

# CAR T and Beyond: Expanding Horizons for Novel Therapies in Hawai'i and Pacific Islands

**Stephanie J. Si Lim, MD MBA**

Assistant Professor

*University of Hawai'i Cancer Center/Kapiolani Medical Center*



**HAWAII  
PACIFIC  
HEALTH**

**KAPI'OLANI  
MEDICAL CENTER**  
FOR WOMEN & CHILDREN





# Introduction





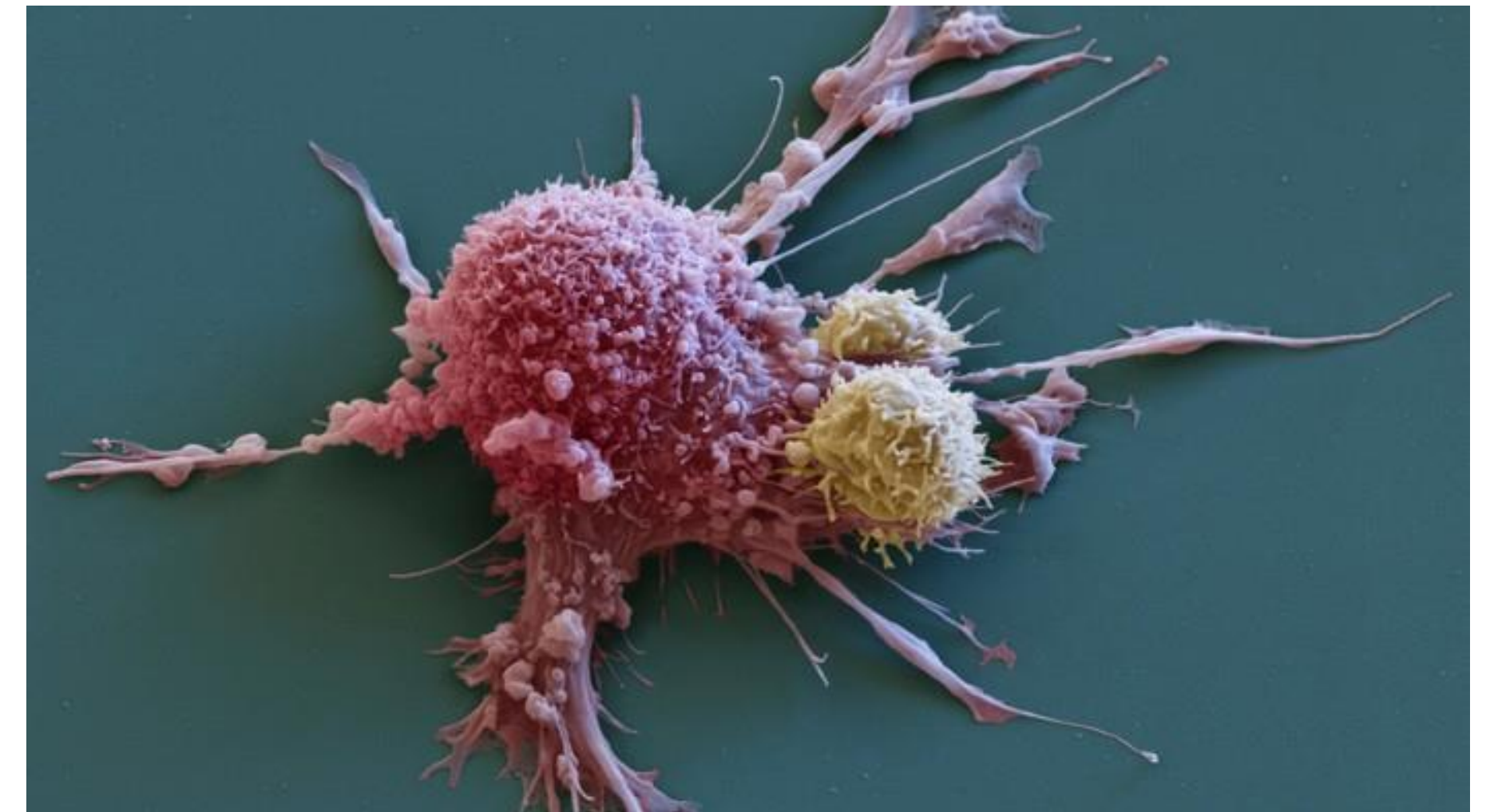
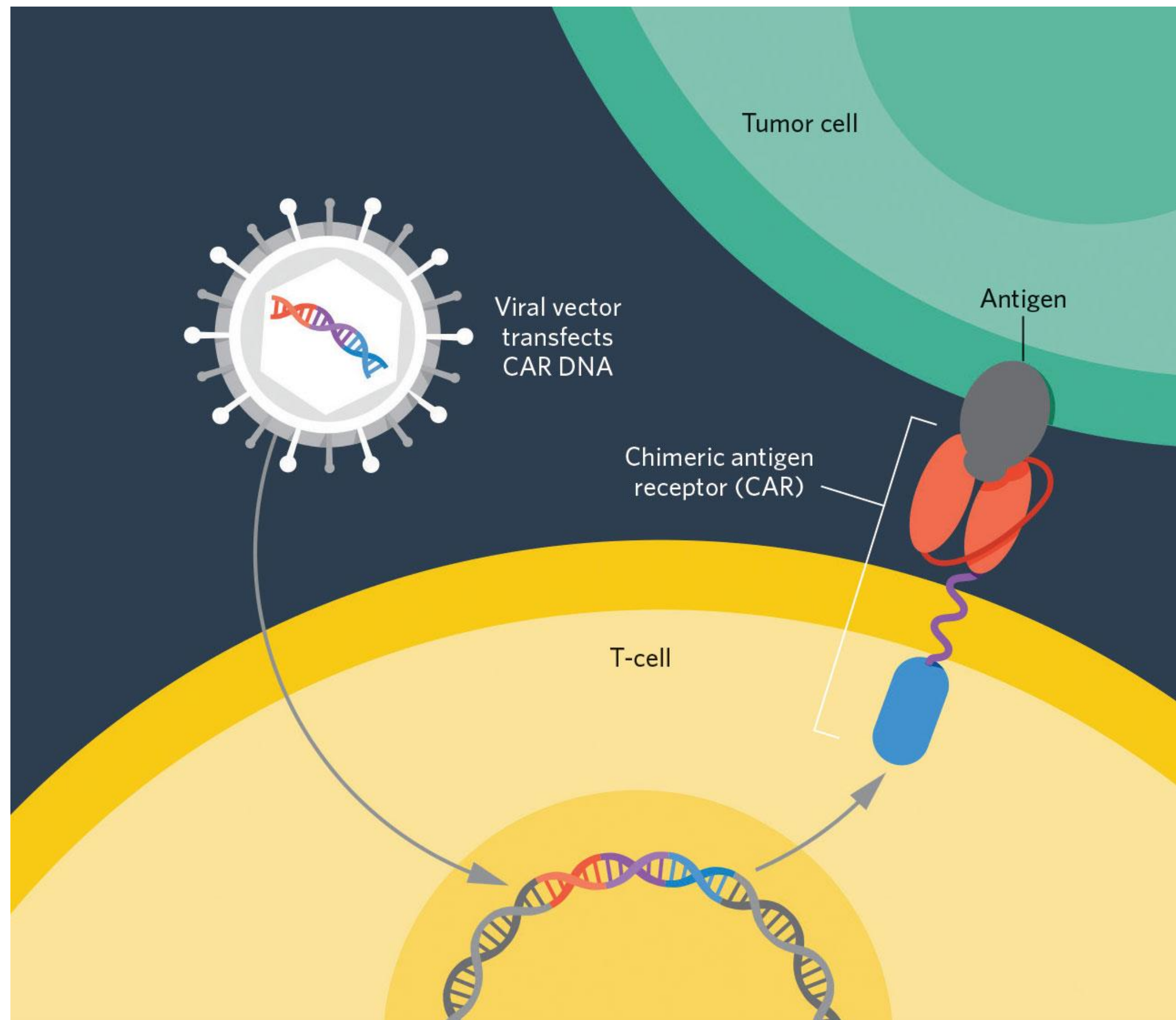
# Disclosures

