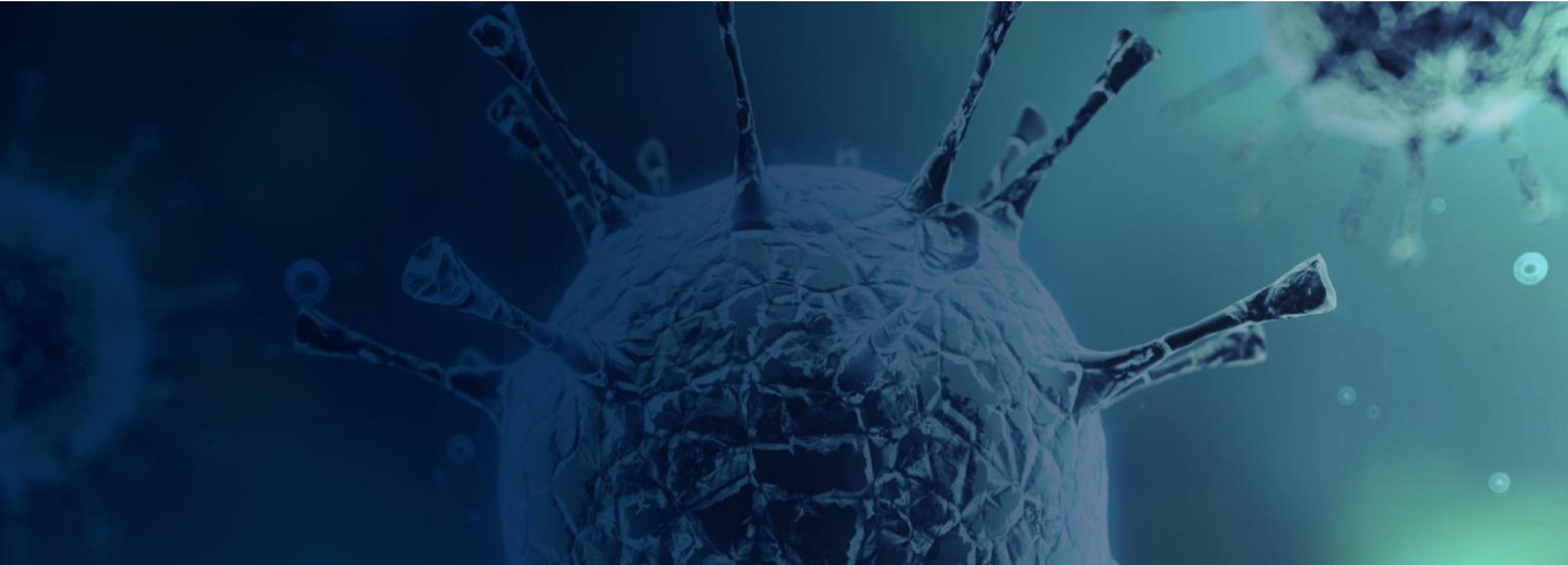


## Developing Next Generation Programmed T Cell Therapies

July 2021

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Lead Clinical Programs  
Striving for best-in-class therapies

Focusing on delivering obe-cel, a potentially transformational treatment for Adult Acute Lymphoblastic Leukemia (ALL), as well as exploring activity in additional B-cell malignancies

Full data for obe-cel (FELIX) study in adult expected in 2022

Obe-cel data in PCNSL and NHL expected in Q4 2021, AUTO1/22 in pALL expected in Q4 2021

- Plan to partner AUTO3 ahead of progressing into next phase of development
- Additional value steps in T cell lymphoma and first solid tumor indication
- Broad preclinical pipeline of next generation programs expected to transition to clinical stage in 2021/2022
- Scalable, fully enclosed manufacturing platform

## Broad pipeline of clinical programs

Designed to address limitations of current T cell therapies

PRODUCT	INDICATION	TARGET	PHASE 1/2	PIVOTAL*
obe-cel	Adult ALL	CD19	ALLCAR19	FELIX
obe-cel	NHL <sup>†</sup>	CD19	ALLCAR19	
obe-cel	PCNSL <sup>††</sup>	CD19	CAROUSEL	
AUTO1/22	Pediatric ALL	CD19 & CD22	CARPALL	
AUTO3	DLBCL	CD19 & CD22	ALEXANDER	To be partnered
AUTO4	TRBC1+ Peripheral TCL	TRBC1	LibrA T1	

 B Cell Malignancies

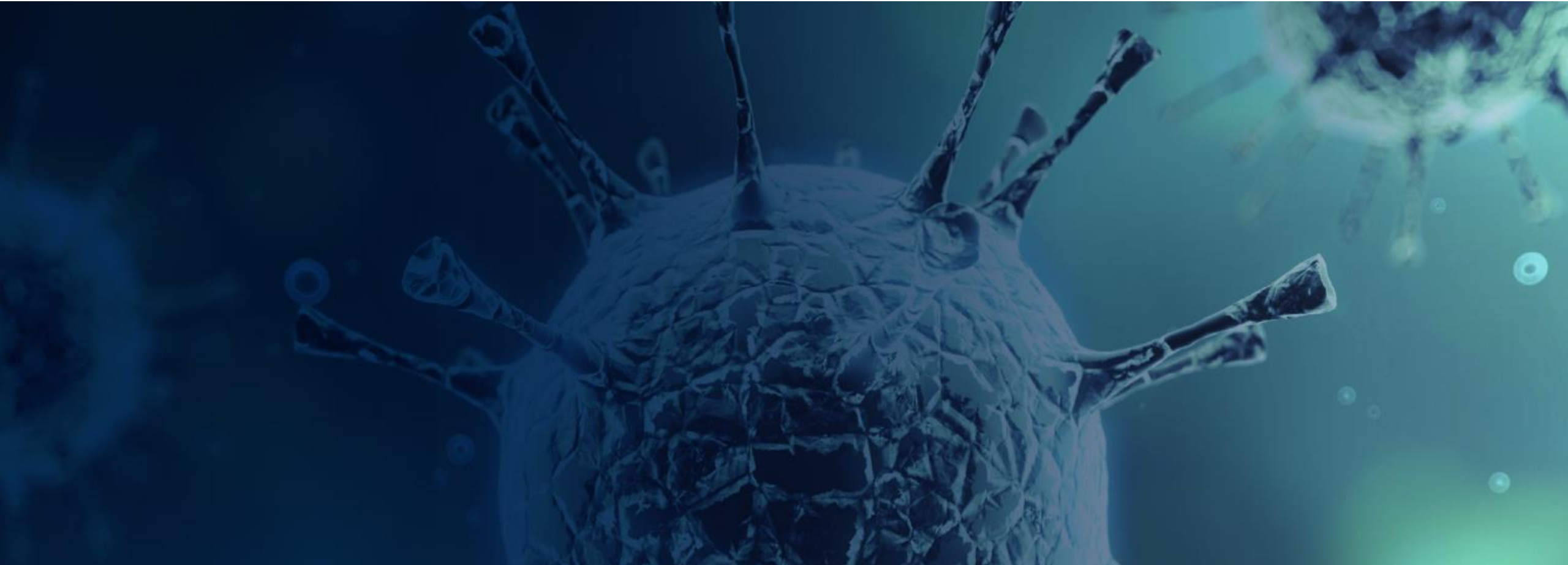
 T Cell Lymphoma

\*Subject to confirmation by regulatory authorities

<sup>†</sup> Non-Hodgkin lymphoma

<sup>††</sup> PCNSL = Primary CNS Lymphoma





## Adult Acute Lymphoblastic Leukemia

Obe-cel— Potential as a standalone therapy

# No approved CAR T therapy for adult ALL patients

Successful therapy requires high level of activity and sustained persistence paired with good tolerability

ALL is a  
significant  
opportunity

Up to **8,400\*** new cases of  
adult ALL diagnosed yearly  
worldwide

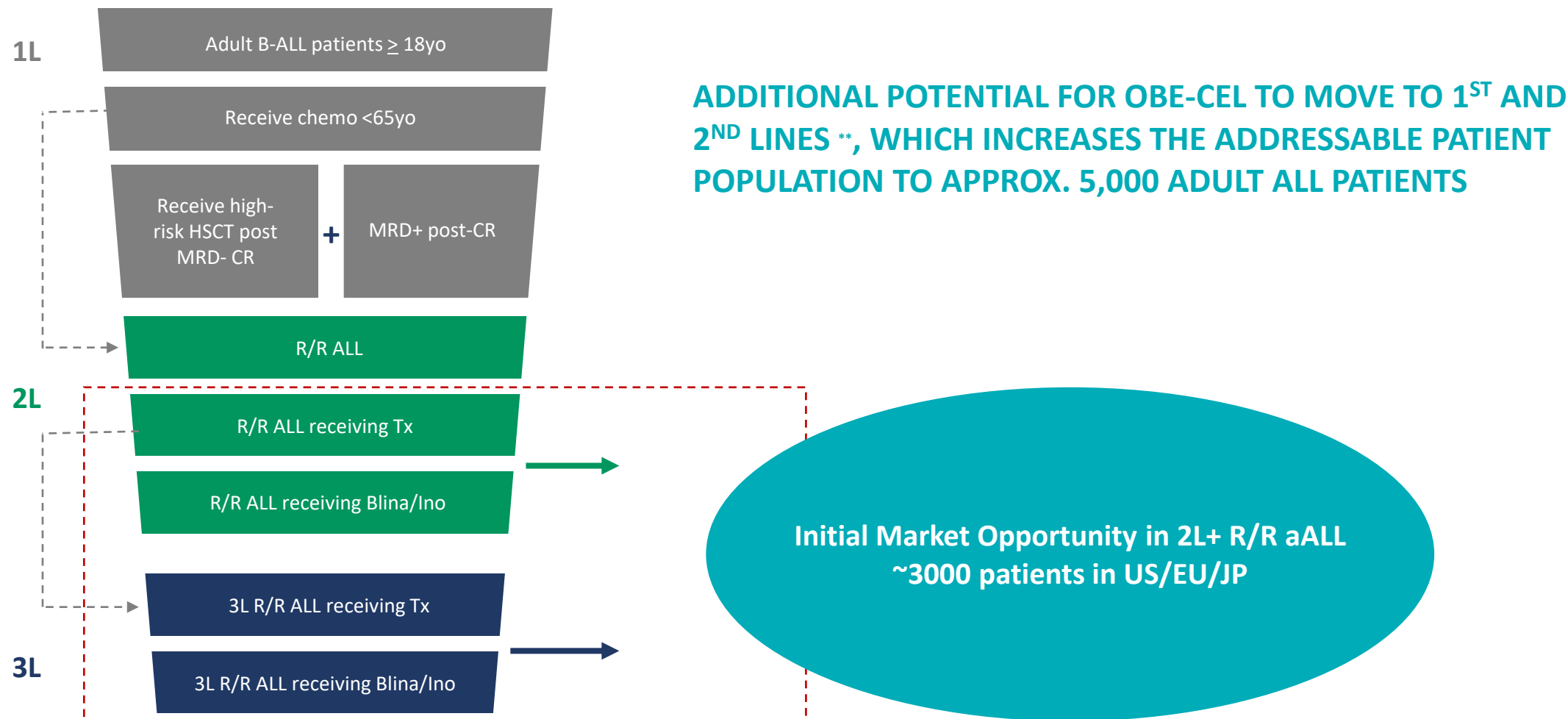
Estimated R/R patients in  
US & EU **3,000** addressable  
patient population in last  
line setting

