

182 Lecture 2 Proteins

Make up over 50% of all dry mass *ORGANIC*

MONOMERS – (amino acids) are joined together in a linear chain

POLYMERS – (polypeptide)

AMINO ACID STRUCTURE –

R-group – 20 different R groups determine: folding, charge, grouping (polarity of side changes)

Non-polar Amino Acids–hydrophobic (elements are shared evenly)

Polar Amino Acids– hydrophilic (elements are not shared equally)

ACIDIC SIDE GROUPS – negatively charged

BASIC SIDE GROUPS – positively charged

Determines the structure of the protein via the connection of different R- groups

POLYPEPTIDES – begin with amino acid at the N-terminus end and ends with carboxyl at C-terminus end

Connected via peptide bonds created by condensation reactions

Sulphydryl group- SH group on the R group (SH group on 2x cysteins (each) form disulphide bridge))

Cyclic structure – cause turn in the protein chain

PRIMARY STRUCTURE – sequence AA

SECONDARY STRUCTURE – Folding of alpha helix and beta pleated sheets

TERTIARY STRUCTURE – overall 3D shape of the protein

QUATERNARY STRUCTURE – several polypeptides come together (If protein is open will continue to Quaternary stage, if closed will stop at tertiary)

ENZYME – substrate comes and binds to the active site where it's bonds get broken making absorption of molecule easier.

PROTEIN STRUCTURE – affected by sequence, chemical conditions and binding (co-factor (vitamins) and Co-enzymes (carbon))

FUNCTION:

Structure

Storage

Movement

Transport

Toxin

Enzyme

Communication

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