No relevant financial relationships to disclose

# Outline

- I. CAR T Therapy Updates
- II. The Future of CAR T Therapy and Beyond
- III. Racial Disparities in Cancer Care
- IV. Cellular Immunotherapy Program in Hawai'i

# I: CAR T cell therapy's mechanism of action is unique as it functions as a "living" drug



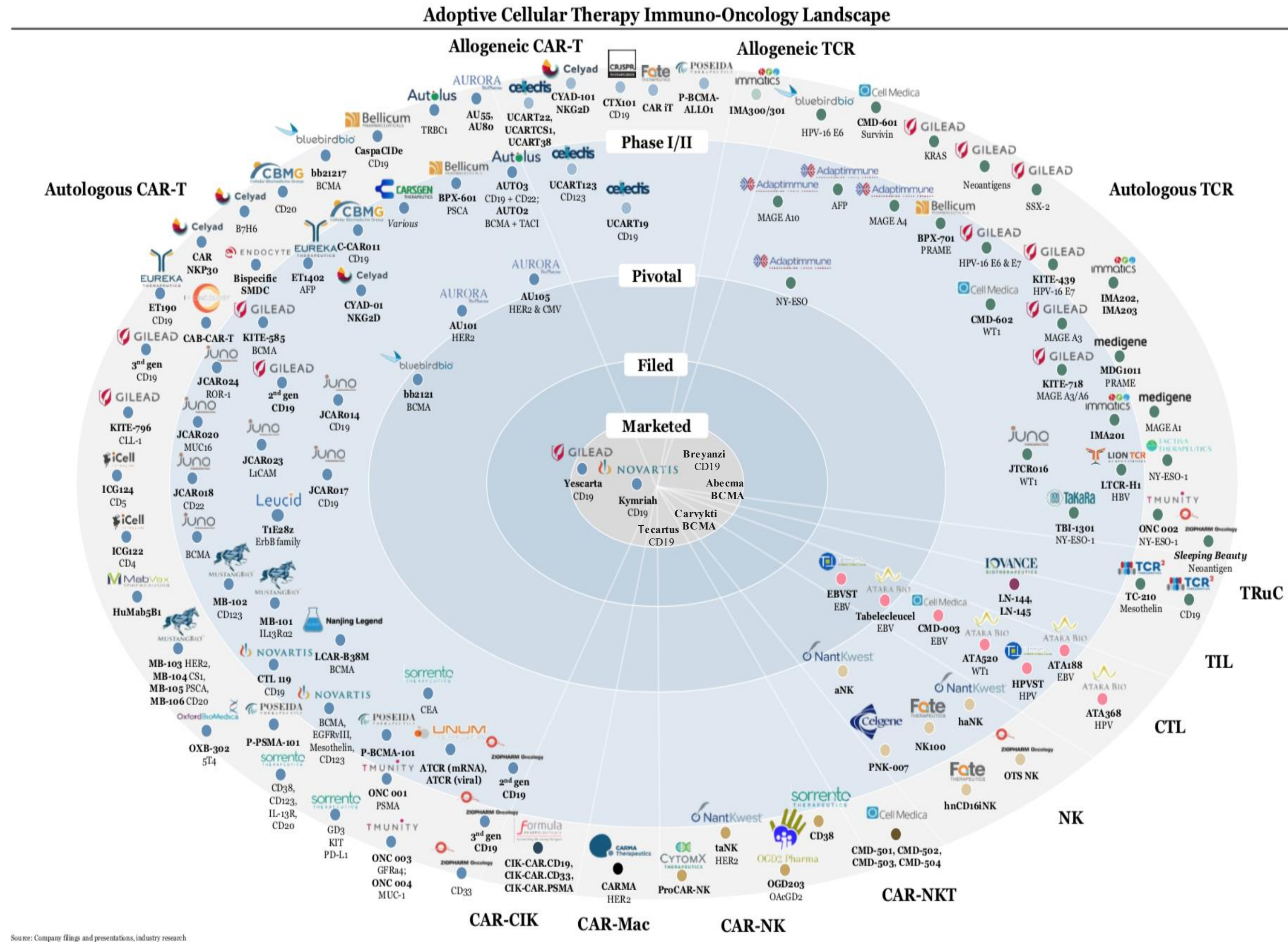


# I: CAR T cell therapy revolutionized the treatment of certain cancers...





# I: ... and continues to be an area of active research and innovation



- 750 active CAR T therapies in development
- In 2022, FDA approved a new CAR T product, and 2 CAR T therapies for use in 2<sup>nd</sup> line

Source: Company filings and presentations, industry research

Slide courtesy of Steve Grupp

# I: There are now 6 FDA approved CAR T products available

Product	Year approved	Indications
<b>Kymriah (tisagenlecleucel)</b>	2017	<ul style="list-style-type: none"> <li>• Children and young adults up to age 25 years of age with B-cell precursor acute lymphoblastic leukemia that is refractory or in second or later relapse</li> <li>• Adult patients with relapsed or refractory large B-cell lymphoma after two or more lines of systemic therapy including diffuse large B-cell lymphoma (DLBCL) not otherwise specified, high grade B-cell lymphoma, and DLBCL arising from follicular lymphoma</li> </ul>
<b>Yescarta (axicabtagene ciloleucel)</b>	2017	<ul style="list-style-type: none"> <li>• Adult patients with relapsed or refractory large B-cell lymphoma after <b>first-line chemoimmunotherapy</b>, including DLBCL NOS, primary mediastinal large B-cell lymphoma, high grade B-cell lymphoma, and DLBCL arising from follicular lymphoma</li> </ul>
<b>Tecartus (Brexucabtagene autoleucel)</b>	2020	<ul style="list-style-type: none"> <li>• Adult patients with relapsed/refractory mantle cell lymphoma</li> <li>• Adults with relapsed/refractory B-cell acute lymphoblastic leukemia</li> </ul>
<b>Breyanzi (lisocabtagene maraleucel)</b>	2021	<ul style="list-style-type: none"> <li>• Adult patients with relapsed/refractory large B-cell lymphoma after <b>first-line chemoimmunotherapy</b>, including DLBCL NOS (including DLBCL arising from indolent lymphoma), high-grade B-cell lymphoma, primary mediastinal large B-cell lymphoma, and follicular lymphoma grade 3B</li> </ul>
<b>Abecma (idecabtagene vicleucel)</b>	2021	<ul style="list-style-type: none"> <li>• Adult patients with multiple myeloma who have not responded to, or whose disease has returned after, at least 4 prior lines (different types) of therapy</li> </ul>
<b>Carvykti (ciltacabtagene autoleucel)</b>	2022	<ul style="list-style-type: none"> <li>• Adult patients with relapsed/refractory multiple myeloma after four or more prior lines of therapy</li> </ul>



