Summary of the Ph.D thesis No., **18817. . Immunology,** Faculty of Veterinary Medicine, Urmia University.

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Title: Effect of conditioned medium of mesenchymal stem cells treated with muramyl dipeptide on immune responses in Balb/c mice immunized with ovalbumin

Abstract:

Bone marrow has two types of stem cells. Hematopoietic stem cells produce all types of blood cells and mesenchymal stem cells produce chondroblast, osteoblast, adipocyte, etc. cells. These cells can be isolated from other tissues such as synovial membrane, fat tissue, umbilical cord, muscle, kidney, dental pulp, etc. Mesenchymal cells have different functions in the body. These cells have the power to regenerate damaged tissues and modulate the responses of the immune system. Mesenchymal stem cells have different receptors for different types of ligands. In the laboratory environment, by involving each of these receptors, the function of cells can be affected. Muramyl dipeptide is one of the components of the cell wall of bacteria. This peptide is detected by the NOD2 receptor in mesenchymal stem cells and its signal transmission causes the expression of cytokine genes in these cells. In this research, the groups receiving ovalbumin and stem cell supernatant and stem cell supernatant conditioned with muramyl dipeptide were compared and the results of lymphocyte proliferation and delayed hypersensitivity tests were recorded. To investigate the polarization of the responses towards different profiles, the expression levels of IFN-ɣ genes as a representative of the first type of response, IL-4 as a representative of the second type of response, and IL-17 as an indicator of TH responses - 17 were checked. The results showed that in the group receiving ovalbumin, the polarization of responses towards TH1 is the highest, and in the group receiving supernatant and the group receiving supernatant derived from mesenchymal stem cells, the response shift is towards Th2 and Th It is -17. It was concluded that the supernatant obtained from mesenchymal stem cells hinders the shift of immune responses towards Th1 and strengthens Th2 and Th17 responses. Conditioning this environment with supernatant obtained from mesenchymal stem cells strengthens this feature and strengthens Th17 responses.

Keyword: Mesenchymal stem cells, Conditioned medium, Muramyl dipeptide, Ovalbumin, Balb/c mice