Autolus

Second Quarter Financial Results and Operational Progress

August 4 2022

Disclaimer

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Agenda

- Welcome and Introduction: Olivia Manser, Director, Investor Relations
- Operational Highlights: Dr. Christian Itin, CEO
- Financial Results: Dr. Lucinda Crabtree, CFO
- Upcoming Milestones and Conclusion: Dr. Christian Itin, CEO
- Q&A: Dr. Christian Itin and Dr. Lucinda Crabtree

Pipeline and operational updates – second quarter 2022

Pipeline progress, with multiple clinical readouts at European Hematology Association (EHA) 2022 Congress

- **obe-cel in relapsed / refractory (r/r) adult ALL – continuing to enroll patients into the FELIX trial**
  - Regenerative Medicine Advanced Therapy (RMAT) designation granted by FDA for obe-cel in April 2022
  - On track to report initial results in Q4 2022 with full data planned at a medical conference in H1 2023
  - Expansion arm initiated for Minimal Residual Disease (MRD) cohort of up to 50 additional patients

- **obe-cel in r/r B-NHL and PCNSL – ALLCAR19 extension and CAROUSEL studies – continuing to enroll patients**
  - Clinical data at EHA demonstrated sustained clinical activity in B-NHL patients and first activity in Primary CNS Lymphoma

- **AUTO1/22 in pediatric ALL – continuing to enroll patients into the CARPALL study**
  - First clinical data at EHA demonstrated encouraging and durable responses in children ineligible for commercial CAR T product

- **AUTO4 in Peripheral T Cell Lymphoma – continuing to enroll patients into the LibrA T1 study**
  - First clinical data at EHA demonstrated a high level of clinical activity with a novel targeting approach

- **AUTO8 in Multiple Myeloma – dosed first patient in MCARTY study and continuing to enroll patients**
  - Next-generation product candidate comprising two independent CARs targeting BCMA and CD19

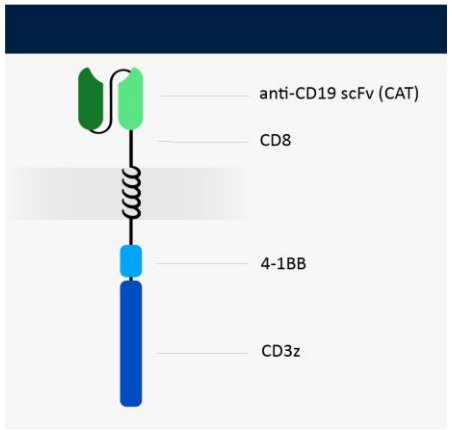
- **Build of the commercial manufacturing facility in Stevenage, UK progressing on track with schedule**

LEAD CLINICAL PROGRAM

obe-cel

A standalone, potentially best-in-class CD19 CAR T cell therapy

obe-cel has a unique mechanism of action



CD19 binder with fast off-rate

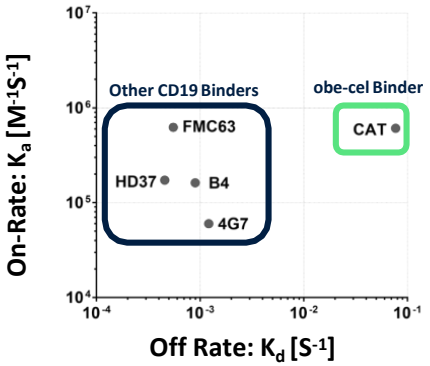
- **Improved potency, reduced toxicity**