# I: But CAR T therapies still present some limitations

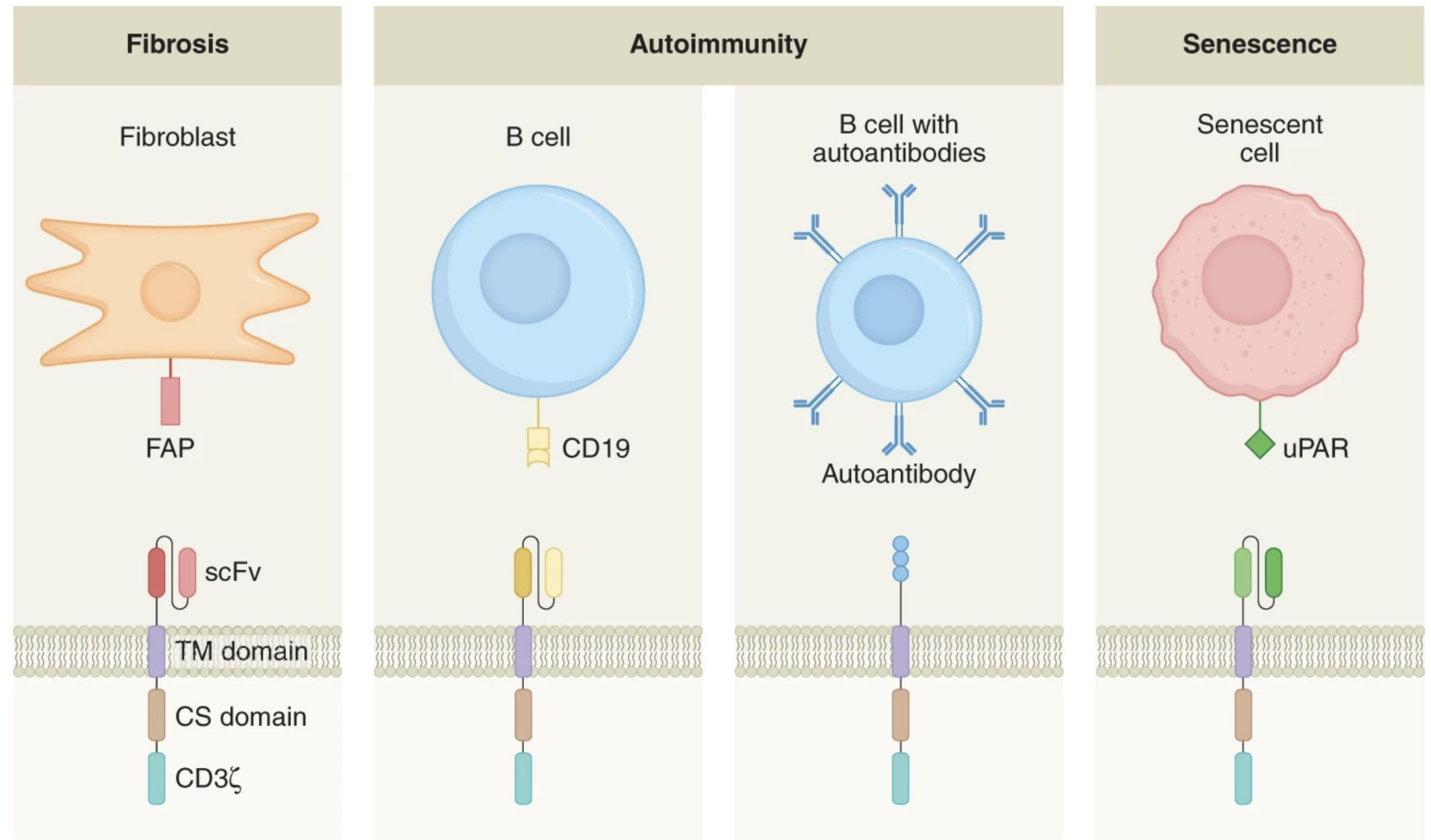


- Use of CAR T therapies is mostly limited to oncology
- Within oncology, CAR T therapies is only effective against certain types of cancers
- All CAR T therapies are autologous



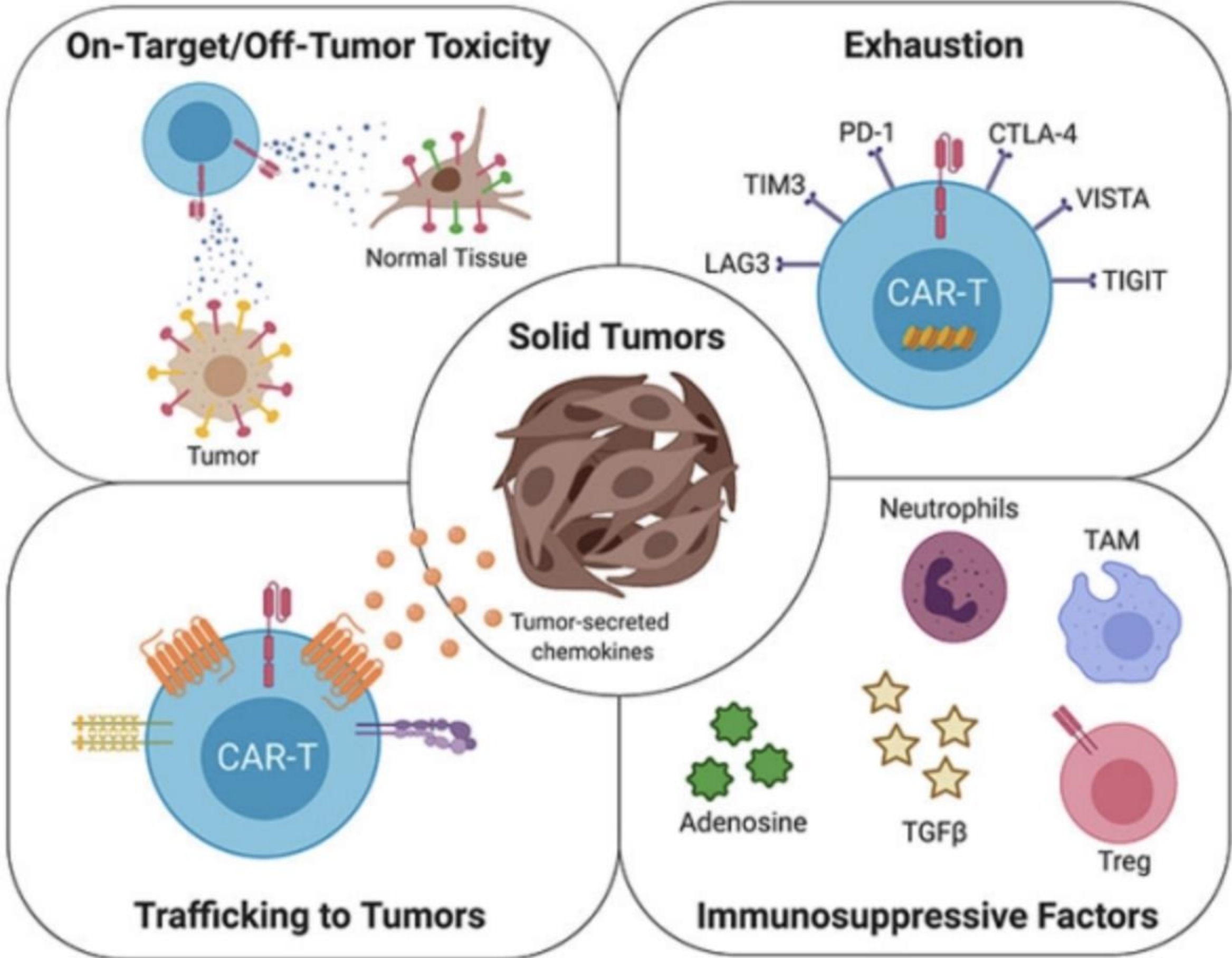
# II: Non-oncology CAR T trials account for < 5% of active trials

- Autoimmune disorders
- Allergy & Asthma
- Infectious diseases (i.e. HBV, HCV, HIV, COVID19 etc)
- Cardiac Fibrosis



