

Review 06

Biologically Important macromolecules, con't.

① Carbohydrates

② Proteins

amino acids; polypeptide chains; proteins

protein structure

peptide bonds

primary = linear sequence of amino acids

secondary = twisting and turning of protein

α -helix; β -pleated sheet

tertiary = folding

quaternary = two or more polypeptide chains associating to form the active protein

denaturing: altering the 3-D shape of a protein and rendering it less or completely useless

heat: unfolds, uncoils, and separates subunits—irreversible

cold: causes compaction of molecules—generally reversible

pH: changes charges on amino acids, affecting folding, coiling, etc.; effect more subtle; generally reversible

③ Nucleic Acids

basic building block is nucleotide

DNA: carrier of hereditary information

RNA: involved in use of hereditary information

④ Lipids

energy; insulation; padding; hormones; membranes; etc.

eclectic collection of hydrophobic molecules (all lipid soluble)

hydrocarbons: carbon backbone with hydrogens attached

saturated: all single bonds; hydrogen attached to carbons everywhere they can

unsaturated: 1 or more double bonds; not as much hydrogen attached to carbons as could be if no double bonds

fatty acids: straight chain hydrocarbon with carboxylic acid attached to one end; amphipathic in nature

triglycerides: 3 fatty acids attached to a glycerol molecule

oil if liquid at room temp (polyunsaturated)

fat if solid at room temp (saturated)

