ETYMOLOGY OR WHAT DOES THIS MEAN?

Selected Word List for Histology

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The vocabulary used in histology is based to a great extent on the utilization of words, word roots and prepositions derived from the Latin and Greek languages. They are seen in the English language as prefixes, suffixes or word stems. This list is intended to introduce the medical student to scientific vocabulary and to demonstrate how the terminology for histology is developed. Knowledge of some of the more frequently used Latin and Greek forms helps put the study of histology on scientific and rational basis as well as making it more readily and pleasurably mastered. This knowledge will also apply itself to the understanding of terminology used in other basic sciences and in the clinical field.

Rather than attempting to memorize the word list and definitions verbatim, repeated brief exposures associated with an active seeking of word definitions, either here or in the medical dictionary when a new word is encountered, should prove to be the most helpful for the majority of the students.

a, an Greek prefix, indicating without or a negative quality, e.g. acellular - not containing cells; amitosis - cell duplication that does not go through the process of mitotic division.

ab Latin prefix indicating away from, e.g., abnorma, aberrant.

acinus Latin, a grape or berry, used in histology to designate the sac-like arrangement of cells forming glands, e.g., pancreatic acini, parotid acini.

ad Latin preposition to or towards, sometimes seen as “af”, e.g., afferent lymphatics - those lymphatic tubules that flow to a lymph node; adrenal gland - a gland next to the kidney.

adenos Greek, gland, e.g., adenohypophysis - the glandular portion of the hypophysis; adenoid - the pharyngeal tonsil.

affin Latin stem for related or adjacent, hence argentaffin cells - those which have granulation stainable with silver; chromaffin cells - those stainable with chromium salts.

alveolus Latin, a small hollow pit, used histologically to indicate a small sac-like dilation, e.g., pulmonary alveoli - the microscopic sacs of the lung; dental alveolus - the cavity in bone in which a tooth is held.

anti Greek preposition meaning against, e.g., antigen, antibody.

append Latin, to hang, e.g., appendix - gross anatomical structure attached to the cecum (literally hanging from the cecum); appendix testis - a remnant of an embryonic tube attached to the superficial pole of the testis.

appos Latin stem signifying united, applied, e.g., appositional growth - layering of cells on other preformed similar or dissimilar surfaces as in bone growth.
<table>
<thead>
<tr>
<th>term</th>
<th>description</th>
</tr>
</thead>
<tbody>
<tr>
<td>basis</td>
<td>Greek, <strong>base</strong> or <strong>bottom</strong>, e.g., <em>basalis layer</em> of the endometrial lining of the uterus; <strong>basilar</strong> region of a cell - that nearer to its supporting membrane.</td>
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<tr>
<td>blast</td>
<td>Greek for germ or bud, used in histology as a word stem indicating an <strong>immature or precursor cell</strong> type, e.g., <em>osteoblast</em> - a bone-forming cell; <em>ameloblast</em> - an enamel-forming cell.</td>
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<td>calyx</td>
<td>Greek for <strong>cup</strong>, e.g., <em>renal cortex</em> - cup-like structure into which collecting tubules deliver urine.</td>
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<td>canaliculus</td>
<td>Latin, <strong>tiny duct or tube</strong>, e.g., <em>bile canaliculi</em> - tiny bile-transporting ducts of the liver.</td>
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<td>cardia</td>
<td>Greek for <strong>heart</strong>, e.g., <em>myocardium</em> - the muscular portion of the heart; <em>pericardium</em> - the connective tissue sac enclosing the heart; <em>cardia</em> - the region of the stomach roughly near the heart.</td>
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<td>chondro</td>
<td>Greek word stem for <strong>grain</strong>, gristle, cartilage, e.g., <em>chondroblast</em> - cartilage-forming cell; <em>perichondrium</em> - connective tissue surrounding cartilage; <em>mitochondria</em> - submicroscopic cytoplasmic organelles.</td>
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<td>chrom</td>
<td>Greek, <strong>color</strong>, e.g., <em>chromatin</em> - the deeply staining material in a nucleus; <em>chromatolysis</em> - dissolution and fragmentation of chromatin in a cell, or Nissl substance in a nerve cell.</td>
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<td>clast</td>
<td>Greek word stem meaning <strong>to break</strong>, e.g., <em>osteoclast</em> - a bone-destroying cell.</td>
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<td>colliculus</td>
<td>Latin, a <strong>mound</strong> or <strong>hill</strong>, e.g., <em>seminal colliculus</em> - an elevated ridge within the prostatic region of the urethra.</td>
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<td>corona</td>
<td>Latin, <strong>crown</strong> or <strong>wreath</strong>, e.g., <em>corona radiata</em> - an investment of granulosa cells around the ovum in a mature follicle; <em>coronary arteries</em> - the arteries of the heart (they have a wreath-like distribution).</td>
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<td>corpus</td>
<td>Latin noun for <strong>body</strong>, e.g., <em>corona cavernosa penis</em> - a histologic structure in the penis in which blood may pool; <em>red corpuscle</em> - the red cell of the blood; <em>corpus luteum</em> of the ovary - yellow body.</td>
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<tr>
<td>cortex</td>
<td>Latin for <strong>bark</strong> or <strong>shell</strong>, e.g., <em>cortex</em> of the kidney or adrenal gland.</td>
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<tr>
<td>crin</td>
<td>Greek system for signifying <strong>to put out</strong>, expel, hence this word base is used to formulate words applying to glandular function, e.g., <em>apocrine gland</em> - one whose cells release a portion of the cell itself as well as their product into the secretion versus <em>merocrine glands</em> where the cell remains intact; <em>holocrine</em>.</td>
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<td>crista</td>
<td>Latin, <strong>crest</strong>, e.g., the internal surface of mitochondria is composed of numerous shelf-like projections of the internal membrane called <em>cristae</em>.</td>
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<tr>
<td>cyte</td>
<td>Greek for <strong>cell</strong>, e.g., <em>cytology</em> - the study of the structure and function of cells; <em>osteocyte</em> - a bone cell.</td>
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<tr>
<td>decidua</td>
<td>Latin, indicating <strong>to shed</strong>, e.g., <em>deciduous teeth</em> - the first set of teeth that precede the permanent set; <em>decidua</em> - the lining of the gravid uterus which is shed at the time of delivery.</td>
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<td>dendron</td>
<td>Greek, <strong>tree</strong>, e.g., <em>dendrite</em> - the branched cytoplasmic processes which conduct impulses toward the cell body.</td>
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dens
Latin, **tooth**, e.g., *dentin* - that portion of a tooth surrounding the pulp cavity; *dentinal tubules* - numerous small canals in the dentin.

