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Glucomannan as an adjuvant for breast cancer vaccine: An experience in mouse model

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Breast cancer is one of the major causes of death in women. Chemotherapy of breast cancer shows side effects may be improvement of immunotherapy using natural compounds to be useful in the therapy. Glucomannan is a water-soluble polysaccharide that is considered a dietary fiber. It is a hemicellulose component in the cell walls of some plant species. Glucomannan was found to induce anti-tumor effect on cancers like colon cancer. In this study, we assessed the adjuvant activity of glucomannan combined with a breast tumor vaccine (lysate vaccine) on breast tumor-bearing mice. Breast tumor was implanted into the flank of inbred BALB/C female mice. Tumor-bearing mice were gavaged with glucomannan and/or immunized with tumor antigen lysate vaccine or vaccine mixture with glucomannan (vaccine, glucomannan/vaccine combination). Immunization performed subcutaneously, three times with 100 µg vaccine with one week intervals. In addition, Cyclophosphamide treatment and PBS as positive and negative control groups considered, respectively. Tumor mass changes monitored twice weekly and after immunization courses, mice blood was collected and IL-2, IL-4, IL-17, IFN-γ and TNF-α cytokine levels in sera were measured by commercial ELISA kits. Considering cytokines patterns and tumor mass changes it seems that glucomannan as adjuvant shifted immune responses toward Th1 pattern and suppresses tumor growth in the treated mice.

Biography

Nioosha Ahmadi has completed her Bachelor's degree in Microbiology from Islamic Azad University of Tehran, Iran.