation comprising ellipsoidal to rod-shaped cells as singles, pairs, or chains; they oxidize ethanol to acetic acid. Also known as acetic acid bacteria; vinegar bacteria.

**Acetobacter aceti** [MICROBIO] An aerobic, rod-shaped bacterium capable of efficient oxidation of glucose, ethyl alcohol, and acetic acid; found in vinegar, beer, and souring fruits and vegetables.

## Acetobacter suboxydans Acinetobacter

**Acetobacter suboxydans** [MICROBIO] A short, nonmotile vinegar bacterium that can oxidize ethanol to acetic acid; useful for industrial production of ascorbic and tartaric acids.

**acetylacetic acid** [BIOCHEM]  $C_5H_8O_4$  A monocarboxylic acid formed as an intermediate in the synthesis of the amino acid valine.

**Acetomonas** [MICROBIO] A genus of aerobic, polarly flagellated vinegar bacteria in the family Pseudomonadaceae; used industrially to produce vinegar, gluconic acid, and L-sorbose.

**acetone body** See ketone body.

**acetone fermentation** [MICROBIO] Formation of acetone by the metabolic action of certain anaerobic bacteria on carbohydrates.

**acetylase** [BIOCHEM] Any enzyme that catalyzes the formation of acetyl esters.

**acetylcholine** [BIOCHEM]  $C_7H_{17}O_3N$  A compound released from certain autonomic nerve endings which acts in the transmission of nerve impulses to excitable membranes.

**acetylcholinesterase** [BIOCHEM] An enzyme found in excitable membranes that inactivates acetylcholine.

**acetyl coenzyme A** [BIOCHEM]  $C_{23}H_{38}O_{17}N_7F_3S$  A coenzyme, derived principally from the metabolism of glucose and fatty acids, that takes part in many biological acetylation reactions; oxidized in the Krebs cycle.

**acetyl phosphate** [BIOCHEM]  $C_2H_3O_5P$  The anhydride of acetic and phosphoric acids occurring in the metabolism of pyruvic acid by some bacteria; phosphate is used by some microorganisms, in place of ATP, for the phosphorylation of hexose sugars.

**Achaenodontidae** [PALEON] A family of Eocene dichobnids, piglike mammals belonging to the suborder Palaedonta.

**achab** [ECOL] Short-lived vegetation regions of the Sahara composed principally of mustards (Cruciferae) and grasses (Gramineae).

**achene** [BOT] A small, dry, indehiscent fruit formed from a simple ovary bearing a single seed.

**achilary** [BOT] In flowers, having the lip (labellum) undeveloped or lacking.

**Achilles jerk** [PHYSIO] A reflex action seen as plantar flexion in response to a blow to the Achilles tendon. Also known as Achilles tendon reflex.

**Achilles tendon** [ANAT] The tendon formed by union of the tendons of the calf muscles, the soleus and gastrocnemius, and inserted into the heel bone.

**Achilles tendon reflex** See Achilles jerk.

**achlamydeous** [BOT] Lacking a perianth.

**Acholeplasma** [MICROBIO] The single genus of the family Acholeplasmataceae, comprising spherical and filamentous cells.

**Acholeplasmataceae** [MICROBIO] A family of the order Mycoplasmales; characters same as for the order and class (Mollicutes); do not require sterol for growth.

**achordate** [VERT ZOO] Lacking a notochord.

**acropiglobin** [BIOCHEM] A colorless respiratory pigment present in some mollusks and urochordates.

**Achromatiaceae** [MICROBIO] A family of gliding bacteria of uncertain affiliation; cells are spherical to ovoid or cylindrical, movements are slow and jerky, and microcysts are not known.

**achromatic interval** [PHYSIO] The difference between the achromatic threshold and the smallest light stimulus at which the hue is detectable.

**achromatic threshold** [PHYSIO] The smallest light stimulus that can be detected by a dark-adapted eye, so called because all colors lose their hue at this illumination.

**achromatin** [CELL BIO] The portion of the cell nucleus which does not stain easily with basic dyes.

**Achromatium** [MICROBIO] The type genus of the family Achromatiaceae.

**achromatophilia** [BIOL] The property of not staining readily.

**achromic** [BIOL] Colorless; lacking normal pigmentation.

**Achromobacter** [MICROBIO] A genus of motile and nonmotile, gram-negative rod-shaped bacteria in the family Achromobacteraceae.

**Achromobacteraceae** [MICROBIO] Formerly a family of true bacteria, order Eubacteriales, characterized by aerobic metabolism.

**Achromonema** [MICROBIO] A genus of bacteria in the family Pelonemataceae; cells have smooth, delicate porous walls.

**aciculiglossa** [ECOL] Narrow sclerophyll or coniferous vegetation that is mostly subalpine, subarctic or continental.

**Acidaminococcus** [MICROBIO] A genus of bacteria in the family Veillonellaceae; cells are often oval or kidney-shaped and occur in pairs; amino acids can supply the single energy source.

**acid-base balance** [PHYSIO] Physiologically maintained equilibrium of acids and bases in the body.

**acid cell** [HISTOL] A parietal cell of the stomach.

**acid-fast bacteria** [MICROBIO] Bacteria, especially mycobacteria, that stain with basic dyes and fluorochromes and resist decoloration by acid solutions.

**acid-fast stain** [MICROBIO] A differential stain used in identifying species of *Mycobacterium* and one species of *Nocardia*.

**acidophil** [BIOL] 1. Any substance, tissue, or organism having an affinity for acid stains. 2. An organism having a preference for an acid environment. [HISTOL] 1. An alpha cell of the adenohypophysis. 2. See eosinophil.