desmos
Greek, **chain, band**, e.g., *desmosome* - submicroscopic structure with a function of holding adjoining cells together.

dia
Greek preposition **through**, e.g., *diapedesis* - the migration of white cells through a capillary wall; *diagnosis* - literally means “through knowledge”.

didymis
Greek for **testis** - used as a stem for words such as *epididymis* - a coiled tubule located on the superior pole of the testis.

duct
Latin stem meaning **to lead**, presently used in sense of a tube or passageway, e.g., *ductus deferens; parotid duct*.

ectasis
Greek, **extension, dilatation**, e.g., *atelectasis* - collapse of the lung (literally, imperfect expansion).

ektos
Greek, **outside**, e.g., *ectoderm* - the external layer of the 3 germ cell layers; *exocrine gland* - one which releases its secretion outside of the tissue viaduct.

endogenous gland
Greek preposition for **in or within**, e.g., *endothelium* - the epithelial lining of blood vessels; *endoplasmic reticulum* - submicroscopic network present in the cytoplasm of cells.

epi
Greek prefix meaning **on or upon**, e.g., *epidermis* - the external layer of the skin that overlies the dermis; *epinephrine* - a hormone produced by a tissue that anatomically rests on the kidney (nephros), i.e., the suprarenal gland.

erythro
Greek for **red**, e.g., *erythrocyte* - red blood corpuscle; *erythroblast* - an immature red blood cell.

ex (ex)
Latin preposition meaning **out or away from**, e.g., *efferent lymphatics* - those vessels carrying lymph out of a lymph node; *ductuli efferentes* of the testes - carry the sperm cells from the testes to the epididymis; *exogenous pigment* - that pigment which is produced elsewhere then incorporated by the cell.

folliculus
Latin, **a small sac**, e.g., *follicles* of the thyroid gland - the thyroid acini; *liquor folliculi* - fluid present in ovarian follicles.

ganglion
Greek for **swelling**, e.g., histologically used as a collection of nerve cell bodies outside of the central nervous system, e.g., *preaortic ganglia*.

genesis
Greek for **origin**, hence, *histogenesis* and *organogenesis* are the development of a tissue or an organ, respectively.

