INVESTIGATION OF THE ANTI-TUMOR EFFECT OF CHRYSIN ON BREAST CANCER CELLS THROUGH IMMUNOMODULATORY ACTION

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THESIS ABSTRACT

Chrysin is a flavonoid known for its anti-cancer properties, some of which are attributed to its ability to activate immune cells. This study investigated the immunomodulatory potential of chrysin on NK-92, Jurkat- T, and macrophage cells targeting breast cancer cells (BCCs). Chrysin was found to induce activation of NK-92, T, and macrophage cells in a dose-dependent manner. The anti-cancer efficacy of chrysin on immune cells was assessed in a co-culture system with BCCs. It was demonstrated that chrysin enhances the cytotoxicity of immune cells against MCF-7 and MDA-MB-231 cells. This activation was associated with increased cytokine production and nitric oxide. Additionally, the reduction of PD-L1 protein and p-akt levels, which play roles in cancer progression, supports the potential of chrysin as a therapeutic and chemopreventive agent in cancer treatment.

APPLICATION AREAS OF THE THESIS RESULTS

Paving the way for the use of natural patented products in cancer treatment and enhancing immune response in clinical settings.
Usage of natural compounds as potential adjuvant in cancer therapy.

ACADEMIC ACTIVITIES

1.Balkan, E., Ozman, Z., Ceyran, İ. H., Pasin, Ö., & Kocyigit, A., (2024). Chrysin Enhances Anti-cancer Activity of Jurkat T Cell and NK-92 Cells Against Human Breast Cancer Cell Lines.. Chemistry & Biodiversity .

2.Krisinin MCF-7 ve MDA-MB-231 Meme Kanseri Hücrelerine Olan İmmün Sistem Aracili Sitotoksik Yanit Üzerindeki Etkisinin Araştirilmasi, Balkan E., Özman Z., Ceyran İ. H., Koçyiğit A., 26. Ulusal İmmünoloji Kongresi, Ankara, Türkiye, 11-13 Kasım 2023, ss.21

3.Chrysin Modulates Apoptotic Effects of LPS-Induced RAW 264.7 Macrophage in MCF-7 Breast Cancer Cells BALKAN E., ÖZMAN Z., KOÇYİĞİT A. International Conference of Biochemists and Molecular Biologists in Bosnia and Herzegovina - ABMBBIH,Sarajevo, Bosna-Hersek, 18 - 20 Mayıs 2023

4.Kocyigit A, Guler EM, Durmus E, Yenigun VB, Kanimdan E, Ozman Z, Yasar O, Goren AC, Hekimoglu ER, Oruc HH, Aydogdu G. Propolis Enhances 5-Fluorouracil Mediated Antitumor Efficacy and Reduces Side Effects in Colorectal Cancer: An in Vitro and in Vivo Study. Chem Biodivers. 2023 Sep;20(9):e202300591. doi: 10.1002/cbdv.202300591.

KEYWORDS

- *Chrysin*
- *Breast cancer*
- *NK Cells*
- *T Cells*
- *Macrophages*

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