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DENDRITIC CELLS IN ANTITUMOR IMMUNITY

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According to Global cancer statistics in 2018 one in 8 men and one in 10 women worldwide have a malignancy during their lifetime. We consider that understanding the mechanisms of antitumor immunity and the reasons why it cannot cope with the tumor is the source of new effective ways of cancer treatment. Since the topic is too broad, we decided to pay more attention on the role of dendritic cells (DC), whose main task is to recognize pathogenic antigens (Ags) and transmit the received information to adaptive immunity cells.

Natural killer (NK) cells are the first to respond to the appearance of tumor cells. These lymphocytes monitor every cell and if they figure out any cell to have reduced or absent expression of major histocompatibility complex class I (MHC I) they destroy that cell by releasing perforin and granzymes through an immunological synapse that forms at the place of NK and the target cell contact. DCs have certain relationship with NKs, promote NK proliferation and cytotoxicity, increase the secretion of cytokines [4]. On the other hand, after recognizing a target, NKs supports DC maturation by production the tumor necrosis factor α.

Cytotoxic T- lymphocytes (CTL, CD8) are effector cells that responsible for destruction of tumor cells. They carry out immunological surveillance, then proliferate and destroy newly transformed tumor cells after recognition of tumor associated antigens. CTL response to tumor formation is mediated through antigen-presenting cells (APCs): DCs, macrophages, B cells. Studies have shown, that DCs activate T cells 10–100 times more effectively than other APCs.

There are several ways by which a tumor can avoid exposure to antitumor immunity. First of all, this is inhibition of DC functions. Some studies have shown most tumors are penetrated with a high number of DCs, but these cells are immature. The fact is that tumor cells are capable of releasing chemokines for immature DCs and attract them,

thus disrupting their further maturation, that result in segnificant decrease in ability of these DCs to present Ags. One of the most significant immunosuppressive agent which is synthesized by a malignancy is vascular endothelial growth factor that suppresses DC phagocytosis. Exosomes released from malignant cells are able to reduce both the activity and the number of DCs by suppression the differentiation of CD14+ monocytes into immature DCs. In this case CD14+ cells differentiate into another cells that produce the transforming growth factor beta inhibiting T cell functions.

Conclutions. DCs are one of the most important part of the antitumor response. Knowledge about mechanisms of DCs functioning is necessary to understand how the immune system fights tumor-transformed cells and where we can support this process. However, many tumor types are associated with the suppression of the DCs leading to a weakening of both innate and specific immunity. Considering this, one of the most significant therapeutic strategy in cancer treatment might be the immunotherapy aimed at activating the functioning of DCs. DC-based antitumor vaccines development could be an valid way to rise the efficiency of tumor Ag-presentation.

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CONGENITAL ATRESIA OF THE DIGESTIVE SYSTEM

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Introduction. The digestive system plays an important role in human life. Defects of the development of the digestive tube can be classified according the departments of the gastrointestinal tract: defects of esophagus, stomach, small and large intestine.

Incidence. According to statistics, malformations of the digestive tube range from 21.7% to 25% of all birth defects and associated with severe conditions of infants, and rank third in the world. The number of fatal cases ranges from 25% to 57%.

In this work will look at the atresia of the digestive system, in accordance with the departments of gastrointestinal tract. Esophageal atresia is a very common defect that