



TEMATICĂ DE EXAMEN

ASISTENT UNIVERSITAR PE PERIOADĂ DETERMINATĂ

An universitar 2022/2023

THEORETICAL EXAMINATION

1. Brief history of the discovery of the cell
2. General organization of the cell
3. Prions: prion diseases in humans
4. Distinguishing characteristics of prions and viruses
5. The plasma membrane
6. Mitchell's chemiosmotic theory
7. Transmembrane transports
8. Adhesion proteins
9. DNA repair mechanisms
10. Intercellular junctions
11. The cytoskeleton
12. The cell nucleus
13. The nucleolus
14. Particular types of cell division
15. Kinetics of cell division
16. The endoplasmic reticulum
17. The ribosomes
18. The Golgi complex
19. Lysosomes and peroxisomes
20. Mitochondria
21. Apoptosis and necrosis
22. The tumour cell
23. Cellular pathology
24. Modern methods of molecular biology used in research and diagnosis: DNA cloning
25. In situ hybridization
26. Biotechnology: anticancer therapy
27. The process of senescence
28. Chaperone proteins: general characteristics
29. The role of chaperone proteins in vectorial transport
30. Biological clock and chronobiology





PRACTICAL EXAMINATION

1. The light microscope
2. Special microscopes
3. Electron microscopy
4. In situ hybridization
5. Electrophoresis
6. Steps for preparing a native specimen
7. Steps for preparing a permanent specimen
8. Steps for preparing cytological smears
9. Steps for preparing haematological smears

Histological and cytological specimens, with common and special stains

1. Shapes of the cell
2. The chemical composition of the cell
3. Extensions of the cell surface
4. The extracellular matrix
5. Shapes of nuclei
6. Cell division – Mitosis
7. Cell division – Meiosis
8. The endoplasmic reticulum
9. The Golgi complex
10. Endocrine cell secretion
11. Exocrine cell secretion
12. The oral cavity

The specimens are part of the collection of the Cell and Molecular Biology discipline, UMFST G.E. Palade Târgu Mureș

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2. Cotrutz C. & col. (2010) – Biologie Celulară și Moleculară, Iași, Sedcom Libris – pg. 45-84, pg. 413-441
3. Israil A. (2000) – Biologie Moleculară, București, Humanitas: pg. 153-166, pg. 193-195, pg. 261-267, pg. 290-310, pg. 410-413, pg. 422-429, pg. 432-436
4. Sin A. & col. (2015) – Biologie Celulară și Moleculară, Ediție revizuită și adăugită, Târgu Mureș, University Press
5. Vartolomei M.D., Marian R., Sin A. (2020) – Cell and Molecular Biology, Târgu Mureș, University Press