germ
Latin for **bud or sprout**, used in histology in sense of reproduction and development, e.g., *germ cells* - those cells concerned with reproduction of the organism; *germ layers* - 3 embryonic cellular layers which develop into the entire organism; *germinal center* of a lymphoid nodule.

ghia
Greek, **glue**, e.g., *neuroglia* - the connective tissue cells of the central nervous system; *microglia* - the smallest neuroglial cells.

hem, hemo
Greek for **blood**, e.g., *hemoglobin* - the oxygen-carrying molecule in erythrocytes; *hematology* - the study of blood cells; *hemosiderin* - stainable tissue iron.
hepar  Greek, the liver, e.g., hepatic parenchymal cells - the glandular epithelium of the liver.

hetero  Greek, other, different, e.g., heterogeneous - composed of dissimilar elements.

hilus  Latin, that part of the gland or tissue where blood vessels, nerves, etc. enter.

histo  Greek stem for tissue, e.g., histology; histiocyte - one of the cells present in connective tissue.

homo  Greek root for same, like, similar, e.g., homeostasis - a state of balance.

hyper  Greek prefix indicating more or a greater quantity, e.g., hyperchromatic - staining more intensely than usual.

hypo  A prefix derived from the Greek meaning under or a less quality, e.g., hypodermis - the layer of areolar connective tissue subadjacent to the dermis; hypochromasia - a decreased staining affinity.

inter  Latin preposition between, e.g., interlobular ducts of various glands; interstitial cells of the testes are located in between the seminiferous tubules.

intercal (intra)  Latin preposition into, e.g., intralobular ducts of the pancreas.

iso  Greek, equal, similar, e.g., anisocytosis - inequality in cell size; isotope.

karyo  Greek for nut or nucleus, e.g., karyolysis - dissolution of the nucleus of a cell; karyorrhexis - rupture or fragmentation of a nucleus.

lacuna  Latin, pit, depression, e.g., lacunae of bone - cavities in bone containing the osteocytes.

lamella  Latin diminutive form of lamina, hence a very thin, little plate, e.g., lamellae of the endoplasmic reticulum - submicroscopic plates present in cytoplasm.

lamina  Latin for thin plate, e.g., lamina propria - the thin layer of connective tissue supporting the glands and epithelial lining of a mucosal layer.

leuko  Greek for white, e.g., leukocyte - a white blood cell; leukemia - a disease of the white blood cells.

luteus  Latin adjective for yellow, e.g., corpus luteum - the “yellow body” that is developed from an ovarian follicle after it has released its ovum; lutein cells - the cells of the corpus luteum.

lymph  Latin stem for water, e.g., lymph - interstitial fluid that has entered the lymphatic vascular channels; lymphocytes - cells present in lymph and lymph nodes.

macro  Greek, large, e.g., macrophage - a large phagocytic cell; macroscopic.

macula  Latin, spot or stain, e.g., macula densa - a collection of specialized cells in the distal convoluted tubule at the point where it lies adjacent to the afferent arteriole.

matrix  Latin for site of generation and development, used in histology as the ground work or frame of a tissue into which cells are placed, e.g., the matrix of dense connective tissue is

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mediastinum

Latin meaning “in the middle”, e.g., **mediastinum testes** - an area of fibrous tissue within the testes; the **mediastinum** of the chest - the central area of the thoracic cavity “between the two lungs”.

medulla

Latin, the **inner layer or region**, e.g., **medulla** of a lymph node; **medullary rays** - groups of tubules extending from the medulla into the cortex in the kidney.

mega

Greek for **great**, e.g., **megakaryocyte** - a giant cell with a large multilobed nucleus that is found in the bone marrow and which produces platelets; **megaloblast** - an abnormal erythrocyte precursor that is (among other things) larger than normal.

meso

Greek stem meaning **middle** or **intermediate**, e.g., **mesoderm** - the middle layer of the 3 germinal layers; **mesothelium** - epithelium lining the peritoneal cavity.

mestos

Greek for **stuffed**, e.g., **mast cell** - a connective tissue cell containing large number of metachromatic cytoplasmic granules.

meta

Greek prefix used to indicate a **change** or **transformation**, e.g., **metachromasia** - the quality of a tissue to stain a color other than that of the stain used; **metamvelocyt** - a developing white cell that has progressed beyond the myelocyte stage.

metra (o)

Greek stem referring to the **uterus**, e.g., **myometrium** - the muscular layer of the uterus; **endometrium** - the mucosa of the uterus.

mikros

Greek, **small**, e.g., **microscopic, microscopy, micron**.