## HIGH UNMET MEDICAL NEED

- Combination chemotherapy enables 90% of adult ALL patients to experience CR, but only 30% to 40% will achieve long-term remission
- Median overall survival is < 1 year in r/r ALL
- Only redirected T cell therapy for adult patients is blinatumomab
- CAR T therapies are highly active, but require subsequent allograft to achieve durability
- Patients are generally more fragile with co-morbidities, yet CAR T toxicities in this setting have been notable with high incidences of severe CRS and cases of fatal neurotoxicity
- Opportunity to conduct further clinical study for second line treatment label to expand the addressable patient population

**OBE-CEL GRANTED ORPHAN DRUG DESIGNATION BY THE FDA FOR ALL  
AND PRIME DESIGNATION BY EMEA FOR ADULT ALL**

\*SEER and EUCAN estimates (respectively) for US and EU epi



\*Company estimate, based on US, EU5 and Japan

\*\*Subject to successful clinical progress



## Key features of a successful CAR T Cell Therapy for adult ALL

Obe-cel is uniquely placed to address current limitations of therapy

Challenge	Product Property	CAR T Feature	Benefit
Fast proliferating disease	Very high level of anti-leukemic activity	Rapid CAR T mediated kill and high level of CAR T expansion	High response rates
Almost stem cell like nature of leukemic cells	Sustain long term pressure on leukemia	Long CAR T persistence	Durable responses
Poor patient condition	Good tolerability	Minimize high grade CRS and NT	Manageable AE profile

# Obe-cel has potential for transformational outcomes in Adult ALL

Data cut-off date May 17, 2021

- High level of sustained CR achieved without subsequent stem cell transplant

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- Durability of remissions highly encouraging
  - Across all treated patients, event free survival (EFS) at twelve and twenty-four months of 50%

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- Obe-cel well tolerated, despite heavily pre-treated patients with high disease burden
  - No patients experienced  $\geq$  Grade 3 cytokine release syndrome (CRS)
  - 20% of patients experienced any grade ICANS\*, swiftly resolved with steroids

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- Phase 1b/2 potential pivotal study underway, expect full data in 2022

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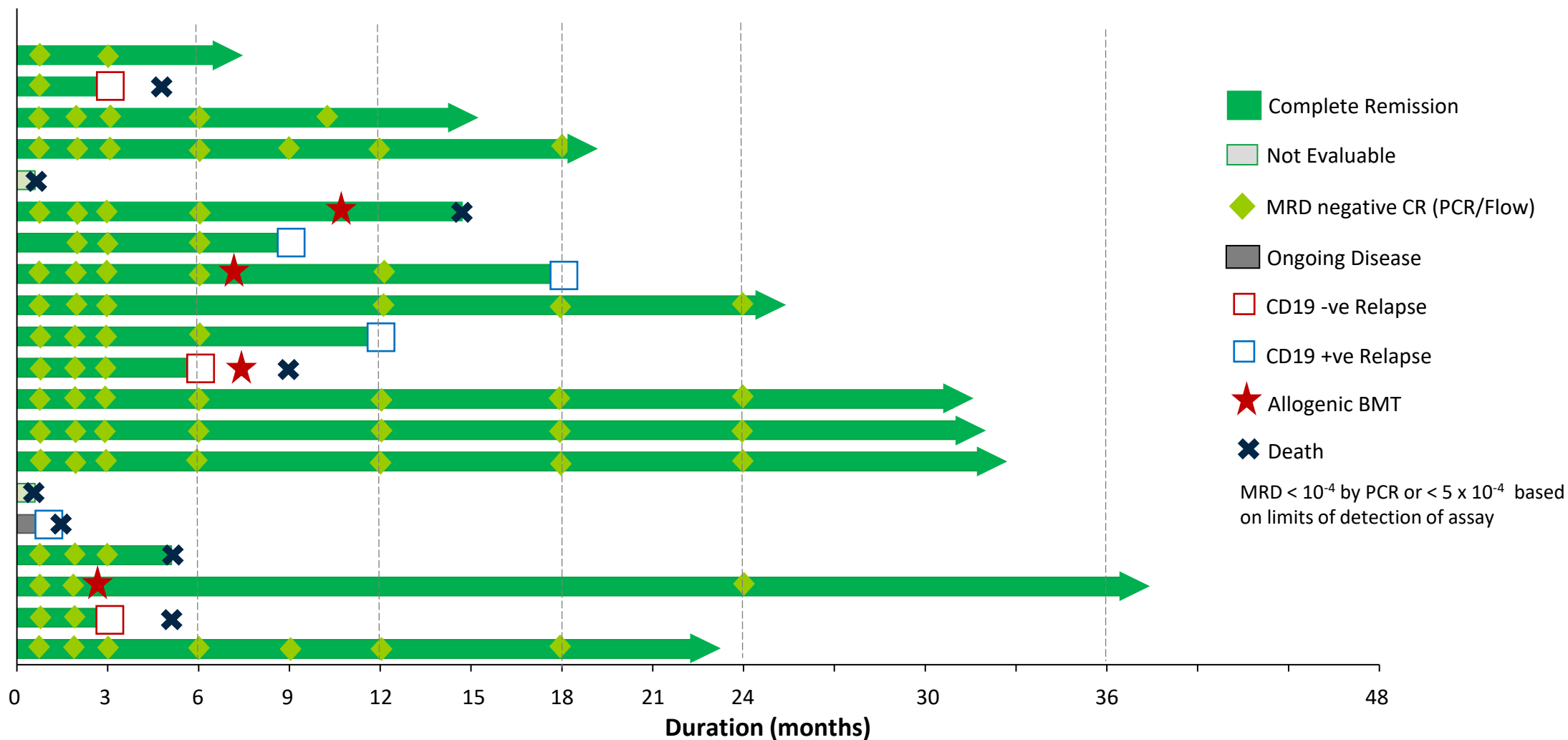
- Adult ALL represents a sizeable market opportunity addressable with focused commercial footprint

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\*Immune effector cell-associated neurotoxicity syndrome

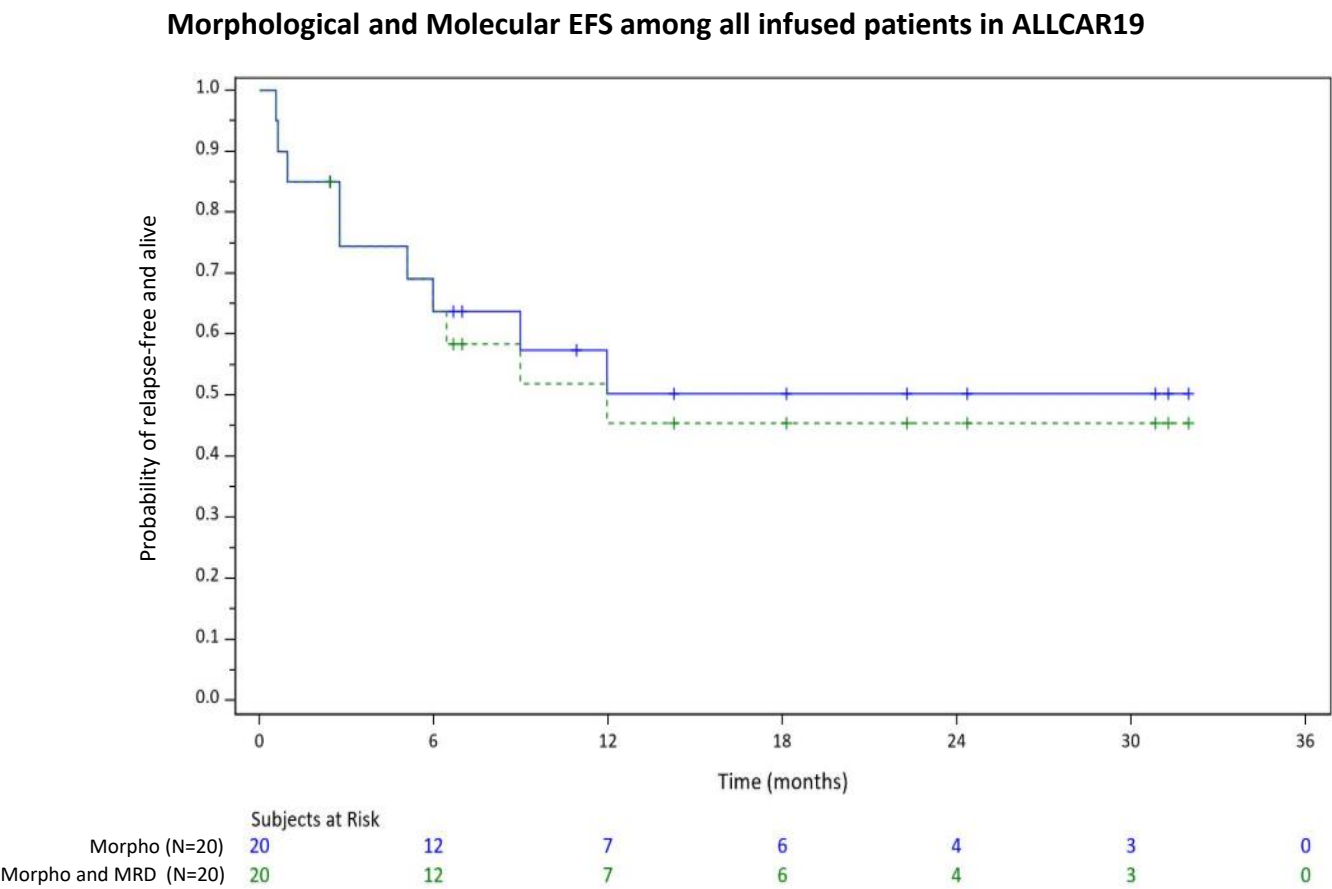
# Obe-cel shows sustained stand-alone activity in adult ALL patients

ALLCAR-19 Phase 1 EHA data cut - May 17 2021



# Obe-cel morphological event-free survival of 50.2% at 24 months

MRD and morphological EFS curves are superimposable with a plateau seen from 12 months