**acidophilic erythroblast** See normoblast.

**acidotrophic** [BIOL] Having an acid nutrient requirement.

**acid phosphatase** [BIOCHEM] An enzyme in blood which catalyzes the release of phosphate from phosphate esters; optimum activity at pH 5.

**acinar** [ANAT] Pertaining to an acinus.

**acinar cell** [ANAT] Any of the cells lining an acinous gland.

**Acinetobacter** [MICROBIO] A genus of nonmotile, short, plump, almost spherical rods in the family Neisseriaceae; strictly aerobic; resistant to penicillin.

**aciniiform** [ZOO] Shaped like a berry or a bunch of grapes.

**acinous** [BIOL] Of or pertaining to acini.

**acinous gland** [ANAT] A multicellular gland with sac-shaped secreting units. Also known as alveolar gland.

**acinus** [ANAT] The small terminal sac of an acinous gland, lined with secreting cells. [BOT] An individual drupelet of a multiple fruit.

**Acipenser** [VERT ZOO] A genus of actinopterygian fishes in the sturgeon family, Acipenseridae.

**Acipenseridae** [VERT ZOO] The sturgeons, a family of actinopterygian fishes in the order Acipenseriformes.

**Acipenseriformes** [VERT ZOO] An order of the subclass Actinopterygii represented by the sturgeons and paddlefishes.

**Acmaeidae** [INV ZOO] A family of gastropod mollusks in the order Archaeogastropoda; includes many limpets.

**acme** [PALEON] The time of largest abundance or variety of a fossil taxon; the taxon may be either general or local.

**acmic** [ECOL] A phase or period in which an aquatic population undergoes seasonal changes.

**Acnidosporida** [INV ZOO] An equivalent name for the Haplosporea.

**Acocela** [INV ZOO] An order of marine flatworms in the class Turbellaria characterized by the lack of a digestive tract and coelomic cavity.

**Acocoea** [INV ZOO] An order of gastropod mollusks in the subclass Opisthobranchia; includes many sea slugs.

**Acostomata** [INV ZOO] A subdivision of the animal kingdom; individuals are characterized by lack of a true body cavity.

**acotylous** [ZOO] 1. Lacking a true body cavity or coelom. 2. Lacking a true stomach or digestive tract.

**acolate** [BOT] Of pollen grains, lacking furrows or grooves.

**Aconchulinida** [INV ZOO] An order of protozoans in the subclass Filosia comprising a small group of naked amebas having filopodia.

**aconitase** [BIOCHEM] An enzyme involved in the Krebs citric acid cycle that catalyzes the breakdown of citric acid to *cis*-aconitic and isocitric acids.

**aconite** [BOT] Any plant of the genus *Aconitum*. Also known as friar's cowl, monkshood, mousebane, wolfsbane.

**acorn** [BOT] The nut of the oak tree, usually surrounded at the base by a woody involucre.

**acorn barnacle** [INV ZOO] Any of the sessile barnacles that are enclosed in conical, flat-bottomed shells and attach to ships and near-shore rocks and piles.

**acorn disease** [PL PATH] A virus disease of citrus plant; characterized by malformation of the fruit, which is somewhat acorn-shaped.

**acorn worm** [INV ZOO] Any member of the class Enteropneusta, free-living animals that usually burrow in sand or mud. Also known as tongue worm.

**acotyledon** [BOT] A plant without cotyledons.

**acouchi** [VERT ZOO] A hystricomorph rodent represented by two species in the family Dasyproctidae; believed to be a dwarf variety of the agouti.

**acoustic nerve** See auditory nerve.

**acoustic reflex** [PHYSIO] Brief, involuntary closure of the eyes due to stimulation of the acoustic nerve by a sudden sound.

**acquired** [BIOL] Not present at birth, but developed by an individual in response to the environment and not subject to hereditary transmission.

**Acrania** [ZOO] A group of lower chordates with no cranium, jaws, vertebrae, or paired appendages; includes the Tunicata and Cephalochordata.

**Acrasiales** [BIOL] A group of microorganisms that have plant and animal characteristics; included in the phylum Myxomycophyta by botanists and Mycetozoa by zoologists.

**Acrasida** [MYCOL] An order of Mycetozoa containing cellular slime molds.

**Acrasieae** [BIOL] An equivalent name for the Acrasiales.

**acrasin** [BIOCHEM] The chemotactic substance thought to be secreted by, and to effect aggregation of, myxamebas during their fruiting phase.

**acraspedote** [INV ZOO] Describing tapeworm segments which are not overlapping.

**acroblast** [CELL BIO] A vesicular structure in the spermatid formed from Golgi material.

**acrocarpous** [BOT] In some mosses of the subclass Eubrya, having the sporophyte at the end of a stem and therefore exhibiting the erect habit.

**acrocentric chromosome** [CELL BIO] A chromosome having the centromere close to one end.

**Acroceridae** [INV ZOO] The humpbacked flies, a family of orthorrhaphous dipteran insects in the series Brachycera.

**acrodontella** [ECOL] Specialized structures on certain plants adapted to shelter mites; relationship is presumably symbiotic.

**acrodont** [ANAT] Having teeth fused to the edge of the supporting bone.

**acromere** [HISTOL] The distal portion of a rod or cone in the retina.

**acromion** [ANAT] The flat process on the outer end of the scapular spine that articulates with the clavicle and forms the outer angle of the shoulder.

**acron** [EVOL] Unsegmented head of the ancestral arthropod. [INV ZOO] 1. The preoral, nonsegmented portion of an arthropod embryo. 2. The prostomial region of the trochophore larva of some mollusks.

