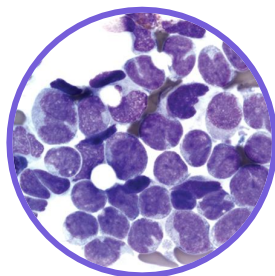


Development of CD123 CAR T cells against aggressive acute leukemia

Carla001



**1st Immuno-Oncology Research Days
March 13 and 14, 2025 CHU Strasbourg**

Carla
biotherapeutics

CARLA Biotherapeutics was founded by entrepreneurs and experts in the key fields of cell therapy development (Hematology, Oncology, Cell Therapy & Drug Development)



Zaki Sellam MSc, MBA
Co-Founder and CEO

>20 years of international experience
Creation of several biotech start-ups
Several fund-raising to his credit



Olivier Adotevi, MD, PhD
Co-Founder, Board Member Medical Expert

Doctor of Science in Immunology & Oncology Heads UMR Right (130 researchers)
Has led and directs several international clinical programs devoted to cancer immunotherapies - several patents and numerous publications



Francine Garnache, Pharm.D, PhD
Co-Founder, Board Member

Doctor of Science in Hematology & Immunotherapy
Expert in CD123+ pathologies in blood cancers
One patent and over 60 publications



Fanny Angelot-Delettre, Pharm.D, PhD
Co-Founder, Board member

Pharmacist and Doctor of Science
Director of EFS Besançon
Expert in the production of cellular immunotherapies



Mehdi Chelbi, MSc
Co-Founder, Board member, COO

20 years' industry experience
Seasoned pharmaceutical industry professional
CEO and co-founder of several healthcare companies



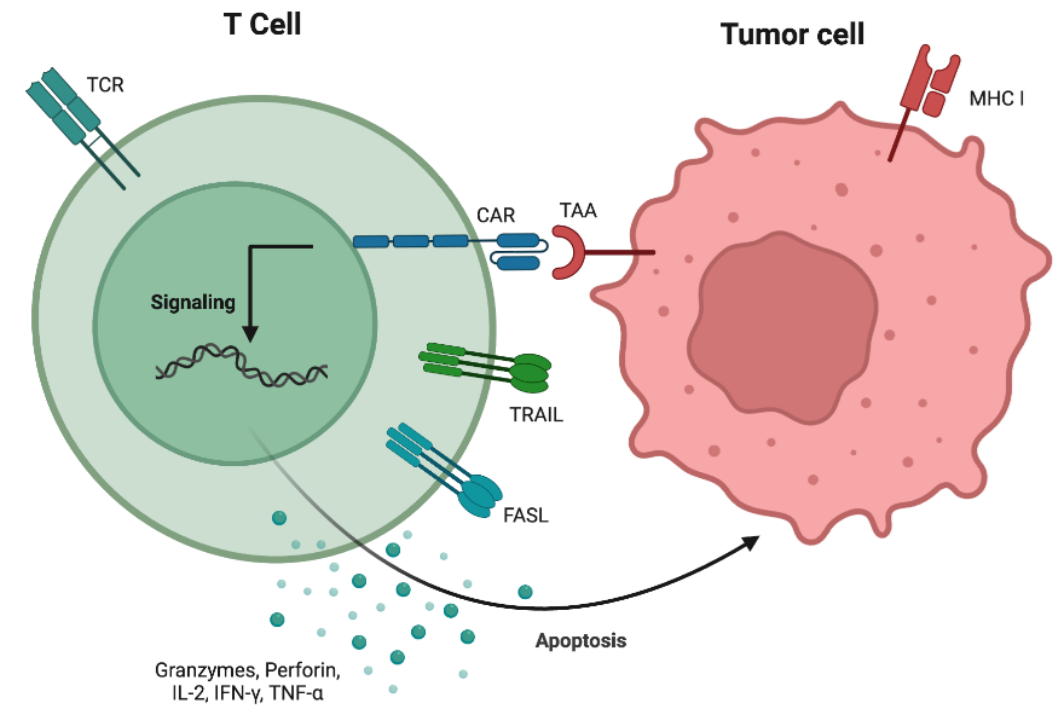
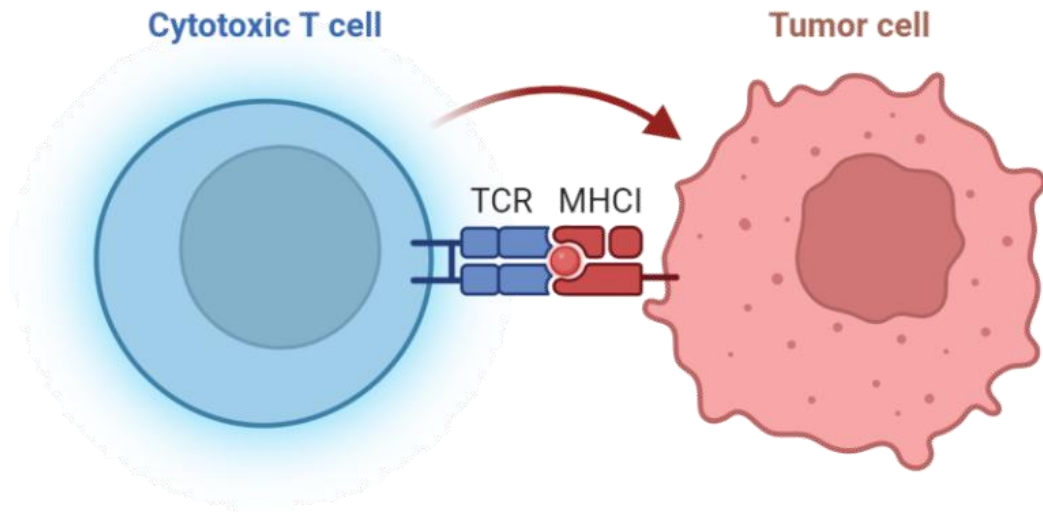
Maxime Fredon, PhD
Lead Scientist, CSO

