

THE ROLE OF TRANSFERRIN IN PREVENTING OXIDATIVE STRESS INDUCED BY FREE IRON IN THE BODY AND POTENTIAL CORRELATIONS BETWEEN TRANSFERRIN AND THE DEVELOPMENT OF CANCER

Summary

Iron bound to the corresponding proteins, fulfills several important physiological functions in the body. However, the system overload with this metal can result in the appearance of free iron ions, able to initiate reactions leading to formation of reactive oxygen species. The accumulation of cellular defects associated with the influence of radicals on lipids and DNA leads to various diseases, also to carcinogenesis. Under such circumstances, human transferrin functions as the basic element of antioxidant defense system, due to the fact that it captures and binds iron in the bloodstream and transports it, in a safe form, to the tissues. On the other hand, trans-

ferrin, providing Fe^{3+} ions to cells which proliferate in uncontrolled way, contributes to the development of cancer. A huge number of transferrin receptors on the surface of tumor cells indicate their high requirement for iron. This fact can be used to create a new generation of drugs. The transferrin molecule would be their carrier and the transferrin receptor would fulfil the function of molecular target. In addition, transferrin can also be used for sequestration of an excess of free iron in people whose body is overloaded with this element.