Docket #: S23-390

Treatment of Gliomas with Anti-B7H3 CAR-T Cells

Stanford researchers have developed a strategy for using anti-B7H3 CAR-T cells in a more effective manner for the treatment of glioma.

High grade gliomas are the leading cause of brain tumor death in adults. However, available treatments often have limited efficacy and are associated with severe side effects. Stanford researchers therefore developed a specific protocol for treating glioma using CAR-T cells engineered to target B7H3, an antigen that is highly expressed only on cancer cells. The clinical protocol is for patients who have had surgical resection of brain tumor cells and identifies the optimal dose and timing of administration of CAR-T cells based on patient's inflammatory response. In an ongoing phase I clinical trial, this regimen results in decreased tumor volume and may provide benefit for overall survival of an individual being treated.

Stage of Development
In phase I clinical trial for recurrent glioblastoma multiforme (GBM)

Applications

- Treatment of high-grade glioma and glioblastoma

Advantages

- Promises to be more effective than current standard of care for glioma
- Combination with bevacizumab increases efficacy
- Target antigen is highly expressed only on cancer cells
- Repeated administration of CAR-T cells possible depending on patient's level of inflammation

Publications

- Robbie Majzner, Johanna Theruvath, et al. (2019). CAR T Cells Targeting B7-H3, a Pan-Cancer Antigen, Demonstrate Potent Preclinical Activity Against Pediatric Solid Tumors and Brain Tumors. Cinical Cancer Research, 25(8), 2560-2574.
- Reena Thomas et al. A phase 1 study of B7H3 CAR-T cells administered intracranially in recurrent glioblastoma. JCO 43, 2018-2018 (2025)(ASCO Meeting Abstract from the 2025 ASCO Annual Meeting).

Patents

- Published Application: WO2025101807

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