

Global Natural Killer (NK) Cell Therapeutics Market Trends, Companies & Clinical Trials Insight 2023

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Abstracts

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Global Natural Killer (NK) Cell Therapeutics Market Trends, Companies & Clinical Trials Insight 2023 Report Highlights:

Global Natural Killer (NK) Cell Therapeutics Market Trends Insight

Partnerships & Funding for Natural Killer Cell Therapies : > 10 Recent Deals

Global Natural Killer Cell Therapies Clinical Trials Insight: > 200 Therapies

Global Natural Killer Cell Therapies Clinical Trials By Company, Indication & Phase

Proprietary Technologies By Company Insight: > 10 Technologies

FDA Fast Track & Orphan Designation insight

Detailed Outlook On More than 30 Companies

Cell therapy has emerged as an efficient way to replace or repair damaged tissues and cells by using transplanting healthy cells from donors - which can be the patients themselves. In the last two decades or so, the application of cell therapy has expanded to cover many indications including cancer, and the results have not been disappointing. T cell therapy was developed as the earliest cell-based therapy for treating cancer and

throughout the years, many improvements have taken place in this domain allowing the entry of more immune cells to fight cancer in a patient. NK cells are the newest kind of immune cells which are showing benefits in treating both solid and hematological cancers, and with further improvements, are expected to dominate the cell therapy market in the coming years

The idea of using NK cells to treat cancer generated from the fact that they have unparalleled cytotoxic activities against cells not regarded as 'self'. NK cells express the receptors for the MHC class 1 molecule on their surfaces and any cell not having the corresponding ligand gets destroyed by these immune cells. To carry out its cytotoxic activity, NK cells contain granzymes and perforins which cause the target cell to lyse. MHC class 1 molecules are known to not be essential for cell viability and growth as a result of which cancers downregulate or lose the MHC I expression, which triggers NK cells against them.

Many mechanisms, such as immune checkpoint suppression and other poorly understood causes, result in decreased NK cell numbers, inhibit their functions, and markedly reduced killing activity in cancer patients. In order to raise the number of NK cells in patients' bodies after cancer treatment or while they are receiving it, NK cell therapy has been proposed as a viable immune-boosting technique. This will improve the immune system's ability to fight cancer cells. Even more commendably, NK cells do not cause the immune system to react negatively to them, which is a factor that guarantees the uptake of a NK cell therapy.

For a NK cell therapy, the process of generation of NK cells is the same as that for T cell therapy. NK cells are harvested from a healthy donor, preferably young, and are expanded in growth cultures to reach numbers high enough to be infused in the patient. Over years of gaining experience with working on T cell based therapies, the improvements seen in the latter have penetrated into the NK cell therapy domain, which enriches their cancer targeting ability. The improvements in reference are the expression of CARs and TCRs on the NK cell surface, which are specific for a specific cancer antigen.

Due to the therapeutic potential of T cell-based therapies and the increasing unmet medical need of patients, they have achieved outstanding clinical and economic success in the market. Nevertheless, they also come with disadvantages like cytokine release syndrome (CRS), ineffective treatment for solid tumors, and high rates of tumor recurrence. Pharmaceutical corporations all over the world are thrilled that NK cell-based medicines have become a viable alternative to T-cell-based therapy. These

include prominent pharmaceutical companies like Sanofi, Nkarta, Biohaven, and Vaxcell and also cancer research institutes such as the Fred Hutchinson Cancer Center and the German Cancer Research Center.

The interest in cancer therapy, which was previously mostly driven by molecular target-based pharmacological therapies, has been revived by NK cell therapies. Recent years have seen a rise in research activity, and significant improvements have been made in the design and delivery of NK cell-based therapies, increasing their potential as cancer treatments. Moreover, combination therapies incorporating NK cell therapies are also being examined in clinical trials, which are even more advantageous for this therapeutic domain and will help it attract the interest of key international drug developers.

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