

* Scope for CSB student in Biology

1. Bioinformatics and computational biology.
2. AI and machine learning in biology.
3. Biotechnology and biomedical engineering.
4. Healthcare and Medical sector.
5. Big data in biology
6. Biomedical imaging
7. Drug Discovery
8. Academic research and higher study.

1. * What is chip? what is biochip^{and organ-on-chip} and why we use it

2. → A chip is a small device that used to study or interact with biological system.

3. Organ-on-chip used to check new drug safety and how diseases affect organs.

Bio-chip used to study more about any part of human/animal like DNA, blood testing, detecting disease and choosing right medicine.

** Users of chips

1. Hospital
2. Diagnostic centers
3. Biotechnology
4. Biomedical engineering
5. Pharmaceutical companies
6. Academic and Research Institutes.

What is chip? What is biochip and why we create it? A chip is a small device that used to study or interact with biological system.

Biomolecules chapter

* What is carbohydrates and his function?

→ Carbohydrates $(C_6H_{12}O_6)_n$ are the main types of biomolecules that found in food like bread, rice, pasta, fruit and vegetables.

It's the main fuel of our body. It's made by glucose chain. It's mainly 3 types. When we eat our body turn them into sugar.

Main function of carbohydrates.

1. Give energy - they are the main source of energy for our body and brain.
2. Store energy - extra carbs store to body for used later.
3. Help digestion

* give quick energy when exercise

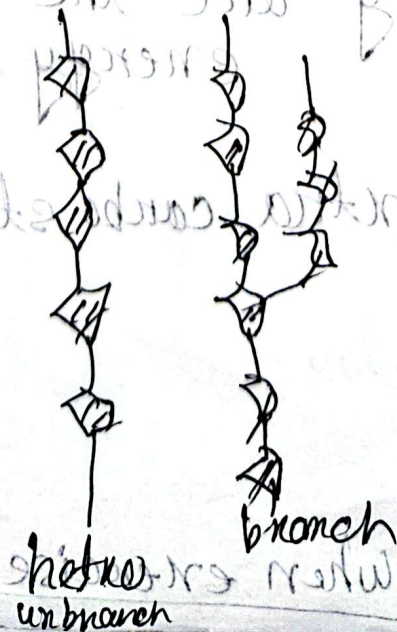
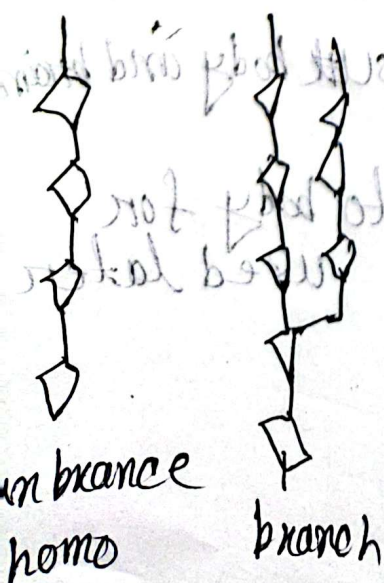
* Type of carbohydrates *

3 main type of carbohydrates.

1. Mono saccharides → simple type of 1 glucose.
2. Disaccharides → 2 unit of monosaccharides (sucrose, lactose, maltose)
3. Oligo saccharides → 3-9 unit of monosaccharides.
4. Poly saccharides → 10 or more monosaccharides

connected in one chain or the chain can be branch

- Homo poly saccharide → single type of monomer
- Hetero poly saccharide → different type of monomer



*** Health benefits of complex carbohydrate.

1. heart disease

2. Diabetes

3. GI health

4. Cancers

5. Weight management

*** What are proteins and their functions?

→ This large molecule of amino acid chain that found in every cell in body. Help in most function of body and life. Sequence of amino acid determine by DNA.

function of protein

1. Structural support

2. Transport

3. Storage

4. energy source

5. Immune defence system

6. muscle movement

7. maintain pH balance

8. Regulate gene expression.

9. Cell communication.

Function of Lipids

1. ~~Energy~~ storage
2. Protect organs
3. Build cell
4. make vitamins
5. absorb vitamins

Fiber

mostly CHO

1. component of plant cell walls
2. classified by water
3. find in fruits, vegetables