Avoids over-activation of CAR T cells
-> Reduced toxicities

Increased CAR T peak expansion
-> Improved persistence

Avoids exhaustion of CAR T cells
-> Improved engraftment
-> Improved persistence

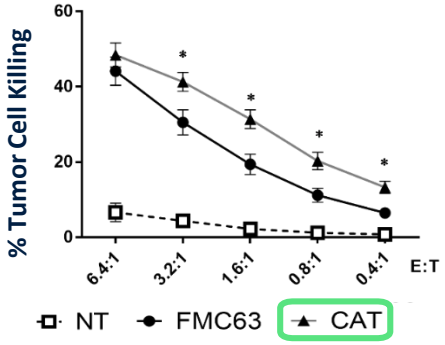
- **Fast off-rate**

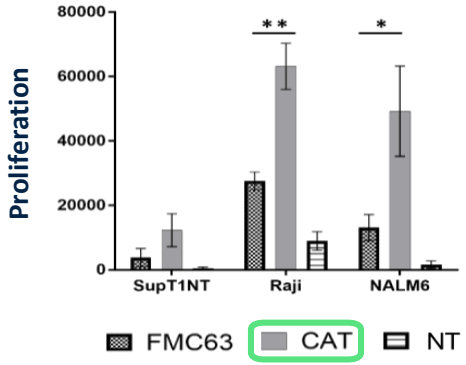


obe-cel has a shorter half-life of interaction compared to binders used in approved products

- obe-cel = 9.8 seconds
- Kymriah® = 21 minutes

- **Enhanced cytotoxicity and proliferation**



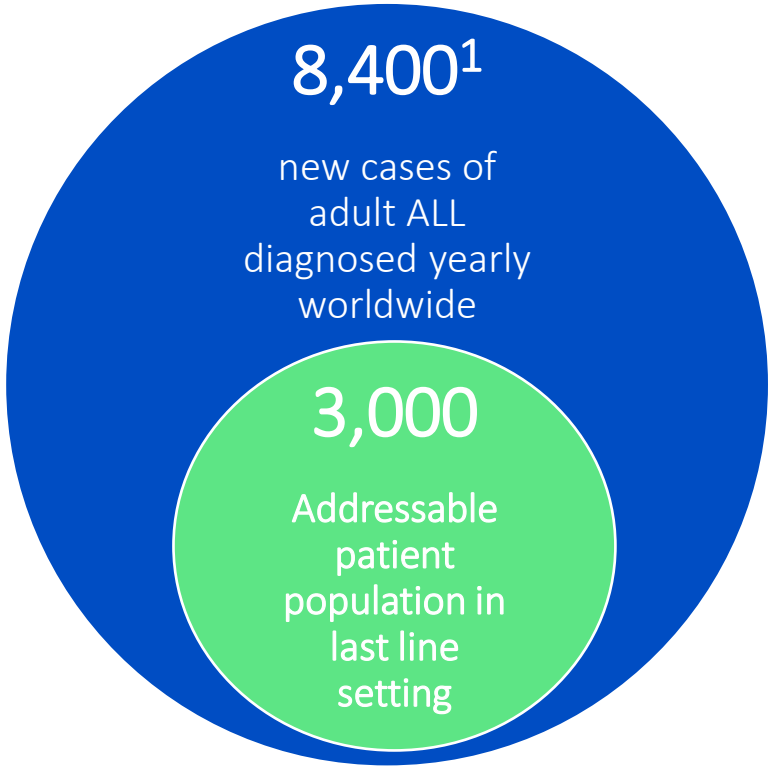


Ghorashian et al. *Nature Medicine* 2019

obe-cel for adult Acute Lymphoblastic Leukemia (ALL): high unmet need

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

- Median overall survival is < 1 year in r/r adult ALL
- Combination chemotherapy enables 90% of adult ALL patients to experience Complete Response (CR)
  - Only 30% to 40% achieve long-term remission
- Current T cell therapies in for adult patients are Blincyto® and Tecartus™ [2]
  - Both therapies are highly active, but frequently followed by subsequent treatments (e.g. alloSCT)
    - Blincyto: favourable safety profile, few patients experiencing severe CRS and ICANS, but limitations on convenience - continuous i.v. infusion during 4 week treatment cycles
    - Tecartus: more challenging to manage - induces elevated levels of severe CRS, a high level of ICANS, and requires vasopressors for many patients
- Opportunity to expand the addressable patient population in earlier lines of therapy