PhD in Immunology and CAR-T Cell in Oncology.
Extensive experience immune cell therapies
Thesis on CARLA001

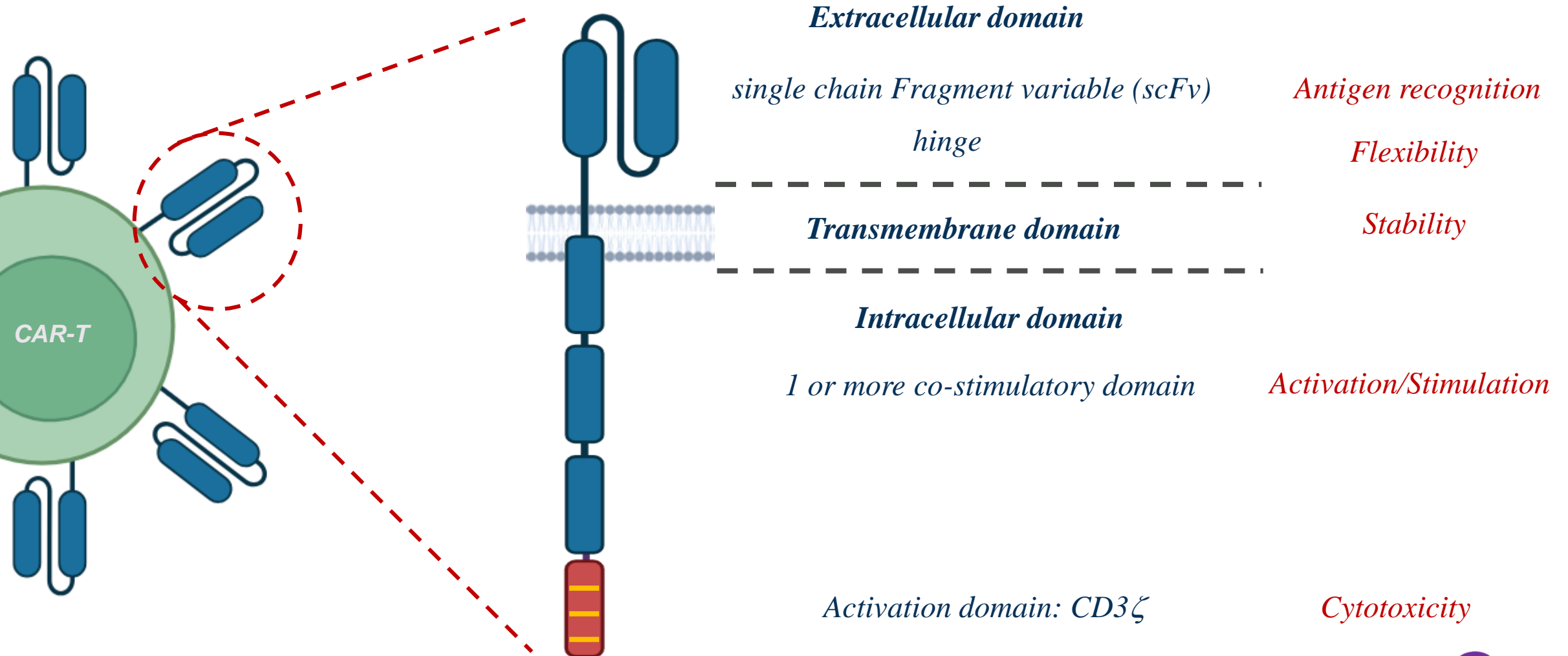


CAR T cells vs T cells

CAR: Chimeric Antigen Receptor

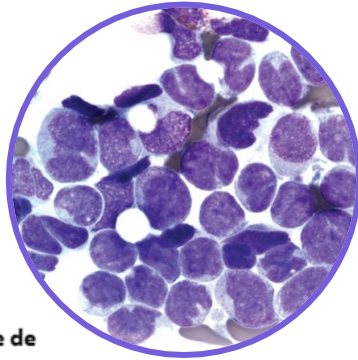


CAR construct: different components that have their importance



CD123: a target of interest for treatment of acute leukemia

BPDCN: Blastic Plasmacytoid Dendritic Cell Neoplasm



2021
Laboratoire de Biologie médicale de
référence

(Déclaration ministérielle JORF n°0167 21 juillet 2021)