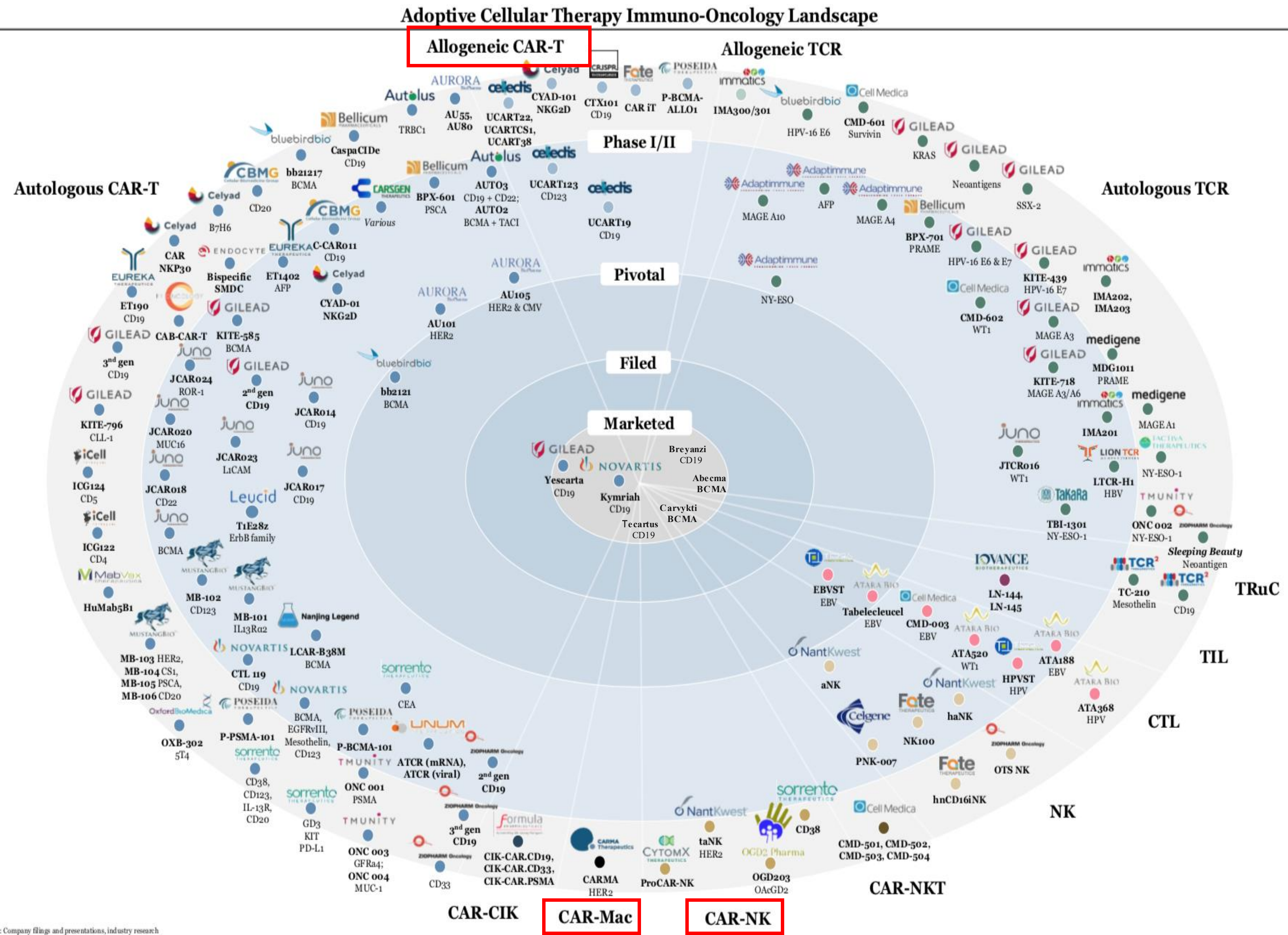


# II: FDA approved CAR T products only targets CD19 & BCMA in hematologic malignancies





# II: