

# A Predictive ML Model For Cancer Early Relapse

Tech ID: 34498 / UC Case 2025-163-0

## VALUE PROPOSITION

Diffuse large B-cell lymphoma (DLBCL) is an aggressive and very prevalent subtype of non-Hodgkin’s lymphoma which accounts for 4% of all cancers in the US. Presently, clinicians have access to multiple CAR T cell therapies to treat patients. One such therapy, axi-cel, was recently approved for second-line treatment for patients with early relapse or refractory disease after first-line therapy. However, the trial data also revealed that nearly 60% of the patients treated had some kind of treatment failure and subsequent relapse, with most of these occurring within a year of treatment. There is an unmet need for clinically interpretable strategies that identify patients susceptible to early relapse and severe toxicity to further guide their treatment journey.

## TECHNOLOGY DESCRIPTION

UCSF investigators developed a clinician-facing, machine learning (ML) model that identifies patients at higher risk of developing early (within six months of therapy administration) cancer relapse following axicabtagene ciloleucel (axi-cel) CAR T cell therapy. This ML model can assist clinicians in identifying patients who may benefit from additional treatments to further extend CAR T cell therapy, thus leading to better health outcomes. The model has been trained on real-world data from the University of California Health Systems, encompassing 416 adult patients. While this model was developed for usage in patients receiving axi-cel, it could be adapted to patients receiving other CAR T cell therapies.

## RELATED MATERIALS

- ▶ Wang, M., Komanduri, K. V., Datta, D., Patel, A., Whitaker, B., Belov, A., Rubin, B., Rohit Vashist, Rodriguez-Monguio, R., Cinar, P., Anderson, S. A., & Butte, A. J. (2025). An AI model classifies risks of early relapse post–CAR T-cell therapy in a multicenter real-world population with DLBCL. Blood Advances, 9(22), 5837–5852.

## DATA AVAILABILITY

### CONTACT

Marlene Grenon  
[marlene.grenon@ucsf.edu](mailto:marlene.grenon@ucsf.edu)  
tel: .



### OTHER INFORMATION

#### KEYWORDS

clinical decision support,  
  
oncology, digital health,  
  
relapse, AI, patient  
  
stratification, prognostication,  
  
CART, machine learning  
  
model

#### CATEGORIZED AS

- ▶ **Biotechnology**
- ▶ Health
- ▶ **Computer**
- ▶ Software
- ▶ **Medical**
- ▶ Disease: Blood and Lymphatic System
- ▶ Disease: Cancer
- ▶ Software

#### RELATED CASES

2025-163-0

ADDRESS

UCSF

Innovation Ventures

600 16th St, Genentech Hall, S-272,  
San Francisco,CA 94158

CONTACT

Tel:

innovation@ucsf.edu

https://innovation.ucsf.edu

Fax:

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