**acropetal** [BOT] From the base toward the apex, as seen in the formation of certain organs or the spread of a pathogen.

**Acrosalenillidae** [PALEON] A family of Jurassic and Cretaceous echinoderms in the order Salenoida.

**acroscopic** [BOT] Facing, or on the side toward, the apex.

**acrosin** [BIOCHEM] A proteolytic enzyme located in the acrosome of a spermatozoon, thought to be involved in penetration of the egg.

## acrosome

## action potential

**acrosome** [CELL BIO] The anterior, crescent-shaped body of spermatozoon, formed from Golgi material of the spermatid. Also known as perforatorium.

**acropore** [MYCOL] In fungi, a spore formed at the outer tip of a hypha.

**acrotaralium** [ANAT] Instep of the foot.

**Acrothoracica** [INV ZOO] A small order of burrowing barnacles in the subclass Cirripedia that inhabit corals and the shells of mollusks and barnacles.

**Acrotretacea** [PALEON] A family of Cambrian and Ordovician inarticulate brachiopods of the suborder Acrotretidina.

**Acrotretida** [INV ZOO] An order of brachiopods in the class Inarticulata; representatives are known from Lower Cambrian to the present.

**Acrotretidina** [INV ZOO] A suborder of inarticulate brachiopods of the order Acrotretida; includes only species with shells composed of calcium phosphate.

**Actaeonidae** [INV ZOO] A family of gastropod mollusks in the order Tectibranchia.

**Actaletidae** [INV ZOO] A family of insects belonging to the order Collembola characterized by simple tracheal systems.

**ACTH** See adrenocorticotrophic hormone.

**Actidione** [MICROBIO] Trade name for the antibiotic cyclohexamide.

**actin** [BIOCHEM] A muscle protein that is the chief constituent of the Z-band myofilaments of each sarcomere.

**actinal** [INV ZOO] In radially symmetrical animals, referring to the part from which the tentacles or arms radiate or to the side where the mouth is located.

**Actiniaria** [INV ZOO] The sea anemones, an order of coelenterates in the subclass Zoantharia.

**Actinobacillus** [MICROBIO] A species of gram-negative, oval, spherical, or rod-shaped bacteria that are of uncertain affiliation; coccal and bacillary cells are often interspersed, giving a "Morse code" form; species are pathogens of animals, occasionally of humans.

**Actinobifida** [MICROBIO] A genus of bacteria in the family Micromonosporaceae with a dichotomously branched substrate; an aerial mycelium is formed which produces single spores.

**actinocarpous** [BOT] Having flowers and fruit radiating from one point.

**actinochitin** [BIOCHEM] A form of birefringent or anisotropic chitin found in the seta of certain mites.

**Actinochitinoi** [INV ZOO] A group name for two closely related suborders of mites, the Trombidiformes and the Sarcopiformes.

**actinomere** [INV ZOO] One of the segments composing the body of a radially symmetrical animal.

**actinomorphic** [BIOL] Descriptive of an organism, organ, or part that is radially symmetrical.

**Actinomyces** [MICROBIO] The type genus of the family Actinomycetaceae; anaerobic to facultatively anaerobic; includes human and animal pathogens.

**Actinomyces bovis** [MICROBIO] A nonmotile, gram-positive, anaerobic bacterium that causes actinomycosis.

**Actinomycetaceae** [MICROBIO] A family of bacteria in the order Actinomycetales; gram-positive, diphtheroid cells which form filaments but not mycelia; chemoorganotrophs that ferment carbohydrates.

**Actinomycetales** [MICROBIO] An order of bacteria; cells form branching filaments which develop into mycelia in some families.

**actinomycete** [MICROBIO] Any member of the bacterial family Actinomycetaceae.

**actinomycin** [MICROBIO] The collective name for a large number of red chromoprotein antibiotics elaborated by various strains of *Streptomyces*.

**Actinomyxide** [INV ZOO] An order of protozoan invertebrate parasites of the class Myxosporidea characterized by trivalved spores with three polar capsules.

**actinophage** [MICROBIO] A bacteriophage that infects and lyses members of the order Actinomycetales.

**Actinophrydia** [INV ZOO] An order of protozoans in the subclass Heliozoa; individuals lack an organized test, a centrioplast, and a capsule.

**Actinoplanaceae** [MICROBIO] A family of bacteria in the order Actinomycetales with well-developed mycelia and spores formed on sporangia.

**Actinoplanes** [MICROBIO] A genus of bacteria in the family Actinoplanaceae having asexual mycelia and spherical to subspherical sporangia; spores are spherical and motile by means of a tuft of polar flagella.

**Actinopodea** [INV ZOO] A class of protozoans belonging to the superclass Sarcodina; most are free-floating, with highly specialized pseudopodia.

**Actinopteri** [VERT ZOO] An equivalent name for the Actinopterygii.

**Actinopterygii** [VERT ZOO] The ray-fish fishes, a subclass of the Osteichthyes distinguished by the structure of the paired fins, which are supported by dermal rays.

**actinostele** [BOT] A protostele characterized by xylem that is either star-shaped in cross section or has ribs radiating from the center.

**actinostome** [BIOL] 1. The mouth of a radiate animal. 2. The peristome of an echinoderm.

**Actinostromaridae** [PALEON] A sphaeractinoid family of extinct marine hydrozoans.

**actinotrocha** [INV ZOO] The free-swimming larva of *Phoronis*, a genus of small, marine, tubicolous worms.

**actinula** [INV ZOO] A larval stage of some hydrozoans that has tentacles and a mouth; attaches and develops into a hydroid in some species, or metamorphoses into a medusa.

