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LEVEL: 200

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BCH 202 ASSIGNMENT

1. Yes Vitamin C is a Coenzyme. It is a water soluble vitamin that is a coenzyme for the formation of the structure protein collagen, particularly creating cross-linking of collagen fibres which greatly increases its tensile strength. It also acts as an antioxidant (a reducing agent) by donating electrons to various enzymatic and non-enzymatic reactions. Doing so converts vitamin C to an oxidized state either as semi-dehydroascorbic acid or dehydroascorbic acid. Vitamin C functions as a cofactor in many enzymatic reactions in animals and humans that mediate a variety of essential biological functions including wound healing and collagen synthesis.

2. CHEMISTRY OF PHOSPHOLIPIDS

Classification of phospholipids

- Fatty acid+ Alcohol+ Nitrogen base + Phosphatic acid.
- Glycerophospholipids – or phosphoglyceride – glycerol // alcohol.
- Sphingophospholipids – sphingomyelihs – alcohol – sphingosine

Glycerophospholipids

- Glycerophospholipids – major lipid used in biological membrane.
- Glycerol- 3-P is esterified at C1 and C2
- C1 – saturated fatty acid
- C2 – unsaturated fatty acid

Type 1 – phosphatidic acid

Intermediate in synthesis of triglycerol and phospholipids.

TYPE 2 – lecithin – phosphatidyl choline

Fatty acid + glycerol) choline

- Most abundant group of phospholipid in cell membrane.
- Phosphatidic acid + choline
- Choline – Acetyl choline nerve impulse transmission.

Type 3 – Cephalin – (phosphatidyl Ethanolamine)

Fatty acids + glycerol + phosphoric acid – Ethanolamine (nitrogen base).

- Clotting factor iii thromboplastin – cephalin
- Function helps in clotting blood.

Type 4 phosphatidyl Inositol

Fatty acids + glycerol + phosphoric acid – inositol.

Secondary messenger for oxytocin vass opressin.

Type 5 phosphitidyl serine/ phosphatidyl threonine

- Fatty acids + glycerol + phosphoric acid + serine
- Fatty acids + glycerol + phosphoric acid + threonine
- Found in most tissues

Type 6 plasmalogens

- Fatty acids linked with ether linkage (not ester linkage).

Functions

- i. Myelin sheeth formation
- ii. Cardiac muscles
- iii. Platelet aggregation

Cardiolipins

- Fatty acids + 2 glycerol + 2 phosphoric acid (linked through p group).
- Isolated from heart muscles
- Present in inner mitochondrial
- Antigenic properties

Functions of phospholipids

- a) Absorption of proteins
- b) Prevent fatty liver – regarded as lipotropic factors
- c) Release cholesterol transport
- d) Component of bile – emulsification of fat
- e) Signal transmission across the membrane

3. Differences between phospholipid and glycolipids

Phospholipid	Glycolipids
1. Provide basic structure of cell membrane	1. Act as cell-cell recognition and receptor sites for chemical signals.
2. Lipids containing phosphate group	2. Lipids containing carbohydrates
3. Lipid residue and phosphate group	3. Lipid residue and carbohydrate moiety
4. Hydrophilic head and two hydrophobic tails	4. Hydrophilic head and hydrophobic tail

