

- Acellular** - not made up of cells
- Active immunity** - long term immunity gained by exposure to an antigen e.g. infection by a pathogen (natural) or vaccination (artificial)
- Active transport** - transport across a membrane requiring ATP and a carrier protein, goes against a concentration gradient
- Agglutination** - clumping together of pathogens caused by antibodies
- AIDS** - syndrome caused by HIV virus, immune system is compromised
- Algae** - organisms that can be unicellular or multicellular, cells are similar to plant cells
- Anaphase** - third stage of mitosis when the centromeres divide and the chromatids are pulled to opposite poles
- Antibiotics** - compounds that can kill bacteria
- Antibodies** - proteins produced by plasma cells which can bind to antigens
- Antigens** - molecules on the surface of cells that can trigger an immune response
- Antigen variability** - when genetic changes in a pathogen cause the antigens to change
- Antigen-antibody complex** - formed when an antibody binds to a complementary antigen
- Antigen-presenting cell** - a cell which is presenting a pathogen's antigens on its surface
- Antiviral drugs** - used to target viral enzymes to prevent the virus replicating
- Aquaporins** - channel proteins used for facilitated diffusion of water through membranes
- Artefacts** - produced when preparing cells for viewing with an electron microscope, could be mistaken for an organelle on the image
- Attachment proteins** - found on the outside of a virus, help the virus to attach to a host cell
- Bacteria** - microorganisms which are prokaryotic cells
- Binary fission** - method by which prokaryotic cells divide to produce two daughter cells
- B-lymphocytes (B-cells)** - type of white blood cell with antibodies on the outside
- Calibration curve** - plot of known concentrations versus a variable (e.g. change in mass) which can be used to estimate the value of an unknown concentration
- Cancer** - a tumour which invades surrounding tissue
- Capsid** - protein coat around the edge of a virus
- Capsule** - slime layer surrounding some prokaryotic cells
- Carrier proteins** - membrane proteins involved in active transport, change shape to move a molecule across
- Cell cycle** - cycle that dividing cells go through (mitosis, gap phase 1, synthesis, gap phase 2)
- Cell fractionation** - lab technique used to separate cell components
- Cell wall** - strong structure outside the cell-surface membrane of some types of cell
- Cell-surface membrane** - surrounds the cytoplasm of cells, consists of mainly phospholipids and proteins
- Cellular response** - part of the immune response involving T-cells and phagocytes
- Centrioles** - form the spindle fibres during mitosis

Centromere - part of a chromosome which links the sister chromatids and attaches to the spindle fibres

Channel proteins - membrane proteins involved in facilitated diffusion, often transport charged particles

Chitin - substance which is found in the cell walls of fungal cells

Chloroplasts - organelle where photosynthesis occurs

Cholesterol - type of lipid which fits between the phospholipids in eukaryotic cell membranes to make the membrane more rigid

Chromatids - two identical copies of a chromosome which are joined at the centromere at the beginning of mitosis (often called sister chromatids)

Chromatin - protein-bound linear DNA in eukaryotic cells

Chromosomes - condensed lengths of chromatin (in eukaryotic cells), exist in homologous pairs which have the same genes but could have different alleles

Clonal selection - activation of a specific B-lymphocyte which can produce the antibody specific to the antigen

Colorimeter - equipment that measures the amount of light absorbed by a solution

Co-transport - transport of two substances across a membrane together using a co-transporter protein

Cristae - folds in the inner mitochondrial membrane

Cytokinesis - division of the cytoplasm in telophase

Cytoplasm - fluid surrounding organelles, contains enzymes

Cytotoxic T-cells - kill infected or foreign cells

Daughter cells - cells formed from a parent cell during cell division

Diffusion - net movement of particles from an area of higher concentration to an area of lower concentration

ELISA test - diagnostic test to see if someone has antibodies to a specific antigen (or an antigen to a specific antibody)

Epithelium - layer of cells covering most surfaces in the body e.g. the lining of the ileum

Eukaryotic cells - complex cells with a nucleus and membrane-bound organelles

Eyepiece graticule - fitted onto the eyepiece of a light microscope, has divisions but no units

Facilitated diffusion - diffusion across a membrane which uses carrier or channel proteins

Flagellum - tail-like structure on a cell which allows movement

Fluid mosaic model - model of cell membrane structure describing the constant movement of phospholipids and random arrangement of proteins

Fungi - organisms that have cells similar to plant cells but without chloroplasts