BPDCN

Median overall survival: 8-14 months

Overall survival at 1 year = 10-15%

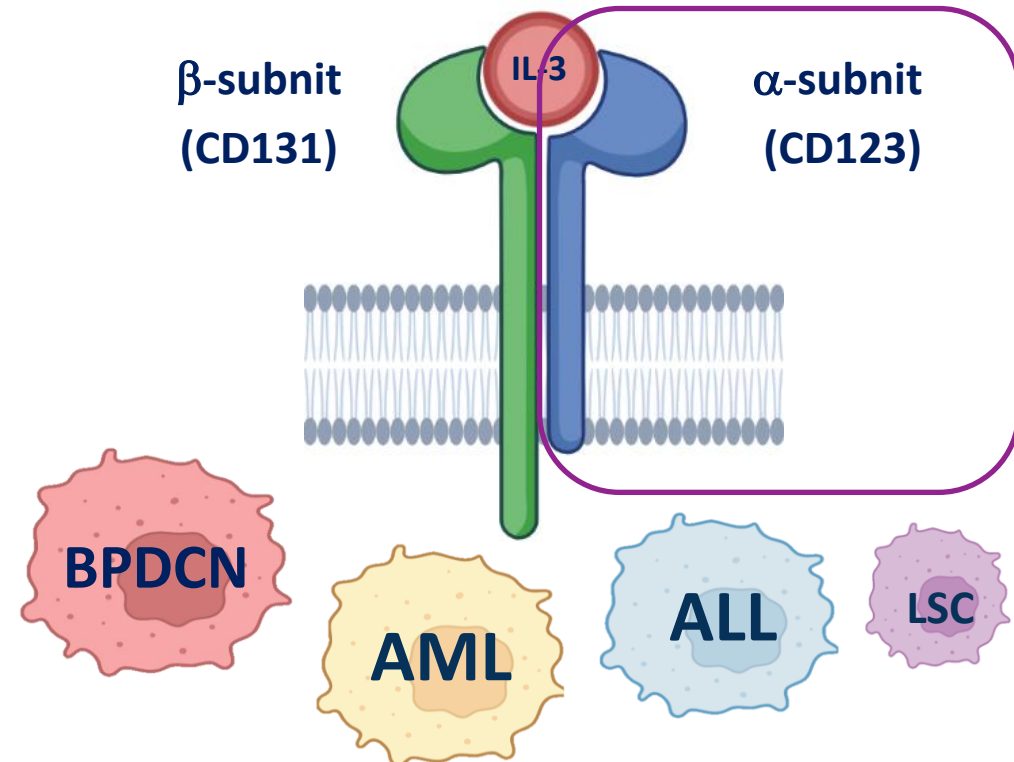
Often misdiagnosed and/or under-reported

Tagraxofusp but efficacy is limited and 100% of patient relapse

Characteristic: overexpression of CD123

AML: Acute Myeloid Leukemia
ALL: Acute Lymphoid Leukemia
LSC: Leukemic Stem Cells