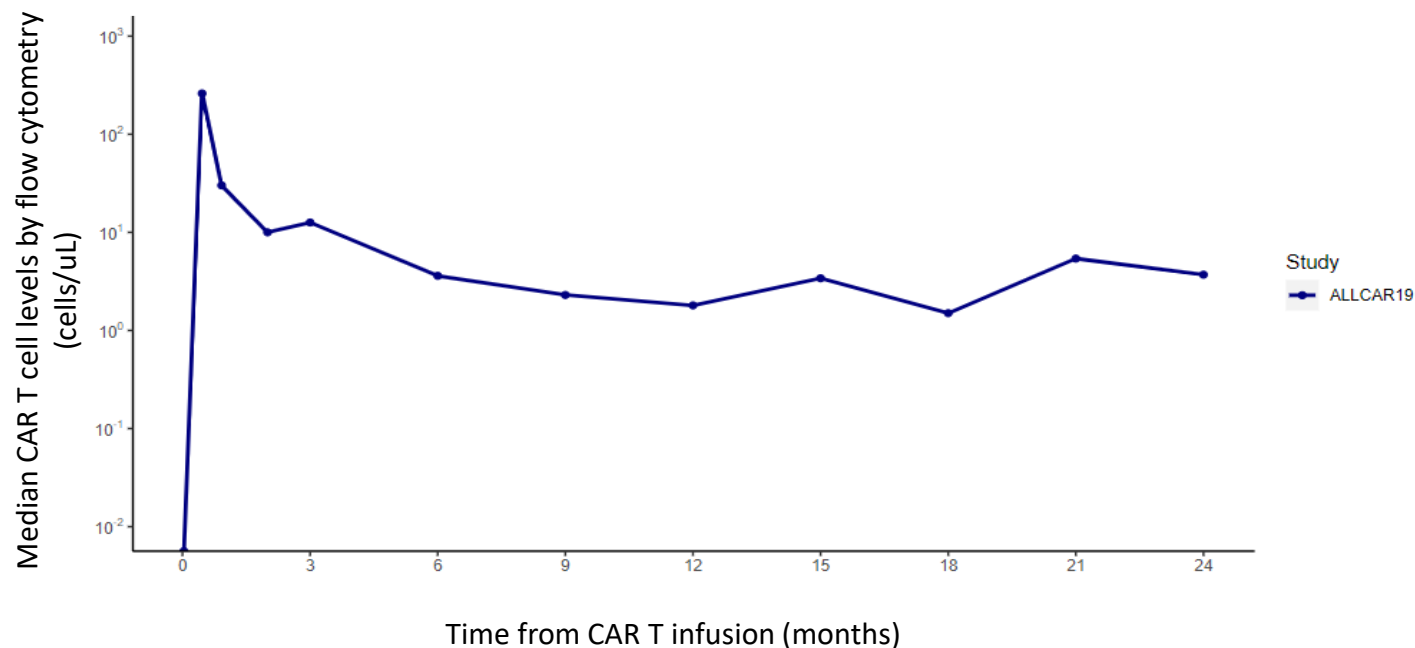
		All infused patients	Closed Process
	N	20	14
	ORR	85%	93%
	MRD Neg CR	85%	93%
DOR	Median	Not reached	Not reached
	12 months	64%	64%
Morph. EFS	Median	Not reached	Not reached
	12 months	50.2%	60%
	24 months	50.2%	60%
Molecular EFS	Median	12 months	Not reached
	12 months	45%	54%
	24 months	45%	54%

Event for morphological EFS = death or morphological relapse  
Event for molecular EFS = death, morphological relapse, or molecular relapse (i.e. MRD > 0.01%)  
Data Cut-off 17-May-2021

# Obe-cel morphological event-free survival of 50.2% at 24 months

Obecel data so far points to a transformational product with ability to maintain pressure on tumour

CAR T cell levels (median) in peripheral blood



	ALLCAR-19 Phase 1
N	20
CRS Any Grade	55%
CRS Grade ≥ 3	0
NE / ICANS Any Grade	20%
NE / ICANS Grade ≥ 3	15%
Treatment for CRS and/or ICANS	
Tocilizumab	35%
Steroids	20%
Vasopressor	0

Obe-cel expansion characteristics support its differentiated profile

# A cross study comparison of Tecartus<sup>®</sup> vs current standard of care

Obe-cel showed 50.2% EFS at 24 months

	ZUMA-3 <sup>1</sup> Phase 2
	Tecartus
N	55
ORR (CR/CRi)	71%
EFS	~45% (12 m), ~25% (18 m)
CRS ≥ Grade 3†	24%
Neurotox ≥ Grade 3†	25%
Other notable observations	40% vasopressor use

Standard of Care	
Blinatumumab <sup>2</sup>	Inotuzumab <sup>3</sup>
271	109
44%	80.7%
31% (6 m)	mPFS 5m
3%	0%
13%	0%
NA	14% Hepatic VoD

- Approximately 50% of blinatumomab and inotuzumab patients received subsequent HSCT
- Veno-Occlusive Disease (VoD) during treatment and following subsequent HSCT, with the latter causing a higher post-HSCT non-relapse mortality rate, has limited inotuzumab uptake

Duration of follow-up is calculated from CAR T infusion to data cutoff. EFS for ZUMA-3 were estimated based on the KM curve<sup>#</sup>

1. Shah et al. Lancet 2021

2. Kantarjian et al., 2017/ USPI (product label)

3. Kantarjian et al., 2016/ USPI (product label)



# Obe-cel potentially differentiated on efficacy, durability and safety

Unique CAR T design drives differentiated product profile

- Obe-cel has a high level of MRD-negative CR (85%)

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- Morphological EFS for obe-cel at 24 months was 50.2%

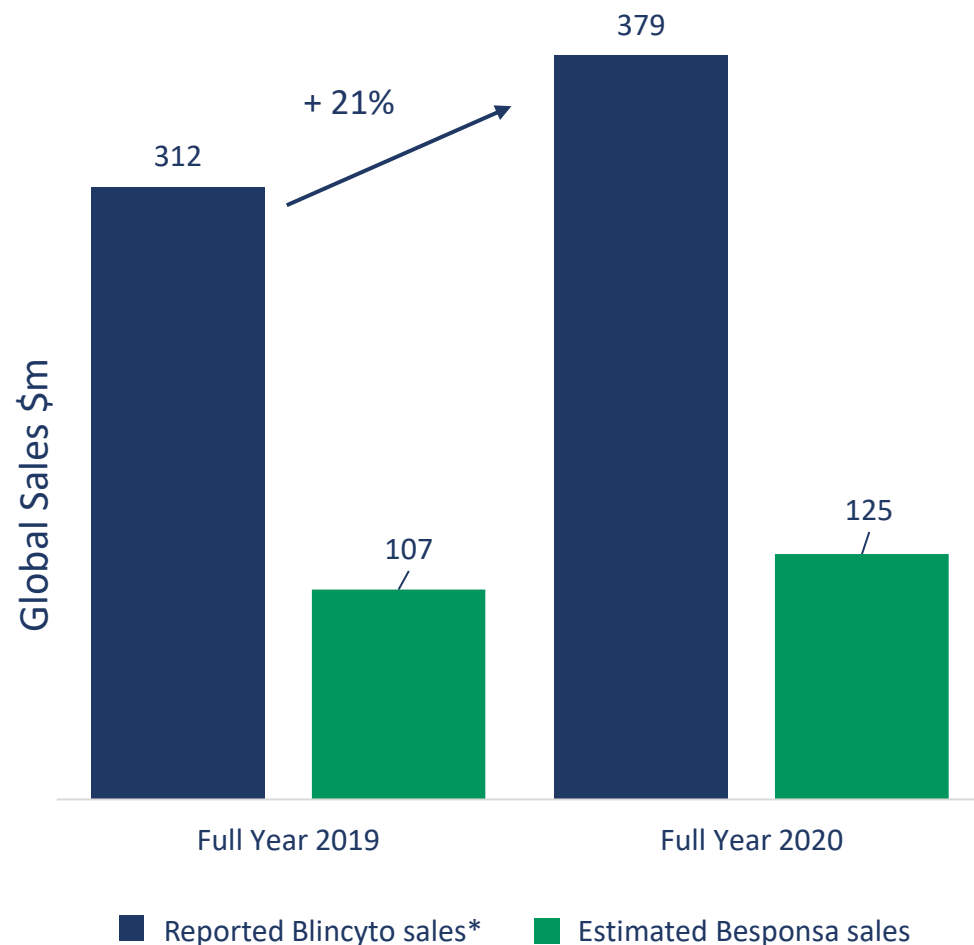
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- Long term CAR T persistence drives durability of effect

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- Obe-cel has a favorable safety profile

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## Obe-cel could launch into an expanding market

Benefitting from a potentially superior clinical profile



- Blincyto sales price estimated to be \$178k<sup>±</sup> (based on 2 cycles) resulting in approx. 2,100 commercial patients (of which approx. 85% are >18 years \*\*)
- Growth attributed by Amgen\* to broader uptake and expansion in community settings, continued strong growth at 29% y-o-y for Q4
- Kymriah is priced at \$475k in pediatric ALL. Breyanzi (lisocabtagene maraleucel) is priced at \$410k in DLBCL<sup>±±</sup>.
- Breyanzi and other CAR T cell therapies are expanding delivery center footprint
- Tecartus (brexucabtagene autoleucel) is expected to establish CAR T use in adult ALL
- Obe-cel expected to have a superior clinical profile
  - Has potential to be the only curative therapy with tolerability profile to take advantage of expanding delivery footprint

\*As per Amgen quarterly SEC filings

\*\* Komodo Health 2015 – 2020

± <https://www.medscape.com/viewarticle/836879>

± ± Bristol Myers finally wins FDA approval for cancer cell therapy | BioPharma Dive

## Preliminary Ph1 data supports development as a standalone therapy

Obe-cel is the first Autolus program to move into a pivotal program

Pivotal program,  
FELIX, in adult ALL  
enrolling with full  
data targeted in 2022

CTA approved  
by the MHRA  
in January 2020 and  
US IND accepted by  
the FDA in  
April 2020

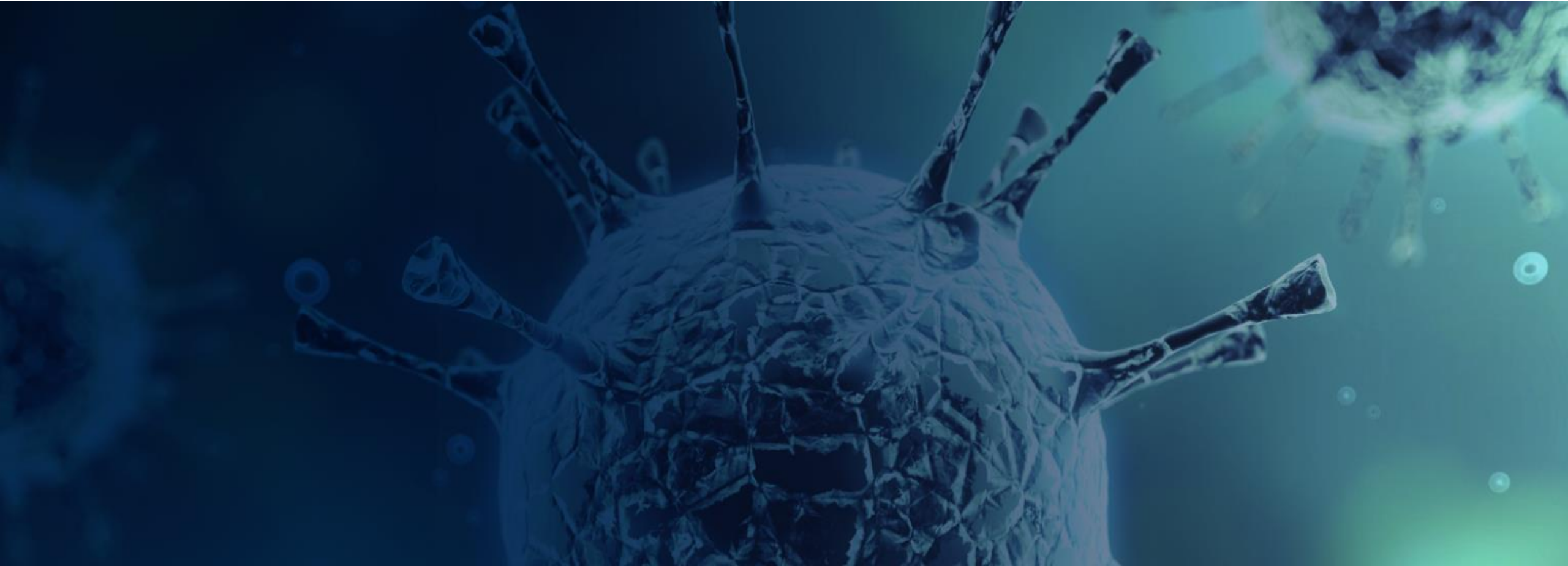
- Ph1b run-in component, prior to single arm Ph2 pivotal study
- 100 relapsed/refractory adult ALL patients
- Primary endpoint: Overall Complete Response Rate (CR/CRi)
- Secondary endpoints: include MRD-negative CR EFS and DoR

