

Characterization of interleukin 10 and NO release by transplantable melanoma cell lines with regard to their progression

K. KOZŁOWSKA¹, M. ZARZECZNA¹, M. CICHOREK¹, S. WÓJCIK²

¹Department of Embryology, and ²Department of Anatomy and Neurobiology, Medical University, 80-211 Gdansk, Poland

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The results from our investigations concerning the secretory activity of interleukin 10 (IL-10) by two transplantable melanoma cells showed that a spontaneous alteration of the native-melanotic line into an amelanotic form and the tumor progression connected with it, were accompanied by a 6-fold decrease of the IL-10 content in the supernatant of these melanoma line cell culture.

Simultaneously, the intracellular content of IL-10 indicated that there was only a small population of IL-10 positive cells, numerically similar in both melanoma cell lines.

A comparison of the IL-10 and nitric oxide (NO) secreted by both melanoma lines does not show any correlation between the changes in the content of these substances, which seems to indicate that NO does not act as an autocrine regulator of IL-10 secretion.

Key words: IL-10, NO, transplantable melanoma, tumor progression.

It is known that an immune system can inhibit tumor development [23]. On the other hand, the immune system of tumor-bearing patients shows a lot of functional changes caused by the biological activities of tumors e.g. cytokine secretion [21].

Although cytokines secreted in a tumor microenvironment are more and more often regarded as factors able to modify the tumor – host interaction [20, 23], the mechanism of changes in the immunologic response is still not fully understood.

Obscure also is the influence of the tumor biological properties on the host immunological response, despite the known fact that factors released by melanoma cells can modify this response [13].

According to GIOVALLERI et al [12] the kind of cytokine released by a tumor seems to define the type of immunological response, whereas differences in the concentration of locally secreted cytokines make possible a modification of the primary antitumor reaction.

For this reason, it seems particularly interesting to estimate the secretory activity of cytokines released locally by melanoma cells in relation to the tumor biological proper-

ties and determine possible relationships between the cytokines secreted.

At present, the role of IL-10 in melanoma growth and metastasizing is discussed but opinions on this topic are still controversial [1, 5, 7]. Some authors now hold the opinion that IL-10 is an immunosuppressive factor facilitating the escape of a tumor from immunosurveillance and its progression [7, 9, 14], others consider IL-10 as a factor decreasing melanoma tumorigenicity and ability to metastasize [1, 11, 18].

Furthermore, attention is paid to the production of NO influenced by IL-10. This substance is strongly involved in the immunobiology of melanoma and influences its development by a cytotoxic activity [10] or by affecting the tumor cell apoptosis [25].

For this reason, in continuation of our comparative study of the secretory activity of two transplantable melanoma lines of common origin which spontaneously changed their levels of differentiation, growth rates and immunogenicity, we attempted to find out to what extent a spontaneous alteration of the hamster native melanoma line into an amelanotic one, less differentiated but with a higher growth rate,