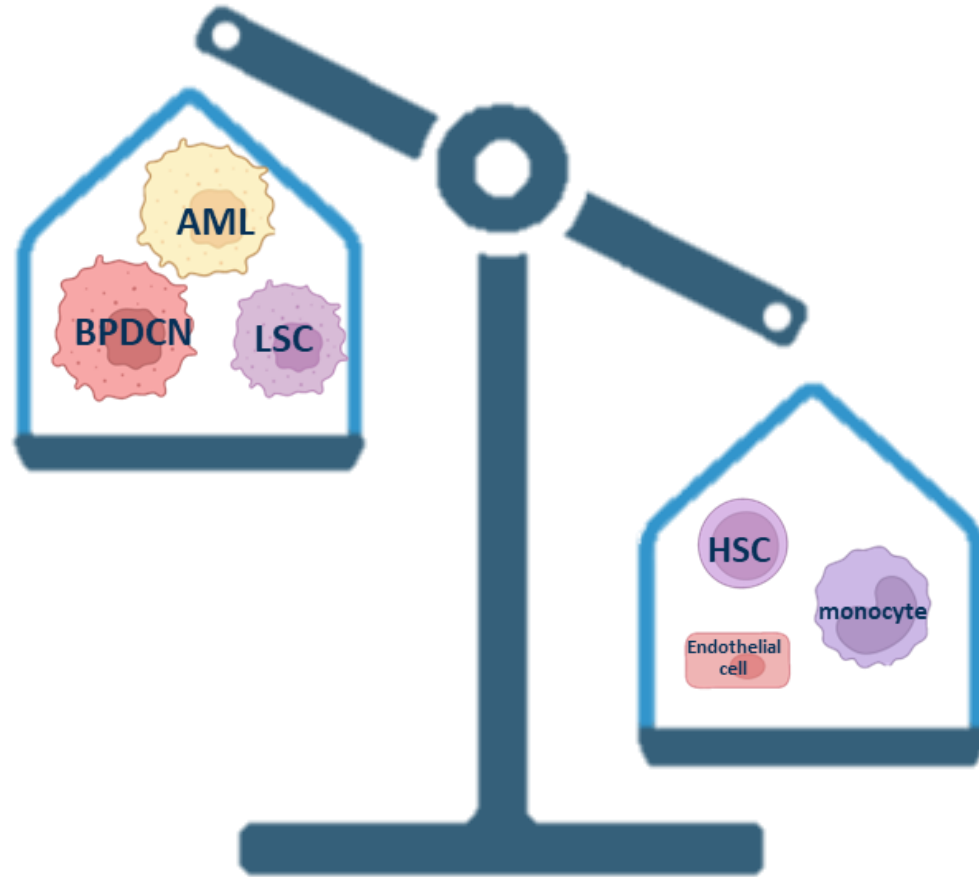
IL-3 receptor



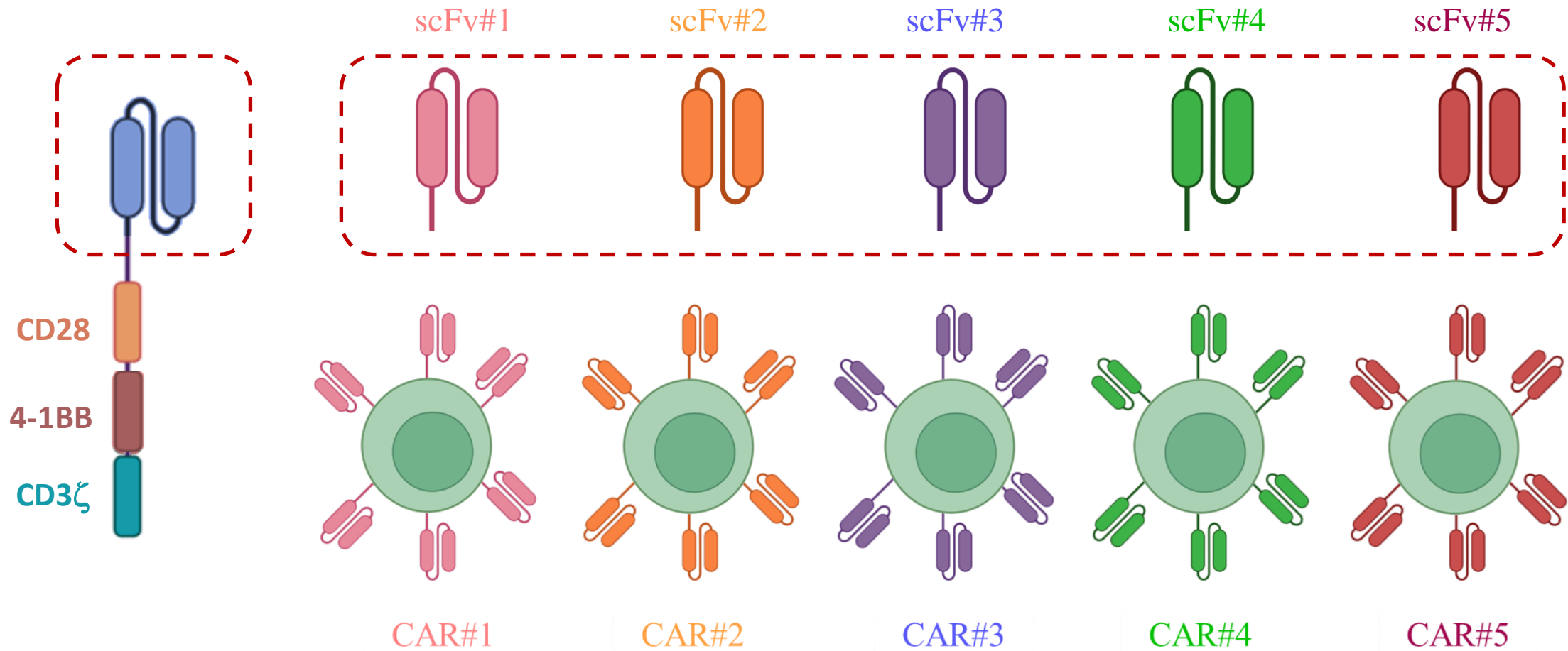
CD123, an optimal acute leukemia target



