Autolus

Fourth Quarter Financial Results and Operational Progress

March 2022

Disclaimer

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Agenda

- Welcome and Introduction: Dr. Lucinda Crabtree, SVP, Finance
- Operational Highlights: Dr. Christian Itin, CEO
- Financial Results: Andrew J. Oakley, CFO
- Upcoming Milestones and Conclusion: Dr. Christian Itin, CEO
- Q&A: Dr. Christian Itin, Andrew J. Oakley and Dr. Lucinda Crabtree

Pipeline and Corporate Highlights

Key operational updates – fourth quarter 2021

Continued progress on building a leading ALL company with Blackstone collaboration providing up to $250 million financing

- Obe-cel shows highly consistent and best in class efficacy and safety profile across three B-ALL phase 1 studies in patients with a wide range of age, disease burden and prior therapies
- Strategic collaboration and financing agreement with Blackstone Life Sciences (NYSE: BX) providing up to $250 million in equity and product financing
- Planning approval granted to build the Company's new manufacturing facility in Stevenage, UK
- Strengthened the Board with new appointments
  - John H. Johnson - Non-Executive Chairman
  - Dr. William D. Young - Non-Executive Director
- Post period, Lucinda Crabtree Ph.D. to replace Andrew Oakley as CFO on his retirement on 31 March 2022

Blackstone Life Sciences to invest up to $250m to develop obe-cel in adult ALL

Investment of $100m in equity and up to $150 million in product financing

- Blackstone agreed to purchase $100 million of Autolus' American Depositary Shares (ADS') in a private placement, priced at market
- Blackstone also committed to invest up to $150 million in product financing to support obe-cel development and preparation for commercialization
  - $50 million paid upon closing of the transaction
  - Remainder payable based on achievement of certain development and regulatory milestones
- Blackstone received a warrant to purchase up to $24 million worth of Autolus ADSs at an exercise price premium to market
- Autolus to pay Blackstone a capped single digit royalty plus milestone payments based on net sales of obe-cel
- Transaction provides runway into 2024[1]

NOTES
1. Assuming all milestones received

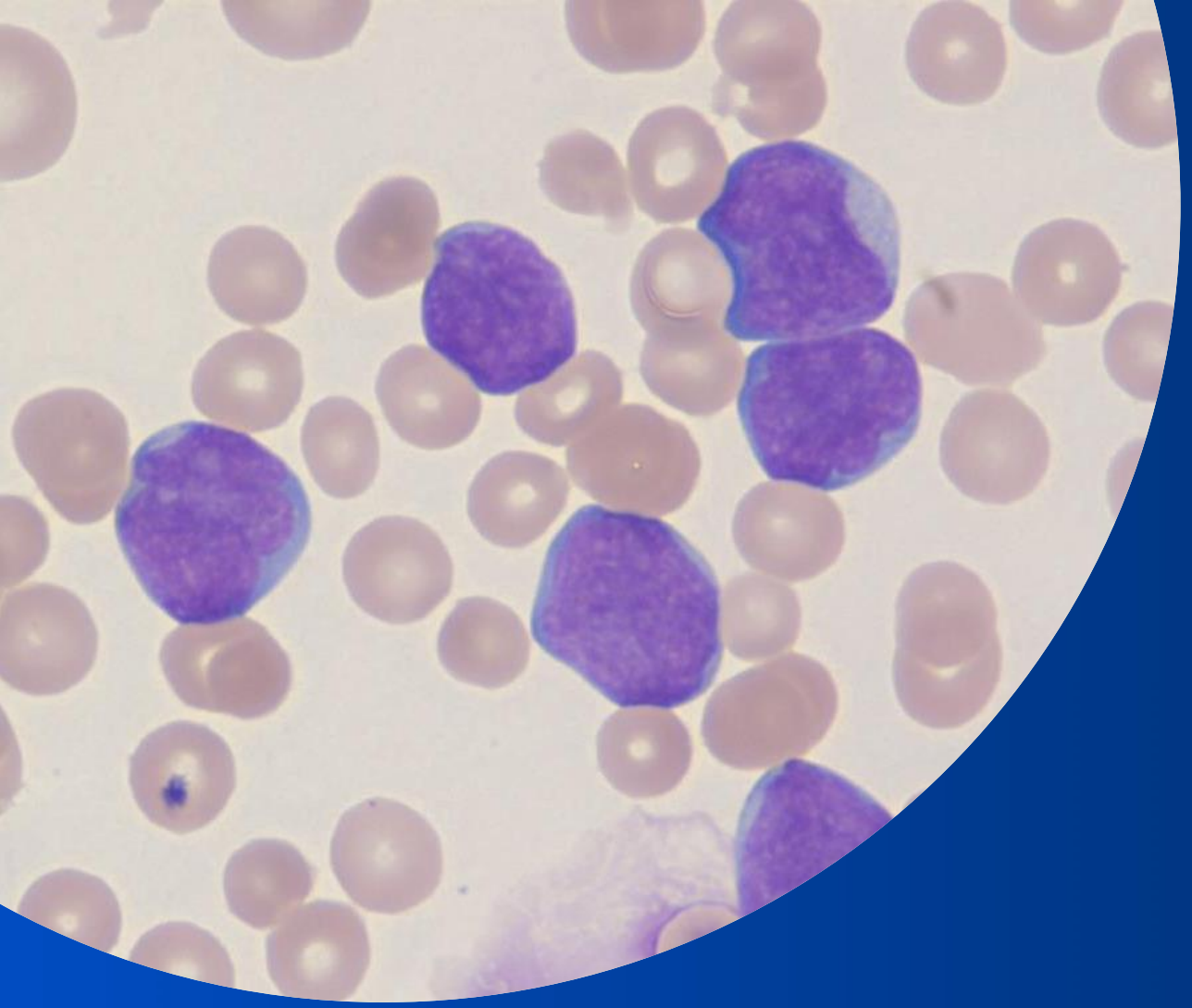
Program updates – fourth quarter 2021

FELIX study progressing, Phase 1b data consistent with ALLCAR19, data in 2022

- Obe-cel in relapsed / refactory (r/r) adult ALL – Data at ASH in December 2021
  - Data from the FELIX Phase 1b portion show a favorable safety and efficacy profile consistent with ALLCAR19 study in adult r/r B-ALL
  - Duration of response from the ALLCAR19 study remains highly encouraging with morphological EFS for obe-cel of 46% at 24 months with a median follow-up of 29.3 months and patients approaching up to 42 months of durability
- Obe-cel in r/r B-NHL – ALLCAR19 extension - Data at ASH in December 2021*
  - Favorable safety profile in B-NHL and CLL with no ICANS or severe Grade ≥ 3 CRS, consistent with safety profile observed in r/r B-ALL
  - Out of 14 patients evaluable for efficacy, 100% ORR and 13/13 B-NHL (100%) in complete metabolic response
  - Long term persistence of obe-cel demonstrated by qPCR
- AUTO1/22 in pediatric ALL – Positive translational pre-clinical data at ASH in December 2021**
  - All 6 patients showed engraftment of single and double CAR positive populations, pointing to early CAR T cell persistence
- AUTO4 in Peripheral T Cell Lymphoma
  - Phase 1 clinical trial is progressing through dose escalation

*As of the cut-off date of October 15, 2021 **As of the cut-off date of October 21, 2021

(1)*Roddie et al. "Durable responses and low toxicity after fast off-rate CD19 CAR-T therapy in adults with relapsed/ refractory B-ALL."* DOI: 10.1200/JCO.21.00917 Journal of Clinical Oncology - published online before print August 31, 2021



