

## Biochemistry lectures, fall semester 2019

Tuesday 14:25-15:35 Szent-Györgyi Albert lecture hall

Thursday 09:20-10:30 Szent-Györgyi Albert lecture hall

Lecturers:

Dr. Beáta Törőcsik (BT)

Prof. József Mandl (JM)

Prof. Tretter László (TL)

Prof. Kolev Krasimir (KK)

Dr. Erzsébet Komorowicz (EK)

Week	Date	Metabolism of carbohydrates
<b>01</b>	2019.09.10	Carbohydrates. Digestion and absorption of carbohydrates, cellular glucose uptake, glucose transporters. <b>(BT)</b>
	2019.09.12	Glycolysis. <b>(BT)</b>
<b>02</b>	2019.09.17	Metabolism of fructose and galactose. Gluconeogenesis. Cori-cycle. <b>(BT)</b>
	2019.09.19	Regulation of glycolysis and gluconeogenesis. Oxidation of alcohol and carbohydrate metabolism. <b>(BT)</b>
<b>03</b>	2019.09.24	Metabolism of glycogen. Mobilization of glycogen in liver and muscle. <b>(BT)</b>
	2019.09.26	Blood glucose level and its regulation: hyperglycaemia. Insulin release, insulin receptors. <b>(BT)</b>
<b>04</b>	2019.10.01	Biochemistry of diabetes mellitus (DM) type I and type II DM. <b>(BT)</b>
Metabolism of lipids		
	2019.10.03	Metabolism of lipids – overview. Absorption of lipids. Metabolism of chylomicrons. <b>(TL)</b>
<b>05</b>	2019.10.08	Mobilization of fatty acids in adipose tissue, its regulation. Transport on circulation. Free fatty acids, VLDL, IDL <b>(TL)</b>
	2019.10.10	Oxidation of fatty acids. Ketone bodies. <b>(TL)</b>
<b>06</b>	2019.10.15	Synthesis of fatty acids. <b>(TL)</b>
	2019.10.17	Biosynthesis and regulation of triacylglycerols and phospholipids. <b>(TL)</b>
Biotransformation		

<b>07</b>	2019.10.22	Characterization and classification of reactions in biotransformation. Phase I and Phase II reactions. Clinical significance of induction. <b>(JM)</b>
	2019.10.24	Role of biotransformation in drug metabolism and detoxification. Metabolism of ethanol and its pathobiochemical effects. <b>(JM)</b>
<b>Amino acids</b>		
<b>08</b>	2019.10.29	Nitrogen balance. Digestion of proteins. Function and regulation of proteases. Absorption of amino acids, amino acid transporters <b>(KK)</b>
<b>09</b>	2019.10.31	Catabolism of amino acids. Elimination of ammonia, reactions of the ornithine cycle and its regulation <b>(KK)</b>
	2019.11.05	Catabolism of amino acids: catabolism of the carbon skeleton <b>(KK)</b>
	2019.11.07	Catabolism of amino acids and the role of vitamins in the amino acid metabolism <b>(KK)</b>
<b>10</b>	2019.11.12	Biosynthesis of nonessential amino acids <b>(KK)</b>
<b>Metabolism of nucleotides; synthesis and degradation of heme</b>		
	2019.11.14	Structure and function of nucleotides. The fate of dietary nucleotides. Formation and elimination of uric acid, its metabolic role in humans. Molecular basis of gout. <b>(KK)</b>
<b>11</b>	2019.11.19	Synthesis and degradation of purine and pyrimidine nucleotides. Effects of cytostatic drugs on the nucleotide metabolism. <b>(KK)</b>
	2019.11.21	Biosynthesis and degradation of heme. Iron homeostasis. <b>(KK)</b>
<b>12</b>	2019.11.26	Metabolism of cholesterol, cholesterol transport in circulation. <b>(KK)</b>
	2019.11.28	Biosynthesis and metabolism of the bile acids, the importance of bile acids in lipid digestion. Cholesterol uptake and release by cells. <b>(KK)</b>
<b>13</b>	2019.12.03	Synthesis of steroidal hormones in adrenal cortex. Synthesis of glucocorticoids. <b>(EK)</b>
<b>Steroid hormones and eicosanoids</b>		

	2019.12.05	Biochemical background of adrenal cortex layers. Synthesis of mineralocorticoids, its regulation, prereceptor specificity. Effect of cortisol, regulation of cortisol synthesis. Androgen production of adrenal cortex. <b>(EK)</b>
<b>14</b>	2019.12.10	Synthesis of sex hormones. Ovarian cyclic hormone production. Biosynthesis of progesterone and estradiol in placenta. Synthesis of testosterone in testis, formation and importance of dihydrotestosterone. <b>(EK)</b>
	2019.12.12	Eicosanoids: synthesis of prostaglandins, thromboxanes and leukotrienes (cyclooxygenase and lipooxygenase pathway). <b>(EK)</b>