# Capitalizing on the unique profile of obe-cel in adult ALL

Evaluation of obe-cel activity in additional B-Cell malignancies

PRODUCT	INDICATION	TARGET	PHASE 1	PHASE 1B/2
Obe-cel	Adult ALL	CD19	ALLCAR-19	FELIX
Obe-cel	NHL & CLL	CD19	ALLCAR-19	
Obe-cel	Primary CNS Lymphoma	CD19	CAROUSEL	
AUTO1/22	Pediatric ALL	CD19 & CD22	CARPALL	

OPPORTUNITY TO PURSUE IN EARLIER LINES OF THERAPY AND INDICATIONS OF ADULT ALL



Pediatric ALL

# AUTO1/22 CD19 & CD22 targeting CAR-T for r/r pediatric ALL

Adding a high sensitivity CD22 CAR to AUTO1 to minimize relapses due to CD19 antigen loss

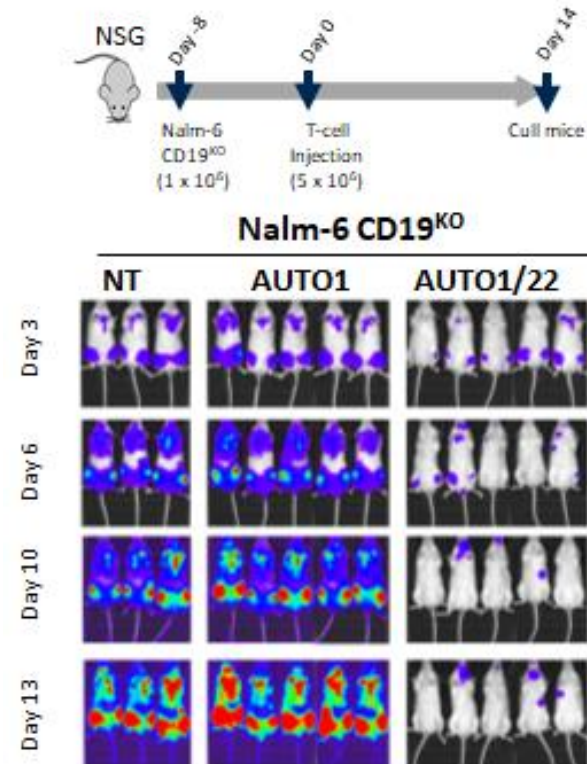
## Primary driver for relapse in pALL is CD19 antigen loss

	pALL	
	*AUTO1	#Kymriah
n	14	75
CR Rate	86%	81%
EFS 12m	54% (95% CI, 24 to 76)	50% (95% CI, 35 to 64)
No. of CD19 negative relapses	5/6	15/22
CRS ≥ G3	0%	47%
NTX ≥ G3	7%	13%

\*Ghorashian S, Pule MA, Amrolia P et al. *Nature Medicine* 201

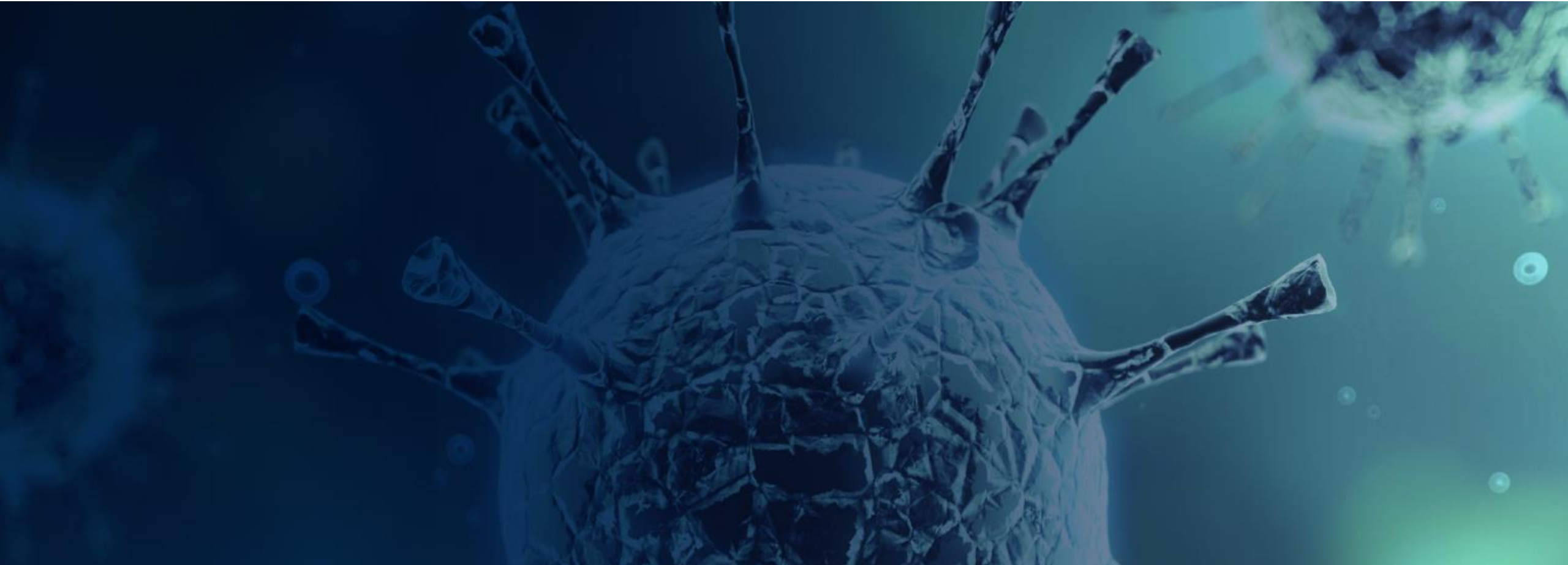
#Maude et al., *NEJM* 2018

## AUTO1/22 Dual Targeting CAR T to CD19 and CD22



Phase 1 CARPALL study in r/r pALL ongoing, initial PoC data expected Q4 2021





Indolent NHL

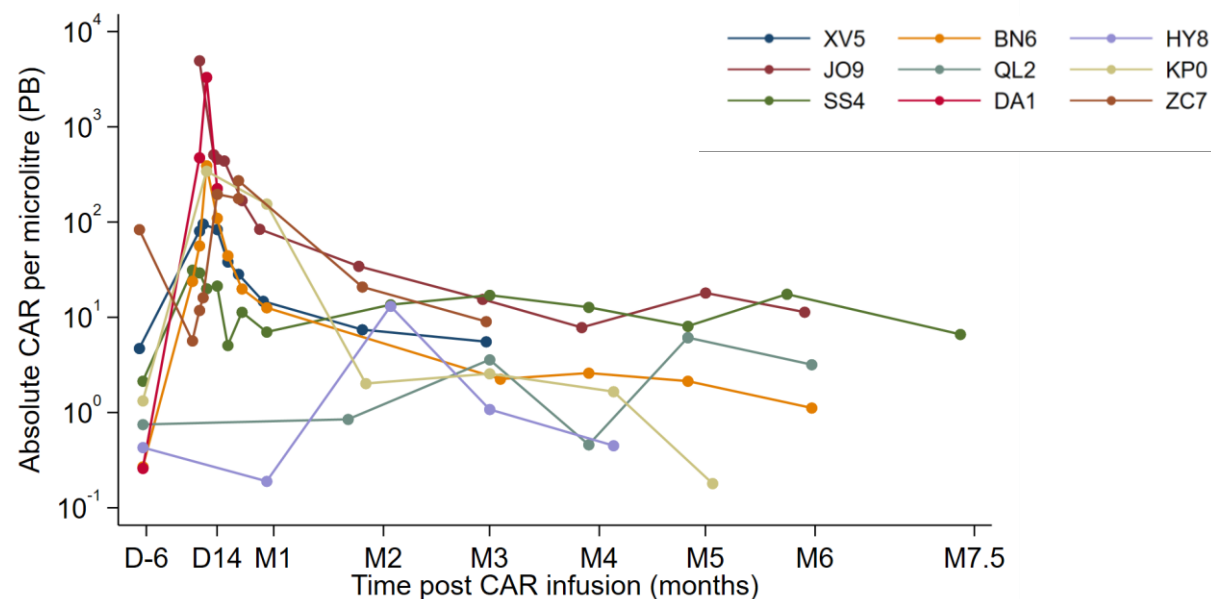
obe-cel

# ALLCAR-19 cohort D - iNHL patient characteristics, persistence and safety

Obe-cel shows excellent T cell expansion and engraftment with a manageable safety profile

Baseline Characteristics	N=9
Median age, years (range)	56 (39 - 68)
Gender	7M/ 2F
Disease <ul style="list-style-type: none"> <li>Follicular Lymphoma</li> <li>Mantle Cell Lymphoma</li> </ul>	7(78%) 2 (22%)
Lines of treatment <ul style="list-style-type: none"> <li>Median (range)</li> <li>Prior autograft</li> <li>Prior allo-HSCT</li> </ul>	3 (2-5) 4 (44%) 1 (11%)
Stage of disease at screening <ul style="list-style-type: none"> <li>Stage I/II</li> <li>Stage III/IV</li> </ul>	0/9 9/9
Bridging therapy <ul style="list-style-type: none"> <li>Chemotherapy alone</li> <li>Radiotherapy + steroids</li> <li>Chemo + Radiotherapy</li> <li>Nil</li> </ul>	7 2 0 0

## CAR T Cell Expansion in Cohort D (B-NHL)

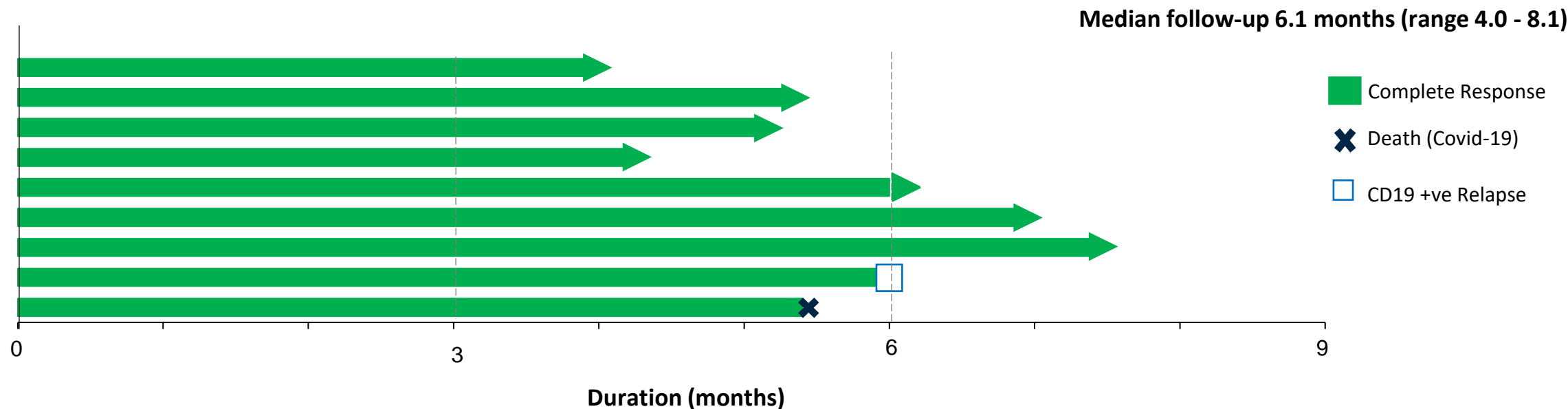


## Immunotoxicity in Cohort D (B-NHL)

CRS (ASTCT criteria#)	Neurotoxicity (ICANS)
<ul style="list-style-type: none"> <li>CRS (any) in 5/9</li> <li>Grade 2 in 1/9</li> <li>≥ Grade 3 CRS in 0/9</li> <li>Tocilizumab used in 2 patients</li> </ul>	<ul style="list-style-type: none"> <li>ICANS in 0/9</li> <li>Grade 2 in 0/9</li> <li>Grade 3 in 0/9</li> </ul>

