BIOLOGICAL MOLECULES

BIOCHEMISTRY
- Structure
- Composition
- Functions

→ ELEMENTS → 92 (Naturally Occurring Molecules)

- BIO-ELEMENTS → 16
- NON-BIOELEMENTS → 76

25 → FTB*

BIOELEMENTS → Responsible for formation of Bio-Mass

MAJOR BIOELEMENTS 06

↓ 99% of Biomass

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Oxygen	65%
Carbon	18%
Hydrogen	10%
Nitrogen	3%
Calcium	2%
Phosphorous	1%

MINOR BIOELEMENTS 10

↓ 1% of Biomass

Potassium	0.35%
Sulpher	0.25%
Chlorine	0.15%
Sodium	0.15%
Magnesium	0.05%
FTB Iron	0.004% (PTB)
Copper	Trace Elements 0.01%
Manganese	
Zinc	
Iodine	

→ MOLECULES (Stable Form)

ORGANIC MOLECULES

- CARBOHYDRATES
- PROTEINS
- LIPIDS
- NUCLEIC ACID

INORGANIC MOLECULES

- WATER
- MINERALS

BIOMOLECULES	BACTERIAL	MAMMAL
Water (most abundant biomolecule)	70%	70%
Protein (most abundant Organic)	15%	18%
Carbohydrates	3%	4%
Lipid	2%	3%
DNA } Nucleic Acid	1% } 7%	0.25% } 1.35%
RNA	6%	1.1%
Organic (other	2%	2%
Inorganic	1%	1%
	100%	100%

→ **Proteins (Dry weight 50%)**

Mammalian Cell Dry weight = 100 − 70% = 30%

Protein (Dry weight) = $\frac{18}{30} \times 100$ = 60%

Bacterial Cell

Protein (Dry weight) = $\frac{15}{30} \times 100$ = 50%