Adult Acute Lymphoblastic Leukemia

obe-cel — Potential as a standalone therapy

High unmet need 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**[1] 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 adult ALL
- Only redirected T cell therapies for adult patients are blinatumomab and brexucabtagene autoleucel
- CAR T therapies are highly active, but adult patients are generally more fragile with co-morbidities and experience high incidences of severe CRS and neurotoxicity
- Opportunity to expand the addressable patient population in earlier lines of therapy

Obe-cel granted Orphan Drug designation by FDA for B-ALL, Prime designation in R/R B-ALL by EMA And ILAP designation by MHRA in Adult R/R B-ALL

NOTES

1. SEER and EUCAN estimates (respectively) for US and EU epi

Unmet medical need in r/r adult ALL despite approved agents

Current standard of care and recently approved agents in r/r adult ALL

	Standard of Care		Recently FDA approved
	Blincyto[1]	Besponsa[2]	Tecartus[3]
N	271	109	54
ORR (CR & CRi) (95% CI)	44% (38%, 50%)	81% (72%, 88%)	65% (51%, 77%)
EFS/PFS	31% @ 6m ~10% @ 18m	~45% @ 6m ~20% @ 18m	~65% @ 6m ~25% @ 18m
median DoR (95% CI)	7.3m (5.8, 9.9)	4.6m (3.9, 5.4)	13.6m (8.7, NE)
median OS (95% CI)	7.7m (5.6, 9.6)	7.7m (6.0, 9.2)	18.2m (15.9, NE)
CRS any Grade	14%	Not reported	92%
CRS ≥ Grade 3	5%	Not reported	26%
Neurotox any Grade	65%	Not reported	87%
Neurotox ≥ Grade 3	13%	Not reported	35%
Subsequent SCT post treatment	24%	41%	18%
Other notable observations	NA	14% Hepatic VoD	40% vasopressor use

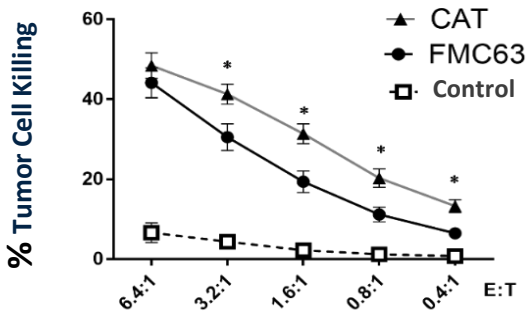
1. Kantarjian et al., 2017/ USPI (product label) 2. Kantarjian et al., 2016/ USPI (product label) 3. Shah et al. Lancet 2021/ USPI (product label)
The estimates of EFS/PFS are read from the KM curves. The efficacy data in ZUMA-3 are based on the modified ITT population while the blinatumomab and inotuzumab data are based on the ITT population.

obe-cel has a unique mechanism of action

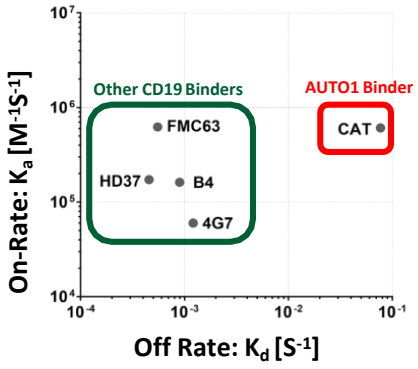
Fast off rate supports physiological engagement of target cells and avoids over-activation and exhaustion of CART cells

- obe-cel is designed to improve potency and persistence while reducing immunological toxicity
- Obe-cel (CAT) binder with lower affinity for CD19
- Half-life of target interaction very short compared to Kymriah® (FMC63) binder:
  - AUTO1 = 9.8 seconds
  - Kymriah® = 21 minutes

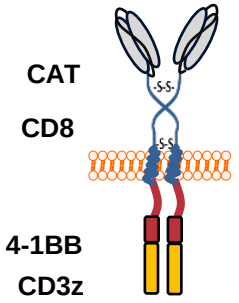
Enhanced Cytotoxicity



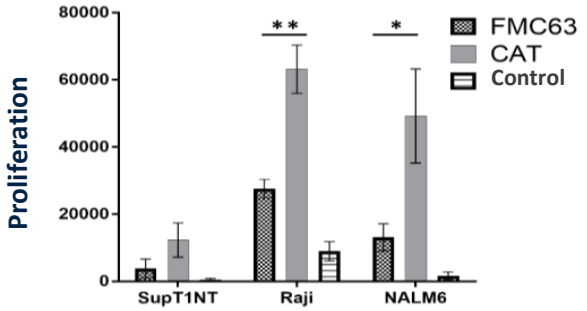
Fast Off-Rate



Lentiviral Vector



Enhanced Proliferation



*Ghorashian S, Pule MA, Amrolia P et al. *Nature Medicine* 2019

obe-cel shows consistent clinical profile across three Phase 1 ALL studies

Data from 3 studies across range of age groups and patient conditions

	CARPALL #1 Peds ALL	ALLCAR19 #2 Adult ALL	FELIX 1b #3 Adult ALL
n	14	20	16
ORR (CR & CRi) (95% CI)	86% (57%, 98%)	85% (62%, 97%)	75% (48%, 93%)
CRS [1] ≥ Grade 3	0%	0%	0%
CRS [1] any grade	93%	55%	56%
Neurotox [2] ≥ Grade 3	7%	15%	6%
Neurotox [2] any Grade	50%	20%	13%
Median Age	9	42	42
Bone marrow blast >20% at LD	21%	60%	75%
Bone marrow blast <5% at LD	71%	35%	25%
Prior blinatumomab	7%	25%	56%

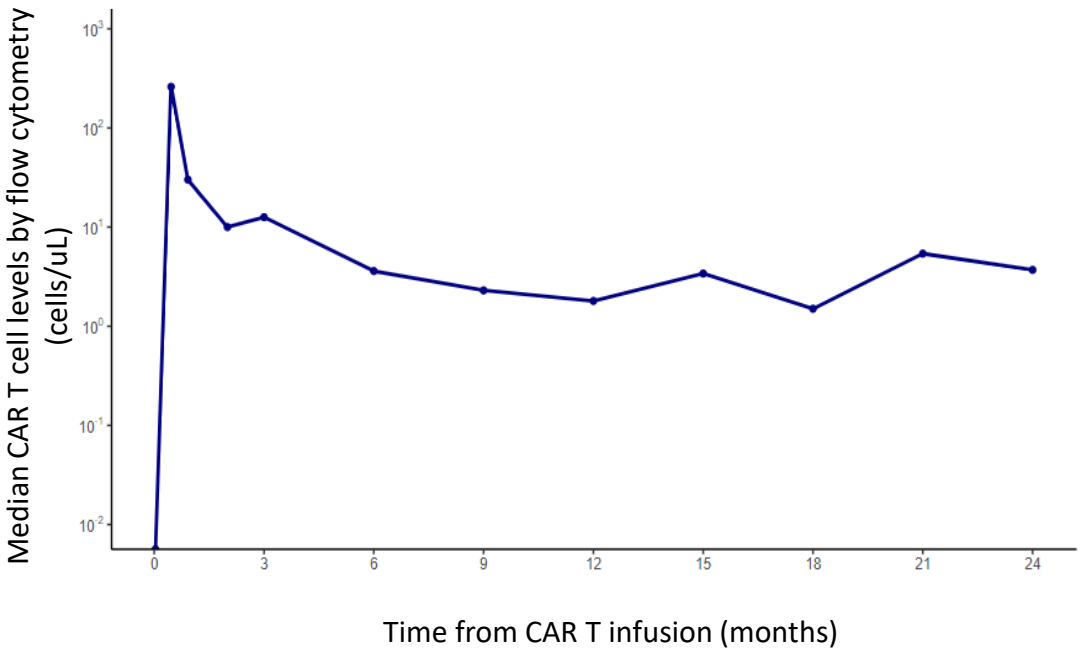
[1] CRS grading based on Lee et al (2014) for CARPALL and ALLCAR19, and ASTCT grading (Lee et al 2019) for FELIX
[2] Neurotoxicity grading based on CTCAE v4.03 for CARPALL and ALLCAR19, and ASTCT ICANS grading (Lee et al 2019) for FELIX

