

Course Title: Medical Biochemistry II

DT 2nd, Sec A

Lab Assignment

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Note: Avoid copy paste material, as it may deduct your marks.

Q1. Explain the process of Uric Acid Formation.

Ans:-Uric acid is a waste product found in blood. It's created when the body breaks down chemicals called purines. Most uric acid dissolves in the blood, passes through the kidneys and leaves the body in urine. Food and drinks high in purines also increase the level of uric acid.

The degradation or catabolic reaction of adenosine guanosine gives the end product uric acid.

Steps involved:-

1. Conversion of nucleotide to nucleoside.
2. Conversion of nucleoside to inosine.
3. Synthesis of hypoxanthine.
4. Formation of xanthine.
5. Conversion of xanthine to uric acid.

Enzymes involved:-

- Nucleotidase
- Deaminase

- Nucleoside phosphorylase
- Oxidase

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

Ans:-Protein Complexes in the ETC

There are four protein complexes that are part of the electron transport chain that functions to pass electrons down the chain. A fifth protein complex serves to transport hydrogen ions back into the matrix. These complexes are embedded within the inner mitochondrial membrane.

Complex I

NADH transfers two electrons to Complex I resulting in four H⁺ ions being pumped across the inner +membrane. NADH is oxidized to NAD , which is recycled back into the Krebs cycle. Electrons are transferred from Complex I to a carrier molecule ubiquinone (Q) or CoQ, which is reduced to ubiquinol. Ubiquinol carries the electrons to Complex III.

Complex II

FADH₂ transfers electrons to Complex II and the electrons are passed along to ubiquinone (Q). Q is reduced to ubiquinol, which carries the electrons to Complex III. No H⁺ ions are transported to the intermembrane space in this process.

Complex III

The passage of electrons to Complex III drives the transport of four more H⁺ ions across the inner membrane. While electrons are passed to another electron carrier protein cytochrome C.

Complex IV

Cytochrome C passes electrons to the final protein complex in the chain, Complex IV. Two H^+ ions are pumped across the inner membrane. The electrons are then passed from Complex IV to an oxygen (O_2) molecule, causing the molecule to split. The resulting oxygen atoms quickly grab H^+ ions to form two molecules of water.