NOTES

1. SEER and EUCAN estimates (respectively) for US and EU epi
2. Currently approved in US only

obe-cel is a potentially transformational therapy for adult ALL

Unique CAR T design drives differentiated product profile

- Unique mechanism of action built on a fast off-rate from CD19 target antigen
- High Overall Response Rate (ORR) across all patient populations evaluated[1]
- Sustained morphological Event Free Survival (EFS) of 46% with a median follow-up of 29.3 months[2]
- Long term CAR T persistence drives durability of effect
- Favorable safety profile:
  - No high-grade Cytokine Release Syndrome (CRS)[2]
  - Limited immune effector cell-associated neurotoxicity syndrome (ICANS)

obe-cel

Orphan Drug designation by FDA for B-ALL

Orphan Medical Product designation by EMA in ALL

RMAT designation by FDA in R/R B-ALL

Prime designation by EMA in R/R B-ALL

ILAP designation by MHRA in Adult R/R B-ALL

NOTES
1. FELIX study
2. ALLCAR19 study

Next steps: obe-cel initial results (FELIX) expected in Q4 2022

obe-cel is the first Autolus program to move into a pivotal program: full data expected in H1 2023

FELIX 19

Pivotal Phase 2 trial in adult ALL ongoing since mid-2021 with sites in UK, Spain and US

Up to 100 relapsed/refractory adult ALL patients

Phase 1b run-in component, prior to single arm Phase 2 potential pivotal trial

Pre-determined futility analysis passed in Q1 2022

H2 2022
Initial results

Primary endpoint: overall complete response rate (CR/Cri)

H1 2023
Full data

Secondary endpoints: include MRD-negative CR EFS and DoR

Data in MRD population will enable obe-cel to maximise outcomes from the study

- Expansion arm initiated for Minimal Residual Disease (MRD) disease cohort of up to 50 additional patients
- Patients to be enrolled in parallel to the main Felix cohort
- The additional data aims to establish the profile of obe-cel in patients across all levels of disease burden in adult ALL
- Data from the population has potential to support adoption as earlier line treatment

Building the obe-cel opportunity

Deep value program with broad applicability

Capitalising on the unique profile of obe-cel

- Clinical data supports differentiated product profile
  - High degree of activity and persistence -> drives long term outcomes
  - Attractive safety profile -> has potential to drive adoption of obe-cel across B-cell malignancies
  - Initial NHL data is consistent with this profile

- Solid foundation for onward development

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
AUTO1/22	Pediatric ALL	CD19 & CD22	CARPALL*	Phase 1