#1 Ghorashian et al. Nature Medicine 2019
#2 Roddie et al. J Clin Oncol, 2021
#3 Culshaw et al, ASH 2021, abstract #477

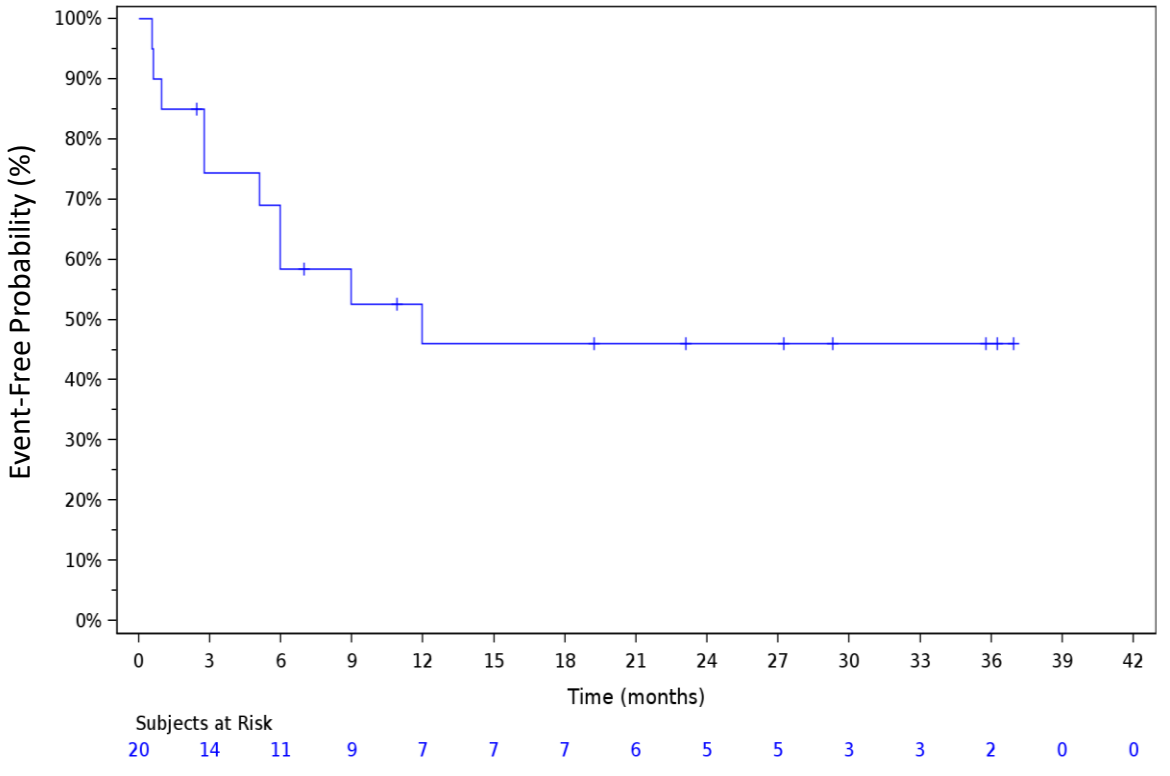
obe-cel shows sustained event-free survival beyond 30 months

Long term CAR T persistence drives durability of effect

Median CAR T cell levels in peripheral blood



ALLCAR19 Event-Free Survival



Median (range) follow-up time: 29.3 months (range 0.6 – 41.5)
Median (95% CI) EFS: 12 months [2.8, NE]
EFS starting from Month 12 going forward: 46% (95% CI [23%, 67%])

Data cut for ALLCAR19 study: 15-OCT-2021;
Patients were received SCT post obe-cel infusion are censored at date of SCT

obe-cel has the potential for a transformational therapy in adult ALL

Unique CAR T design drives differentiated product profile

- Obe-cel has a unique mechanism of action built on a fast-off rate from CD19 target antigen
- Obe-cel has a high ORR across all patient populations evaluated
- Obe-cel shows a sustained morphological EFS of 46% with a median follow-up of 29.3 months
- Long term CAR T persistence drives durability of effect
- Obe-cel has a favorable safety profile with no high-grade CRS and limited ICANS

FELIX Phase 2 study is under way with data expected in 2022

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

Pivotal program, FELIX, in adult ALL enrolling with data in 2022 and full data in H1 2023

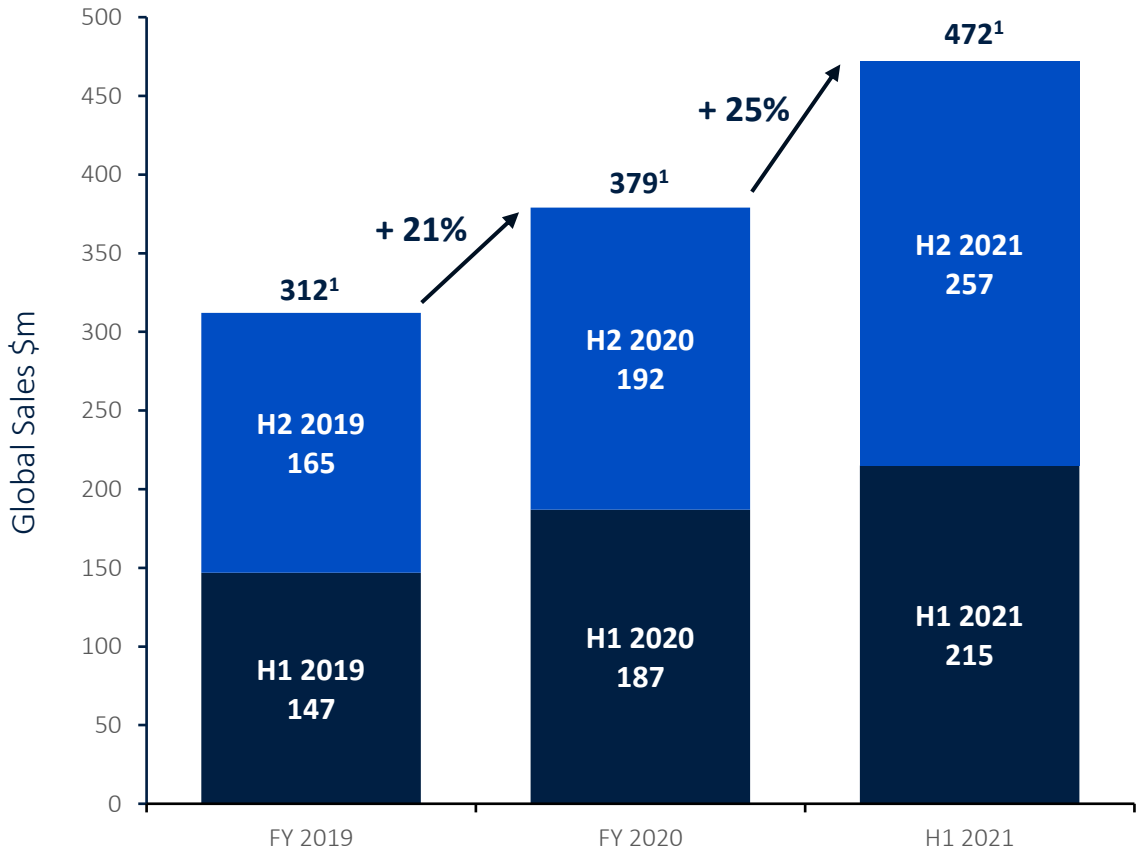
Phase 2 part of the FELIX study ongoing since mid 2021 with sites in UK, Spain and US