mitos

Greek, **thread**, e.g., **mitosis** - the process of cell division (descriptively, that time when the chromosomes become definitive and thread-like); **mitochondria** - the submicroscopic cytoplasmic organelles having a thread-like appearance.

morpe

Greek, **form or shape**, e.g., **morphology** - study of form and structure; **amorphous** - without a definite structure.

mu

Greek letter for “m” (written as μ); it is used as a measurement, **micron** - one thousandth of a millimeter. The erythrocyte is 7μ in diameter.

mucus

Latin for **slime**, used in histology in forms as **mucosa** - the glandular secretory layer of the intestine; **mucous** - (adj.) - containing or liberating a thick secretion; **mucin** - the chief constituent of mucus.

myel

Greek stem for **bone marrow**, also often taken to include the spinal cord, e.g., **myeloid cells** - white blood cells that develop in the marrow; **myeloblast** - an immature white blood cell; the **myelin sheath** of a nerve fiber.

myo (mys)

Greek root for **muscle**, e.g., **myocardium** - the muscular portion of the heart; **myenteric plexus** - a collection of nerve cell bodies between the muscular layers of the gut; **epimysium** - the layer of connective tissue surrounding a muscle.

nephos

Greek for **kidney**, e.g., **pronephros** - the early embryonic kidney; **nephron** - the unit structure of the kidney.

neuron

Greek for **nerve**. Used as a stem for many words relating nerve structure, e.g., **neuron** - a nerve cell; **epineurium** - the outer connective tissue layer surrounding a nerve; **neuroanatomy**.

odontos

Greek, **tooth**, e.g., **odontoblast** - cell associated with formation of dentin; **periodontal**.
membrane - one of the layers surrounding the root of a tooth.

oo
Word root from Greek “oon” meaning egg; hence this stem refers to the ovum, e.g.,
egg.

ovum - the first stage in development of an ovum; cumulus oophorus - a collection of
cells in which the ovum is embedded in a mature follicle.

osteon
Greek for bone, e.g., osteocyte - bone cell; osteoid - young bone not yet calcified.

ovum
Latin for egg, e.g., ovulation - the release of an egg from the ovary (the female gonad).

papilla
Latin, nipple or little bump, e.g., lingual papillae - tiny projections on the surface of the
tongue, some of which contain taste buds; papillary layer of dermis - stratum of dermis
containing connective tissue projections which penetrate into the epidermis.

para
Greek preposition, used to indicate position next to or a similarity, e.g., parachromatin -
the stainable material in a nucleus other than the dark-staining chromatin; the parathyroid
gland.

parenchyme
From Greek para and en (=in) and chei (to pour). The essential and proper tissue of an
organ, e.g., liver parenchyme.

pars
Latin, part, e.g., pars distalis of the hypophysis; pars nervosa of the hypophysis.

penia
Greek for poverty, used as a suffix, e.g., cytopenia - a lack of cells; leukopenia - a
decrease in the number of circulating white blood cells; thrombocytopenia - insufficient
numbers of platelets or thrombocytes.

peri
Greek for around, encircling, e.g., perio steum - dense connective tissue layer that
surrounds bone; perimysium - connective tissue investing small bundles of muscle fibers;
periodontal membrane - dense connective tissue which produces firm connection between
a tooth and bone; periodontia.

pes (ped)
Latin word root for foot, e.g., podocyte - renal cell with many cytoplasmic foot processes.

phago
Greek, to eat, e.g., phagocyte - a cell that engulfs foreign material; macrophage - a large
phagocytic cell; esophagus - a portion of the intestinal tract leading to the stomach.

philos
Greek, loving, fond of, having affinity for, e.g., acidophilic - staining with acid dyes;
argyrophilic fibers - those stainable with silver stains.

phobe
Greek, fear or resisting, e.g., chromophobe cells of the hypophysis - those that do not stain
with usual stains.

phyl
Greek, tribe, race, e.g., phylogenesis of adrenal gland - comparative study of the
development of the adrenal gland in various animal forms; monophyletic.

pino
Greek, to drink, e.g., pinocytosis - the process by which cells may engulf substances in
solution by an involution of the cytoplasmic border and thus trap the material within a
cytoplasmic structure called a pinocytic vesicle.

plasia
Greek stem indicating a moulding, e.g., hyperplasia - increased growth or development;
anaplastic - lacking normal form.

plasma
Greek for anything formed or molded, used histologically for apparently structureless
more or less amorphous structures, e.g., nucleoplasm - “nuclear sap”; cytoplasm;
endoplasmic reticulum - a submicroscopic cytoplasmic network.

poikilo
Greek, varied, e.g., poikilocytosis - a variation in the shape of erythrocytes.