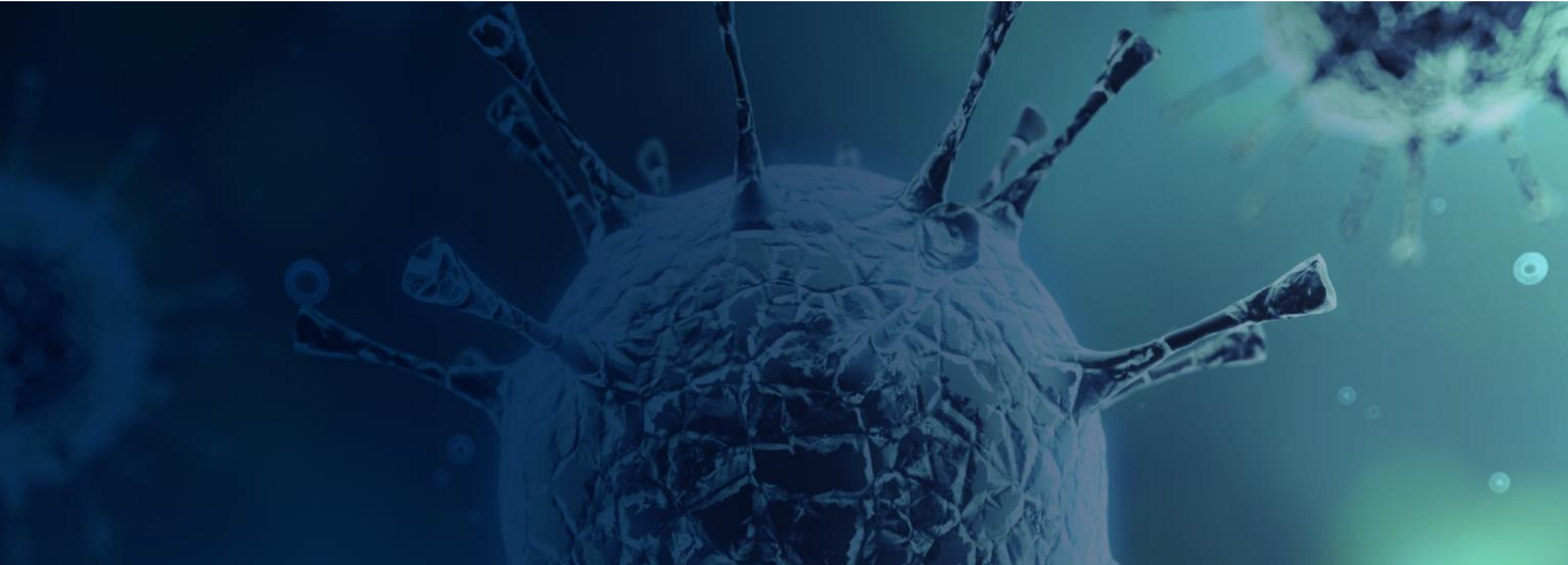
## ALLCAR-19 cohort D – iNHL clinical responses

All patients treated achieved a metabolic Complete Response (CR)



- 9/9 patients in the indolent B-NHL cohort achieved metabolic CR by month 3
- 8/9 disease-free at last follow-up (median F/U = 6.1 months; range 4.0 - 8.1m)
- 1/9 patients died on study from COVID-19 whilst in remission at month 6 of follow-up
- 1/9 relapsed with small volume subcutaneous CD19+ disease, salvaged with radiotherapy
- 0/9 patients experienced ICANS of any grade or  $\geq$  grade 3 CRS

- Initial obe-cel efficacy data in the iNHL cohort is encouraging
- Obe-cel continues to show a consistent and favorable safety profile across all indications evaluated
- Additional cohorts being explored, and further data planned for Q4 2021
- CAROUSEL study in PCNSL open with data expected in Q4 2021
- AUTO1/22 (CARPALL study) in pediatric ALL open with data expected in Q4 2021



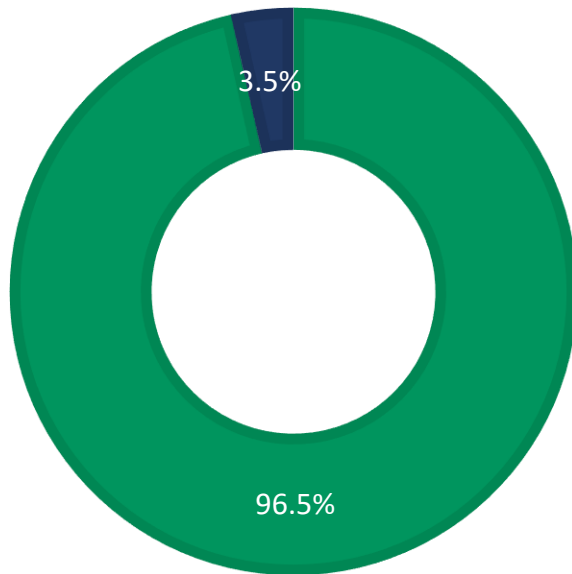
## Diffuse Large B Cell Lymphoma

AUTO3 — tailored for DLBCL

## DLBCL: approved CAR Ts are unable to penetrate outpatient setting

Creates significant opportunity for AUTO3 with potential to go where patients are treated

### PERCENTAGE OF PATIENTS WHO CURRENTLY RECEIVE A CAR T IN OUTPATIENT OR INPATIENT SETTING



■ Inpatient ■ Outpatient

- 90% of DLBCL patients in the US are treated outside of a center of excellence (CoE) or in out-patient setting
- 97% of patients receive approved CAR Ts as inpatients in CoEs \*
  - the high rate of severity of toxicities and
  - the need for intensive patient management
- In the Outreach study\*\*, 63% of patients treated with liso-cel in an outpatient setting required hospitalization
- AUTO3 is designed to have best-in-class safety profile potentially best suited for outpatient use

Source: Komodo Health, ASCO 2020: 8037

\* Center of Excellence

\*\*Initial results from the Outreach Study, ASH 2020



## AUTO3 continues to show differentiated product profile in DLBCL

Data presented at ASH 2020, with data cut-off date of October 30, 2020

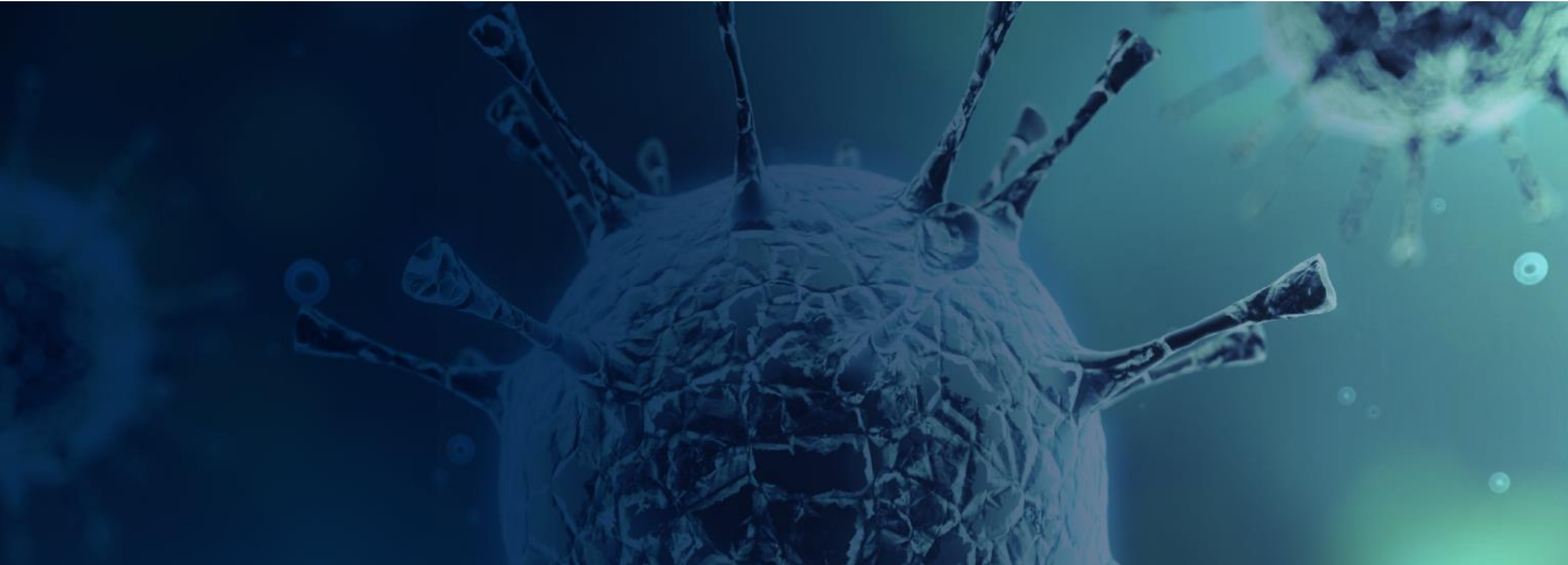
### ○ Key Phase 1 observations:

- High level of complete remissions (CR) of 51% overall
- At the highest dose level of 450M cells the CR rate was 73%
- Very low levels of high-grade CRS and neurotoxicity
- AUTO3 administration together with the pembrolizumab dosing regimens (D-1 and D14/D35/D56) were well tolerated
- Among the five patients who achieved a CR having received 3 doses of pembrolizumab, none had progressed as of the data cut-off date
- Demonstrated feasibility to administer AUTO3 in outpatient setting

### ○ Potential path forward for development of AUTO3

- Phase 2 designs under evaluation:
  - 3L r/r DLBCL setting
  - 2L/3L transplant ineligible DLBCL setting
- Planned Phase 2 dosing regimen
  - Dose range of 150M to 450M cells, as patients benefitted from therapy at 150M, 300M and 450M cell dose levels
  - 3 doses of pembrolizumab with a schedule of D-1, D28, D56
- Implement manufacturing process enhancements (incl. stable cell line for vector manufacturing)