**action current** [PHYSIO] The electric current accompanying membrane depolarization and repolarization in an excitable cell.

**action potential** [PHYSIO] A transient change in electric potential at the surface of a nerve or muscle cell occurring at the moment of excitation.

**action spectrum** [PHYSIO] Graphic representation of the comparative effects of different wavelengths of light on living systems or their components.

**aetium** [ECOL] A rocky seashore community.

**activation** [MOL BIO] A change that is induced in an amino acid before it is utilized for protein synthesis.

**activation** [PHYSIO] The designation for all changes in the ovum during fertilization, from sperm contact to the dissolution of nuclear membranes.

**activator RNA** [GEN] Ribonucleic acid molecules which form a sequence-specific complex with receptor genes linked to producer genes.

**active site** [MOL BIO] The region of an enzyme molecule at which binding with the substrate occurs. Also known as binding site; catalytic site.

**active transport** [PHYSIO] The pumping of ions or other substances across a cell membrane against an osmotic gradient, that is, from a lower to a higher concentration.

**actomyosin** [BIOCHEM] A protein complex consisting of myosin and actin; the major constituent of a contracting muscle fibril.

**actophorous** [ECOL] Having a seashore growing habit.

**acuate** [BIOL] 1. Having a sharp point. 2. Needle-shaped.

**acuity** [BIOL] Sharpness of sense perception, as of vision or hearing.

**Aculeata** [INV ZOO] A group of seven superfamilies that constitute the stinging forms of hymenopteran insects in the suborder Apocrita.

**aculeus** [INV ZOO] 1. A sharp, hair-like spine, as on the wings of certain lepidopterans. 2. An insect stinger modified from an ovipositor.

**Aculegnathidae** [INV ZOO] The ant-sucking beetles, a family of coleopteran insects in the superfamily Cucujoidea.

**acuminate** [BOT] Tapered to a slender point, especially referring to leaves.

**acute** [BIOL] Ending in a sharp point.

**acute transfection** [GEN] Short-term deoxyribonucleic acid infection of cells.

**acutifoliate** [BOT] Having sharply pointed leaves.

**scutellate** [BOT] Having sharply pointed lobes.

**acutelloid** [BOT] Having flowers arranged in a spiral instead of a wheel.

**acylglycerols** See fatty acyl carnitines.

**acyl carrier protein** [BIOCHEM] A protein in fatty acid synthesis that picks up acetyl and malonyl groups from acetyl coenzyme A and malonyl coenzyme A and links them by condensation to form  $\beta$ -keto acid acyl carrier protein, releasing carbon dioxide and the sulphydryl form of acyl carrier protein. Abbreviated ACP.

**acyl-coenzyme A** See fatty acyl-coenzyme A.

**adambulacra** [INV ZOO] Lying adjacent to the ambulacrum.

**adapertural** [INV ZOO] Near the aperture, specifically of a cone.

**adapical** [BOT] Near or toward the apex or tip.

**adaptation** [GEN] The occurrence of genetic changes in a population or species as the result of natural selection so that it adjusts to new or altered environmental conditions. [PHYSIO] The

occurrence of physiological changes in an individual exposed to changed conditions; for example, tanning of the skin in sunshine, or increased red blood cell counts at high altitudes.

**adaptive disease** [PHYSIO] The physiologic changes impairing an organism's health as the result of exposure to an unfamiliar environment.

**adaptive divergence** [EVOL] Divergence of new forms from a common ancestral form due to adaptation to different environmental conditions.

**adaptive enzyme** [MICROBIO] Any bacterial enzyme formed in response to the presence of substrate specific for that enzyme.

**adaptive radiation** [EVOL] Diversification of a dominant evolutionary group into a large number of subsidiary types adapted to more restrictive modes of life (different adaptive zones) within the range of the larger group.

**adaxial** [BIOL] On the same side as or facing toward the axis of an organ or organism.

**adder** [VERTE ZOO] Any of the venomous viperine snakes included in the family Viperidae.

**adduction** [PHYSIO] Movement of one part of the body toward another or toward the median axis of the body.

**adductor** [ANAT] Any muscle that draws a part of the body toward the median axis.

**Adelaina** [INV ZOO] A suborder of protozoan invertebrate parasites in the order Eucoccidia in which the sexual and asexual stages are in different hosts.

**adelphous** [BOT] Having stamens fused together by their filaments.

**adenase** [BIOCHEM] An enzyme that catalyzes the hydrolysis of adenine to hypoxanthine and ammonia.

**adenine** [BIOCHEM]  $C_5H_5N_5$ . A purine base, 6-aminopurine, occurring in ribonucleic acid and deoxyribonucleic acid and as a component of adenosinetriphosphate.

**adeno-associated satellite virus** [VIROL] A defective virus that is unable to reproduce without the help of an adenovirus.

**adenohypophysis** [ANAT] The glandular part of the pituitary gland, composing the anterior and intermediate lobes.

**adenoid** [ANAT] 1. A mass of lymphoid tissue. 2. Lymphoid tissue of the nasopharynx. Also known as pharyngeal tonsil.

**adenomeres** [EMBRYO] The embryonic structure which will become the functional portion of a gland.

**Adenophora** [INV ZOO] A class of unsegmented worms in the phylum Nematoda.

**adenophyllous** [BOT] Having leaves with glands.

**adenosine** [BIOCHEM]  $C_{10}H_{13}N_5O_4$ . A nucleoside composed of adenine and D-ribose.

**adenosine 3',5'-cyclic monophosphate** See cyclic adenylic acid.

**adenosine 3',5'-cyclic phosphate** See cyclic adenylic acid.

**adenosinetriphosphatase** [BIOCHEM] An enzyme that catalyzes the hydrolysis of adenosinetriphosphate. Abbreviated ADPase.

