Spring 2012

BIOCHEMISTRY I LECTURES

GENERAL MEDICINE, DENTISTRY

VSBC021p, ZLBC021p

Week	Date	
1	22. 2.	Enzymes. Characteristic features of biocatalysis, nomenclature and classification of enzymes. Enzyme cofactors, review of structures and functions.
2	29. 2.	Mechanisms of enzyme action. Kinetics of enzyme catalyzed reactions. Assays of enzyme activity, types of enzyme inhibition.
3	7. 3.	Metabolism: basic concepts and design. Biological oxidations, generation of high-energy compounds. Saccharide metabolism: the glycolytic pathway and aerobic decarboxylation of pyruvate.
4	14. 3.	Gluconeogenesis. Glycogen biosynthesis and breakdown.
5	21. 3.	The pentose phosphate pathway. The glucuronate pathway. Interconversions of monosaccharides and of their derivatives.
6	28. 3.	Protein and amino acid metabolism. The common reactions in amino acid degradation. The ureosynthetic cycle.
7	4. 4.	Metabolic breakdown of individual amino acids.
8	11. 4.	Biosynthesis and breakdown of fatty acids, ketogenesis. Synthesis of triacylglycerols.
9	18. 4.	Metabolism of phospholipids and glycolipids. Synthesis of eicosanoids. Biosynthesis and transformations of cholesterol, biosynthesis of bile acids.
10	25. 4.	The citric acid cycle. Synthesis of heme.
11	2. 5.	Mitochondrial electron transport chain, synthesis of ATP. Reactive oxygen species.
12	9. 5.	Biosynthesis and catabolism of purine and pyrimidine nucleotides. DNA replication
13	16. 5.	DNA transcription. Regulation of gene expression.
14	23. 5.	Proteosynthesis and posttranslational modifications of proteins.
15	-------	Anatomy – dissections.

Recommended literature: information in the first lecture

Registration for the examination of Biochemistry I is conditioned by passing exam of Medical Chemistry and obtaining credit of Biochemistry I seminar.