

CHIMERIC ANTIGEN RECEPTOR DENDRITIC CELLS

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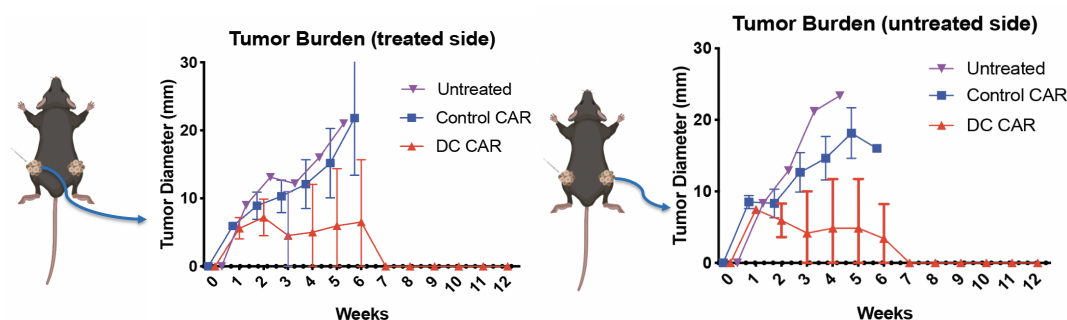
[Miller, Qian](#)

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Technology Description

Researchers at Washington University in St. Louis have developed a genetic method to produce chimeric antigen receptor dendritic cells (CAR-DCs) for the treatment of solid tumors. The team generated a CAR that drives differentiation of cDC1s and mediates tumor-specific uptake by the DCs, leading to cross-presentation of tumor antigens and initiation of a systemic anti-tumor immune response.

While CAR-T cells and CAR-macrophages are effective at directly destroying tumor cells, CAR-DCs are able to cross-present antigen and prime T-cells to respond against new antigens. The cDC1 subset is particularly effective at initiating *de novo* T-cell responses, potentially overcoming the problem of antigen escape seen in other CAR therapies.



Mice with bilateral syngeneic sarcoma were treated with local CAR-DCs and monitored for tumor size.

Stage of Research:

The researchers have validated the construct *in vitro* and have performed initial *in vivo* studies in mice showing that the CAR-DCs generate a curative systemic anti-tumor immune response. Additional mouse studies are ongoing.

Applications

- Most immediately applicable to solid tumor diseases
- Generally applicable to all cancers

Key Advantages

- CAR-DCs cross-present tumor antigen to stimulate the adaptive immune response
- DC-specific CAR ensures generation of cDC1s

Patent Application: WO2021127024

Related Web Links: DeSelm [Profile](#) & [Lab](#)