BIOCHEMISTRY II **VSBC041p**

LECTURES

4th Semester 2009

(On Tuesdays **11:20 – 12:10**, Komenskeho nam.2, Large lecture Hall)

Week	Date	
1	**17 Feb.**	Digestion and absorption of lipids. Blood plasma lipids and the major groups of lipoproteins. Metabolic fate of chylomicrons and VLDL, the metabolism of HDL.
2	**24 Feb.**	The biosynthesis of steroid hormones. The synthesis and hydroxylation of calciol.
3	**3 Mar.**	—
4	**10 Mar.**	The integration of intermediary metabolism at the tissue and organ level.
5	**17 Mar.**	The metabolic functions of the liver. Catabolism of haemoglobin, bilirubin metabolism. Metabolism of iron.
6	**24 Mar.**	Biotransformation of xenobiotics.
7	**31 Mar.**	Control of metabolism. Mechanism of hormone and neurotransmitter action. Types of cell membrane receptors, intracellular effects of ligand binding; intracellular receptors.
8	**7 Apr.**	Nerve cells. Neurosecretion. The biosynthesis and inactivation of neurotransmitters, neurotransmission across synapses. Cholinergic, adrenergic, and (inhibitory) gabaergic receptors.
9	**14 Apr.**	Body water, the movement of water between ECF and ICF, water excretion. Ionic composition of blood plasma, gradients of Na^+ and K^+ across cell membranes.
10	**21 Apr.**	Osmolality of ECF, regulation of the ECF osmolality and volume, fluid and electrolyte balance. Calcium and phosphates.
11	**28 Apr.**	Transport of O_2 and CO_2. Metabolic pathways producing/consumpting H^+ ions. Buffer bases of blood, blood plasma (concentrations of components), ICF, the parameters of acid-base status. The role of the lung, the kidney, and the liver in maintaining acid-base balance.
12	**5 May**	Normal renal functions. Glomerular filtration. Tubular resorption and secretion.
13	**12 May**	The major proteins of blood plasma. The blood-coagulation cascade, inhibition of clotting. Fibrinogen, fibrin, fibrinolysis. Blood cells.
14	**19 May**	The specific immune response. Soluble and cell free antigens, immunoglobulin structures. Circulating immune complexes, secondary reactions.
15	**26 May**	The extracellular matrix. Synthesis and post-translational modifications of collagen, intermolecular crosslinks in collagen and elastin, proteoglycans. Calcification of bone, regulation. Biochemical markers of bone resorption and formation.