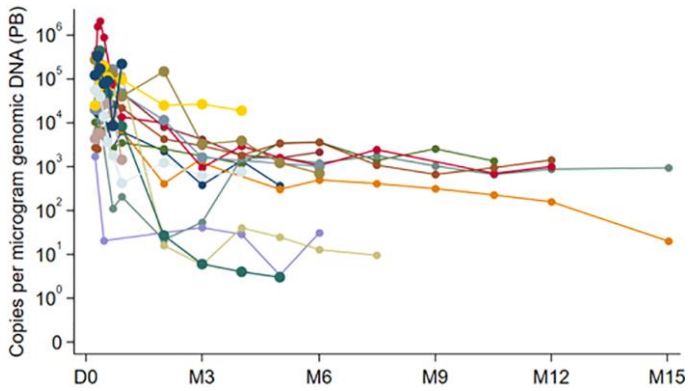
B Cell Malignancies

* Collaboration with UCL

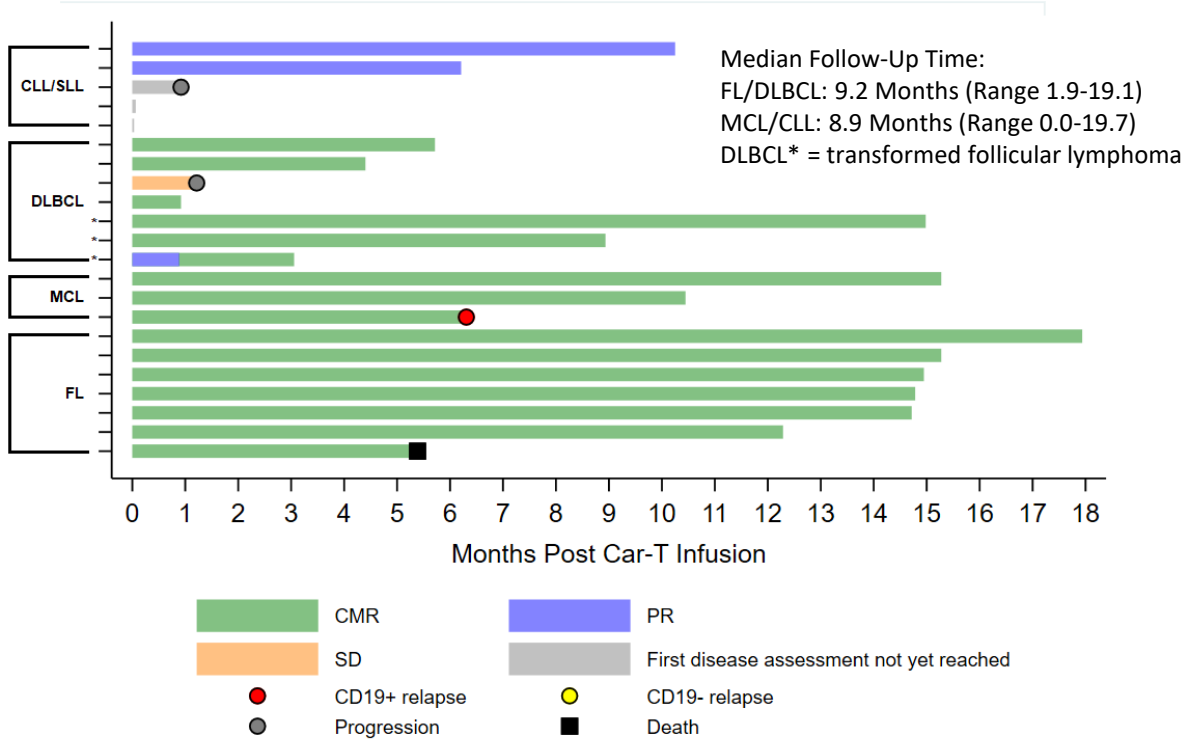
NHL/CLL: ALLCAR19 Phase 1 Study

High level of clinical activity with well manageable safety profile – follow up expected H2 2022

ALLCAR19 – B-NHL and CLL	
n	20
ORR	
All patients	90%
Follicular Lymphoma	100%
Mantle Cell Lymphoma	100%
DLBCL	84%
CLL/SLL	67%
CRS ≥ Grade 3	0%
CRS any grade	50%
Neurotox/ICANS ≥ Grade 3	0%
Neurotox/ICANS any Grade	0%



CAR-T cell levels in peripheral blood



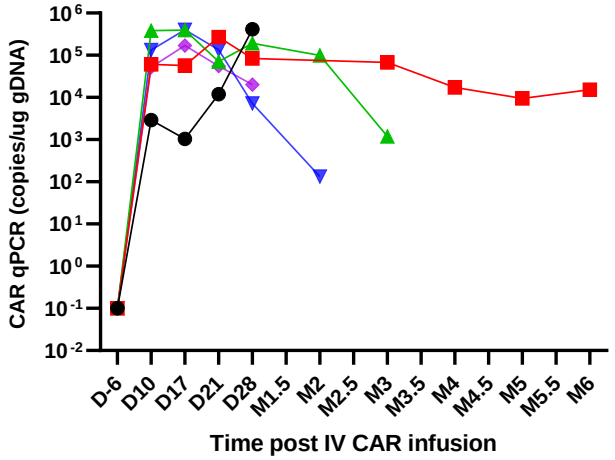
- **High ORR, with long term persistence driving durable outcomes.**
- **Favourable safety profile with no ICANS and no high grade CRS**

