



KEY WORDS

- ✓ Transfusion-Related Immunomodulation (TRIM)
- ✓ Red Blood Cell Suspension (RBCS)
- ✓ Extracellular Vesicles (EVs)
- ✓ Monocytes-Macrophages
- ✓ M1/M2 Macrophage Polarization

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THE EFFECTS OF RED BLOOD CELL SUSPENSION STORAGE DURATIONS, SUPERNATANTS, AND EXTRACELLULAR VESICLES ON MONOCYTES/MACROPHAGES

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THESIS ABSTRACT

Transfusion- associated immunomodulation is a result of changes in the recipient's immune system following allogeneic blood transfusion (ABT). The storage duration of red blood cell (RBC) suspensions and the increase in the number of transfused blood components enhance the immunomodulatory effects of ABT, and the functions of monocytes and macrophages are impaired during this process. In this study, the effects of supernatants and extracellular vesicles (EVs) derived from ES cells with and without reduced leukocyte content, stored for different periods, on monocyte and macrophage functions were investigated. The results showed that ES cell supernatants had an inhibitory effect on monocyte and macrophage functions, whereas EVs had the opposite effect.

APPLICATION AREAS OF THE THESIS RESULTS

This research is significant for blood banking and transfusion medicine practices in terms of understanding the changes in extracellular vesicles that develop and accumulate over time during storage, and in optimizing storage strategies.

ACADEMIC ACTIVITIES

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2. Bal, S. H., Yöyen Ermiş, D., Vardar, H., Özveri, İ., Heper, Y., & Oral, H. B. (2025). Analysis of Oxidative Burst Capacity of Neutrophils in Buffy-Coat Concentrates. Journal of Uludağ University Medical Faculty, 51(2), 175-180. <https://doi.org/10.32708/uutfd.1673509>