- Phase 1b run-in component, prior to single arm Phase 2 potential pivotal trial
- 100 relapsed/refractory adult ALL patients
- Primary endpoint: Overall Complete Response Rate (CR/CRi)
- Secondary endpoints: include MRD-negative CR EFS and DoR

obe-cel could potentially launch into an expanding ALL market

Blincyto, current market leader, shows annual revenue growth of 25%

Reported Blincyto sales[1]



- Blincyto sales price estimated to be $178k[3] (based on 2 cycles) supporting approx. >2,000 commercial adult ALL patients, growing at a rate of 25%
- Kymriah is priced at $475k in pediatric ALL. Breyanzi (lisocabtagene maraleucel) is priced at $410k in DLBCL[4]. Tecartus is priced at $399k for adult ALL.
- 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 has the potential to be best in class curative therapy expanding use beyond academic transplant centers

NOTES

1. As per Amgen quarterly SEC filings
2. H2 2021 is not yet reported, this is just an extrapolation based on H1 2021 reported sales
3. https://www.medscape.com/viewarticle/836879
4. Bristol Myers finally wins FDA approval for cancer cell therapy | BioPharma Dive – Komodo Health 2015 – 2020

Stevenage Manufacturing Facility Update

First UK CAR T commercial facility expected to be ready for GMP operations in mid 2023.

- For commercial supply, Autolus new 72,000 square foot manufacturing facility in Stevenage, UK is currently under construction

- This new Stevenage facility will allow for GMP capacity for approx. 2,000 batches a year initially, with the option for further volume increases

11:00 GMT on 17 Feb 2022

Unique profile of obe-cel offers potential across broader indications

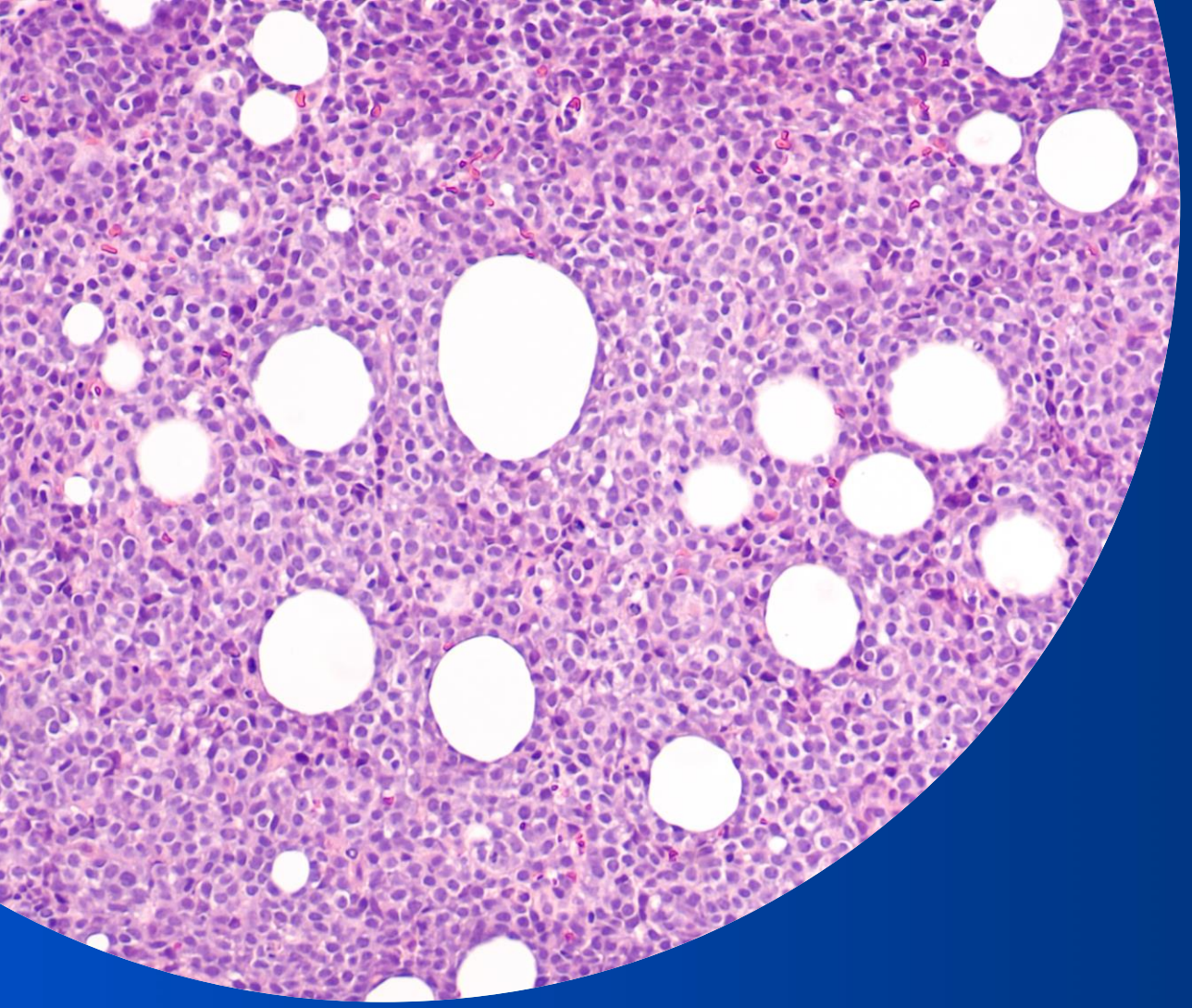
Evaluation of obe-cel activity in additional B-Cell malignancies to capitalize on potential market opportunity

PRODUCT	INDICATION	TARGET	STUDY NAME	PHASE
obe-cel	Adult ALL	CD19	FELIX	Pivotal
obe-cel	B-NHL & CLL	CD19	ALLCAR19*	Phase 1
obe-cel	Primary CNS Lymphoma	CD19	CAROUSEL*	Phase 1

B Cell Malignancies

* Collaboration with UCL

Opportunity to pursue in earlier lines of therapy and indications of Adult ALL



B-NHL

Obe-cel

Favorable tolerability profile of obe-cel reproduced in B-NHL

No ICANS or severe CRS

AEs of Special Interest

Event N = 16 patients	All Grades n (%)	Grade 1 n (%)	Grade 2 n (%)	Grade 3 n (%)	Grade 4 n (%)
CRS*	9 (56%)	6 (38%)	3 (19%)	0	0
ICANS	0	0	0	0	0
Event N = 16 patients	All Grades n (%)	Grade 1 n (%)	Grade 2 n (%)	Grade 3 n (%)	Grade 4 n (%)