**COMPANY INTENDS TO PARTNER AUTO3, AHEAD OF PROGRESSING  
INTO THE NEXT PHASE OF DEVELOPMENT**



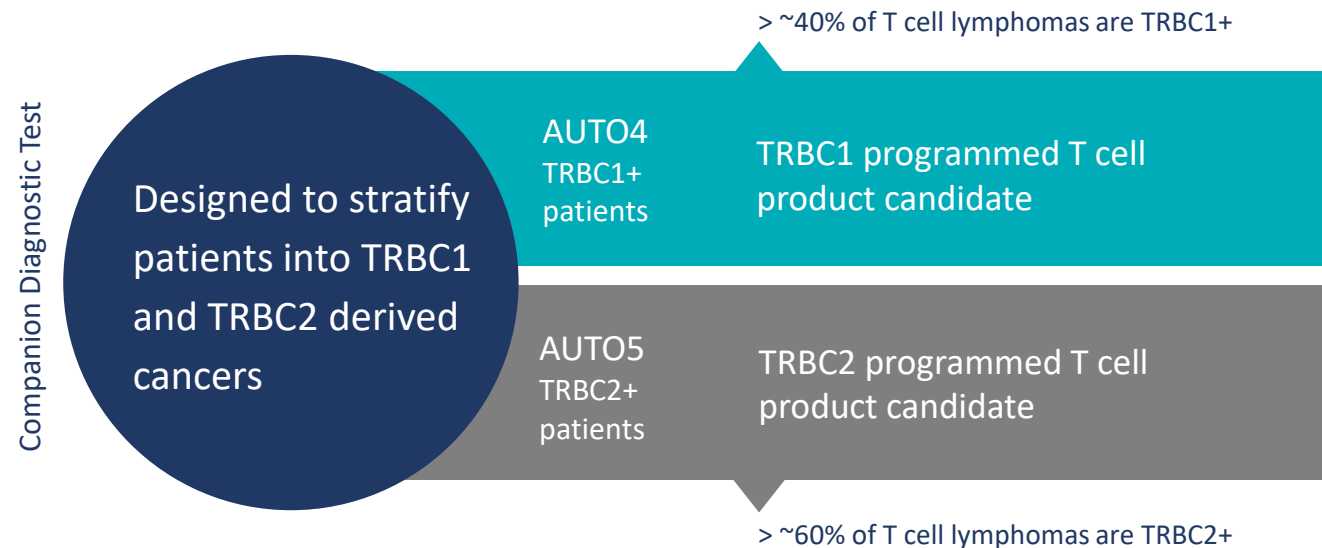
## T Cell Lymphoma

AUTO4 and AUTO 5 — tailored for T Cell Lymphoma

# T Cell Lymphoma

No standard of care after first relapse and no T cell therapy approved

## AUTOLUS USES THREE KEY ELEMENTS TO ADDRESS T CELL LYMPHOMAS—AUTO4, AUTO5 AND A COMPANION DIAGNOSTIC TEST



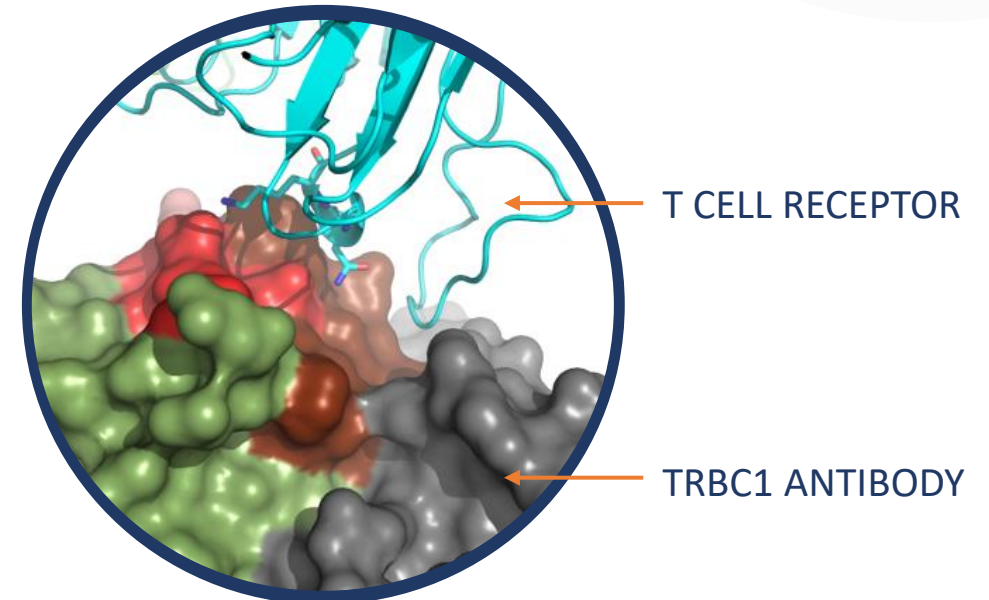
- T cell lymphoma is an aggressive disease with a very poor prognosis for patients
- Median 5 yrs OS: 32%
- Standard of care is variable and often based on high-dose chemotherapy and stem cell transplants
- A large portion of T cell lymphoma patients are refractory to or relapse following treatment with standard therapies
- T cell lymphomas have not, so far, benefited from advances in immunotherapeutic approaches
- AUTO4 Phase 1 interim data expected in H2 2021
- AUTO5 to enter Phase 1 study in H2 2021

# Unique targeting of TRBC1 & TRBC2 opens new therapeutic approach

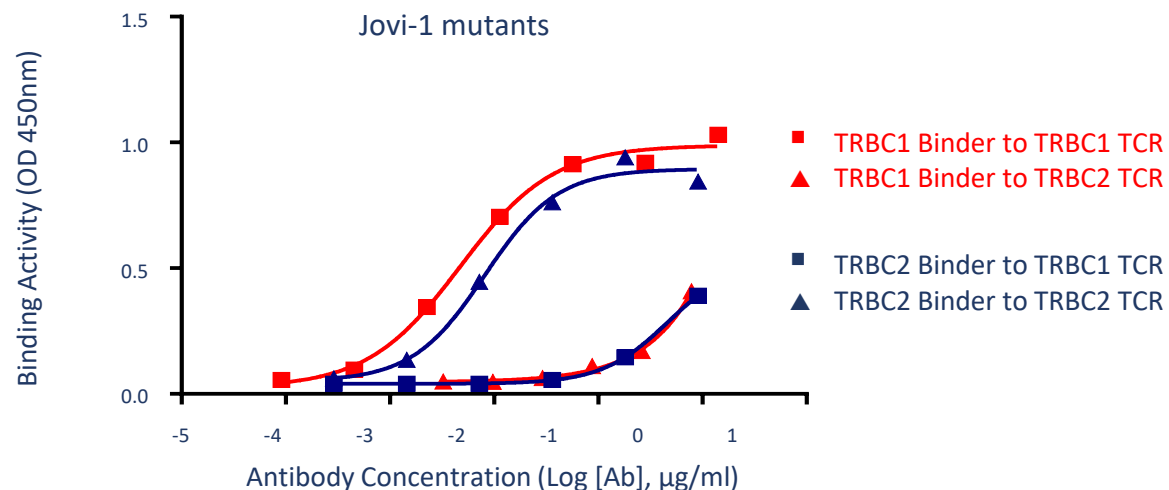
## AUTO4/5 in Peripheral T Cell Lymphoma

### DIFFERENCES BETWEEN TRBC1 AND TRBC2 ARE SMALL

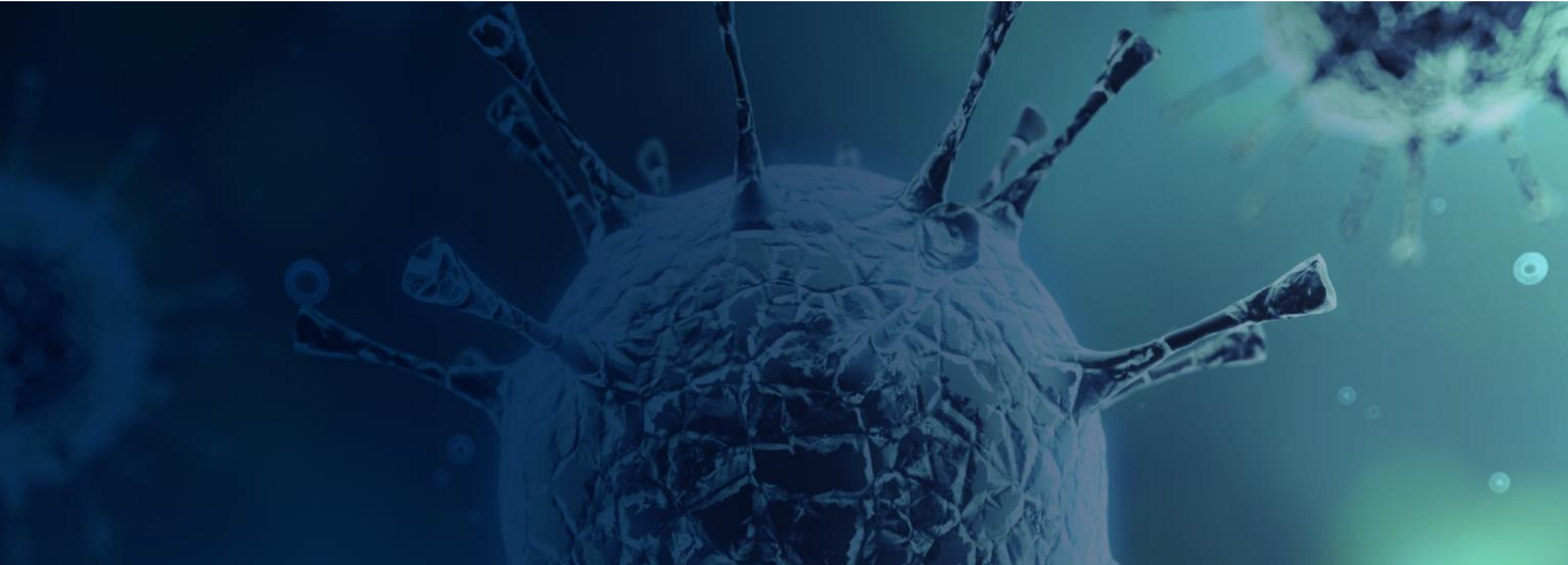
		NK-KN 4/5		F-Y 36
TRBC1	1	EDLNKVFPPPEVAVFEPSEAEISHTQKATLVCLATGFF		PDHVELSWVNGK
TRBC2	1	EDLNKVFPPPEVAVFEPSEAEISHTQKATLVCLATGFF		PDHVELSWVNGK
TRBC1	51	EVHSGVSTDPOPLKEOPALNDSRYCLSSRLRVSATFWQNPRNHFR		COVQF
TRBC2	51	EVHSGVSTDPOPLKEOPALNDSRYCLSSRLRVSATFWQNPRNHFR		COVQF
TRBC1	101	YGLSENDEWTQDRAKPVTQIVSAEAWGRADCGFTS		VS YQOGVLSAT
TRBC2	101	YGLSENDEWTQDRAKPVTQIVSAEAWGRADCGFTS		ES YQOGVLSAT
				V-E 135



### ANTIBODY BINDING DATA



- AUTO4 clinical study, LibrA T1, in progress
- AUTO5 in late preclinical development
- Preclinical study package demonstrating selective binding and anti-tumor activity of TRBC1 and TRBC2 CARs *in vitro* and *in vivo*