**adenosinediphosphate** [BIOCHEM]  $C_{10}H_{15}N_5O_{10}P_2$  A coenzyme composed of adenosine and two molecules of phosphoric acid that is important in intermediate cellular metabolism. Abbreviated ADP.

**adenosine 3',5'-monophosphate** See cyclic adenylic acid.

**adenosinemonomophosphate** See adenylic acid.

**adenosinetriphosphatase** [BIOCHEM] An enzyme that catalyzes the hydrolysis of adenosinetriphosphate. Abbreviated ATPase.

**adenosinetriphosphate** [BIOCHEM]  $C_{10}H_{16}N_5O_{12}P_3$  A coenzyme composed of adenosinediphosphate with an additional phosphate group; an important energy compound in metabolism. Abbreviated ATP.

**adeno-SV40 hybrid virus** [VIROL] A defective virus particle in which part of the genetic material of papovavirus SV40 is encased in an adenovirus protein coat.

**adenovirus** [VIROL] A group of animal viruses which cause febrile catarrhs and other respiratory diseases.

**adenylic acid** [BIOCHEM] 1. A generic term for a group of isomeric nucleotides. 2. The phosphoric acid ester of adenosine. Also known as adenosinemonomophosphate (AMP).

**adeniform** [INV ZOO] 1. A lobate, bilamellar zoarium. 2. Resembling the fossil bryozoan *Adeona*.

**Adephaga** [INV ZOO] A suborder of insects in the order Coleoptera characterized by fused hind coxae that are immovable.

**adequate stimulus** [PHYSIO] The energy of any specific mode that is sufficient to elicit a response in an excitable tissue.

**adhesion** [BOT] Growing together of members of different and distinct whorls.

**adhesive cell** [INV ZOO] Any of various glandular cells in ctenophores, turbellarians, and hydras used for adhesion to a substrate and for capture of prey. Also known as colloblast; glue cell; lasso cell.

**Adieridae** [INV ZOO] An equivalent name for the Colydiidae.

**adipocellulose** [BIOCHEM] A type of cellulose found in the cell walls of cork tissue.

**adipogenesis** [PHYSIO] The formation of fat or fatty tissue.

**adipose** [BIOL] Fatty; of or relating to fat.

**adipose fin** [VENT ZOO] A modified posterior dorsal fin that is fleshy and lacks rays; found in salmon and typical catfishes.

**adipose tissue** [HISTOL] A type of connective tissue specialized for lipid storage.

**adjuster neuron** [ANAT] Any of the interconnecting nerve cells between sensory and motor neurons of the central nervous system.

**ad lib** [BIOL] Shortened form for ad libitum; without limit or restraint.

**admate** [BIOL] United through growth; used especially for unlike parts. [BOT] Pertaining to growth with one side adherent to a stem.

**admae** [BIOL] Subordinate or accessory parts, such as eyelids, Fallopian tubes, and extraembryonic membranes.

**adonitol** [BIOCHEM]  $C_5H_{12}O_5$  A pentitol from the dicotyledonous plant *Adonis vernalis*; large crystals that are optically inactive and melt at 102°C; it does not reduce Fehling's solution, and is freely soluble in water and hot alcohol. Also known as adonite; ribitol.

**adont hinge** [INV ZOO] A type of ostracod hinge articulation which either lacks teeth and has overlapping valves or has a ridge and groove.

**adoral** [ZOO] Near the mouth.

**ADP** See adenosinediphosphate.

**ADPase** See adenosinediphosphatase.

**adrenal cortex** [ANAT] The cortical moiety of the suprarenal glands which secretes glucocorticoids, mineralocorticoids, androgens, estrogens, and progestagens.

**adrenal cortex hormone** [BIOCHEM] Any of the steroids produced by the adrenal cortex. Also known as adrenocortical hormone; corticoid.

**adrenal gland** [ANAT] An endocrine organ located close to the kidneys of vertebrates and consisting of two morphologically distinct components, the cortex and medulla. Also known as suprarenal gland.

**adrenaline** See epinephrine.

**adrenal medulla** [ANAT] The hormone-secreting chromaffin cells of the adrenal gland that produce epinephrine and norepinephrine.

**adrenergic** [PHYSIO] Describing the chemical activity of epinephrine or epinephrine-like substances.

**adrenergic blocking agent** [BIOCHEM] Any substance that blocks the action of epinephrine or an epinephrine-like substance.

**adrenochrome** [BIOCHEM]  $C_8H_9O_3N$  A brick-red oxidation product of epinephrine which can convert hemoglobin into methemoglobin.

**adrenocorticotrophic hormone** [BIOCHEM] The chemical secretion of the adenohypophysis that stimulates the adrenal cortex. Abbreviated ACTH. Also known as adrenotropic hormone.

**adrenotropia** [PHYSIO] Of or pertaining to an effect on the adrenal cortex.

**adrenotropic hormone** See adrenocorticotrophic hormone.

**adret** [ECOL] The sunny (usually south) face of a mountain featuring high timber and snow lines.

**adventitia** [ANAT] The external, connective-tissue covering of an organ or blood vessel. Also known as tunica adventitia.

**adventitious** [BIOL] Also known as adventive. 1. Acquired spontaneously or accidentally, not by heredity. 2. Arising, as a tissue or organ, in an unusual or abnormal place.