Roddie et al., EHA 2022 abstract #P1459

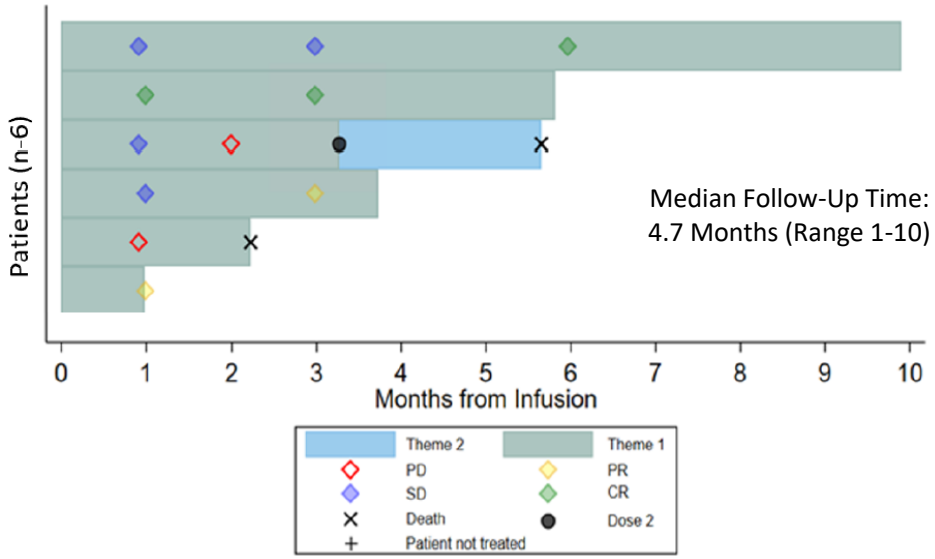
Primary CNS Lymphoma: CAROSUEL Phase 1 Study

Favorable tolerability profile with encouraging initial efficacy and durability – follow up expected 2023

CAROSUEL – PCNSL	
n	6
CR + PR	4 (67%)
CR	2 (33%) (1 SD -> CR)
PR	2 (33%) (1 SD -> PR)
CRS [2] ≥ Grade 3	0 (0%)
Neurotox/ICANS ≥ Grade 3	2* (33%)



CAR-T cell levels in peripheral blood



- **Excellent T cell expansion and engraftment**
- **Favourable tolerability profile**
  - No high grade CRS via IV or intraventricular delivery
  - Limited high grade ICANS
- **Encouraging initial efficacy and durability with 4/6 patients in ongoing responses at last follow up**

* One patient improved with steroids / toci the second patient had several neurological deficits consistent with progressive disease and didn't respond to steroids / toci

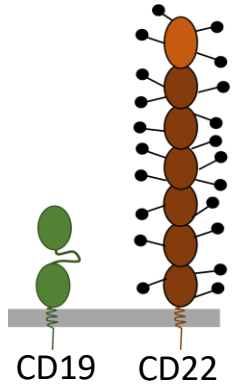
Roddie et al., EHA 2022 abstract #P1460

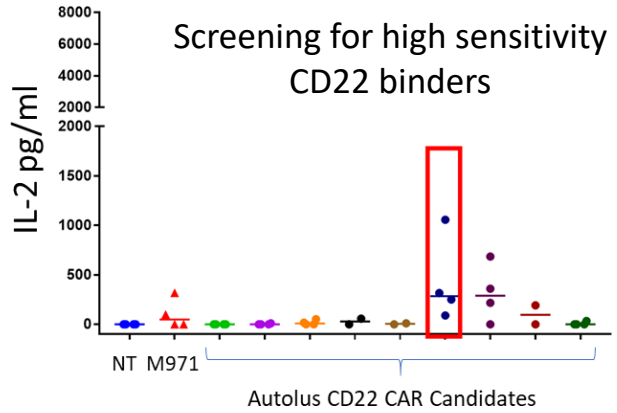
Pediatric Acute Lymphoblastic Leukemia: AUTO1/22 CARPALL study

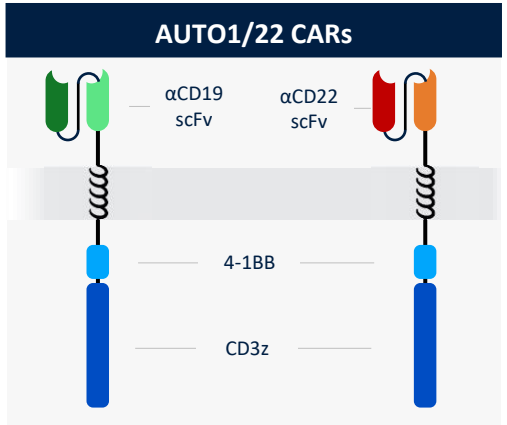
CD19 negative antigen escape is a common cause of treatment failure