Next-generation CAR therapy

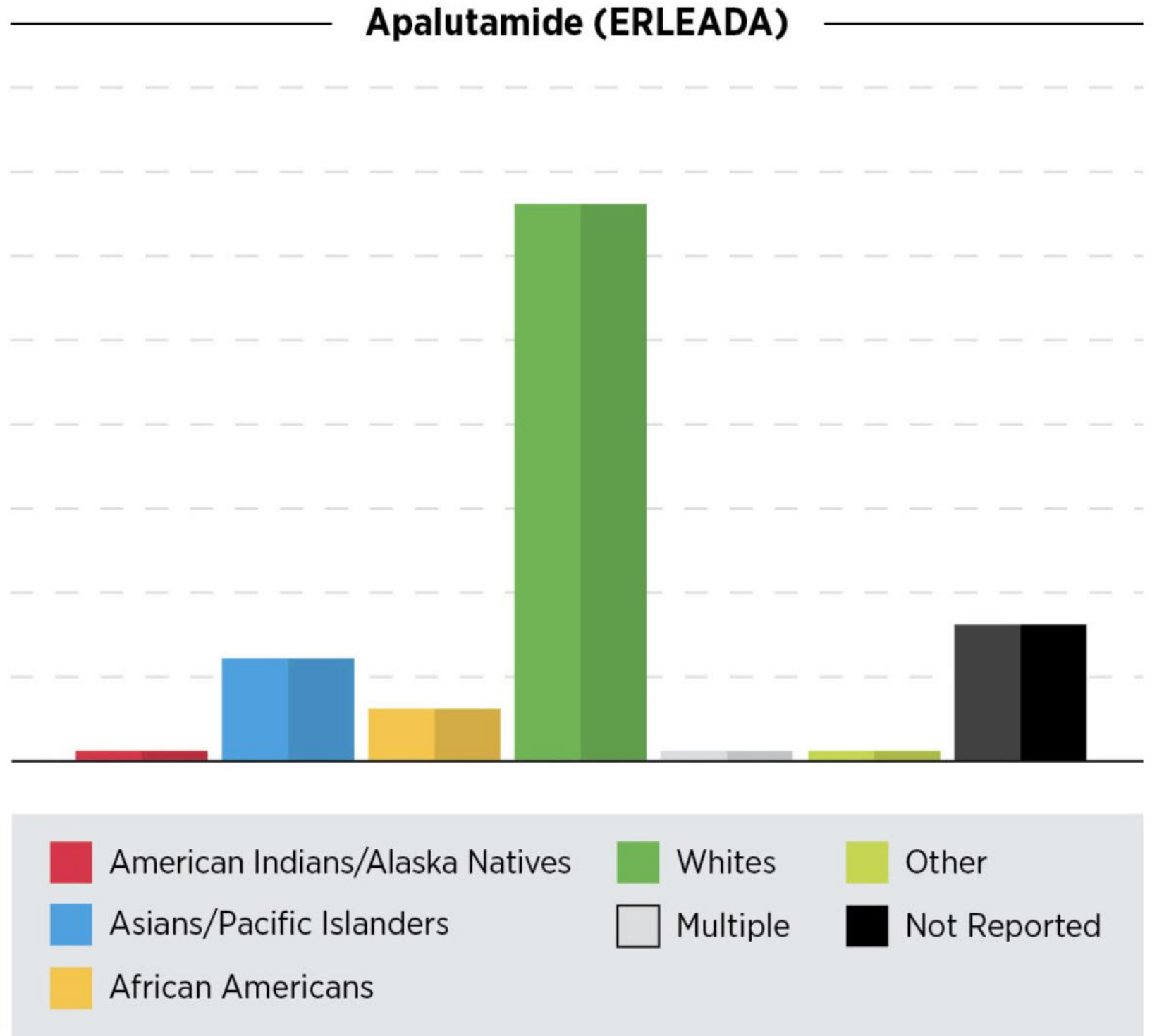
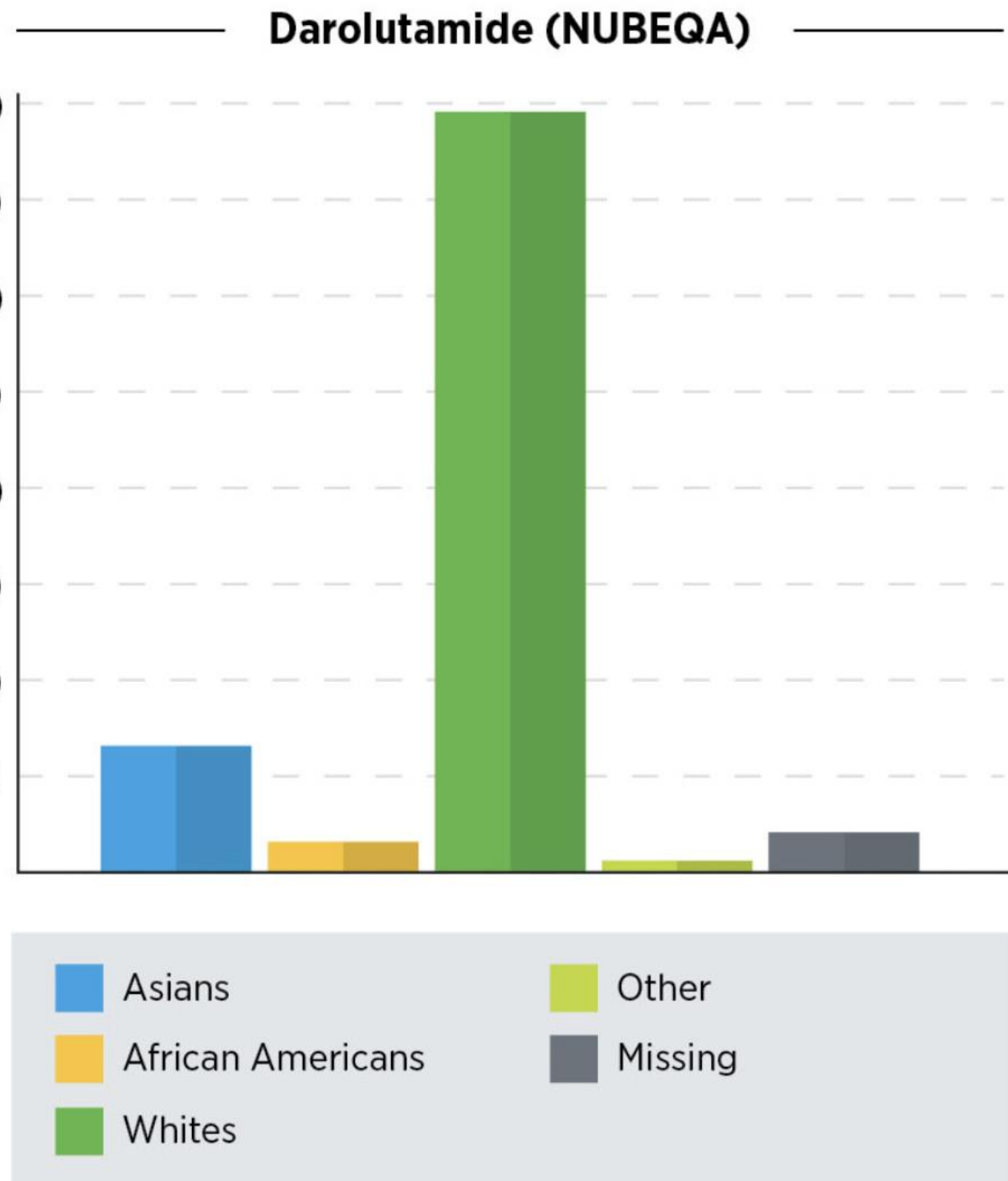
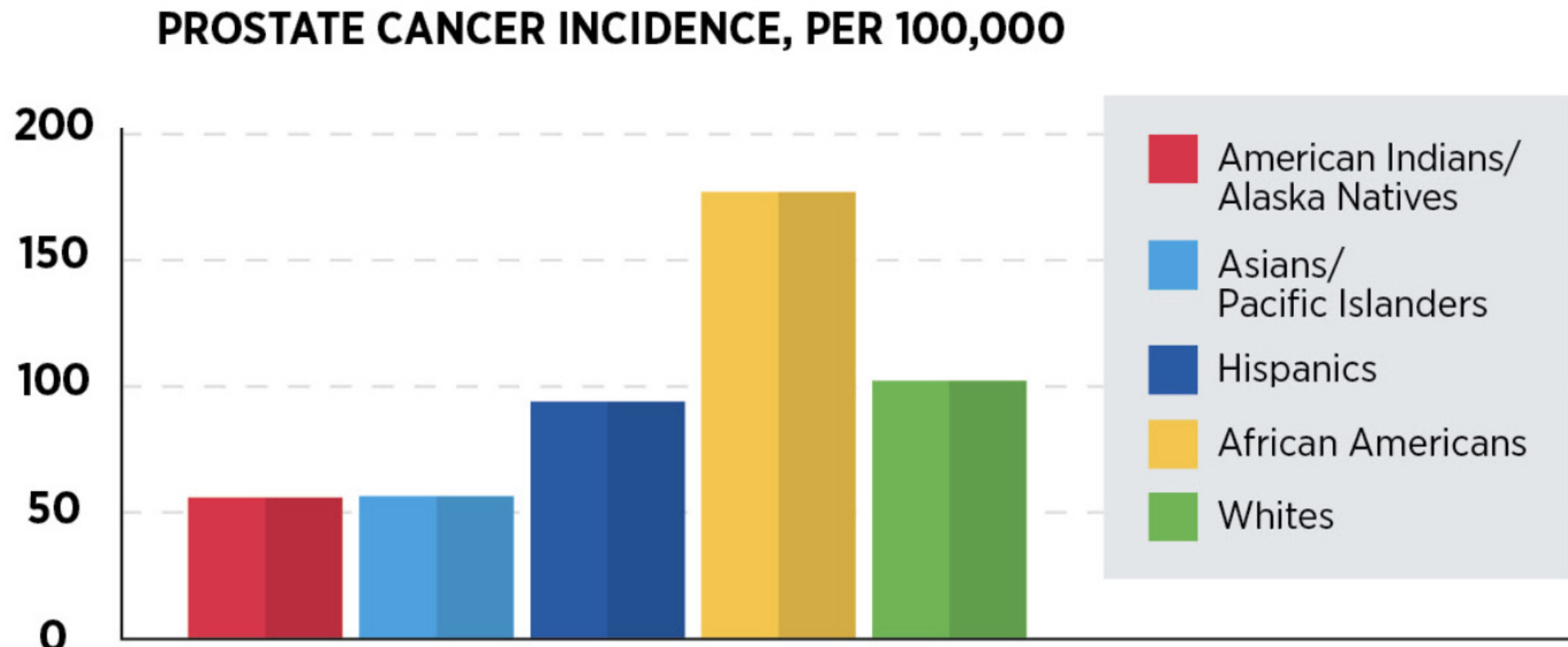