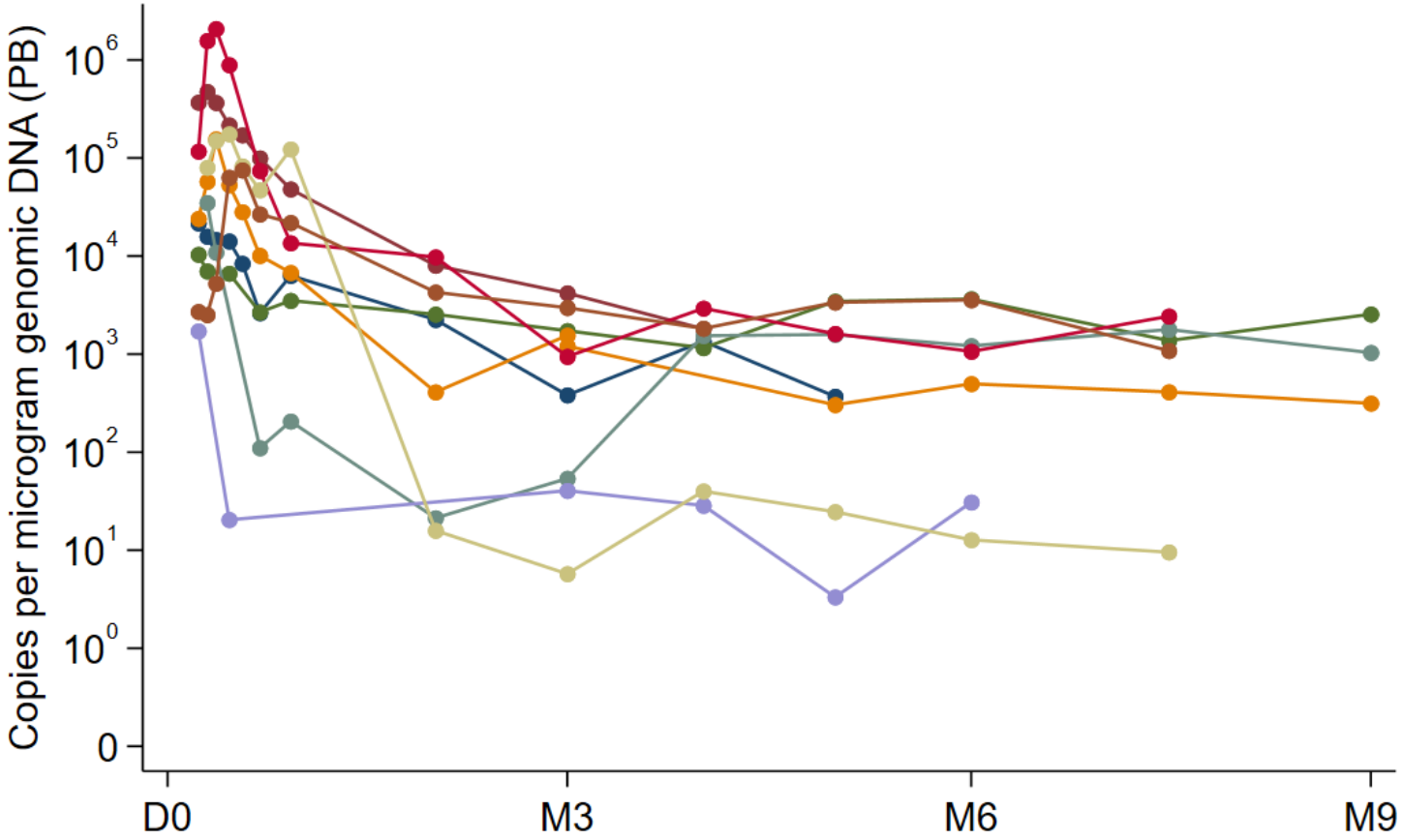
*CRS grading by Lee et al 2018
Data cut: 15-OCT-2021

- Consistent safety profile for obe-cel across indications tested
  - No ICANS
  - No high grade CRS

Data cut: 15-OCT-2021

obe-cel shows excellent T cell expansion and engraftment

ALLCAR19 – B-NHL Patients

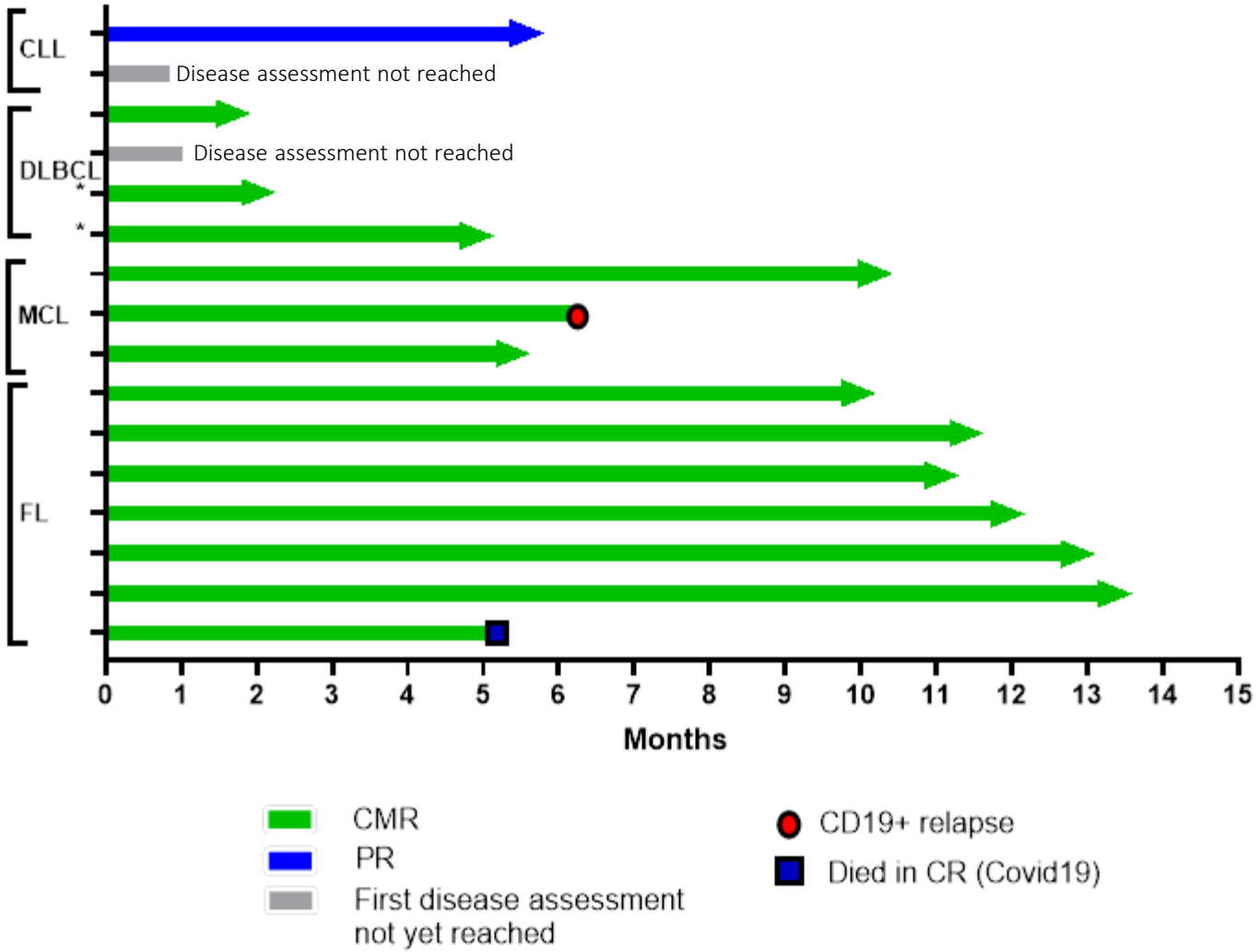


Cmax (CAR transgene per ug gDNA)	
n	9
Mean	336234
CV%	50.2%
Time to Cmax (Days)	
n	9
Median	9
Range	7-17
Time last measurable in Blood (Days)	
n	9
Median	228
Range	122-274

