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NATURE IMMUNOLOGY | REVIEW

Targeting natural killer cells in cancer immunotherapy

Camille Guillerey, Nicholas D Huntington & Mark J Smyth

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Abstract

Alteration in the expression of cell-surface proteins is a common consequence of malignant transformation. Natural killer (NK) cells use an array of germline-encoded activating and inhibitory receptors that scan for altered protein-expression patterns, but tumor evasion of detection by the immune system is now recognized as one of the hallmarks of cancer. NK cells display rapid and potent immunity to metastasis or hematological cancers, and major efforts are now being undertaken to fully exploit NK cell anti-tumor properties in the clinic. Diverse approaches encompass the development of large-scale NK cell-expansion protocols for adoptive transfer, the establishment of a microenvironment favorable to NK cell activity, the redirection of NK cell activity against tumor cells and the release of inhibitory signals that limit NK cell function. In this Review we detail recent advances in NK cell-based immunotherapies and discuss the advantages and limitations of these strategies.

Subject terms: NK cells Tumour immunology

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Author information

These authors contributed equally to this work.

Nicholas D Huntington & Mark J Smyth

Affiliations

Immunology of Cancer and Infection Laboratory, QIMR Berghofer Medical Research Institute, Herston, Australia.

Camille Guillerey & Mark J Smyth

School of Medicine, University of Queensland, Herston, Australia.

Camille Guillerey & Mark J Smyth

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The Walter and Eliza Hall Institute of Medical Research, Parkville, Australia.

Nicholas D Huntington

Department of Medical Biology, The University of Melbourne, Melbourne, Australia.

Nicholas D Huntington

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Corresponding author

Correspondence to: Mark J Smyth

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