Slide courtesy of Steve Grupp



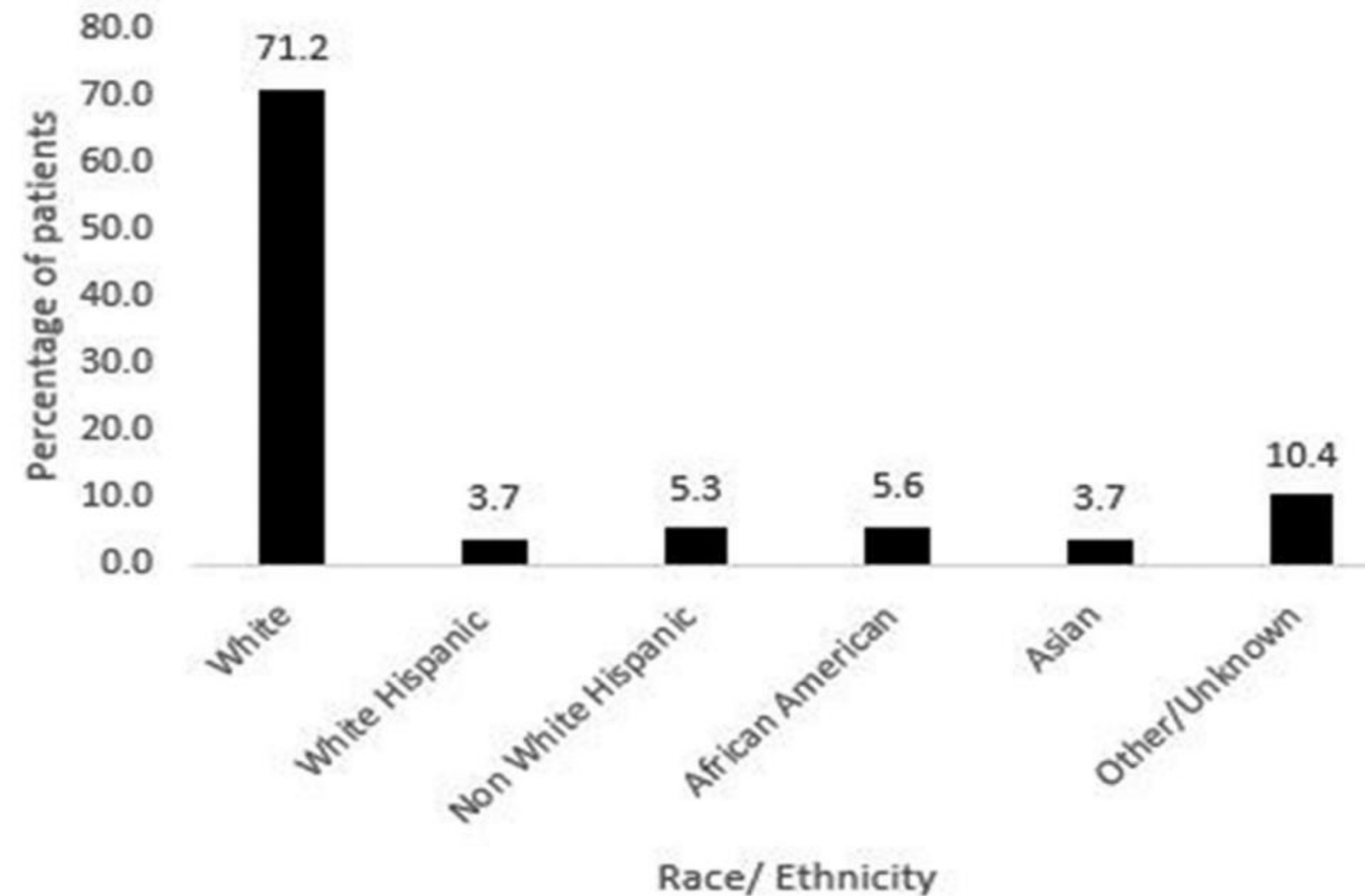
# III: Significant disparities exist in access to novel therapies including clinical trials

