Abstract

Mesenchymal stem cells (MSC) are multipotent cells with the ability to regulate reactivity of cells of immune system. Regulatory B cells (Bregs) are also capable of modulating immune responses. Both these cell types are able of creating anti-inflammatory and tolerogenic environments and represent potential of cell-mediated therapy for autoimmune diseases and transplantation reactions. The effect of MSC on Bregs activation and function has been only studied in recent years, and mechanisms of their effects are not yet well characterized. However, studies have demonstrated a decrease in effector B lymphocytes and antibody production, and a support of activation of Bregs subpopulation and increased production of anti-inflammatory interleukin 10. Various molecules produced by MSC are involved in Bregs induction. Unfortunately, their effects have not yet been sufficiently described, and different models yields diverse results. In addition to the current studies in experimental models, the first clinical trials on Bregs have been initiated. The positive results suggesting the potential for future use of Bregs for the treatment of autoimmune diseases and transplantation reactions have been obtained in both cases.

Key words:
regulatory B cells, mesenchymal stem cells, immunomodulation, autoimmune diseases, cytokines, IL-10