Glycolipids - lipids with a polysaccharide chain attached

Glycoproteins - proteins with a polysaccharide chain attached

Golgi apparatus - processes and packages proteins and lipids, makes lysosomes

- Golgi vesicles** - small sacs surrounded by membrane, contain substances packaged by the Golgi apparatus
- Grana** - stacks of thylakoid membranes in chloroplasts
- Helper T-cells** - release signalling molecules which stimulate cytotoxic T-cells and phagocytes
- Herd immunity** - protection of non-immune individuals from a disease because many individuals are immune (often due to vaccination)
- Histones** - proteins which linear DNA is associated with in eukaryotic cells
- HIV** - virus that infects helper T-cells and eventually causes AIDS
- Homogenisation** - breaking up cells
- Host cell** - a cell which has been infected by a virus and is being used to reproduce the virus
- Human chorionic gonadotrophin (hCG)** - hormone found in the urine of pregnant women
- Humoral response** - part of the immune response involving B-cells and antibodies (specific response to a certain antigen)
- Ileum** - the final part of the small intestine where absorption occurs
- Interphase** - time in the cell cycle where the cell replicates its DNA and organelles ready for division (gap phase 1, synthesis, and gap phase 2)
- Isotonic solutions** - solutions with the same water potential
- Lamellae** - thylakoid membranes that link grana
- Lysosomes** - Golgi vesicles containing enzymes called lysozymes
- Lysozymes** - digestive enzymes found inside lysosomes
- Magnification** - how many times bigger the image is than the real object
- Memory cells** - T-cells or B-cells which remain in the blood and can respond quickly if the antigen is encountered a second time
- Metaphase** - second stage of mitosis when the chromosomes attach to the spindle fibres
- Microvilli** - projections of the cell-surface membrane, increase the surface area of the cell
- Mitochondria** - organelles where aerobic respiration occurs
- Mitosis** - cell division which produces two genetically identical daughter cells
- Mitotic index** - the proportion of cells undergoing mitosis in a sample
- Monoclonal antibodies** - antibodies that are specific to one antigen
- Multicellular** - an organism consisting of more than one cell
- Murein** - a glycoprotein found in the cell wall of prokaryotic cells
- Nuclear envelope** - double membrane surrounding the nucleus
- Nuclear pores** - gaps in the nuclear envelope allowing exchange with the cytoplasm
- Nucleolus** - part of the nucleus which makes ribosomes
- Nucleus** - organelle containing chromosomes
- Optical microscope** - uses light to form an image
- Organ** - tissues working together to perform a specific function
- Organ system** - organs working together to perform a specific function

- Osmosis** - net movement of water across a partially permeable membrane from an area of higher water potential to an area of lower water potential
- Parent cell** - a cell which divides to form daughter cells
- Passive immunity** - short term immunity gained from receiving antibodies made by a different organism e.g. mother to baby (natural) or by injection (artificial)
- Pathogen** - bacteria, virus, or other microorganism that causes disease
- Permeability** - how easily the membrane will allow a substance to move across
- Phagocyte** - type of white blood cell that carries out phagocytosis
- Phagocytic vacuole** - vacuole in a phagocyte containing an engulfed pathogen
- Phagocytosis** - engulfment of pathogens by phagocytes
- Plasma cells** - clones of B-cells that produce lots of monoclonal antibodies
- Plasmid** - small loop of DNA found in some prokaryotic cells
- Plasmodesmata** - gaps in plant cells walls allowing exchange between cells
- Primary immune response** - response when an antigen is encountered for the first time
- Prokaryotic cell** - simple small cell with no nucleus
- Prophase** - first stage of mitosis when the chromosomes condense and the centrioles form the spindle fibres
- Receptor proteins** - membrane proteins which bind to a specific molecule
- Resolution** - how well a microscope can distinguish between two points
- Reverse transcriptase** - an enzyme in HIV and other viruses that makes a strand of DNA complementary to viral RNA
- Ribosomes** - site of translation, made up of two subunits
- Rough endoplasmic reticulum** - folds and processes proteins, covered with ribosomes
- Scanning electron microscope** - scans a beam of electrons across the surface of a specimen to form an image
- Secondary immune response** - response when an antigen is encountered for the second time, quicker than the primary response
- Serial dilution** - a dilution series made by diluting each solution by a factor of two
- Smooth endoplasmic reticulum** - synthesises and processes lipids
- Specialised cell** - a cell which is adapted to its function
- Spindle fibres** - protein fibres formed by the centrioles during mitosis
- Stage micrometer** - placed onto the stage of a light microscope, has divisions with units
- Stroma** - thick fluid found in chloroplasts
- Supernatant** - the fluid on top of any sediments after spinning a sample in a centrifuge
- Telophase** - final stage of mitosis when the cytoplasm divides and the daughter cells are formed
- Thylakoid membranes** - found in chloroplasts as stacks or thin pieces

Tissue - a group of specialised cells working together to perform a specific function

T-lymphocytes (T-cells) - type of white blood cell which have receptors specific to an antigen

Toluidine blue - stain used to visualise chromosomes

Tonoplast - membrane surrounding a vacuole in plant cells

Toxins - substances released by bacteria that cause illness

Transmission electron microscope - transmits a beam of electrons through a specimen to form an image

Tumour - cells which are undergoing uncontrolled division

Tumour markers - antigens found on cancer cells

Ultracentrifugation - spins homogenised cells at high speed to separate cell organelles into layers according to mass

Unicellular - an organism consisting of only one cell

Vaccine - contains antigens to induce an immune response in the body

Vacuole - found in plant cells, contains cell sap

Virus - acellular and non-living structures containing nucleic acids

Water potential - potential of water molecules to diffuse in or out of a solution