

Academic Year 2023/2024 Faculty of Medicine
Microscopic Anatomy and Embryology II.
EM II. 1-11 & 12-22

Weeks	Lectures (<i>Lenhossék lecture room</i>) EM 1-11 Fridays 12.00-13.45 EM 12-22 Mondays 8.00-9.45	Lecturer 1-11	Lecturer 12-22	Histology laboratory
				Mondays 10.00-11.30 EM 13-17, 23,24 Tuesdays 11.45-13.15 EM 1-6 13.15- 14.45 EM 7-12 16.45-18.15 EM 18-20,21,22
Week 1 09. 4-8.	1. Cellular components of lymphatic tissue. Thymus, tonsils, MALT 2. Structure and circulation of lymph nodes and spleen	1 Puskár 2 Puskár	1 Nagy 2 Nagy	Thymus, tonsils 43a, 43c, 47, 42a-b, 46, 48
Week 2 09. 11-15.	3. Nerve tissue 4. Development of the neural tube. Cranio-caudal and dorso-ventral differentiation. Divisions of the CNS	3 Székely 4 Nagy	3 Tóth 4 Nagy	Lymph node, spleen 40, 45, 1a, 1b
Week 3 09. 18-22.	5. Formation and derivatives of the neural crest and placode ectoderm 6. Microscopy of the CNS – Fine structure of the spinal cord. Spinal reflexes, receptors and effectors	5 Nagy 6 Vereczki	5 Nagy 6 Barna	Histology of the peripheral nervous system 88a, 67, 53, 79, 75, 6, 151b, (dem: 59, 151, 151c, 88b)
Week 4 09. 25-29.	7. Brain tracts, neurotransmitters, neuronal circuits, “connectomics” Structure of the cerebral cortex 8. Central autonomic nervous system. Monoaminergic and cholinergic neurones and pathways. „Ascending Reticular Activating System” (ARAS)	7 Székely 8 Horváth	7 Székely 8 Vereczki	Microscopy of the CNS Consultation I. - Spinal cord, reflexes 101, 33b (110, K110, 102)
Week 5 10. 2-6.	9. Somatosensory system. Spinal and trigeminal sensory pathways. Thalamus, cortical areas 10. Viscerosensory system. Role of the reticular formation, thalamus, insula and the prefrontal cortices in visceral sensory activities	9 Dobolyi 10 Kocsis	9 Katz 10 Kocsis	Microscopy of the CNS Consultation II. – Cerebral cortex 22 , 111, 16 (K16, K16b, K22, K118)
Week 6 10. 9-13.	11. Neuroanatomy of pain. Referred pain. Cerebral inhibition of pain sensation. 12. Neuroanatomy of movements/locomotion I. Motor cortical areas, planning and programming of movements. Motor pathways	11 Kozsurek 12 Horváth	11 Kozsurek 12 Horváth	Microscopy of the CNS Consultation III. - Sensory systems
Week 7 10. 16-20.	13. Neuroanatomy of movements/locomotion II. The role of cerebellum and basal ganglia in eliciting movements. Gait control mechanism 14. Visceromotor system. Control of micturition. Spinal motor reflexes	13 Ádám 14 Csáki	13 Ádám 14 Csáki	Microscopy of the CNS Consultation IV. - Cerebellum, motor systems 80, 96
Week 8 10. 23-27. Oct.23. is a National Holiday	National Holiday NO LECTURES ON MONDAY 15. External ear. Middle ear 16. Inner ear. Bony and membranous labyrinth. Development of the organ of hearing	15 Katz 16 Kocsis	15 Székely 16 Kocsis	No classes on Monday Midterm test I.
Week 9 10. 30. - 11. 3. Nov. 1 is a National Holiday	17. Spiral organ of Corti. Auditory pathway. Neuroanatomy of hearing, understanding and control of speech 18. Fine structure of the labyrinth, tracts of the vestibular system. Control of balancing and posture together with the movements of the eye and head. Awareness of spatial position	17 Puskár 18 Kálmán	17 Puskár 18 Kálmán	Organ of hearing and vestibular system 36, 4, (98)
Week 10 11. 6-10.	19. Fibrous and vascular coats of the eyeball. Lens, chambers of the eye, vitreous body, accommodation. Lacrimal gland, lacrimal apparatus 20. Inner coat of the eyeball, retina. Development of the eye	19 Katz 20 Nagy	19 Székely 20 Nagy	Organ of vision (eye bulb, retina) 29, 30
Week 11 11. 13-17.	21. Neuroanatomy of vision. Visual pathway, visual recognition, neuroanatomy of reading and understanding of written/text 22. Endocrine system I. Hypothalamus, the hypothalamo-hypophysial system, epiphysis	21 Ádám 22 Tóth	21 Ádám 22 Minkó	Organ of vision (palpebra, lacrimal gland) 39, 113 (112) Visual pathway
Week 12 11. 20-24.	23. Endocrine system II. Thyroid, parathyroid, adrenal glands 24. Energy metabolism, neuroanatomy of food intake, taste sensation and olfaction. Structure and functional significance of the reward system	23 Barna 24 Tóth	23 Barna 24 Tóth	Skin 59, 113, 11 Endocrine system I. (hypothalamus, hypophysis) 14 (K14), 105a (106, 150)
Week 13 11. 27 - 12. 1.	25. Limbic system. Amygdala, hippocampus 26. Circadian rythm, sleep/wake cycle; neuroanatomy of resting state and activation	25 Adorján 26 Dobolyi	25 Adorján 26 Dobolyi	Midterm test II. Endocrine system II. Thyroid, parathyroid and adrenal glands, pineal body, endocrine cells 102, 104, 32, 70, 44 (97b, 114)
Week 14 12. 4-8.	27. Behaviour and motivation. Neuroanatomy of emotions, empathy, well-being, aggression, fear, anxiety and depression 28. Cognitive functions. Neuroanatomy of determination, planning, alertness together with learning&memory, personality, consciousness and creativity	27 Ádám 28 Horváth	27 Ádám 28 Horváth	Limbic system (hippocampus) 20 (K20, K119)

