Amino acids structural parts 20	**Peptide** compound amino group carboxyl group	**Peptide bond** covalent bond condensation hydrolysis
A' helix secondary structure level	**Side chain** carbon R bond	**Denaturation** temperature pH hydrogen bonds
Hemoglobin iron blood oxygen	**Collagen** bone skin structural protein	**Hydrogen bond** secondary structure tertiary structure covalent bond

Carboxyl group carbon oxygen hydrogen	**Amino group** nitrogen hydrogen carboxyl group	**Primary structure** secondary structure tertiary structure amino acid
Structural proteins elastin collagen tertiary structure	**Functional proteins** transportational proteins defensive proteins contractile proteins	**Prophase** nucleus spindle apparatus meiosis mitosis chromatin
Metaphase meiosis mitosis compression equator microscope	**Anaphase** meiosis mitosis pole division centrosome	**Telophase** meiosis mitosis nucleus prophase last

Sister Chromatids copies chromosome centromere identical DNA replication	**Cell division** reproduction DNA replication gametes cell cycle zygote	**Chromosome** chromatin cell DNA sister chromatids centromere
Homologous chromosomes gene loci genetic variation same synapsis	**Synapsis** syndesis chiasmata genetic recombination genetic variability chromosomal crossover	**Chiasmata** exchange genetic material chromosomal crossover genetic variability genetic recombination
Spindle apparatus centrosomes fibers cell membrane poles plant cells	**Centrosome** body center plants spindle apparatus centriole	**Chromosomal crossover** homologous chromosomes genetic recombination genetic variability genes different

Diploid cells haploid cells mother father gametes organisms	**Catalysts** speed reaction compound accelerate	**Enzymes** catalysts organic energy substrate center
Activation energy initial exothermic reaction complex fulfillment	**Irreversible inhibitor** action permanent connection functionality indirect	**Reversible inhibitor** action permanent connection functionality indirect
Cofactors functionality protein ions trace elements organic	**Exothermic reaction** product reactant energy activation heat	**Substrate** protein reactant enzyme active center product

Pepsin enzyme stomach intracellular action cavity	**Coenzymes** vitamin organic formation connection cofactor	**Protein synthesis** mRNA proteins amino acid translation ribosome
Methionine beginning tRNA ribosome cytoplasm codon	**Chromosome** DNA membrane offspring histones centromere	**Complementarity** bases nucleus DNA adenine cytosine
Elongation tRNA anticodon ribosome repeat chain	**Genetic code** codon amino acids tRNA bases proteins	**Codon** bases nucleotide genetic information beginning

Synonymous codons same amino acids genetic code	**Self-duplication** DNA two RNA complementarity bases	**Semi-conservative** DNA self-duplication reproduction chains structure
Degenerate synonymous amino acids DNA codon proteins	**Diploid** haploid cells organism double two	**Homologs** chromosomes same information bases structure
Carbohydrates macromolecules energy monomers	**Disaccharide** atoms maltose carbon	**Lactose** milk glucose maltose

Cellulose structural cellular wall	**Starch** vegetal energy polysaccharide	**Double layer** plasmatic membrane hydrophobic tails
Triglyceride neutral saturated glycerol	**Steroids** body gym Kostas T./ Panos S.	**Cholesterol** HDL arteries liver
Esterification reaction alcohol acid	**Glucose** spirals branches storing molecule	**Hydrophobic molecules** fatty acids hydrophilic water

LDL cholesterol arteries blocking	**Energy** lipids food organism	**Lipids** energy macromolecule fat
DNA helix double-stranded deoxyribose thymine RNA	**Pentose** Aggelidou Carbohydrate Sugar	**Double helix** DNA Watson Crick
RNA DNA uracil bacteria monoclonal protein	**Bond** covalent hydrogen base chain	**r-RNA** ribosomic structure protein core

t-RNA transfer material amino acid protein nucleus	**m-RNA** messenger protein information composition ribosome	**s-RNA** DNA core organisation mitochondria chloroplast
Nitrogen base adenine guanine cytosine thymine uracil	**Sugar** deoxyribose ribose base-N phosphoric-group guanine	**Hydrogen** bond stabilization helix N-base
Phosphate group pentose ribose deoxyribose nitrogen oxygen	**Nucleotide** DNA RNA structure acid	**Mitochondria** powerhouse cell energy muscle

Chloroplasts photosynthesis grana green sun plants	**Nucleus** DNA core RNA eukaryotes prokaryotes	**Ribosomes** RNA proteins translation amino acids macro-molecules
Lysosome destruction acidic macro-molecules small	**Matrix** mitochondria inner membrane neo energy	**Centrosome** meiosis mitosis plants centrioles spindle
Double helix RNA Watson Crick Franklin structure	**Vacuole** plants water storage green enzyme	**Nucleolus** nucleus RNA DNA proteins eukaryotes

Golgi apparatus eukaryotes proteins endomembranes enzymes	**Endoplasmatic reticulum** ribosomes endomembranes smooth rough	**Cytosol** inside water solution matrix cytoplasm
Cytoplasm cytosol organelles cell entirety water	**Cell membrane** lipids proteins mosaic cytoplasmic protection	

Colour categorization

Pink: Nucleotides

Light blue: Cellular Organelles

Yellow: Mitosis – Meiosis

Orange: Molecular Genetics

Light Green: Proteins

Light purple: Enzymes

Light grey: Carbohydrates & Lipids