**adventitious bud** [BOT] A bud that arises at points on the plant other than at the stem apex or a leaf axil.

**adventitious root** [BOT] A root that arises from any plant part other than the primary root (radicle) or its branches.

**adventitious vein** [INV ZOO] The vessel between the intercalary and accessory veins on certain insect wings.

**adventive** [BIOL] 1. An organism that is introduced accidentally and is imperfectly naturalized, not native. 2. See adventitious.

**advolution** [BIOL] Development or growth with increasing similarities, growth toward, the opposite of evolution.

**aebl** [BIOL] A unit for the standardization of a phosphatase.

**Aechminidae** [PALEON] A family of extinct ostracods in the order Paleocopa in which the hollow central spine is larger than the valve.

**aeciospore** [MYCOL] A spore produced by an aecium.

**aecium** [MYCOL] The fruiting body or sporocarp of rust fungi.

**aedeagus** [INV ZOO] The copulatory organ of a male insect.

**Aedes** [INV ZOO] A genus of the dipterous subfamily Culicinae in the family Culicidae, with species that are vectors for many diseases of man.

**Aedes aegypti** [INV ZOO] A cosmopolitan mosquito that transmits the etiological agents of yellow fever, dengue, equine encephalomyelitis, and Bancroft's filariasis.

**Aedullidae** [PALEON] A family of Lower Permian palaeoniscoid fishes in the order Palaeonisciformes.

**Aegeridae** [INV ZOO] The clearwing moths, a family of lepidopteran insects in the suborder Heteroneura characterized by the lack of wing scales.

**Aegleidae** [INV ZOO] An equivalent name for the Salpingidae.

**Aegidae** [INV ZOO] A family of isopod crustaceans in the suborder Flabellifera whose members are economically important as fish parasites.

**aeghognathous** [VERT ZOO] Referring to a bird palate in which the vomers are completely fused and truncate in appearance.

**Aegothidae** [VERT ZOO] A family of small Australo-Papuan owl-nightjars in the avian order Caprimulgiformes.

**Aegypinae** [VERT ZOO] The Old World vultures, a subfamily of diurnal carrion feeders of the family Accipitridae.

**Aegyptianella** [MICROBIO] A genus of the family Anaplasmataceae; organisms from inclusions in red blood cells of birds.

**Aegyptopithecus** [PALEON] A primitive primate that is thought to represent the common ancestor of both the human and ape families.

**aegophilous** [BOT] Describing a plant whose disseminules are dispersed by wind.

**Aelosomatidae** [INV ZOO] A family of microscopic fresh-water annelid worms in the class Oligochaeta characterized by a ventrally ciliated prototomium.

**Aepophidae** [INV ZOO] A family of bugs in the hemipteran superfamily Saldoidae.

**Aepyornis** [PALEON] A genus of extinct ratite birds representing the family Aepyornithidae.

**Aepyornithidae** [PALEON] The single family of the extinct avian order Aepyornithiformes.

**Aepyornithiformes** [PALEON] The elephant birds, an extinct order of ratite birds in the superorder Neognathae.

**aerostoma** [BOT] A specialized tissue in some water plants characterized by thin-walled cells and large intercellular air spaces.

**aerial** [BIOL] Of, in, or belonging to the air or atmosphere.

**aerial mycelium** [MYCOL] A mass of hyphae that occurs above the surface of a substrate.

**aerial root** [BOT] A root exposed to the air, usually anchoring the plant to a tree, and often functioning in photosynthesis.

**aerial stem** [BOT] A stem with an erect or vertical growth habit above the ground.

**aerobe** [BIOL] An organism that requires air or free oxygen to maintain its life processes.

**aerobic bacteria** [MICROBIO] Any bacteria requiring free oxygen for the metabolic breakdown of materials.

**aerobic process** [BIOL] A process requiring the presence of oxygen.

**aerobiology** [BIOL] The study of the atmospheric dispersal of airborne fungus spores, pollen grains, and microorganisms; and, more broadly, of airborne propagules of algae and protozoans, minute insects such as aphids, and pollution gases and particles which exert specific biologic effects.

**aerobioscope** [MICROBIO] An apparatus for collecting and determining the bacterial content of a sample of air.

**aerobiosis** [BIOL] Life existing in air or oxygen.

**Aerococcus** [MICROBIO] A genus of bacteria in the family Streptococcaceae; spherical cells have the tendency to form tetrads; they ferment glucose with production of dextrorotatory lactic acid (homofermentative).

**aerocyst** [BOT] An air vesicle in certain species of algae.

**Aeromonas** [MICROBIO] A genus of bacteria in the family Vibrionaceae; straight, motile rods with rounded ends; most species are pathogenic to marine and fresh-water animals.

**Aeroportin** [MICROBIO] Trade name for the antibiotic polymyxin B.

**aerotaxis** [BIOL] The movement of an organism, especially aerobic and anaerobic bacteria, with reference to the direction of oxygen or air.

**aerotropism** [BOT] A response in which the growth direction of a plant component changes due to modifications in oxygen tension.

**aechynomanous** [BOT] Having sensitive leaves that droop when touched, such as members of the Leguminosae.

**Aeculus** [BOT] A genus of deciduous trees or shrubs belonging to the order Sapindales. Commonly known as buckeyes.

**Aechnidae** [INV ZOO] A family of odonatan insects in the suborder Anisoptera distinguished by partially fused eyes.

**aesthesia** See esthesia.

**aesthete** [BOT] A plant organ with the capacity to respond to definite physical stimuli.

**aetidurilignosa** [ECOL] A mixed woodland of evergreen and deciduous hardwoods.

**aetillignosa** [ECOL] A woodland of saprophytic vegetation in temperate regions.

**aestivation** [BOT] The arrangement of floral parts in a bud. [PAVISO] The condition of dormancy or torpidity.

**Aetosauria** [PALEON] A suborder of Triassic archosaurian quadrupedal reptiles in the order

**Agrobacterium tumefaciens**

Thecodontia armored by rings of thick, bony plates.

