42. STRUCTURAL COMPONENTS AND ROLE OF EXTRACELLULAR MATRIX.

Author: Trandafir Tatiana

Scientific adviser: Tatiana Globa, Department of Histology, Cytology and Embryology, *Nicolae Testemitanu* State University of Medicine and Pharmacy of the Republic of Moldova.

Introduction. The old concept that the extracellular matrix is just a scaffold, which only has the supporting function for cells, is clearly incorrect. Nowadays, the extracellular matrix is considered a physiologically active component of all living tissues, which plays a crucial role in many cellular processes. The pathological remodelling of extracellular matrix drives to diseases progression and it seems to be an important research field and a potential therapeutic target.

Aim of study. Highlighting of structural components and main functions of the extracellular matrix. Identification of the medical domains for which extracellular matrix properties research findings are important.

Methods and materials. This review represents an analysis of actual information about the structural components and functions of the extracellular matrix from online biomedical sources, found with the research motors PubMed, Medscape, Google Scholar and including more than 50 references.

Results. The extracellular matrix is an extremely dynamic tissue component that is constantly being remodelled to maintain tissue homeostasis. The quantitative variations of matrix components and their organization lead to the appearance of different types of ECM, each of which is adapted to the physiological needs of the tissue. The structural components of the matrix interact closely with tissue cells to regulate various functions, including cell proliferation, migration, differentiation, and even apoptosis. It is difficult to estimate the role of the matrix in multicellular organisms, because there is no process without matrix implication: it functions as an adhesive substrate for cells, provides structure, stores and presents growth factors to their receptors, defines, perceives and transduces mechanical signals, activates intracellular signalling. Actually, the fields with advanced studying of ECM are oncology, because it participates in all stages of tumor progression, and regenerative medicine with transplantology, where a decellularized extracellular matrix, used as a bioink offers new possibilities for tissue reconstruction.

Conclusion. The functional importance of the extracellular matrix has been demonstrated in multiple severe diseases or embryonic deaths caused by the mutations of genes encoding matrix proteins. The studying and detailed characterization of the matrix composition, metabolism and biology, in healthy and pathological tissues, will lead to identification of new prognostic or diagnostic markers, will provide new therapeutic targets and will open new stages in tissue transplantation.