Precursors

Linear Polymers	- Covalent bonds - nucleotides in DNA and RNA - too big to fit in a cell - fold into complex 3D shapes
Supramolecular Complexes	- Groups of linear polymers -enzymes, ribosomes...
Subcellular Organelles	- Golgi - ER - Group of supramolecular complexes
--> Cells --> Tissues	--> Organisms

Cell Requirements to live, grow and propagate

Precursors (that which comes before)	precursors are oxidized for energy or combined to form larger biomolecules
Energy	to drive chemical reactions and/or other cellular processes (ex: muscle contractions)
Information	to direct and control cellular growth, propagation and response to environmental change

Stabilizing Forces

London Forces (dispersion, induced dipoles)	- **Weakest** - e;ectron clouds overlap, short lifespan, constantly breaking and reforming
Hydrophobic Interactions	- Special london force, non-polar molecules dissolved in water. the two don't mix so H2O forms a rigid structure around the non-polar molecules
Dipole-Dipole Interactions	
Hydrogen Bond	- Strong Dipole-dipole interaction - attached to N, O, F (F not in living cells) -lots of attractive force
Electrostatic Interactions	Ion pairing or salt bridges

Energy decrease = more stable when nonpolar molecules interact with each other surrounded by water
- The 5 hold life together

General Definitions

Biochemistry: the study of the matter that makes up living things

Structural Complementarity: what holds us together

Classes of Precursor Molecules

Carbohydrates	PRIMARY ENERGY SOURCE -Most abundant molecule in biosphere -Sugars -Play a role in other molecules
Lipids (fats and oils)	- excess of everything -energy reserve (resevoir) -can store an infinite amount - stored in adipose cells - MAIN COMPONENTS OF THE CELL MEMBRANE (barrier)
Amino Acids	- serve as a precurser to the proteins - Bio source for nitrogen and sulfer -can be oxidized for energy in case of starvation
Nucleotides	- DNA and RNA - Trap and shuttle energy - ATP - signal transduction *(turns hormone into a cellular response)*

Ochem v. Biochem

Organic chemistry is about carbon compounds	Bio chemistry is about carbon compounds that crawl

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