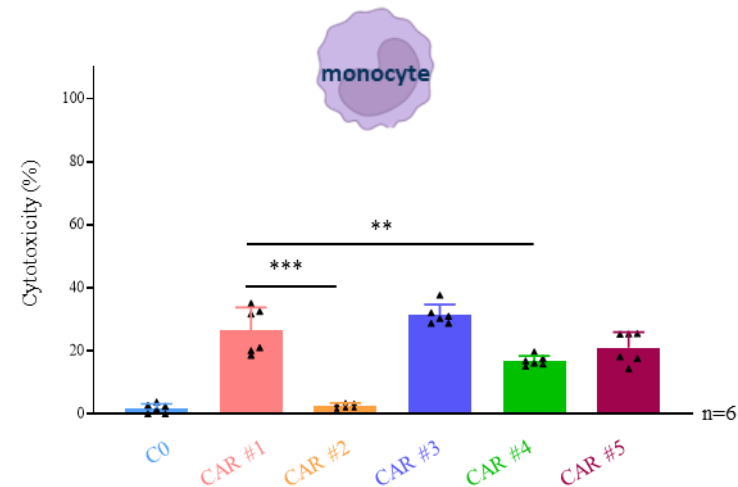
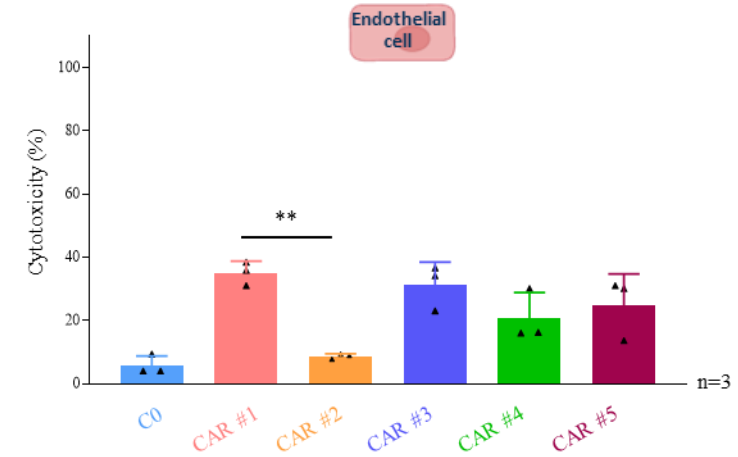
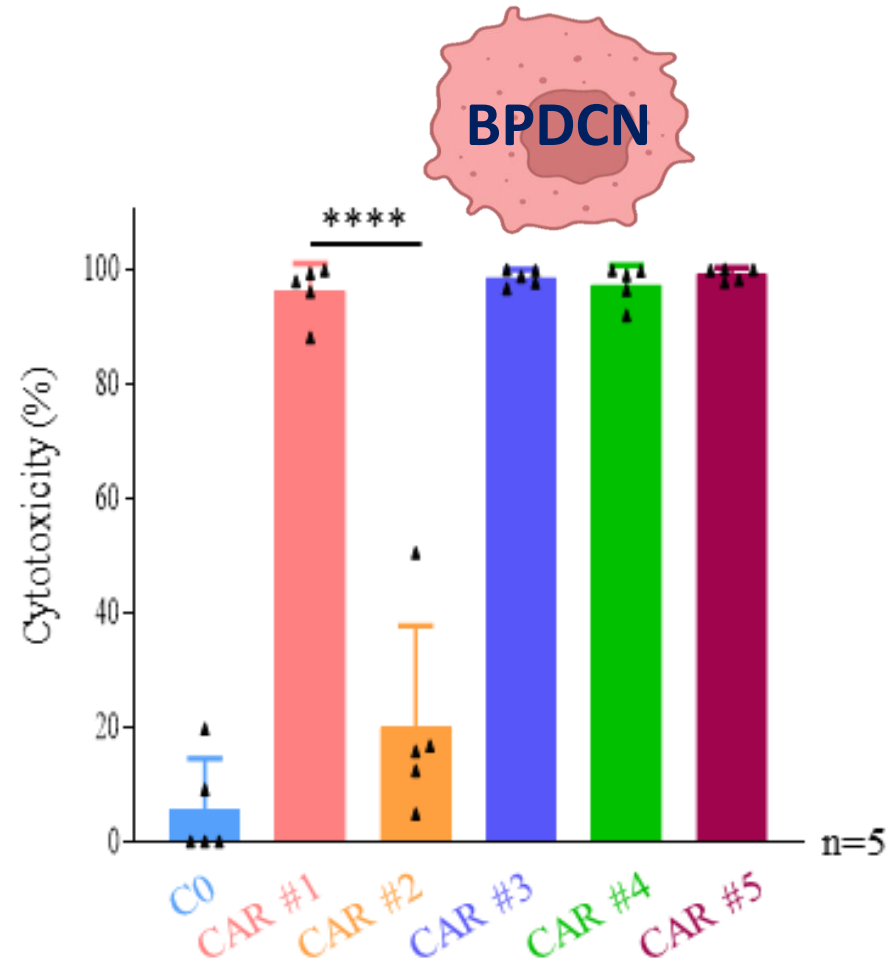
on-target/off-tumor effects



