**Abstract**

Scavenger receptors - SR (scavenger receptor) constitute a large family of proteins that include more than 30 members, structurally divided into 11 classes (A-L). They are mainly expressed on stromal macrophages in norm, but their expression on cells can increase in direct proportion to the concentration of their ligands. In addition, SR can be expressed on various mesenchymal and parenchymal cells. SRs are structurally heterogeneous, but they are combined functionally. Thus, various classes of SR can be involved in absorption of endogenous metabolic and cellular “debris”, for example, modified low-density lipoproteins, glycated proteins, apoptotic, aging and damaged cells, altered red blood cells, and platelets. SRs have also other common properties and functions: an elimination of relatively small amounts of pathogens from the bloodstream and other tissues, a regulation of processes of cellular and tissue stress, and the formation of complexes with other types of receptors, including integrins and toll-like receptors. Many SRs recognize typical, evolutionarily conservative microbial antigens - PAMP (pathogen-associated molecular pattern), as well as endogenous damage-associated molecular pattern - DAMP. However, unlike the classical pattern recognition receptors (PRR), the involvement of SRs does not always lead to cell activation and the development of pro-inflammatory cellular stress. More other, some SRs can limit the pro-inflammatory activity of PRR. In case of participation of SR in development of tissue stress, they contribute to the allostasis formation, namely, stable changes in metabolic and cellular homeostasis, that are characteristic for aging and various chronic diseases. The functional effects of SRs provide the connection of various physiological processes, including the interrelation of neuroendocrine and metabolic regulation with the immune system. These mechanisms not only ensure the maintenance of homeostasis, but are also involved in the pathogenesis of transition states from the norm to pathology, as well as in the processes of physiological aging. At the same time, the processes associated with SR are one of the key factors of the pathogenesis of various somatic diseases, including those associated with low intensity chronic inflammation, such as obesity, type 2 diabetes, atherosclerosis, hypertension, and various types of neurodegeneration. SRs also participate in the processes of tumor transformation and antitumoral immunity, in various processes of classical inflammation - from the presentation of antigens to the processes of morphofunctional polarization of macrophages and T cells in the focus of inflammation and in immunocompetent organs. SRs play the controversial role in the development of acute systemic inflammation – the main reason of fatal outcomes in intensive care unites. SRs are the perspective targets for therapy of a wide range of diseases, and the deteсtion of membrane and soluble forms of SRs is a diagnostic and monitoring method of many human pathologies.