

Chemistry of Life

Nonpolar covalent bonds: pH scale:
electrons shared equally between
between atoms 0 and 14,

Polar covalent bonds: one atom acids:
has greater electronegativity excess of
unequal sharing of electrons H⁺ ions
pH>7

Ionic bonds: chemical bonds Bases:
from attraction between charged excess of
ions OH-
pH>7

Hydrogen bonds: weak bonds between
partial + charged hydrogen atom and electronegative oxygen/nitrogen of another, cause
Cohesion(sticking of like molecules),
adhesion(sticking of unlike molecules), and
transpiration(movement of water molecules in plants)

Specific heat: amount of heat required to
raise or lower temp by 1 degree C

Respiration/Fermentation

Glycolysis: breakdown two pyruvate(glucose) into 2 pyruvate + 2 H₂O, 2 ATP, 2 NADH + 2H⁺

Pyruvate Oxidization: pyruvate turns into
CO₂, NADH, Acetyl CoA

Citric Acid/Krebs cycle: starts w/ acetyl CoA
turns into 2CO₂, 3NADH, 1ATP, 1FADH

ETC: pumping of protons to create a
gradient which powers chemiosmosis

Chemiosmosis: ATP synthesis powered by
ETC

Total yield: 30-32 ATP(2 from glycolysis, 2
from citric acid, 26-28 from oxidative phosphorylation)

$C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O + ATP$

fermentation: expansion of glycolysis where
ATP is produced by substrate level phosphorylation, anaerobic

Macromolecules

Monosaccharide: Lipids: function is energy/protection
monomer of carbs amino acid monomers, linked by peptide bonds
Nucleic acids: DNA and RNA, monomers are nucleotides

polysaccharides: steroids: Primary structure: amino acid sequence
four rings fused together
Made of nitrogenous base, 5 carbon sugar and a phosphate group

Energy-storing polysaccharides: starch, glycogen
Secondary:hydrogen bonding results in alpha helix or beta pleated sheet

Structural polysaccharides: cellulose, chitin
tertiary:complex shapes from bonding between R groups

Quaternary" two or more polypeptide chains into one large protein

The Cell

Ribosomes: protein factories
Isotonic solution: same amount of solute

Endoplasmic Reticulum: smooth(synthesis of lipids, package to transport vesicles),
Hypertonic: more solute

Golgi apparatus(receives, sorts, ships)
hypotonic: less solute

Endosymbiont theory: mitochondria and chloroplast from prokaryotic cells, have dna and double membrane

peroxisomes: transfer hydrogen to oxygen, detoxify

Energy of Life

Catabolic: release of energy by breakdown of complex to simple

Anabolic: consume energy to make complicated from simple

Exergonic: energy released

Endergonic: requires energy



By aaaaaecho

Not published yet.

Last updated 18th May, 2020.

Page 1 of 1.

Sponsored by **Readable.com**

Measure your website readability!

<https://readable.com>