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SURIP Abstract

EFFECT OF DRUG THERAPY ON EXPRESSION OF CS1 IN MULTIPLE MYLEOMA

Multiple Myeloma (MM) is a cancer of the plasma cells and is fatal without treatment due to anemia, renal failure, hypercalcemia, and bone destruction. Natural killer (NK) cells, a component of the innate immune system, function against infection and cancer. NK cells kill MM cells by signaling through cell surface receptors. CS1 (CD319, SLAMF7) is a receptor expressed on NK cells, and is known to be overexpressed on MM cells. Elotuzamab (Empliciti) is a humanized monoclonal antibody against CS1, and has been proved as a breakthrough drug against MM. During clinical trials, Empliciti in combination with chemotherapeutic drugs showed more effective than antibody treatment alone. However, the underlying mechanism for this is not known. We hypothesize that chemotherapeutic drugs induce the expression of CS1 on MM cells making them more susceptible to NK mediated killing. To investigate this property, MM cells were incubated with combinations of chemotherapy and immunotherapy drugs in order to observe changes in surface or mRNA expression of CS1. Our results indicate that treatment with anti-CS1 in combination with lenalidomide or doxorubicin and dexamethasone increased the cell surface expression of CS1; however, these drugs reduced the expression of CS1 mRNA.