

Course Title: Medical Biochemistry II

DT 2nd, Sec A

Lab Assignment

Student Name: Khalid shah

Student ID: 15828

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Q1. Explain the process of Uric Acid Formation.

Q2. Discuss all the protein complexes used in Electron transport chain.

Answers:

Ans 1:

Uric Acid :-

Uric acid is a chemical created when the body breaks down substances called purines. Foods with high content of purines include liver, anchovies, mackerel, dried beans and peas, and beer. Most uric acid dissolves in blood and travels to the kidneys. From there, it passes out in urine.

Ans 2:

Protein complexes used in Electron transport chain :-

There are four protein complexes (labeled complex I-IV) in the electron transport chain, which are involved in moving electrons from NADH and FADH₂ to molecular oxygen. Complex III pumps protons through the membrane and passes its electrons to cytochrome c for transport to the fourth complex of proteins and enzymes.

Role of complex I in ETC:-

Complex I is a very large enzyme catalyzing the first step of the mitochondrial electron transport chain. The enzyme oxidizes NADH transferring electrons to Ubiquinone (Coenzyme Q, CoQ), a lipid soluble electron carrier embedded in the lipid bilayer of the inner mitochondrial membrane.

Role of complex II in ETC:-

Complex II of the electron transport chain, also known as succinate reductase, is involved in the citric acid cycle. It contains the enzyme called succinate dehydrogenase that was used by the citric acid cycle to transform succinate into fumarate and in the process form FADH₂.

Role of complex III in ETC :-

Complex III of the electron transport chain, also known as Q-cytochrome c oxidoreductase or simply cytochrome reductase, is a multi-subunit structure that functions to accept electrons from ubiquinol and transfer them onto another electron carrier called cytochrome c.

Role of complex IV in ETC :-

Complex IV of the electron transport chain, also known as cytochrome c oxidase, is a multiunit structure that functions to transfer electrons from cytochrome c to oxygen and in the process form water and help generate a proton gradient.