CAR, chimeric antigen receptor; VCN, vector copy number; qPCR, quantitative polymerase chain reaction, CV% , coefficient of variation

Data cut: 15-OCT-2021

obe-cel shows encouraging efficacy and duration of response in NHL/CLL



	N (%)
Follicular Lymphoma	
CR + PR	7 (100%)
CR	7 (100%)
DLBCL	
CR + PR	3 (100%)
CR	3 (100%)
Pending	1
MCL	
CR + PR	3 (100%)
CR	3 (100%)
CLL/SLL	
CR + PR	1 PR (BM MRD-neg.)
Pending	1
Non-Response	0
Relapse	1 (MCL at 6 mos)

Median (Range) Follow-Up Time:

- FL/DLBCL: 11.8 Months (Range 2.0-14.2)
- MCL/CLL: 7.4 Months (Range 1.1-14.8)

Data cut: 15-OCT-2021

DLBCL* = transformed follicular lymphoma

Summary and next steps for obe-cel in B-NHL

- Favorable safety profile in B-NHL with no ICANS or severe Grade ≥ 3 CRS events, consistent with safety profile observed in r/r B-ALL
- Out of 14 patients evaluable for efficacy, 100% ORR and 13/14 (93%) in complete metabolic response
- Long term persistence of obe-cel demonstrated by qPCR
- 15/16 patients are ongoing without disease progression
  - 6/7 FL patients in CR for more than 10 months (10-14 months), 1 patient died in CR from COVID
  - Longer follow-up and enrolment of additional DLBCL and CLL patients ongoing, further data planned for H1 2022

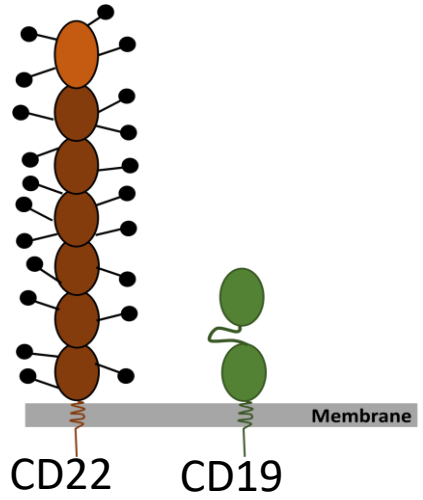
Pediatric ALL

Autolus CAR T approach to treating pediatric ALL

CD19 negative antigen escape is a common cause of treatment failure

- obe-cel (AUTO1) in relapsed / refractory pediatric ALL is highly active and has a favourable safety profile - CARPALL study#[1,2]
- Medical need in pediatric ALL is to minimize rates of antigen-loss–driven relapses and improve long-term outcomes – points to need for a dual targeting CAR-T
- CD22 is challenging to target with a CAR as it is a rigid bulky molecule, expressed at a low density and can be downregulated further in response to CD22 targeting#[3]
- AUTO1/22 is a next generation program that builds on obe-cel and adds a highly potent CD22 CAR, capable of targeting low levels of CD22

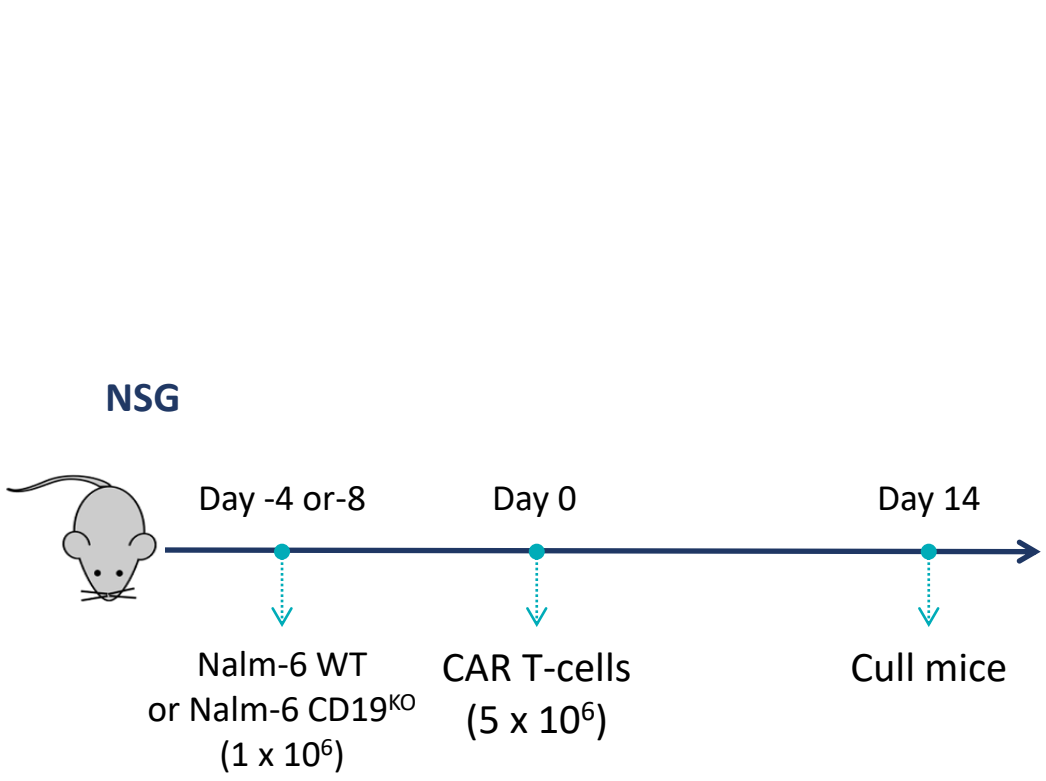
	CARPALL Study
n	14
CR Rate	86%
EFS 12m	52% (95% CI, 16% to 72%)
No. of CD19 negative relapses	5/6
CRS ≥ G3	0%

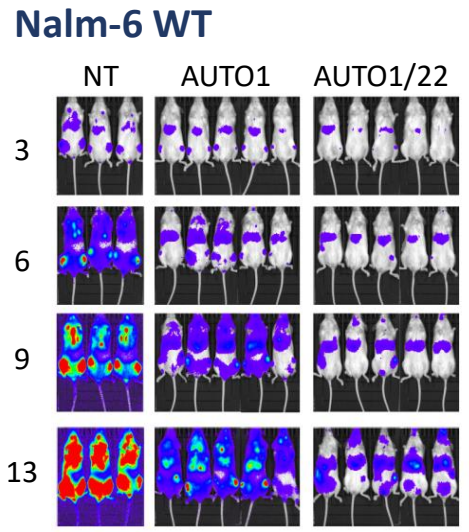


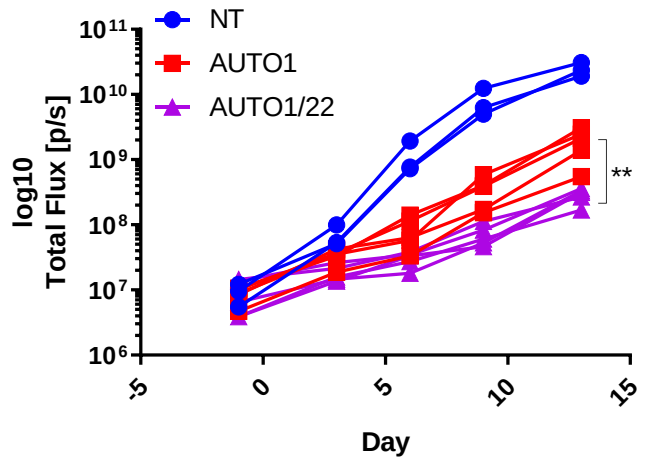
#1 NCT02443831
#2 Ghorashian et al., Nat Med 2019
#3 Shah et al., JCO 2020, Spiegel et al., Nat Med 2021