Percentage of Representation in Clinical Trials



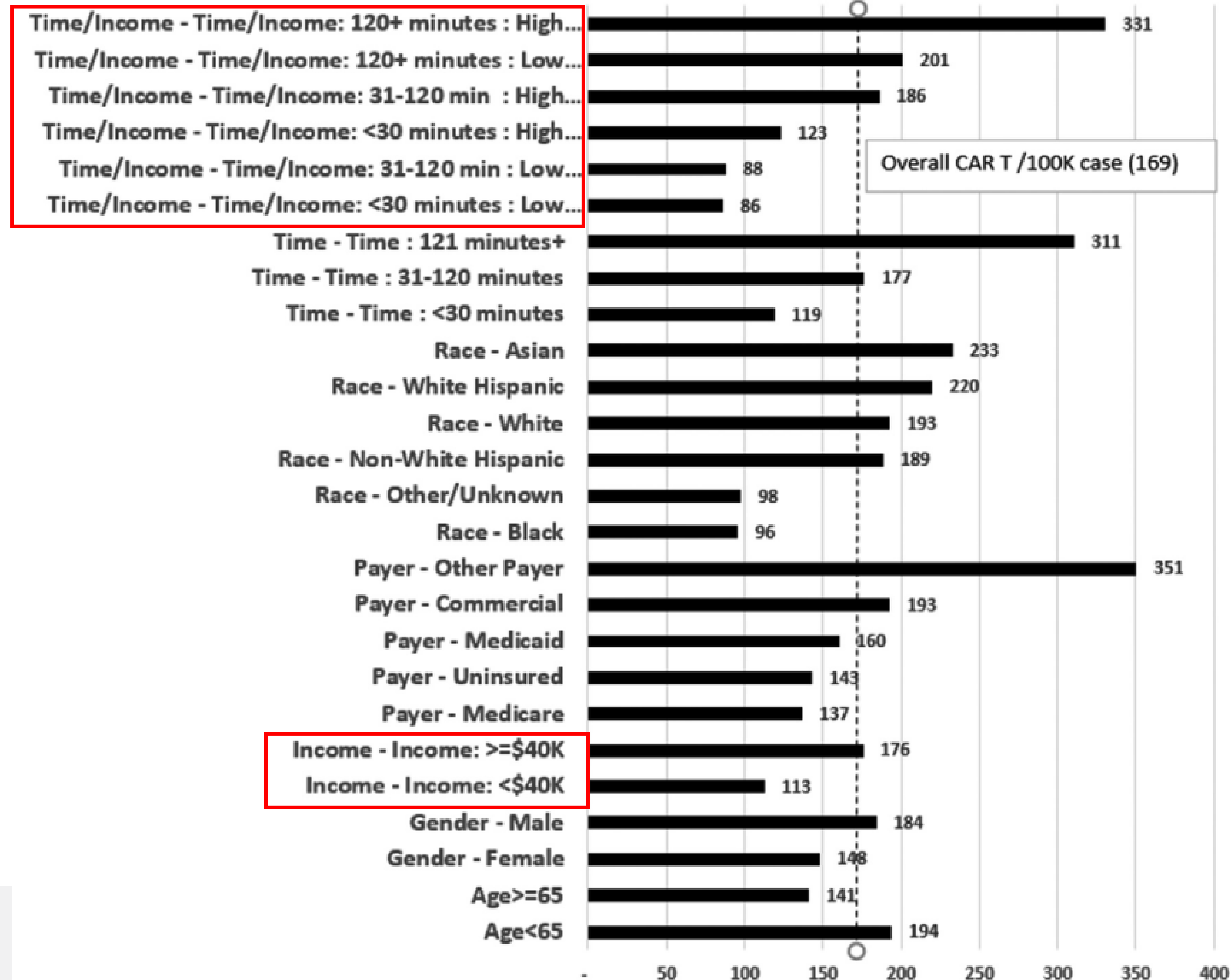


# III: Majority of patients receiving CAR T therapy are non-Hispanic White patients



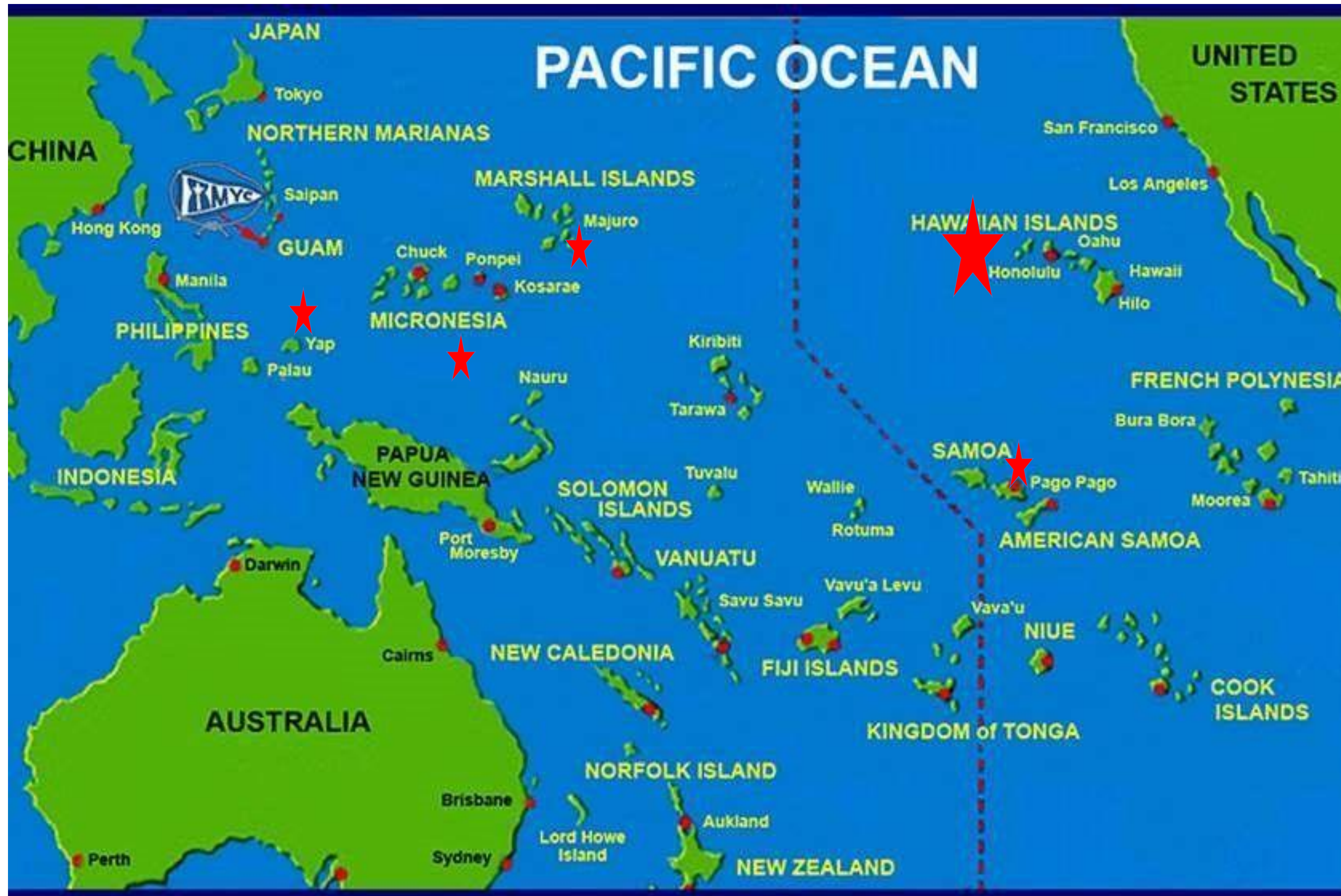


# III: Lower SES and distance to treating facility are also barriers to receiving CAR T therapy





# III: Hawai'i and the Pacific Islands is the “perfect storm” for propagating health disparities - **Distance**



- Geographic isolation poses unique challenges to our medical landscape
- 2,500 miles from nearest city on mainland U.S.
  - Minimum of 5 hour flight time



# III: Hawai'i and the Pacific Islands is the “perfect storm” for propagating health disparities – Population/SES



**INCOME**

	Japanese	Filipino	Chinese	Total Population	White	Native Hawaiian	Hispanic or Latino
<b>MEDIAN FAMILY INCOME</b>	\$114,825	\$102,324	\$96,993	\$96,462	\$96,345	\$84,699	\$76,054
<b>PER CAPITA INCOME</b>	\$40,940	\$27,738	\$33,454	\$36,989	\$39,499	\$25,612	\$25,138



# III: ...Despite high potential utilization in Hawai'i and the Pacific Islands

Number of new diagnoses across Hawaii Pacific Health medical system

	2022	2021	2020	2019	2018	Average
<b>B-ALL</b>	9	18	11	14	10	12.4
<b>DLBCL</b>	28	26	28	23	18	24.6
<b>Mantle cell lymphoma</b>	2	4	2	3	2	2.6
<b>Multiple Myeloma</b>	23	15	26	25	25	22.8

*Internal data*



# IV: Building a cellular immunotherapy program in Hawai'i



March 26, 2021

Aug 2020

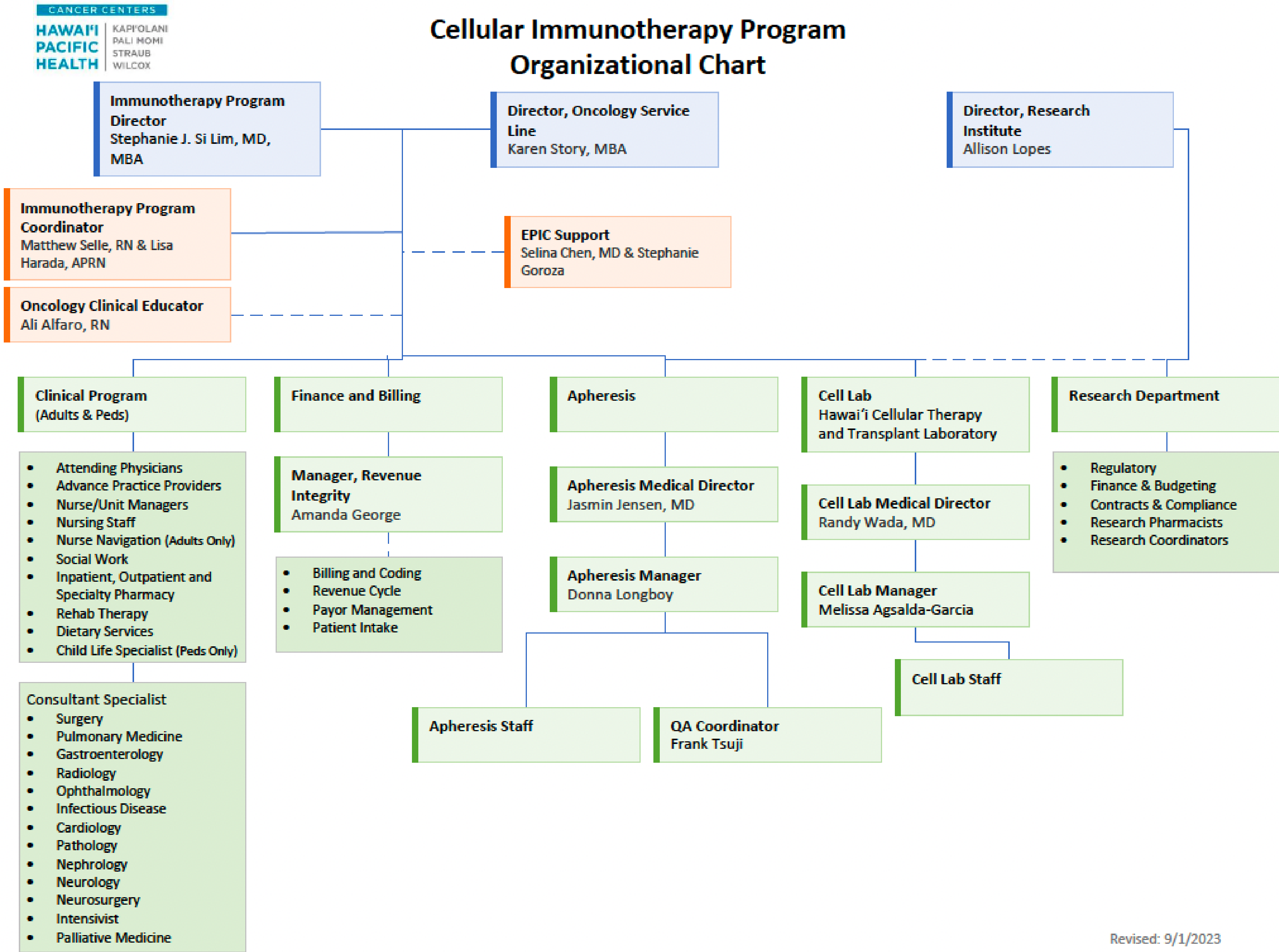
ZUMA-4  
—  
1<sup>st</sup> CAR T  
clinical trial

