

A minimal medium for growth of E. coli (sources for the most needed atoms C, H, O, N, K, Mg, S

C₆H₁₂O₆	glucose, a sugar
KH₂PO₄	potassium phosphate
MgSO₄	magnesium sulfate
NH₄Cl	ammonium chloride
H₂O	water
trace elements	salts of Se, Cu, Fe, etc.

Bond types:

TYPE	ENERGY TO BREAK	CLASS
Covalent	~100 kcal/mole	Strong
Hydrogen	~3	Weak
Ionic	~5	Weak
Hydrophobic	~2-3	Weak
Van der Waals	~1	Weak

The four types of cellular macromolecules

TYPE	SPECIFIC EXAMPLE:	FUNCTION	MONOMER	NO. of DIFFERENT MONOMERS for the example
Polysaccharides	Glycogen	Energy Storage	glucose (a sugar)	1
Lipids	Fat	Energy Storage	fatty acids	~8, variable
Proteins	Hemoglobin	Oxygen carrier	amino acid	20
Nucleic acids	DNA	Information storage	nucleotide	4