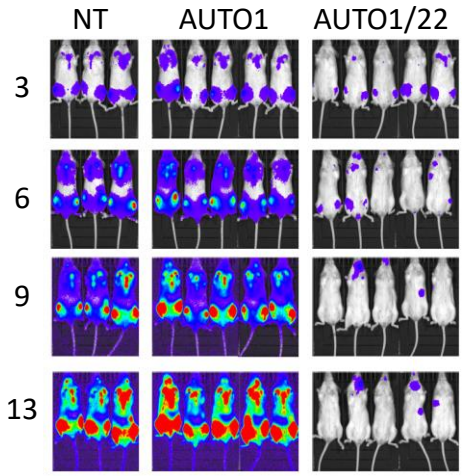
AUTO1/22: enhanced in vivo anti-tumor efficacy

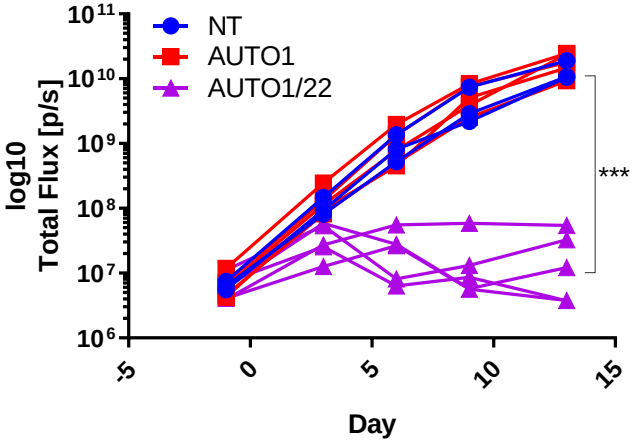
Dual targeting of CD19 and CD22 addresses CD19-negative target cells and enhances overall activity











AUTO1/22 – A dual targeting CAR T therapy

Currently being tested in pediatric ALL

- AUTO1/22 builds on excellent CD19 targeting of obe-cel with its high activity and good safety profile and adds potent second CAR to target CD22
- AUTO1/22 eliminates target cells that express low density CD22 molecules
- AUTO1/22 is effective in in-vivo models of CD19 negative escape
- AUTO1/22 is being evaluated in pediatric patients and data will be presented in H1 2022

* As of the cut-off date of October 21, 2021

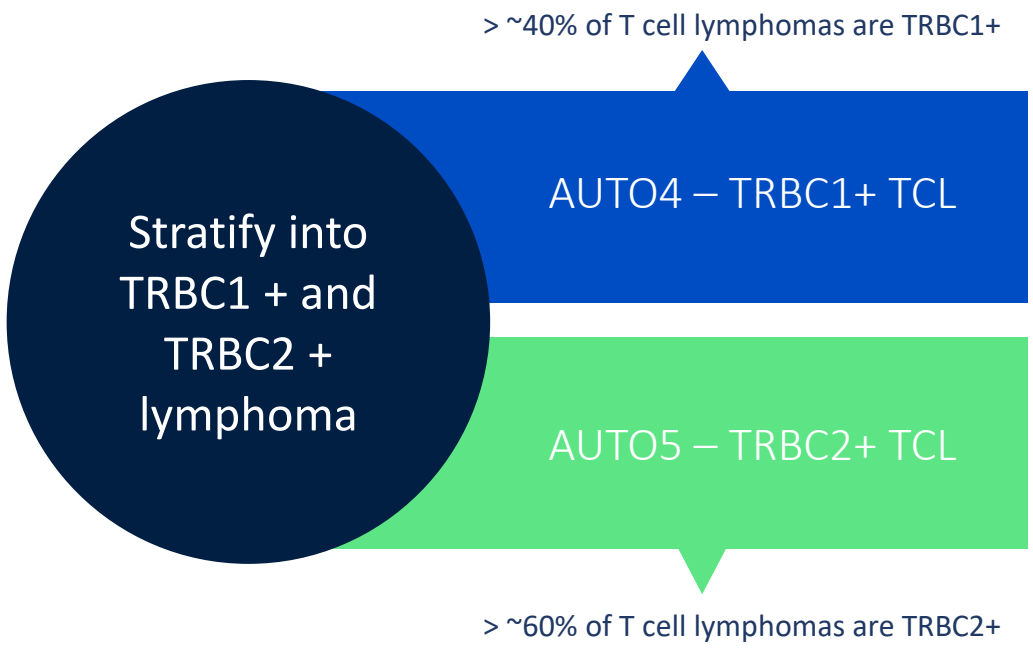
Pipeline

A broad portfolio of next generation modular T cell therapies

T Cell Lymphoma

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

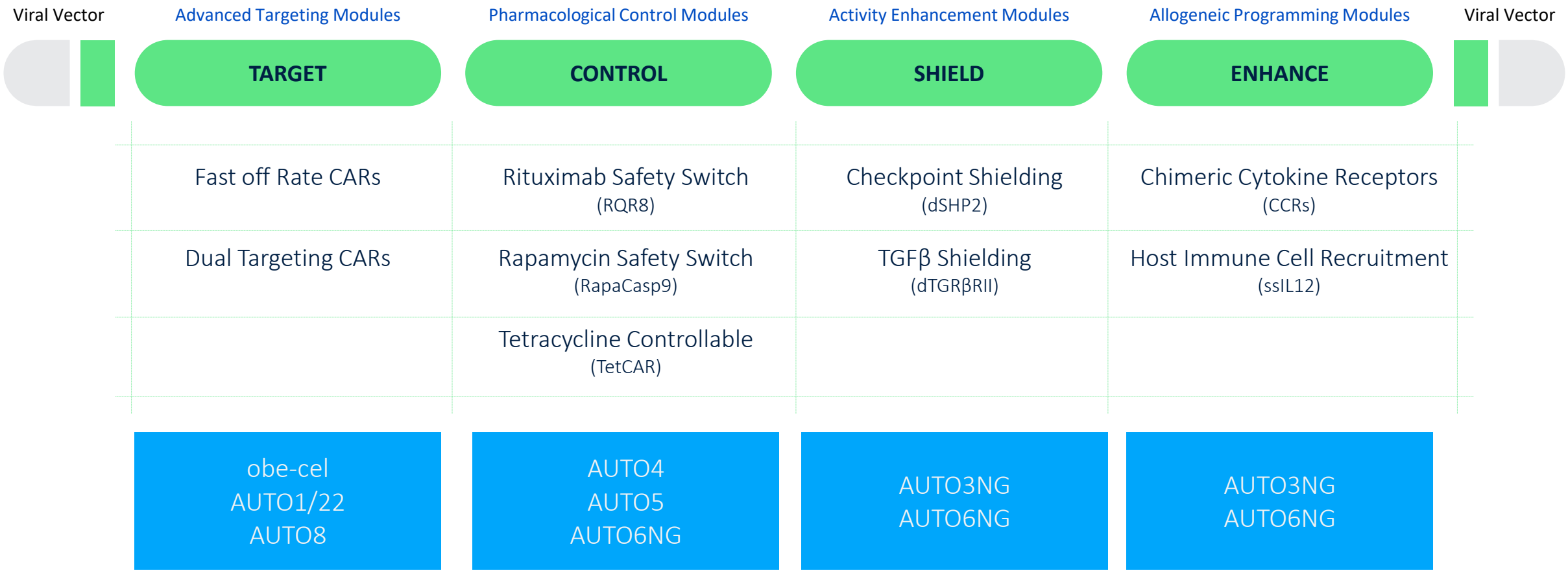
Three key elements to address T cell lymphomas: AUTO4, AUTO5 and a companion diagnostic test