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**poly**  
Used as a prefix indicating many, e.g., polychromatic - staining more than one color; polyploid nuclei - those with more than the normal number of chromosomes.

**portal**  
Porta means “the gate” in Latin - hence the portia hepatis refers to the areas where blood vessels and bile duct enter and leave the liver; a portal circulation is one, contrary to that usually seen, in which the same type of vessel (e.g., vein) drains away from and leads into a capillary or sinusoidal network (as in the hepatic portal system).

**pre**  
Latin prefix indicating before or anterior, e.g., premolar - a tooth located anterior to a molar; the preclinical years of medical school.

**pro**  
Greek preposition meaning before, e.g., prophase - the first stage of mitosis; promyelocyte - the immature white blood cell that develops into the myelocyte stage.

**propria**  
Latin, one’s own special, e.g., lamina propria mucosae of digestive tract or urethra - the thin layer of connective tissue upon which the mucosa rests.

**rectus**  
Latin, straight, e.g., tubuli recti - the straight tubules of the testes interposed between the coiled seminiferous and tubuli efferentes; erectile tissue of the penis - that spongy tissue which when engorged with blood results in swelling and erection.

**rene**  
Latin for kidney, used as word root for referring to this organ, e.g., renal tubules; reniform - kidney-shaped; adrenal - next to the kidney.

**rete**  
Latin noun for net, e.g., rete testis - a network of canals within the testes; reticulocyte - an erythrocyte that still has some retained cytoplasmic RNA which, when histologically demonstrated, presents an appearance resembling a network.

**reticulum**  
Latin, the diminutive form of rete (a network), hence, a tiny network, e.g., reticular fiber - a type of fiber found in connective tissue especially in hematopoietic tissues where it forms much of the structural skeleton of the tissue; reticular cell - a primitive cell found in association with reticular fibers and whose cytoplasmic extensions join with one another to form a loose network.

**sarcos**  
Greek for flesh, e.g., sarcoplasm - the material between the myofibrils in the cytoplasm of a muscle cell; sarcolemma - the delicate membrane investing single muscle fibers.

**septum**  
Latin, partition, e.g., alveolar septa - the walls of the pulmonary alveoli; septal cells - macrophages present in alveolar septa.

**serous**  
Latin for “whey”, watery, e.g., serous gland - one which elaborates as a watery secretion; blood serum ; a serous membrane.

**sinus**  
Latin, a bay of the sea, e.g., hepatic sinusoids - small irregular blood vascular channels interposed between liver cells.

**soma**  
Greek for body, e.g., somatic cells - cells other than the germinal cells; microsomes - submicroscopic cytoplasmic particles; ribosomes - microsomes containing ribose nucleoprotein.

**squam**  
Latin, scaly, flat, e.g., squamous epithelium - thin, plate-like epithelium.

**stereo**  
Latin, solid, frequently used to denote “having three dimensions”, e.g., stereocilia - non-motile cilia-like projections of the cytoplasm.
stratum  Latin noun for layer, e.g., *stratum corneum* of the skin - the cornified layer; *stratified* (adj.) - layered.

sub  Latin, **under or below**, e.g., *submucosa* - the layer of the intestinal tract wall deep to the mucosa; *sublingual gland*.

supra  Latin preposition **above or superior**, e.g., *suprarenal gland* - the adrenal gland - anatomically located on the superior pole of the kidney.

syn (m)  Greek stem for **together**, e.g., *syncytiotum* - an aggregation of cells without definite cell boundaries; *synapsis* - the paring and union of homologous chromosomes at the start of meiosis.

tela  Latin, **web or woven structure** - used histologically as a layer, e.g., *tela submucosa* - the layer deep to the mucosa.

telo  Greek stem indicating **far, distant, the end**, e.g., *telophase* - the last stage of mitosis.

theca  Greek noun - **sheath or covering**, e.g., *theca externa* and *theca interna* - layers of cells that envelop the developing ovum.

thrombos  Greek, **clot**, e.g., *thrombocyte* - circulating cytoplasmic fragments of megakaryocytes having functions associated with clotting blood.

trans  Latin preposition **across**, e.g., *transition epithelium* - epithelium intermediate in appearance between squamous and columnar epithelium; *translucent*.