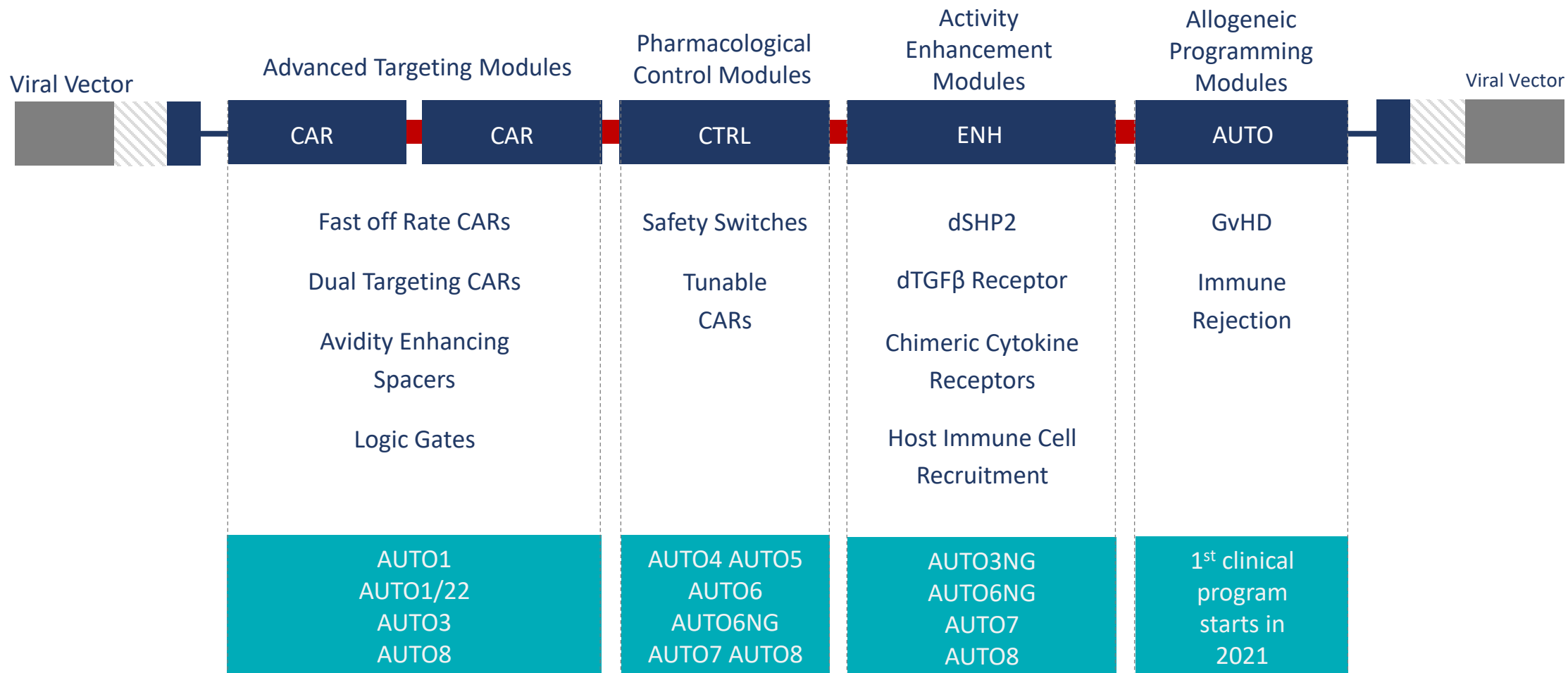


## Pipeline

A broad portfolio of next generation modular T cell therapies

# A broad toolkit which is core to our strategy of modular innovation






Advanced T cell programming





## Broad pipeline of next generation programs

Designed to address limitations of current T cell therapies

PRODUCT	INDICATION	TARGET	PRECLINICAL	PHASE 1*
AUTO1/22	Pediatric ALL	CD19 & CD22		Started Q4 2020
AUTO5	TRBC2+ Peripheral TCL	TRBC2		H2 2021
AUTO6NG	Neuroblastoma; Melanoma; Osteosarcoma; SCLC	GD2		H2 2021
AUTO7	Prostate Cancer	PSMA		H1 2022
AUTO8	Multiple Myeloma	BCMA & CAR X		mid 2021

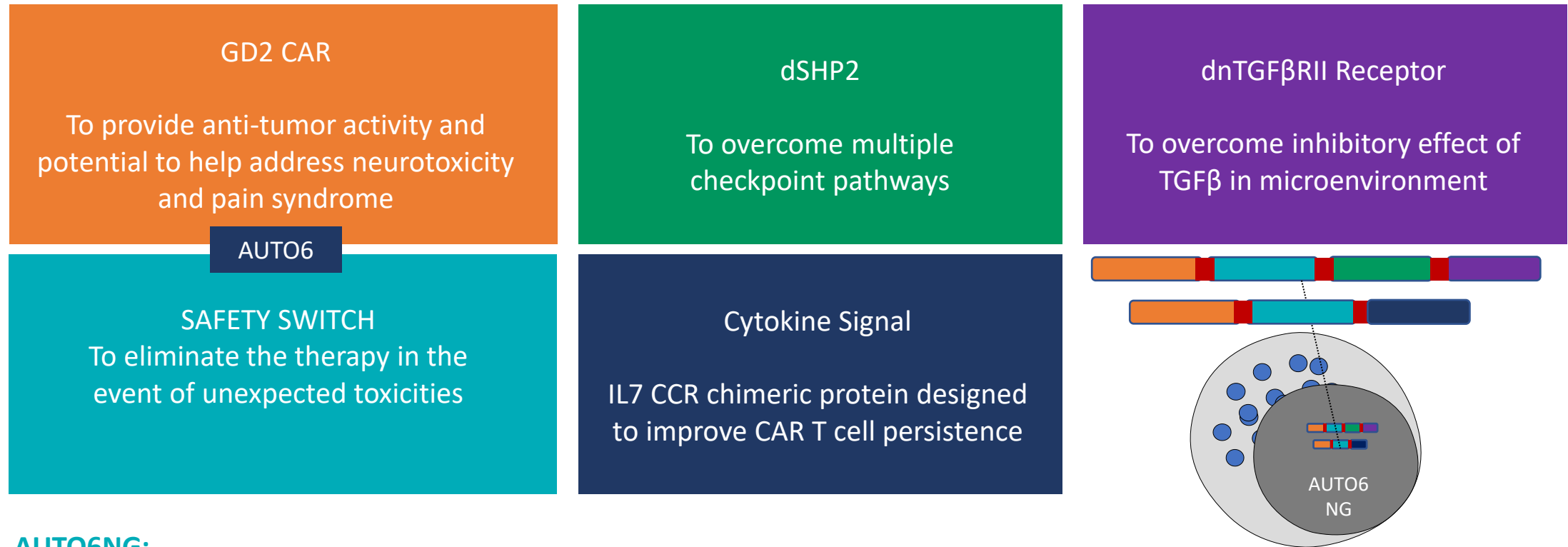
 B Cell Malignancies
  T Cell Lymphoma
  GD2+ Tumors
  Prostate Cancer
  Multiple Myeloma

\*Planned Trial Initiations

NG = Next Generation, SCLC = Small Cell Lung Cancer

# Modular approach designed to enhance AUTO6NG for solid tumor environment

Next generation programs powered by our proprietary technology toolbox



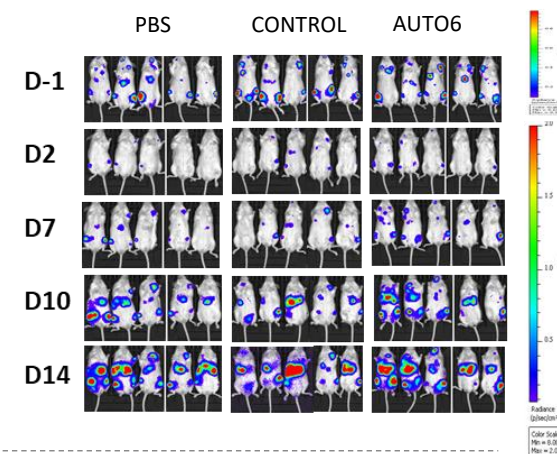
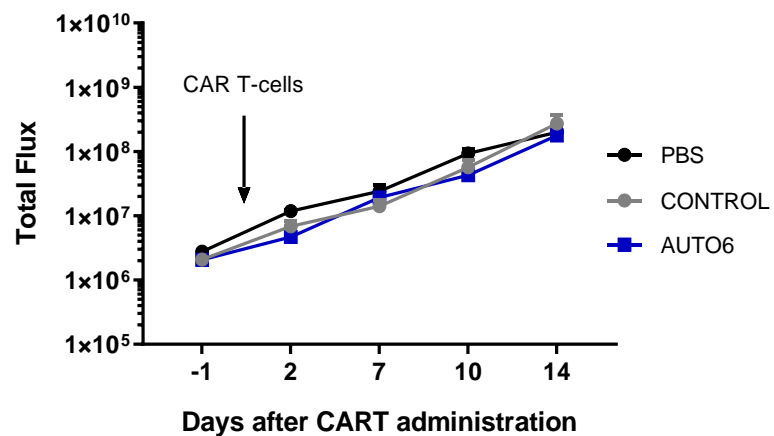
## AUTO6NG:

- Utilizes GD2 CAR from AUTO6, and is further enhanced to address persistence, control and tumor defenses
- Targeting neuroblastoma, osteosarcoma, melanoma and small cell lung cancer amongst others

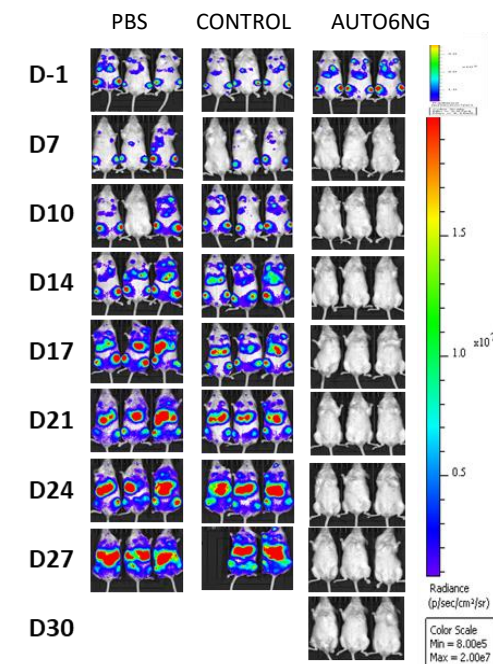
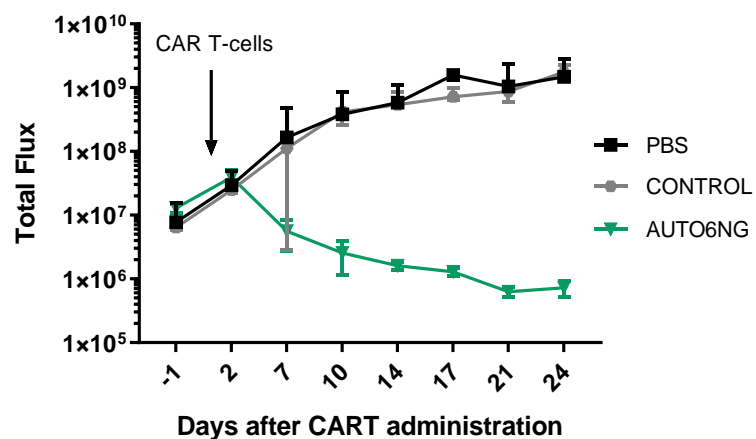
# AUTO6NG exhibits potent anti-tumor activity in preclinical model