- 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 relapsed 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 H1 2022

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

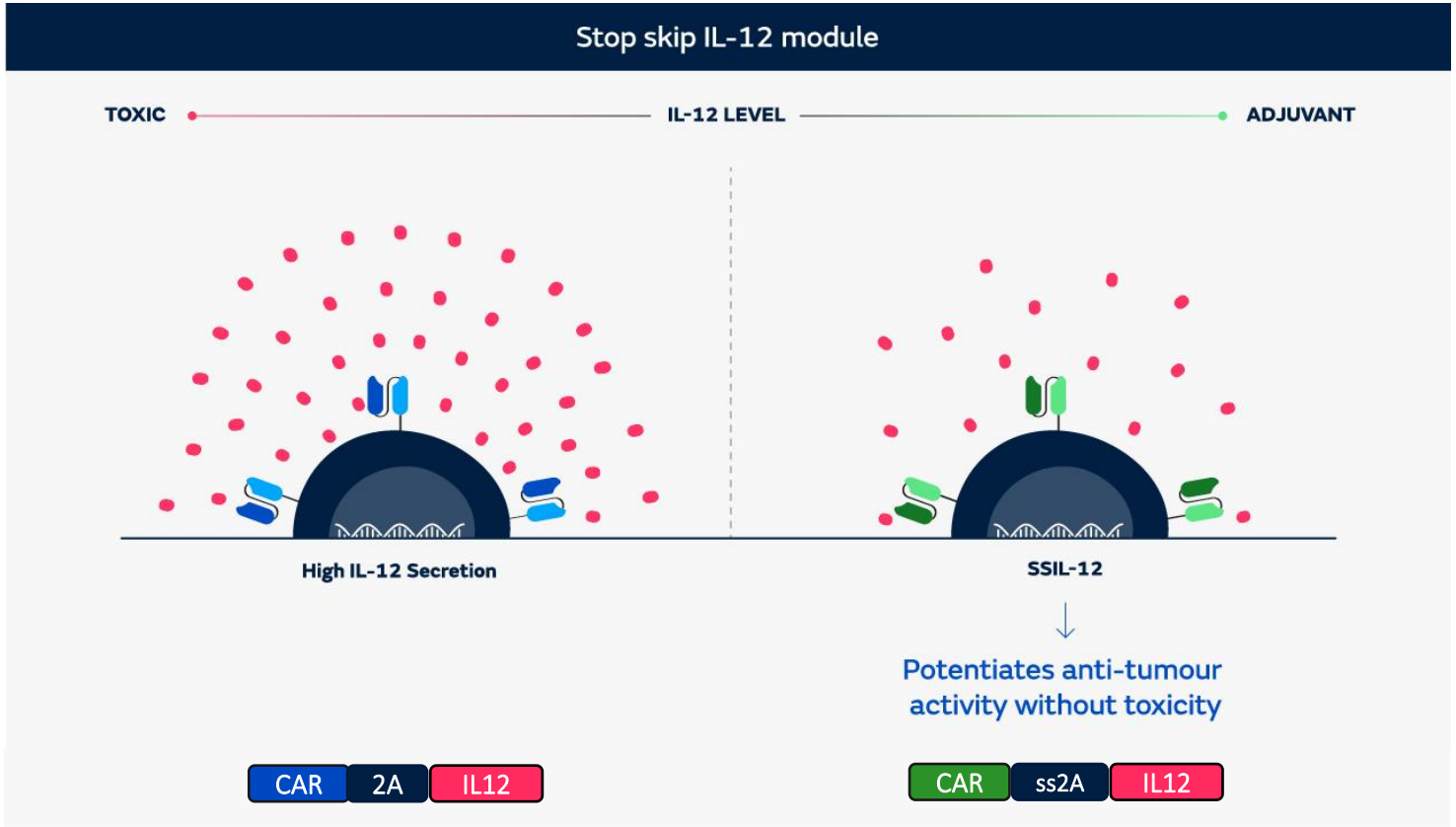
Advanced T cell programming



SS-IL12 module maintains potent adjuvant activity with no toxicity

Module prevents toxicity by drastically reducing IL12 secretion

- IL-12 is a potent adjuvant that promotes a powerful anti-tumour response when combined with checkpoint inhibitors and adoptive T cell transfer[1]. However, IL-12 has been associated with systemic toxicity[2]
- Engineered version of the IL-12 (SS-IL12) has been designed to constrain expression while maintaining its adjuvant activity



1. Quetglas JI et al. Cancer Immunol Res 2015; 2. Tugues S et al. Cell Death Differ 2015

Sillibourne et al., Biotechniques, Ahead of Print, 2 March 2022

Next generation programs

Designed to address limitations of current T cell therapies

PRODUCT	INDICATION	TARGET	STUDY NAME	PHASE
AUTO1/22	Pediatric ALL	CD19 & CD22	CARPALL*	Phase 1
AUTO4	TRBC1+ Peripheral TCL	TRBC1	LibrA T1	Phase 1/2
AUTO5	TRBC2+ Peripheral TCL	TRBC2		Preclinical
AUTO6NG	Neuroblastoma; Other tumor types	GD2		Preclinical
AUTO8	Multiple Myeloma	BCMA & CD19	MCARTY*	Phase 1

B Cell Malignancies T-Cell Lymphoma Solid Tumors Multiple Myeloma

* Collaboration with UCL

Financial Results

Financial summary

USD m	FY 2021	FY 2020	Variance
Grant Income	0.8	1.5	(0.7)
License Income	1.5	0.2	1.3
R&D	(134.8)	(134.9)	0.1
G&A	(31.9)	(35.0)	3.1
Loss on disposal of leasehold improvements	(0.7)	-	(0.7)
Total Op Expense, Net	(165.0)	(168.1)	3.1
Interest Income	0.3	0.5	(0.2)
Other (Expense)/Income	(0.1)	1.4	(1.5)
Interest expense	(1.1)	-	(1.1)
Tax Benefit	23.9	24.2	(0.3)
Net Loss	(142.1)	(142.1)	-
USD m	**FY 2021**	**FY 2020**	**Variance**
Cash Balance	310.3	153.3	157.0

Cash runway into 2024, assuming all milestones received

Next Steps

Autolus poised for potential value inflection

obe-cel pivotal data in adult ALL in 2022

obe-cel

- FELIX Phase 2 study in adult ALL data expected in 2022 with full data in H1 2023
- Evaluation in relapsed/refractory B-NHL and CLL ongoing, with next data update planned for European Hematology Association (EHA) Congress in H1 2022
- Evaluation in Primary CNS Lymphoma ongoing with initial data update planned for EHA in H1 2022

AUTO1/22

- Pediatric ALL – AUTO1/22 Phase initial 1 data planned for EHA in H1 2022 and longer follow-up data in H2 2022

Pipeline

- AUTO4: Peripheral T cell lymphoma - interim phase 1 data planned for EHA in H1 2022
- AUTO6NG: Neuroblastoma – start phase 1 mid 2022
- AUTO8: Multiple Myeloma – start phase 1 in H1 2022

Cash balance at December 31, 2021, $310.3 million:

- Cash runway including project financing payments from Blackstone into 2024

Autolus

Thank you