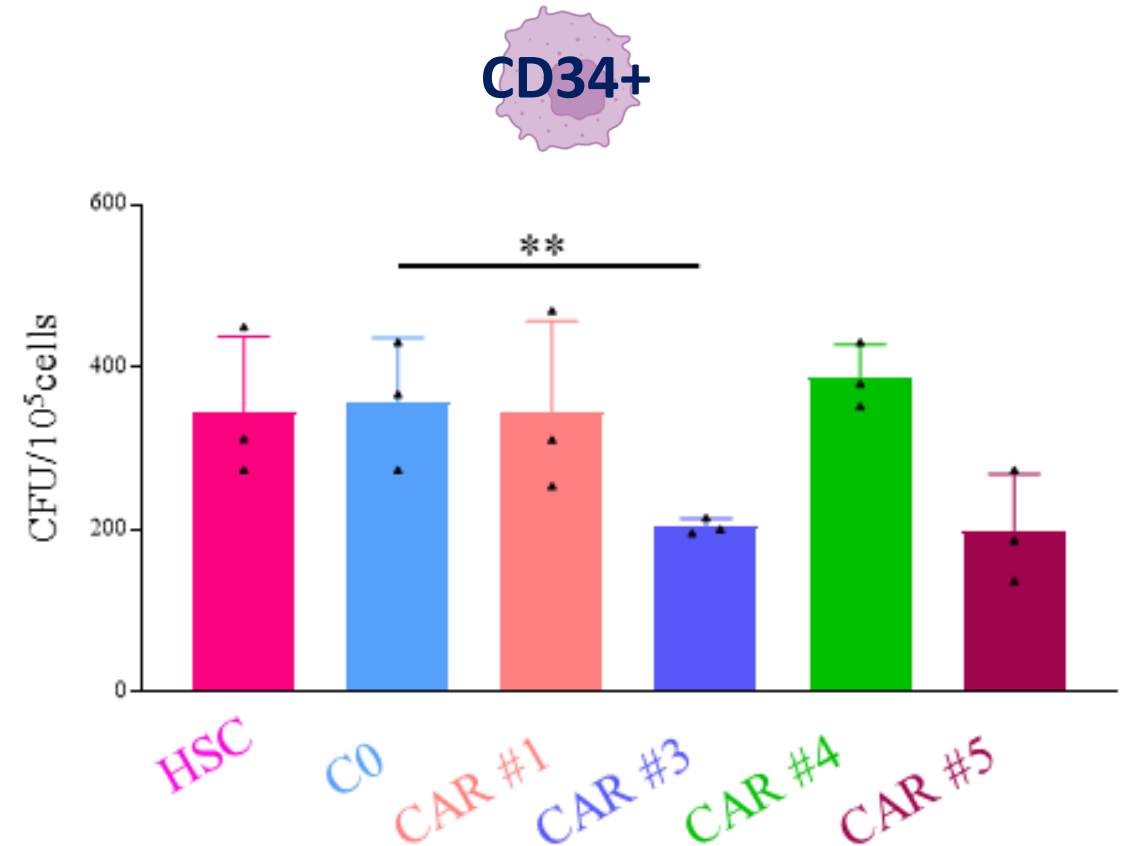
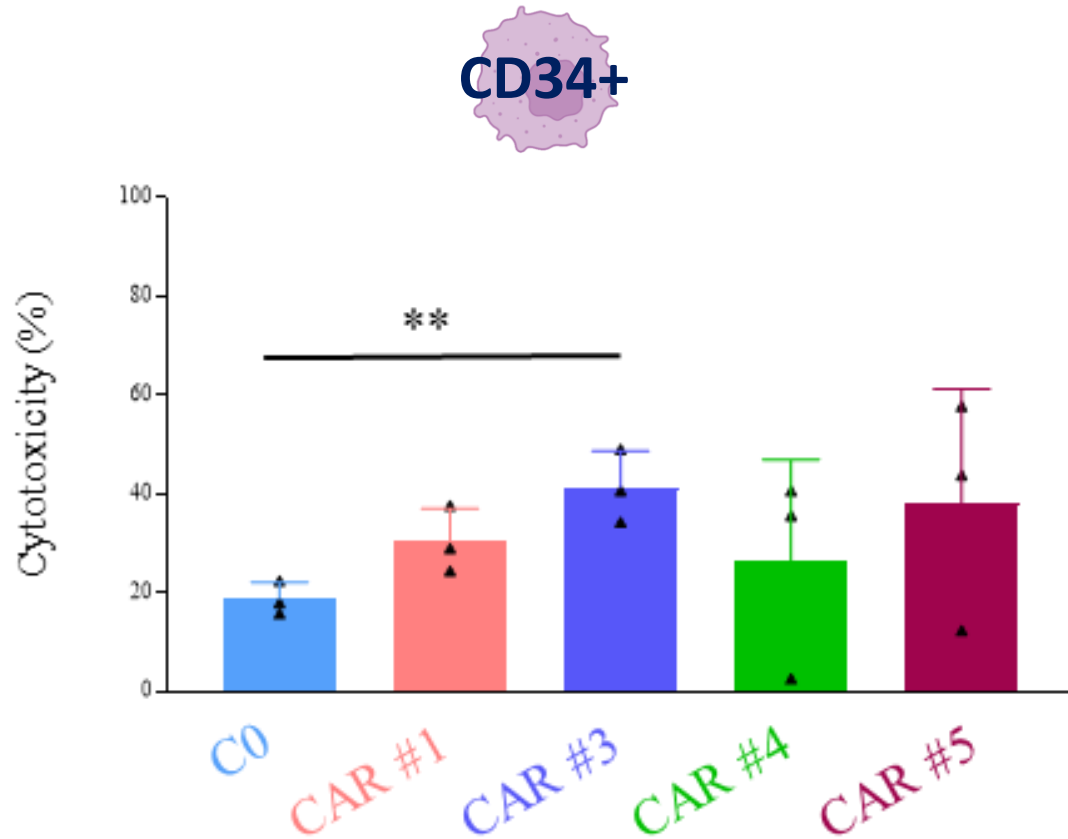
Impact of scFv substitution on the functionality/safety balance of a CD123 CAR T cells



