

Structure & Function of Macromolecules?

dehydration reaction	water molecule formed when 2 molecules are covalently bonded	connecting monomers to form a polymer
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enzymes	speed up chemical RXNs	can be made of
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hydrolysis	bond between monomers broken by adding a water molecule	polymers disassembled to monomers by this
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glycosidic linkage	covalent bond formed between monosaccharides in a dehydration reaction	
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saturated fatty acids	as many H bonds possible	
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unsaturated fatty acids	one or more double bonds w/ 1 fewer H fewer carbon	
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polypeptide	polymer of Amino Acids	
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Proteins!

primary structure	linear amino acid chain	initial folding of linear polypeptide is driven by hydrogen bond formation of polypeptide backbone
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Proteins! (cont)

secondary structure	forms alpha helices and beta pleated sheets through hydrogen bonding between polypeptide backbone	to form alpha-helices and beta-sheets - secondary structure
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tertiary structure	hydrophobic interaction drives this structure	3D shape interactions between side chains
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quaternary structure	2 or more aggregated polypeptide chains	ex: hemoglobin, collagen
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Protein folding	not very efficient = about 30% of all newly synthesized polypeptides are misfolded and tagged	
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ubiquitin ligase	ubiquitin tags misfolded proteins for the proteasome to breakdown	
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Nucleic Acids

pyrimidine	C and T and Uracil	smaller than purines
purines	A and G	larger than pyrimidines

General Cell Stuff

Plant cells	mitochondria nucleus(nucleolus, nuclear envelope, chromatin) peroxisomes cell wall chloroplasts ribosomes ERs Golgi central vacuole
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Animal Cells

Endomembrane system

Included is ...	nuclear envelope ER Golgi lysosomes vesicles and vacuoles
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Tasks	protein synthesis transport proteins into membranes, organelles, or out of cell metabolism movement of lipids
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Rough ER	ribosomes attached
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Enzymes

Enzymes	Enzymes often change shape when they bind their substrate(s).	NOT always protein
allosteric site	CAN be the same as an active site	ATP can be a substrate at active site or bind allosterically as inhibitor

Fibers of the cytoskeleton				Fibers of the cytoskeleton (cont)			
microtubules	thickest	contain tubulin dimers	maintain cell shape and motility (cilia/flagella)	cell cilia and flagella	motile cilia typically do not have signal receiving antennae (non-motile)	bending of flagella and cilia = dyneins & motor proteins attached to microT	
			chromosome mvmt	organelle mvmt	motor proteins	two ATPase heads that bind swivel (repeat) for a walking motion to move proteins	ATP for energy
microfilaments	thinnest solid rods aka actin filaments	made of actin	maintain and change cell shape contractions cell motility animal cell division	adn			dyneins (-) kinesins (+)
intermediate filaments	mid-range	made of protein	anchor nucleus				
microtubules	guide vesicles from ER to Golgi and from Golgi to plasma membrane	separation of chromosomes					
centrosome	microT grow from centrosome near nucleus	centrioles - within centrosome					

Membranes

lipid bilayer



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Not published yet.

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