Interactome of IL-1α N-terminal domain

Cytokines are highly effective mediators produced by various cell types within and outside of the immune system with the aim to influence the orientation, intensity, and duration of the immune response and inflammatory process. Their biological effects mediated through binding the high-affinity membrane receptors and triggering the signal transduction pathway are usually well defined. However, as it is more and more frequently observed, in addition to the exocrine function, some cytokines may show intracrine effects. For this type of cytokines, the term “dual function cytokines“ has been adopted.

One of these cytokines is Interleukin-1α, in which the recent research has concentrated on determining its intracellular functions. The intracellular function of interleukin-1α has not been clearly defined so far. However, apart from the absence of the conventional hydrophobic sequence, its existence is supported by the fact that the N-terminal peptide included in its precursor is highly conserved and contains nuclear localization signal.

The aim of this work is to define the conditions of localization of the interleukin-1α N-terminal domain in different cellular compartments and to study proteins potentially interacting with it using fluorescent microscopy.

Key words: Interleukin-1α, N-terminal domain of IL-1α, dual cytokine, intracrine, nuclear relocalization, tumor suppressor protein p53