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#### KEY WORDS (at least 5 words)

- ✓ Triple Negative Breast Cancer
- ✓ Magnesium
- ✓ Myeloid Cells
- ✓ Lymphocytes
- ✓ Supression Capacity

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# THE EFFECT OF MAGNESIUM ON TUMOR-ASSOCIATED MYELOID CELLS IN TRIPLE NEGATIVE BREAST CANCER (TNBC)

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#### THESIS ABSTRACT

Triple-negative breast cancer (TNBC) is an invasive and treatment-resistant subtype characterized by the absence of hormonal and HER2 receptor expression. Myeloid-derived suppressor cells (MDSCs), which support tumor progression by suppressing T cell responses, play a significant role in this context.

In this study, the effects of  $MgCl_2$  on MDSCs and lymphocytes were investigated at in vitro, ex vivo, and in vivo levels. In the 4T1 model, high-dose  $MgCl_2$  significantly increased survival, and the isolated MDSCs exhibited supportive rather than suppressive effects.

#### APPLICATION AREAS OF THE THESIS RESULTS

This thesis demonstrates the regulatory effects of magnesium on tumor-associated myeloid cells that suppress the immune system, highlighting potential application areas in strategies aimed at modulating the tumor microenvironment and in supportive therapeutic approaches to enhance immune responses. The obtained data suggest that magnesium-based pharmacological agents may play a complementary or supportive role in cancer therapy and lay the groundwork for translational research in the development of treatment protocols integrated with the immune system.

#### ACADEMIC ACTIVITIES

1. **Memiş İ.**, Etgu O., Oral H.B., Yöyen-Ermis D. Effect of Magnesium on Myeloid-Derived Suppressor Cells in the Tumor Microenvironment of Triple-Negative Breast Cancer. 6th International Congress of Molecular Immunology and Immunogenetics. April 28–30, 2025, İstanbul, Türkiye.
2. Gadirli Z., **Memiş İ.**, Çakırsoy-Akyöney D., Oral H.B., Yöyen-Ermis D., Yalçın Y. Clinical Association of T Cell and Cancer Stem Cell Populations in the Tumor Microenvironment and Peripheral Blood of Endometrial Cancer. 26th National Immunology Congress. November 11–13, 2023, Ankara, Türkiye.