

GENE-EDITED INKT CELL EXPRESSING CHIMERIC ANTIGEN RECEPTOR FOR THE TREATMENT OF CANCER

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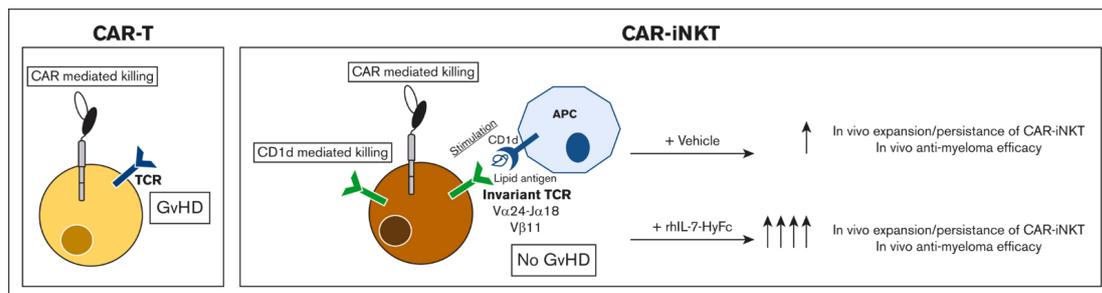
[Hanford, Charles](#)

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Value Proposition: Engineered iNKT cells with potential as a “universal” source of immune effector cells to treat cancer.

Technology Description

Researchers at Washington University in St. Louis have developed a new composition of matter that uses gene-edited invariant natural killer T (iNKT) cells for cancer treatment. iNKT cells harness properties of the innate and adaptive immune systems as they cross between a conventional T cell and a Natural Killer cell and can be expanded from peripheral blood to be used for CAR therapies. This approach does not cause graft versus host disease (GvHD) and may have a lower propensity for cytokine release syndrome (CRS). Additionally, iNKT cell therapy does not require cells to be isolated from the patient, thus allowing for large amounts of the cellular product to be produced and used for cancer treatment.



Stage of Research

Preclinical validation - human BCMA CAR-iNKTs show in vivo efficacy in a myeloma xenograft model

Publications

- Julie O’Neal et al. Anti-myeloma efficacy of CAR-iNKT is enhanced with a long-acting IL-7, rhIL-7-hyFc. *Blood Adv.* 2023 Oct 24;7(20):6009-6022. doi: 10.1182/bloodadvances.2023010032.
- Julie O’Neal, Melissa Mavers, Reyka G. Jayasinghe, and John F. DiPersio. Traversing the bench to bedside journey for iNKT cell therapies. *Front Immunol.* 2024 Aug 7;15:1436968. doi: 10.3389/fimmu.2024.1436968. eCollection 2024.

Applications

- Cancer treatment
- CAR Therapy

Key Advantages

- Does not induce GvHD and lower propensity for CRS
- Allogeneic CAR-iNKT therapy addresses multiple limitations of autologous CAR-T cell therapy

Patents

Nationalized PCT applications (PCT/US2019/034981, PCT/US2019/035052, and PCT/US2019/034959)

Related Web Links – [John DiPersio Profile](#) and [Julie O’Neal Profile](#)