

The most common methods for determining Cytokines in Immunology

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Abstract

Cytokines are low molecular weight proteins that play an important role in inflammation and oncology. Thanks to modern techniques of chemistry, molecular biology, and immunology, including the principles of proteomics, better characterization of cytokines has been carried out. Thus, the complex role of cytokines in the pathogenesis of many diseases has been studied in detail. To study the role of cytokines, there are numerous techniques that are mainly applied depending on which cell compartment needs to be determined. The advantages of certain assay and methods for determining cytokines will be discussed here. Cytokines are determined in serum for most clinical trials, while they are studied intracellular to understand complex immune processes. It is only possible to identify cells that contain cytokines. For functional assays or to test the ability to produce cytokines, it is very useful to quantify the production of cytokines in various experimental models during cell cultures in vitro. In addition, modern genetic analyzes indicate the possibility of analysis and understanding of gene regulation of cytokines, cytokine receptors, but also genetic variation in the regulation of cytotoxic response or epigenetic manifestation. In addition to the determination of individual cytokines, the simultaneous determination of a larger number of cytokines is increasingly used today, as well as in a very small volume of serum, tissue lysate or cell culture supernatant. Determination of cytokines and their precise analysis is of enormous importance, because today for many diseases including autoimmune, inflammatory as well as SarsCovid19, or oncology, drugs that are actually blockers of cytokines, cytokine receptors, cytokine signaling molecules are generated for treatment currently. These drugs try to treat according to the principles of individual or personalized medicine.

Biography

Vladimir Jurisic studied medicine at the University of Belgrade, Faculty of Medicine, Belgrade, Serbia, and received his doctorate and completed his specialization at the same University of Belgrade. During his training he had a short-term fellowship for cancer research at Charité University in Berlin, Germany, and completed several training courses at the National and Kapodistrian University in Athens, Greece, and the European School of Oncology, Milan, Italy. He has over 180 articles in peer reviewed international journals, national journals, and several chapters in international and national books that have been cited over 2530 times and his H-index is 28. He presented many lectures at International conference and he receives several grants including ESMO, EACR, Interferone and Cytokine Societies, UNESCO.