

Conference Abstracts

Vol. 6, Issue Supplement 2, 2026

First-in-Human Phase I Trial of Drug-Regulatable B7-H3 CAR T Cells for Advanced Solid Tumors

Alexander Salter, MD, PhD^{1,a}; Allison Betof, MD, PhD¹; Crystal Mackall, MD¹

¹ Stanford University, 291 Campus Drive, Stanford, CA, USA

Corresponding author

^a Alexander Salter, MD, PhD, Stanford University, 291 Campus Drive, Stanford, CA, USA

Email: aisalter@stanford.edu

Keywords: cellular therapy, sarcoma, uveal melanoma, ovarian cancer, NSCLC, B7-H3

Submission received: 2026-07-13 / Accepted: 2026-07-28 / Published: 2026-09-10

<https://doi.org/10.53876/001a.129750>

Abstract

Background

B7-H3 (CD276) is an attractive CAR T cell target as it is highly expressed in many solid tumors at levels much greater than normal tissue. Our group previously translated B7-H3 CAR T cells into the clinic, where encouraging antitumor activity was accompanied by significant treatment-related toxicities, necessitating improved control of CAR T cell activity in vivo. We therefore developed the SNIP drug-regulatable CAR T cell platform that enables reversible control of CAR function through administration of hepatitis C (HCV) NS3 protease inhibitors. Preclinical studies demonstrated potent antitumor activity in the presence of NS3 protease inhibitors and rapid functional inactivation following drug withdrawal, supporting clinical development of this approach.

Methods

We are initiating a phase I dose-escalation study evaluating autologous B7-H3 SNIP CAR T cells in adolescents and adults with relapsed or refractory B7-H3-positive high-grade sarcoma, ovarian cancer, non-small cell lung cancer, and uveal melanoma. Voxilaprevir, an HCV NS3

protease inhibitor, will be orally administered to regulate CAR T cell activity. The primary objectives are to evaluate manufacturing feasibility, safety, and determine the recommended phase II CAR T cell dose. The secondary objective is to assess preliminary antitumor activity. Exploratory objectives include characterization of CAR T-cell expansion, persistence, phenotype, and immunogenicity using digital droplet PCR, high-dimensional immune profiling of peripheral blood, tumor, and infusion products, and cytokine arrays.

Results

Study startup is underway at Stanford. Clinical and correlative analyses will prospectively evaluate biomarkers of CAR T cell expansion, treatment response and toxicity.

Conclusion

This study represents the first clinical evaluation of the SNIP CAR T cell platform designed to improve the safety and therapeutic index of cellular therapy. By integrating reversible pharmacologic regulation with comprehensive correlative analyses, this trial will establish the feasibility of the SNIP platform while providing mechanistic insights to guide future controllable cellular immunotherapies.

© 2021–2026 Binaytara. Website design and layout all rights reserved. Articles published in the International Journal of Cancer Care and Delivery are open access. Authors retain copyright. All articles are distributed under the terms of the Creative Commons Attribution-ShareAlike 4.0 International (CC BY-SA 4.0) license, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited and derivative works are shared under the same license.