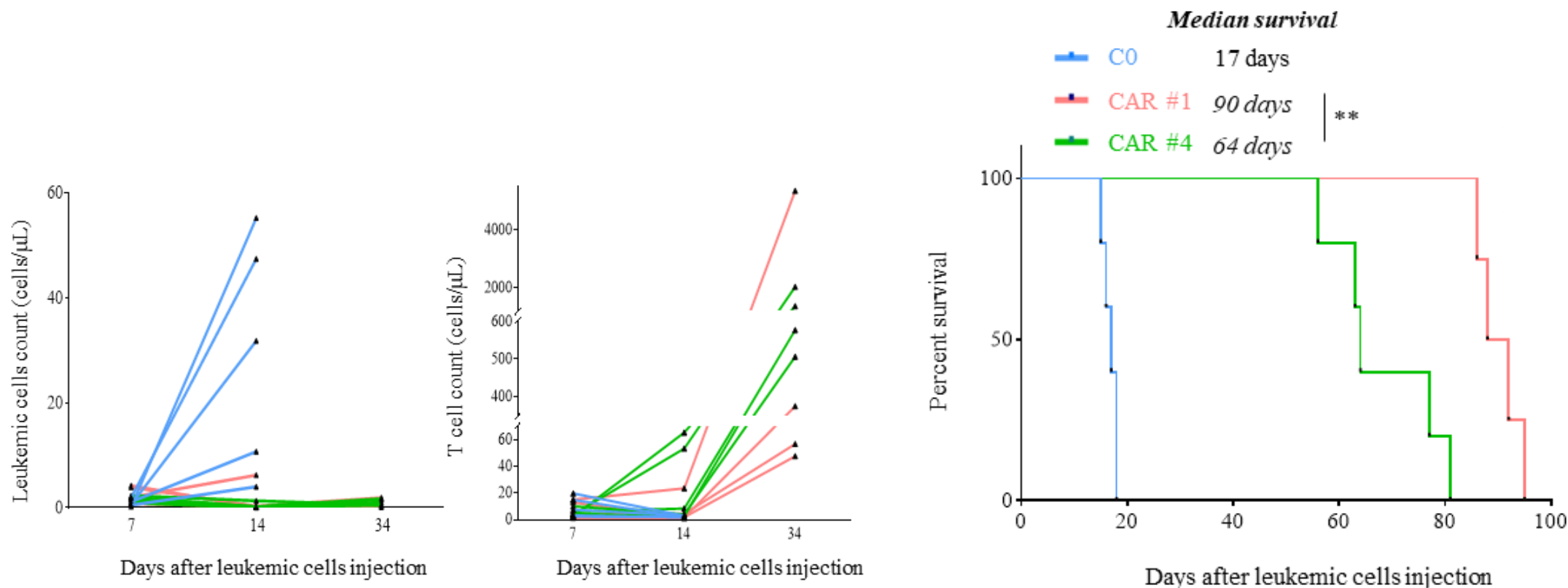
In vitro, CD123 CAR-Ts preferentially eliminate BPDCN cells