**afferent** [PHYSIO] Conducting or conveying inward or toward the center, specifically in reference to nerves and blood vessels.

**afferent neuron** [ANAT] A nerve cell that conducts impulses toward a nerve center, such as the central nervous system.

**affinity labeling** [BIOCHEM] A method for introducing a label into the active site of an enzyme by relying on the tight binding between the enzyme and its substrate (or cofactors).

**aflatoxin** [BIOCHEM] The toxin produced by some strains of the fungus *Aspergillus flavus*, the most potent carcinogen yet discovered.

**African violet** [BOT] *Saintpaulia ionantha*. A flowering plant typical of the family Gesneriaceae.

**afterbirth** [EMBRYO] The placenta and fetal membranes expelled from the uterus following birth of offspring in viviparous mammals.

**afterimage** [PHYSIO] A visual sensation occurring after the stimulus to which it is a response has been removed.

**afterpotential** [PHYSIO] A small positive or negative wave that follows and is dependent on the main spike potential, seen in the oscillograph tracing of an action potential passing along a nerve.

**afterripening** [BOT] A period of dormancy after a seed is shed during which the synthetic machinery of the seed is prepared for germination and growth.

**aftershaft** [VERT ZOO] An accessory, plumelike feather near the upper umbilicus on the feathers of some birds.

**agameon** [BIOL] An organism which reproduces only by asexual means. Also known as agamospecies.

**agamete** [BIOL] An asexual reproductive cell that develops into an adult individual.

**agamic** [BIOL] Referring to a species or generation which does not reproduce sexually.

**Agamidae** [VERT ZOO] A family of Old World lizards in the suborder Sauria that have acrodont dentition.

**agamogony** [BIOL] Asexual reproduction, specifically schizogony.

**agamospecies** See agameon.

**agamospermy** [BOT] Apogamy in which sexual union is incomplete because of abnormal development of the pollen and the embryo sac.

**Aganidae** [INV ZOO] A family of small hymenopterans in the superfamily Chalcidoidea; commonly called fig insects for their role in cross-pollination of figs.

**Agaricales** [MYCOL] An order of fungi in the class Basidiomycetes containing all forms of fleshy, gilled mushrooms.

**agarophyte** [BOT] Any seaweed that yields agar.

**Agavaceae** [BOT] A family of flowering plants in the order Liliales characterized by parallel, narrow-veined leaves, a more or less corolloid perianth, and an agavaceous habit.

**age** [BIOL] Period of time from origin or birth to a later time designated or understood; length of existence.

**age distribution** [ECOL] The distribution of different age groups in a population.

**agenesis** [BIOL] Absence of a tissue or organ due to lack of development.

**aggressive mimicry** [ZOO] Mimicry used to attract or deceive a species in order to prey upon it.

**aging** [BIOL] Growing older.

**Aglaeida** [PALEON] An order of Cambrian and Ordovician merostome arthropods in the subclass Xiphosurida characterized by a phosphatic exoskeleton and vaguely trilobed body form.

**aglomerular** [HISTOL] Lacking glomeruli.

**Aglossa** [VERT ZOO] A suborder of anuran amphibians represented by the single family Pipidae and characterized by the absence of a tongue.

**aglycon** [BIOCHEM] The nonsugar compound resulting from the hydrolysis of glycosides; an example is 3,5,7,3',4'-pentahydroxyflavylum, or cyanidin.

**aglyphous** [VERT ZOO] Having solid teeth.

**agmatine** [BIOCHEM]  $C_5H_{11}N_4$ . Needlelike crystals with a melting point of 231°C; soluble in water; a product of the enzymatic decarboxylation of arginine. Also known as 4-(aminobutyl)guanidine.

**agnate** [BIOL] Related exclusively through male descent.

**Agatha** [VERT ZOO] The most primitive class of vertebrates, characterized by the lack of true jaws.

**Agonidae** [VERT ZOO] The poachers, a small family of marine perciform fishes in the suborder Cottoidae.

**agouti** [VERT ZOO] A hystricomorph rodent, *Dasyprocta*, in the family Dasyproctidae, represented by 13 species.

**agranular leukocyte** [HISTOL] A type of white blood cell, including lymphocytes and monocytes, characterized by the absence of cytoplasmic granules and by a relatively large spherical or indented nucleus.

**agrestis** [ECOL] Growing wild in the fields.

**agriculture** [BIOL] The production of plants and animals useful to man, involving soil cultivation and the breeding and management of crops and livestock.

**Agriophoridae** [PALEON] A family of extinct tylopod ruminants in the superfamily Merycocondontoidea.

**agrioecology** [ECOL] The ecology of cultivated plants.

**Agrionidae** [INV ZOO] A family of odonatan insects in the suborder Zygoptera characterized by black or red markings on the wings.

**Agrobacterium** [MICROBIO] A genus of bacteria in the family Rhizobiaceae; cells do not fix free nitrogen, and three of the four species are plant pathogens, producing galls and hairy root.

**Agrobacterium tumefaciens** [MICROBIO] A pathogenic soil bacterium that causes root and stem galls on plants in over 40 families of angiosperms.