Weeks	Histology laboratory		
	<i>Mondays EM 13-17 10.00-11.30</i>		
	<i>Tuesdays EM 1-6 11.45-13.15 EM 7-12 13.15- 14.45 EM 18-20,21,22 16.45-18.15</i>		
Week 1 09. 4-8.	Lymphatic system 1 43.a Thymus (HE) 43. c Thymus 47. Palatine tonsil (HE) 46. Lingual tonsil (HE) 42.a Palatine tonsil (CD20 immunocytochemistry) 42.b Palatine tonsil (CD3 immunocytochemistry) 48. Pharyngeal tonsil (HE)		
Week 2 09. 11-15.	Lymphatic system 2 40. Lymph node (rat, semithin, toluidine blue) 1.a Spleen (CD20 immunocytochemistry) 45. Spleen (human, HE) 1.b Spleen (CD3 immunocytochemistry)		
Week 3 09. 18-22.	Histology of the peripheral nervous system 88 a. Peripheral nerve (sciatic nerve, HE) <i>DEM: 59. Palm skin (HE)</i> 67. Autonomic ganglion (celiac ganglion, Bielschowsky's impregnation) <i>151. Fingertip (Verhoeff)</i> 53. Autonomic ganglion (submandibular gland, HE) <i>151c Remak fibres (fingertip neurofilament ICC)</i> 75. Motor end plate (cholinesterase enzyme histochemistry) <i>88b. Median nerve (OsO4 impregnation))</i> 79. Spinal cord + dorsal root ganglion (Luxol Fast blue + cresyl violet) 6. (Vater-)Pacinian corpuscle (plantar skin, HE) 151b Meissnerian corpuscle (human fingertip, neurofilament ICC)		
Week 4 09. 25-29.	Microscopy of the CNS	Consultation I. - Spinal cord, reflexes <i>(K110)</i>	<i>DEM 11. Spinal cord (Bielschowsky)</i> <i>102 Muscle spindle (thyroid gland, HE)</i>
Week 5 10. 2-6.	Microscopy of the CNS	Consultation II. - Cerebral cortex <i>(K16, K16b, K22, K118)</i>	
Week 6 10. 9-13.	Microscopy of the CNS	Consultation III. - Sensory systems	
Week 7 10. 16-20.	Microscopy of the CNS	Consultation IV. - Cerebellum, motor systems	
Week 8 10. 23-27. <i>Oct.23. is a National Holiday</i>	Midterm test I.		
Week 9 10. 30. - 11. 3. <i>Nov. 1 is a National Holiday</i>	Organ of hearing and vestibular system 36. Cochlea / organ of Corti (semithin, toluidine blue) <i>DEM 98. Auricle (human, Verhoeff)</i> 4. Macula (semithin, toluidine blue)		
Week 10 11. 6-10.	Organ of vision (eye bulb, retina) 29. Eye bulb (HE) 30. Retina (semithin, toluidine blue)		
Week 11 11. 13-17.	Organ of vision (palpebra, lacrimal gland)	Visual pathway 39. Eyelid (HE) <i>DEM 112. Optic nerve (HE)</i> 113. Lacrimal gland (HE)	
Week 12 11. 20-24.	Skin	Endocrine system I. (hypothalamus, hypophysis) 59. Palm skin (HE) 14. Hypothalamus (Chrom haematoxylin floxin/ GÖMÖRI) <i>DEM 106.</i> <i>Pituitary gland (HE)</i> 105a. Pituitary gland (Chrom haematoxylin floxin/GÖMÖRI) <i>150. Pituitary gland (ACTH ICC)</i> 153. Glomus organ, nail (HE) 11. Scalp skin (HE) <i>(K14)</i>	
Week 13 11. 27 - 12. 1.	Midterm test II Endocrine system II. Thyroid, parathyroid and adrenal glands, pineal body, endocrine cells 102. Thyroid gland (HE) 70. Endocrine pancreas/ islands of Langerhans (HE) 104. Parathyroid gland (HE) 44. Pineal body (HE) 32. Suprarenal gland (HE) <i>DEM: 97b. Corpus luteum (HE)</i> <i>114. Thyroid gland (C cell ICC)</i>		
Week 14 12. 4-8.	Limbic system - Hippocampus <i>(K20, K119)</i> 20. Hippocampus + choroidal plexus (Nissl)		