Extends survival in challenging in vivo model

AUTO6

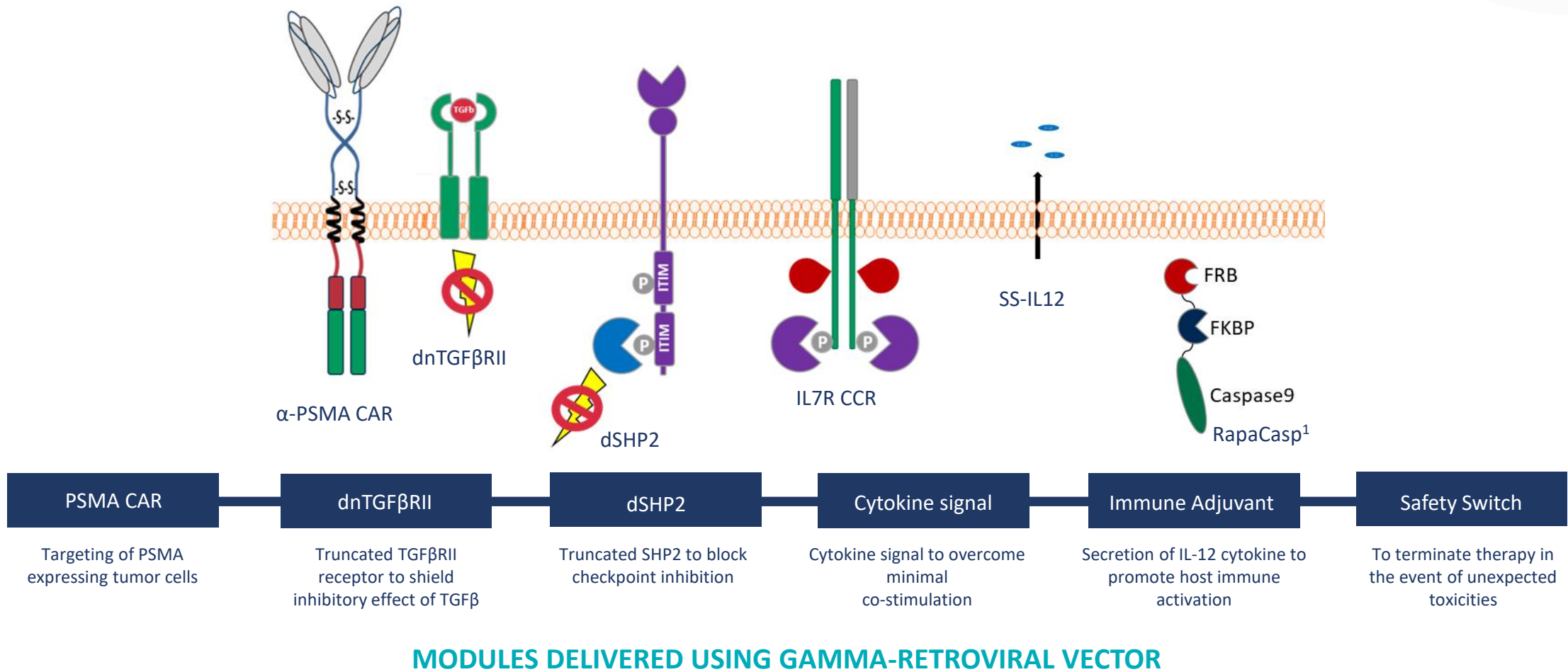


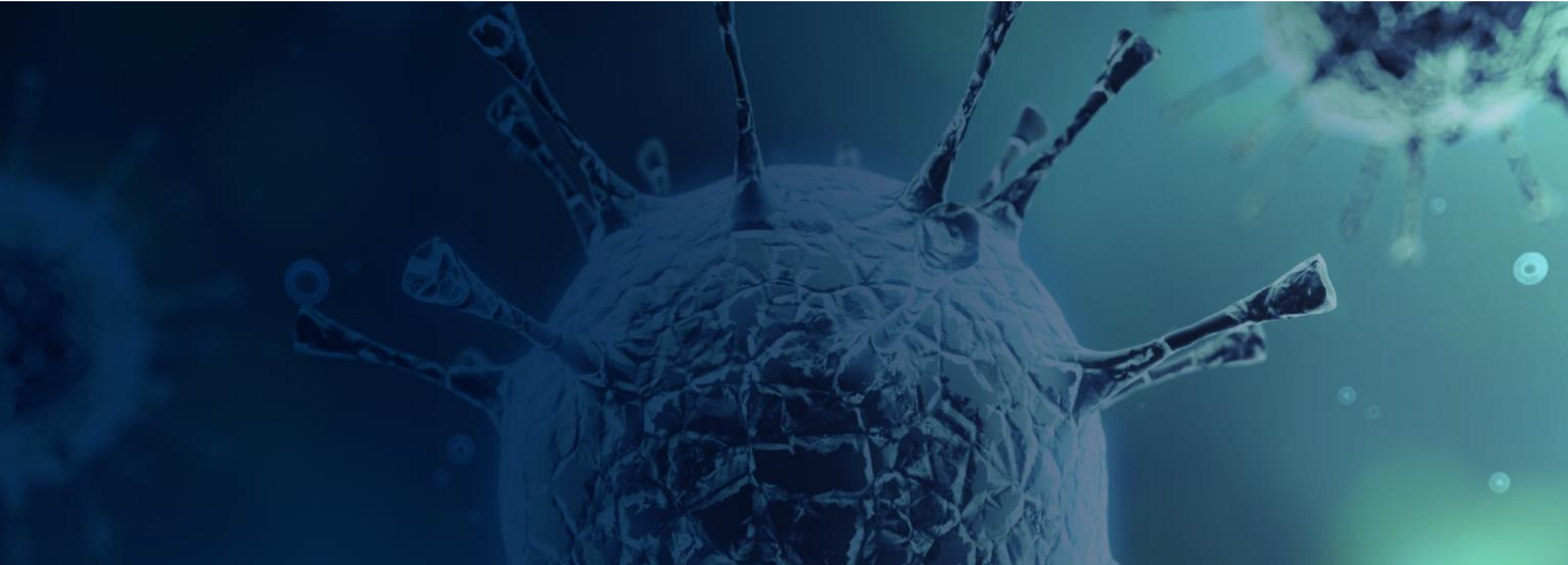
AUTO6NG



# AUTO7 is designed to tackle the complex solid tumor environment

## Anti-PSMA humanized CAR T cell for improved persistence and resistance in Prostate Cancer





Next Steps

## Multiple clinical milestones anticipated through 2021/2022

PRODUCT	INDICATION	TARGET	PHASE	NEXT MILESTONE
Obe-cel	Adult ALL	CD19	Pivotal*	FELIX data in 2022
AUTO1 /22	Pediatric ALL	CD19/CD22	Phase 1	Study enrolling, data in Q4 2021
obe-cel	B-NHL	CD19	Phase 1	Study enrolling, data in Q4 2021
obe-cel	PCNSL	CD19	Phase 1	Study enrolling, data in Q4 2021
AUTO3	DLBCL	CD19/CD22	Phase 1	Phase 1 long-term follow up, intend to partner
AUTO4	TRBC1+ Peripheral TCL	TRBC1+ Peripheral TCL	Phase 1	Phase 1 interim data Q4 2021
AUTO5	TRBC2+ Peripheral TCL	TRBC2+ Peripheral TCL	Preclinical	Start Phase 1 H2 2021
AUTO6 NG	Neuroblastoma; Osteosarcoma; SCLC	GD2	Preclinical	Start Phase 1 H2 2021
AUTO7	Prostate	PSMA	Preclinical	Start Phase 1 H1 2022
AUTO8	Multiple Myeloma	BCMA/CAR-X	Preclinical	Start Phase 1 study mid 2021
ALLO Program	Undisclosed	Undisclosed	Preclinical	Start Phase 2021

\*Subject to confirmation by regulatory authorities.

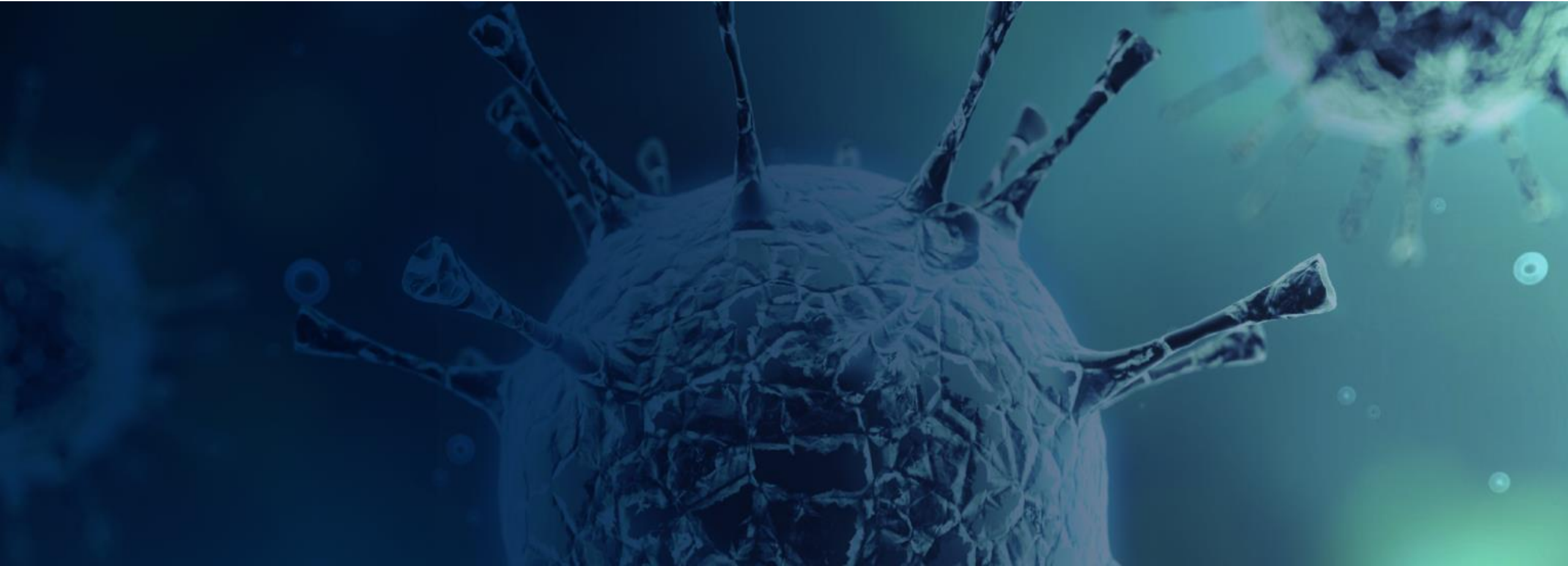
- Obe-cel and AUTO1/22
  - Currently enrolling Autolus' first Phase 1b/2 potential pivotal program (FELIX) in adult ALL. Data expected in 2022
  - Pediatric ALL—AUTO1/22 Phase 1 study started in Dec 2020, first data expected for ASH in Q4 2021
  - ALLCAR study in iNHL and CLL ongoing, data updates to be released at ASH in 2021
  - Opportunity to develop AUTO1 in Primary CNS Lymphoma, CAROUSEL study start planned for H1 2021

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- AUTO3
  - Company plans to seek a partner for the AUTO3 program, prior to further development

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- AUTO4
  - Phase 1 interim data expected at ASH in 2021

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- Multiple Next Generation development candidates entering clinical development in 2021
- Cash balance at Mar 31, 2021, was approx. \$239 million which provides a cash runway into H1 2023





Thank you