DEGRADATION OF IMMUNOTOXIN IN B-CELLS

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Abstract: Cancer is the second leading cause of death in the United States. It is estimated to take 15,000 lives per day. Conventional forms of cancer treatment, including chemotherapy, radiation and surgery, can be effective at killing cancer cells but prove often too harsh for the patient and have a number of serious side effects. The discovery of monoclonal antibodies (mAbs) and the ability to produce large amounts of mAbs that react with specific antigens on cancer cells brought up interest in using toxins with antibodies to specifically target cancer cells. Immunotoxins consist of a protein toxin joined with an antibody for the treatment of cancer. Bacterial and plant protein toxins are among the most potent cytotoxic agents in nature. In this research we utilized Western Blot assay to characterize the degradation of HA22, an immunotoxin composed of *Pseudomonas* exotoxin A (PE) and an anti-CD22 antibody in a CA46 Burkitts Lymphoma cell line. To confirm the killing effect of HA22 a WST-8 cell survival assay was performed that determined the IC₅₀ to be 0.17 ng/mL. CA46 cells were treated with 1 µg/mL of HA22 for one hour. Samples were removed after treatment in intervals of 0, 1, 3, 4, 9, and 23hrs. Western Blot results show an increase in protein degradation with time. In future studies we hope to compare various other cell lines for degradative properties and characterize how protease inhibitors may affect degradation.

Keywords: Immunotoxin, B-Cells, Antibody