Low/no impact in hematopoiesis



Efficacy of CD123 CAR-Ts in BPDCN PDX xenografts mouse model



Tumor uptake control

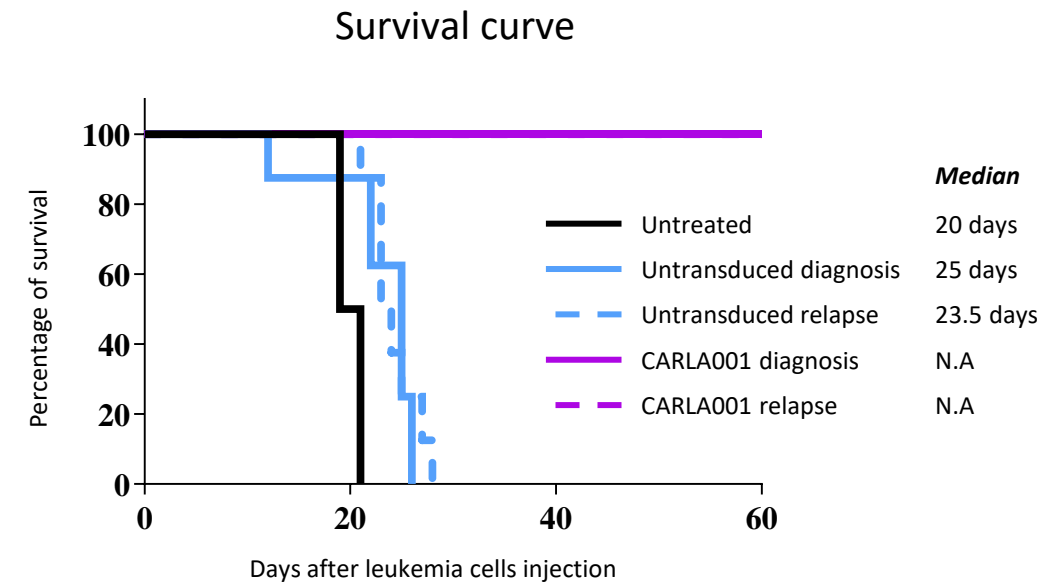
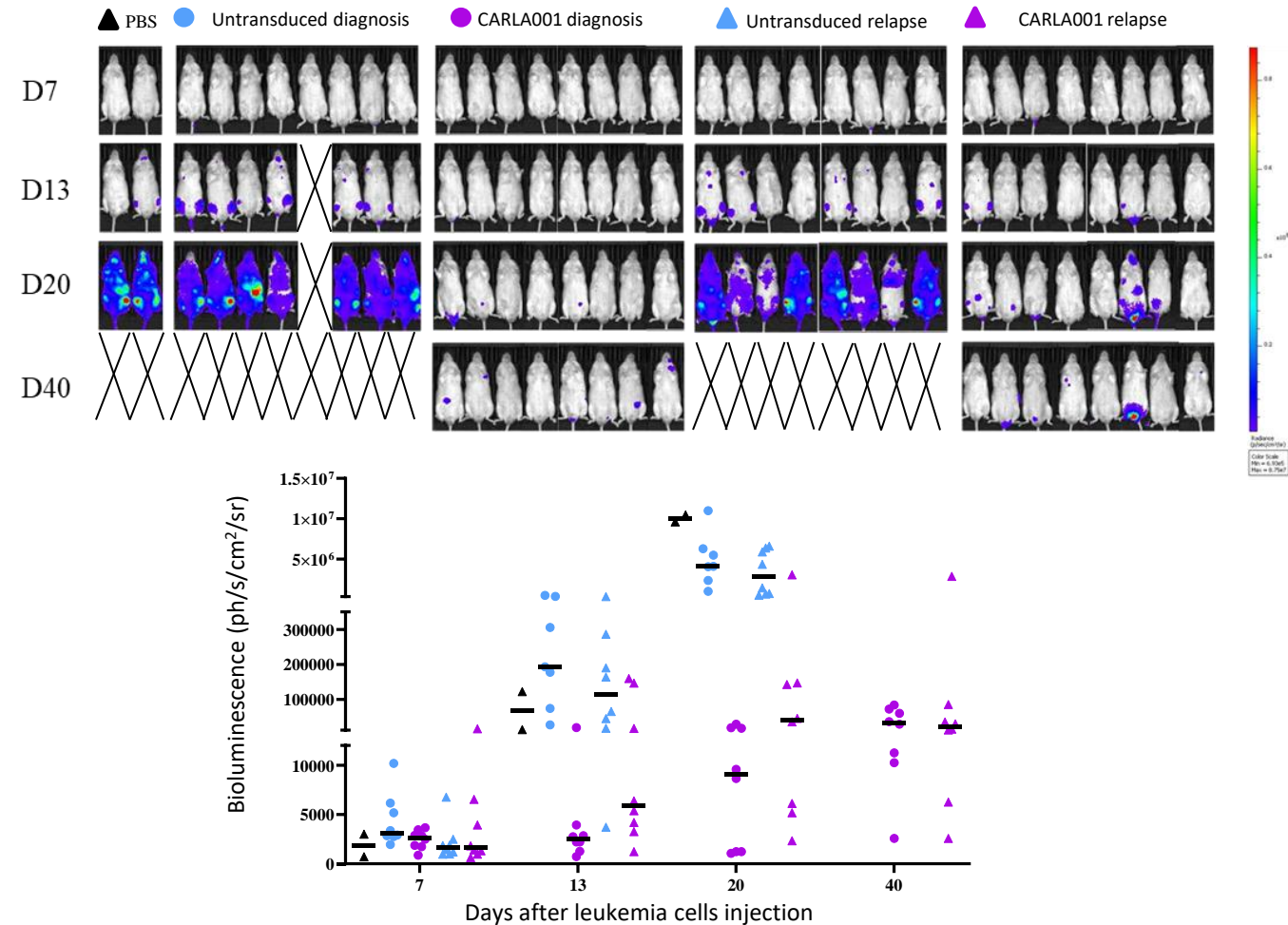
CAR T cells expansion

Increase overall survival in mice



CAR#1: drug candidate (CARLA001)

CARLA001 produced from T cells of even relapsed patients



CARLA001 produced with patient T cells, even in relapse, retains strong functionality



Thank you



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