



CATEDRA UNIVERSITARA BIOLOGIE CELULARĂ ȘI MOLECULARĂ

CONFERENȚIAR UNIVERSITAR POZIȚIA 54 DIN STATUL DE FUNCȚII

EXAM TOPICS

Vacant position: Associate professor, position 54

I. CELL AS A BIOLOGICAL OPEN SYSTEM

1. Systemic theory
2. The cell and its place in the hierarchically arrangement of the living world
3. The features of the system

II. CLASSIFICATION OF THE WORLD FROM THE POINT OF VIEW OF CELLULAR ORGANIZATION

1. Noncellular life forms
2. Cellular life forms
3. General characteristics of eukaryotic cell

III. THE MOLECULAR CONSTITUENTS OF CELLS AND THEIR BIOLOGICAL ROLES

1. Elemental composition of living matter
2. Inorganic compounds
3. Organic compounds

IV. THE EXTRACELLULAR MATRIX

1. Glycosaminoglycans and proteoglycans
2. The fibrils proteins
3. The matrix proteins
4. The basal membrane

V. THE MOLECULAR BIOLOGY OF CELLULAR MEMBRANE

1. The concept of cell membrane
2. The plasma membrane
3. The glycocalix
4. The membrane cytoskeleton

VI. THE FUNCTIONS OF CELL MEMBRANE

1. Adhesion function
2. Intracellular and intercellular signaling function
3. Membrane transport

VII. CYTOPLASM – SITE OF CELLULAR MECHANISMS

1. Cytosol
2. Cytoplasm inclusions
3. Intracellular organelles and their functions

VIII. THE CELL NUCLEUS

1. Cell cycle
2. Nucleus in interphase
3. Cell division

IX. PROLIFERATION AND CELLULAR DIFFERENTIATION

1. Cellular proliferation



2. Cellular differentiation
- X. CELL AGING AND CELL DEATH
 1. General aspects
 2. General characteristics of cells in different stages of life
 3. Hypothesis and theories regarding cellular aging and death
 4. Apoptosis

BIBLIOGRAPHY:

Alberts B., Bray D., Lewis J., Raff M., Roberts K., Watson J.D. Molecular Biology of the Cell, six edition, Garland Publishing, Inc. NY & London, 2016

Alberts B., Johnson A., Lewis J., Morgan D, Raff M., Roberts K., Walter P. Biologie moléculaire de la cellule. Sixième édition, Lavoisier Médecine Sciences, 2017

Alberts Bruce, Bray Dennis, Hopkin Karen, Johnson Alexander, Lewis Julian, Raff Martin, Roberts Keith, Walter Peter. L'essentiel de la biologie cellulaire. Lavoisier Medecine Sciences, 2018

Verdeș D., Muntean I., Pușcașiu D., Belengeanu A., Popescu R. Biologie Celulară și Moleculară Ed. Eurobit Timișoara, 2016

Alberts B., Johnson A., Lewis J., Morgan D, Raff M., Roberts K., Walter P. Biologie moléculaire de la cellule. Sixième édition, Lavoisier Médecine Sciences, 2017

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