Scientific Foundation SPIROSKI, Skopje, Republic of North Macedonia
South East European Journal of Immunology. 2025 Mar 31; 8(CITIM):045
https://doi.org/10.3889/seejim.2025.6107
eISSN: 1857-9388
Category: *CITIM - Cancer Immunotherapy & Immunomonitoring (CITIM2025)*
Section: *Invited Lectures*

Lessons Learned from Using TCR and CAR Gene Modified T Cells for Treating Cancer Patients

Michael I. Nishimura

Department of Surgery, Loyola University Chicago, Maywood, IL 60153, USA

Citation: Nishimura MI. Lessons Learned from Using TCR and CAR Gene Modified T Cells for Treating Cancer Patients. SEE J Immunol. 2025 Mar 27;8(CITIM):0245 https://doi.org/10.3889/seejim.2025.6107
Keywords: CAR T cells; TCR T cells; adoptive transfer therapy; tumor microenvironment; immune suppression
***Correspondence:** Michael I. Nishimura Department of Surgery, Loyola University Chicago, Maywood, IL 60153, USA.
E-mail: michaelinishimura59@gmail.com
Received: 01-Mar-2025
Accepted: 25-Mar-2025
Copyright: © 2025 Michael Nishimura. This is an open-access article distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (CC BY-NC 4.0)
Funding: This research did not receive any financial support
Competing Interests: The authors have declared that no competing interests exist

Abstract

The recent FDA approval of various CAR, TCR, and TIL therapies has only increased the excitement over T cell based adoptive transfer therapies. We have manufactured TCR and CAR T cells to treat a total of 29 patients with melanoma (N=7), clear cell renal cell carcinoma (N=15), and non-Hodgkins lymphoma (N=7). While there were objective clinical responses in the three patient populations with the NHL patients treated with CD19 CAR T cells had the best outcomes. What is clear is that the genetically modified T cells can persist for years but they become nonfunctional, probably due to the host environment. Results from our trials support this notion and will be discussed with potential solutions to overcoming the immune suppressive tumor microenvironment.