

#212 Sheerin Alandejani

Advisor(s): Allen Norin

A Novel Receptor on NK Lymphocytes Binds to TOMM40 on K562 Leukemia Cells Initiating Cytolysis

Natural killer lymphocytes (NK cells) are the first line of defense (innate immunity) against viral infections and leukemia since they

do not require activation to deliver a lethal hit to infected/aberrant cells. In contrast, T lymphocytes require stimulation by a foreign/neo-antigen, which may take days before they are active against the pathogen (adaptive immunity). The exact mechanism by which unstimulated (naïve) nNK cells lyse the prototypical leukemia target cell line K562 has not been fully characterized, although numerous NK cell receptors-coreceptors have been revealed. We provide evidence that moesin, a protein that typically links the inner leaf of the plasma membrane to the cytoskeleton, additionally, in nNK cells, localizes to the cell surface where it binds to TOMM40 on leukemia cells initiating their lysis. Moesin is not found on the surface of T or B cells and therefore is a new marker that distinguishes the latter lymphocytes from NK cells.