Tisagenlecleucel –  
1<sup>st</sup> FDA approved  
CAR T product

May 22, 2023



# IV: Building a cellular immunotherapy program in Hawai'i



Revised: 9/1/2023





# IV: Building a cellular immunotherapy program in Hawai'i



March 26, 2021

Tisagenlecleucel –  
1<sup>st</sup> FDA approved  
CAR T product

Aug 22, 2023

Aug 2020

ZUMA-4  
–  
1<sup>st</sup> CAR T  
clinical trial

May 22, 2023

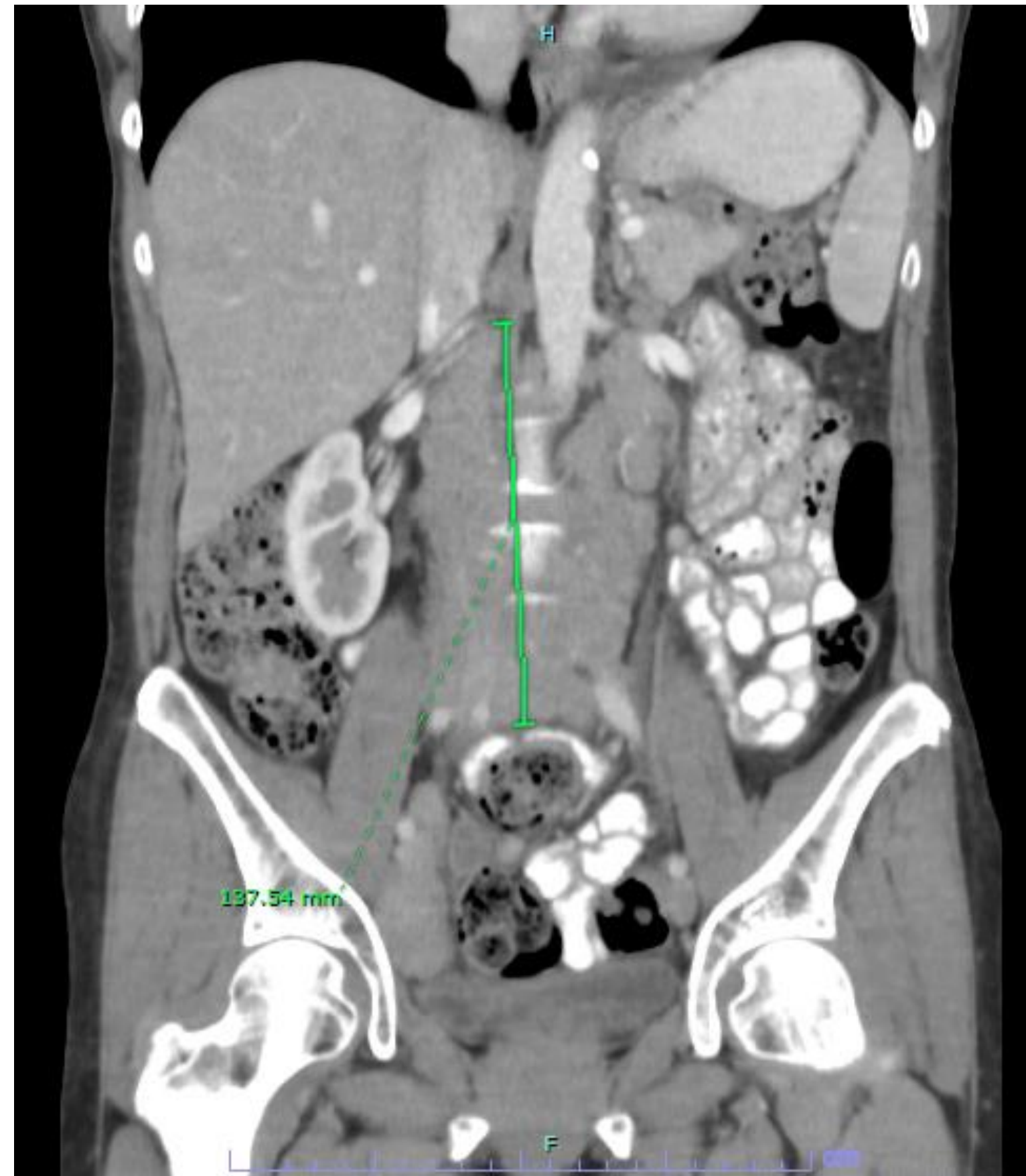




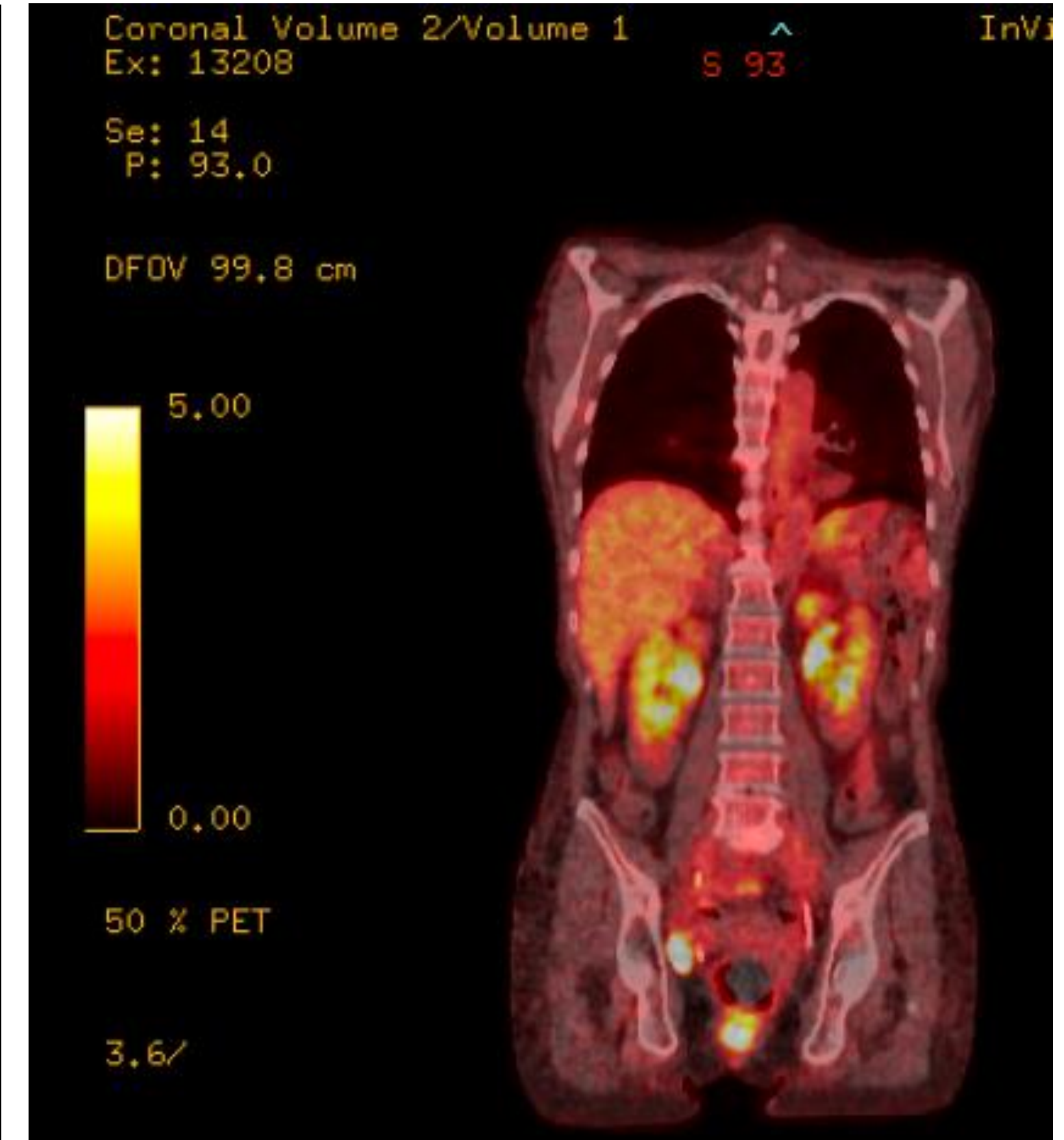
# IV: A great outcome for our 1<sup>st</sup> CAR T patient in Hawai'i



April 2021



Sept 2023





# IV: Thankful for the opportunity to continue our efforts to bring positive impact to our community





# IV: 5- & 10-year strategic vision/goals

## Short-term goals:

- Expand clinical trials
- Broaden cellular immunotherapy portfolio
- Enhance community outreach
- Recruitment
- Health disparity assessment

## Long-term goals:

- Establish biorepository
- Strengthen clinical and translational research capabilities
- National collaboration
- Health equity



# Thank you!

