INVESTIGATION OF THE EFFECTS OF BORON DERIVATIVES ON BREAST CANCER IMMUNE RESISTANCE

Abstract

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Breast cancer is the most frequently diagnosed cancer in women worldwide. Despite the widely used chemotherapy in cancer treatment, the prognosis of the cancer patients has not been substantially improved. For that reason, in our study we aimed to investigate the anti-carcinogenic effect of some boron derivatives (sodium pentaborate pentahydrate (SPP), sodium perborate tetrahydrate (SPT)) on breast cancer cell lines with low toxic effect on the healthy cells. In addition, cellular immunotherapy is considered as the promising therapy for cancer in the last decade. Therefore, we tried to activate naive T-cells against specific cancer cell by co-culture with mature DCs stimulated with cell lysate and RNA showing promising tumor cytolytic activity. However, the chemotherapy induces PD-1/PD-L1 signalling pathway which plays a critical role in the avoidance of immune surveillance by cancerous cells. Therefore, in our set we investigated the effect of these boron derivatives on the PD1/PD-L1 expression and we found that these molecules increased the PD1/PD-L1 expression leading to suppression in the activity of the effector T cells.

In conclusion, SPP, SPT and their combination have growth inhibition effect on the breast cancer cells but on the other hand they induce PD-1/PD-L1 signalling pathway which causes suppression in the activity of the specific activated effector T cells against breast cancer cells.

Biography

Eslam Mohammed is a Ph.D. candidate at Genetics and Bioengineering department, Yeditepe University, Turkey. Received his Master degree in Biochemistry from Yildiz Technical University, Turkey in 2019. Received his Bachelor degree in Pharmaceutical science from Faculty of pharmacy, Ain Shams University, Egypt in 2011.