**Agromyzidae** [INV ZOO] A family of myodarian cyclorrhaphous dipteran insects of the subsection Acalypteratae; commonly called leaf-miner flies because the larvae cut channels in leaves.

**agrophilous** [ECOL] Having a natural habitat in grain fields.

**agrostology** [BOT] A division of systematic botany concerned with the study of grasses.

**ahermatypic** [INV ZOO] Non-reef-building, applied to corals.

**alophyllous** See evergreen.

**air cell** [ZOO] A cavity or receptacle for air such as an alveolus, an air sac in birds, or a dilation of the trachea in insects.

**air layering** [BOT] A method of vegetative propagation, usually of a wounded part, in which the branch or shoot is enclosed in a moist medium until roots develop, and then it is severed and cultivated as an independent plant.

**air pollution** [ECOL] The presence in the outdoor atmosphere of one or more contaminants such as dust, fumes, gas, mist, odor, smoke, or vapor in quantities and of characteristics and duration such as to be injurious to human, plant, or animal life or to property, or to interfere unreasonably with the comfortable enjoyment of life and property.

**air sac** [INV ZOO] One of large, thin-walled structures associated with the tracheal system of some insects. [VERT ZOO] In birds, any of the small vesicles that are connected with the respiratory system and located in bones and muscles to increase buoyancy.

**air spore** [BIOL] Airborne fungus spores, pollen grains, and microorganisms.

**Alestopoda** [PALEON] An order of Upper Carboniferous amphibians in the subclass Lepospondyli characterized by reduced or absent limbs and an elongate, snakelike body.

**Alzaceae** [BOT] A family of flowering plants in the order Caryophyllales; members are unarmed leaf-succulents, chiefly of Africa.

**alcaryote** [CELL BIO] A cell that lacks a nucleus.

**alknate** [BOT] A thick-walled resting cell of unicellular and filamentous green algae.

**ala** [BIOL] A wing or winglike structure.

**along-along** See cogen.

**alanine** [BIOCHEM]  $C_3H_7NO_2$  A white, crystalline, nonessential amino acid of the pyruvic acid family.

**alar** [BIOL] Winglike or pertaining to a wing.

**alarm reaction** [BIOL] The sum of all nonspecific phenomena which are elicited by sudden exposure to stimuli, which affect large portions of the body, and to which the organism is quantitatively or qualitatively not adapted.

**alarm song** [INV ZOO] A stress signal occurring in many families of beetles.

**Alcedinidae** [VERT ZOO] The larks, a family of Oscine birds in the order Passeriformes.

**albatrosses** [VERT ZOO] Any of the large, long-winged oceanic birds composing the family Diomedidae of the order Procellariiformes.

**albism** [BIOL] The state of having colorless chromatophores, which results in the absence of

pigmentation in animals that are normally pigmented.

**albomycin** [MICROBIO] An antibiotic produced by *Actinomyces subsp. tropicus*; effective against penicillin-resistant pneumococci and staphylococci.

**albugines** [HISTOL] A layer of white, fibrous connective tissue investing an organ or other body part.

**albumen** [CELL BIO] The white of an egg, composed principally of albumin.

**albumin** [BIOCHEM] Any of a group of plant and animal proteins which are soluble in water, dilute salt solutions, and 50% saturated ammonium sulfate.

**albumin-globulin ratio** [BIOCHEM] The ratio of the concentrations of albumin to globulin in blood serum.

**albuminoid** [BIOCHEM] See scleroprotein. [BIOL] Having the characteristics of albumin.

**albumoses** [BIOCHEM] A protein derivative formed by the action of a hydrolytic enzyme, such as pepsin.

**Alcaligenes** [MICROBIO] A genus of gram-negative, aerobic rods and cocci of uncertain affiliation; cells are motile, and species are commonly found in the intestinal tract of vertebrates.

**Alcedinidae** [VERT ZOO] The kingfishers, a worldwide family of colorful birds in the order Coraciiformes; characterized by large heads, short necks, and heavy, pointed bills.

**Alcidae** [VERT ZOO] A family of shorebirds, predominantly of northern coasts, in the order Charadriiformes, including auks, puffins, murres, and guillemots.

**Alciopidae** [INV ZOO] A pelagic family of errantian annelid worms in the class Polychaeta.

**alcohol dehydrogenase** [BIOCHEM] The enzyme that catalyzes the oxidation of ethanol to acetaldehyde.

**alcoholic fermentation** [MICROBIO] The process by which certain yeasts decompose sugars in the absence of oxygen to form alcohol and carbon dioxide; method for production of ethanol, wine, and beer.

**Alcyonacea** [INV ZOO] The soft corals, an order of littoral anthozoans of the subclass Alcyonaria.

**Alcyonaria** [INV ZOO] A subclass of the Anthozoa; members are colonial coelenterates, most of which are sedentary and littoral.

**aldehyde dehydrogenase** [BIOCHEM] An enzyme that catalyzes the conversion of an aldehyde to its corresponding acid.

**aldehyde lyase** [BIOCHEM] Any enzyme that catalyzes the nonhydrolytic cleavage of an aldehyde.

**alder** [BOT] The common name for several trees of the genus *Alnus*.

**aldolase** [BIOCHEM] An enzyme in anaerobic glycolysis that catalyzes the cleavage of fructose 1,6-diphosphate to glyceraldehyde 3-phosphate; used also in the reverse reaction.

**aldosterone** [BIOCHEM]  $C_{21}H_{32}O_5$  A steroid hormone extracted from the adrenal cortex that functions chiefly in regulating sodium and potassium metabolism.