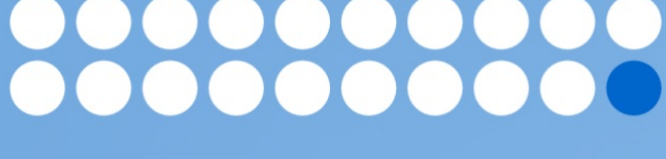


Natural Killer Cells

Natural killer (NK) cells have an innate ability to recognize and destroy non-self cells. They are characterized as CD3⁻ CD56⁺.

Frequency of NK cells in peripheral blood



5% of peripheral blood lymphocytes are natural killer cells.

Subsets defined by density of CD56 expression

CD56^{bright} CD16^{dim/-}



Weakly cytotoxic without stimulation.
Proliferative, cytokine producing NK cell subset.

CD56^{dim} CD16⁺



Extreme cytotoxic activity without activation.
Major circulating peripheral blood subset.

CD56^{bright} NK cells are commonly believed to be precursor cells of the CD56^{dim} subset.

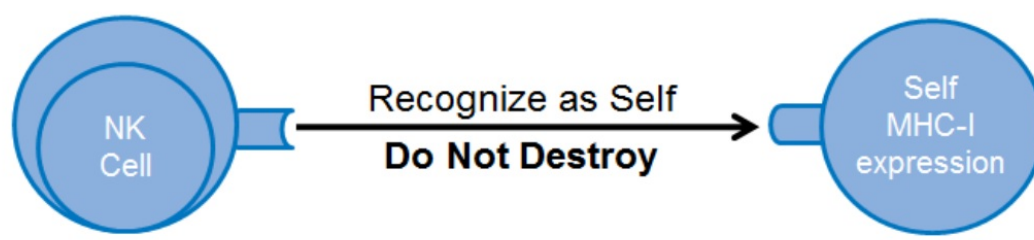
Frequency of subsets in peripheral blood

90% of circulating peripheral blood NK cells are CD56^{dim} CD16⁺.

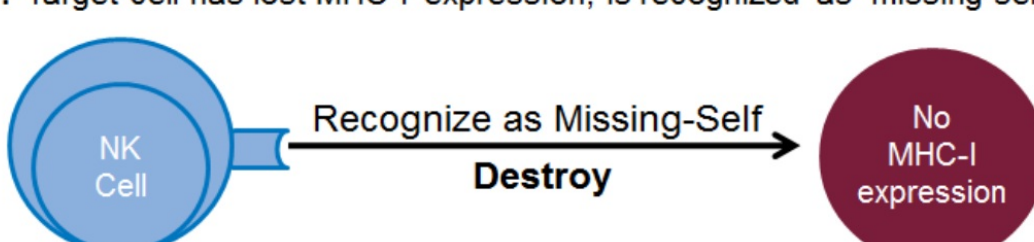


NK cell function: "missing self" hypothesis

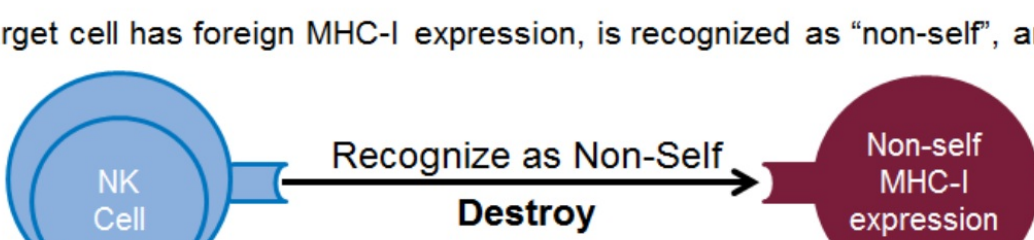
Self. Target cell is a normal, autologous cell, is recognized as such, and saved from lysis.



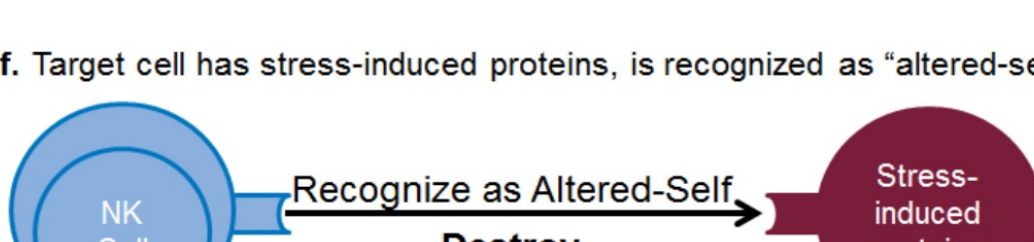
Missing-Self. Target cell has lost MHC-I expression, is recognized as "missing-self", and lysed.



Non-Self. Target cell has foreign MHC-I expression, is recognized as "non-self", and lysed.

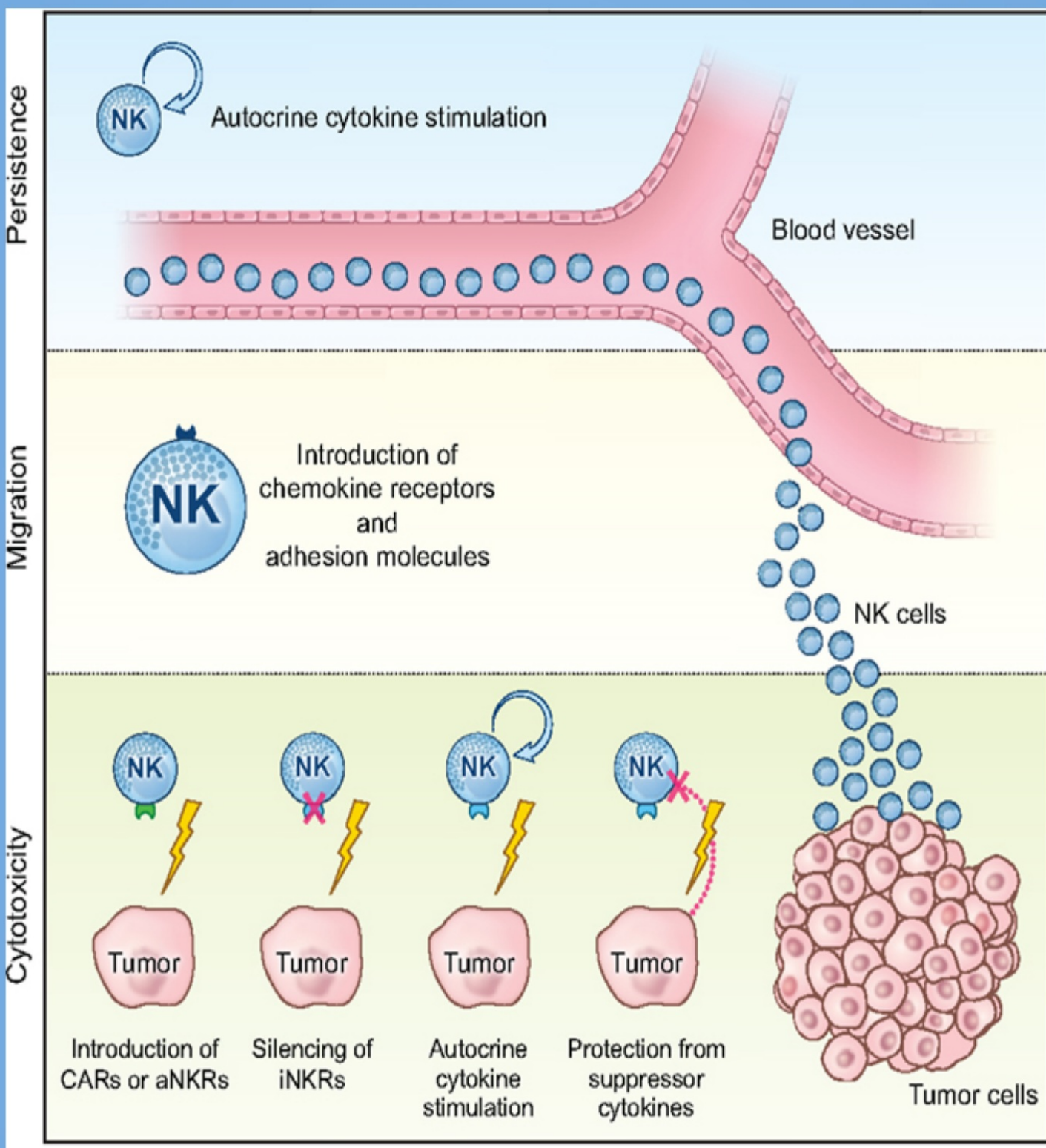


Induced-Self. Target cell has stress-induced proteins, is recognized as "altered-self", and lysed.



Adapted from *Nature Reviews Immunology* 5, 363-374 (May 2005)

Current research: genetic manipulation to improve efficacy of NK cell immunotherapy



Carlsten, et al. *Frontiers in Immunology* (2015) 6:266. DOI:10.3389/fimmu2015.00266

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	Positively Selected	Negatively Selected
Catalog Number	2W-502	2W-501
CD56 Expression	> 90% positive	> 90% positive
CD16 Expression	Varies	Typically > 80% positive

Selected References:

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<http://www.ncbi.nlm.nih.gov/pubmed/15841099>