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%

- obe-cel (AUTO1) in r/r pALL is highly active and has a favourable safety profile - CARPALL study[1,2]
- Medical need in pALL is to minimize rates of antigen-loss–driven relapses and improve long-term outcomes[3] – points to need for a dual targeting CAR T







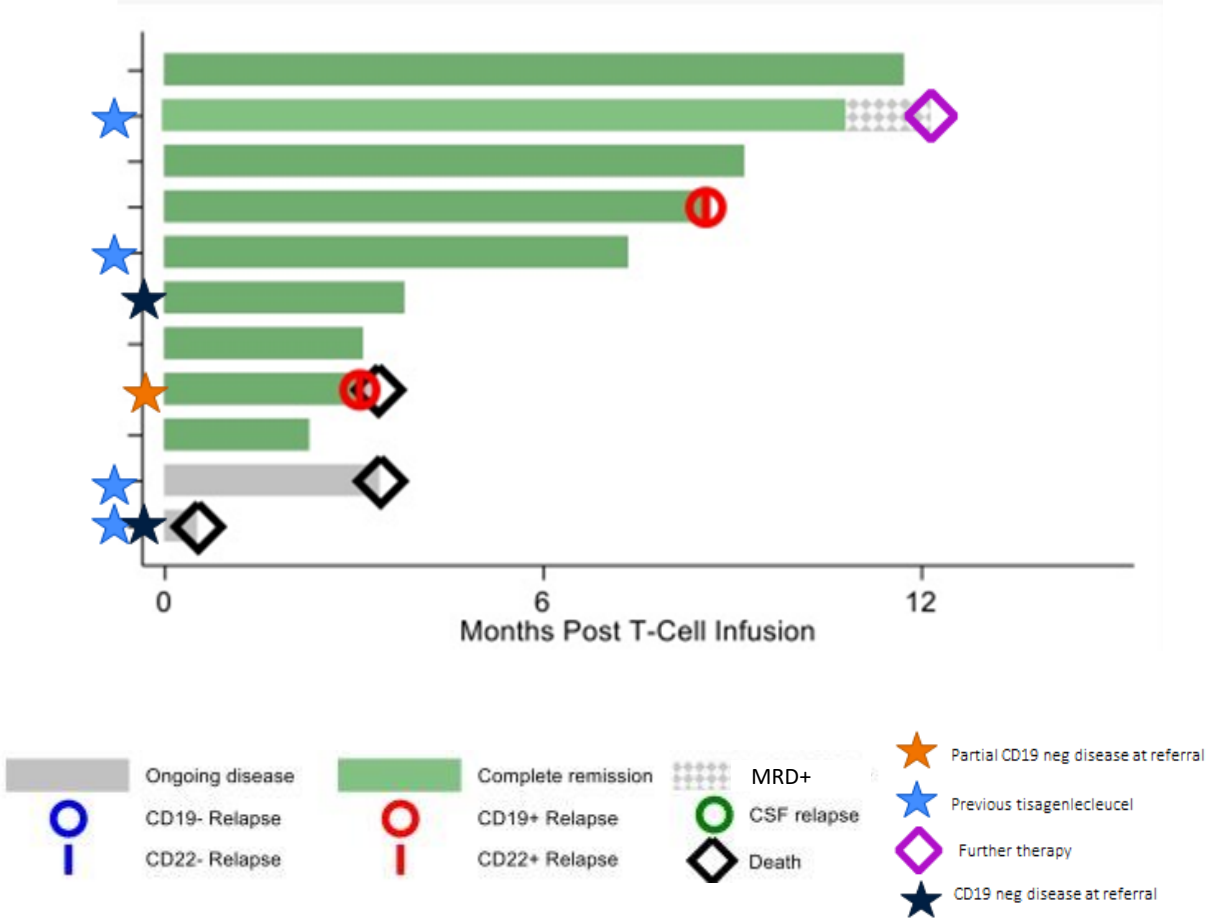
AUTO1/22 is a next generation program that builds on obe-cel and adds a highly potent CD22 CAR, capable of targeting low levels of CD22

- AUTO1/22 is being evaluated in Phase 1 study in r/r paediatric patients

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

Pediatric Acute Lymphoblastic Leukemia: AUTO1/22

Efficacy data presented at EHA June 2022 – longer follow up expected H2 2022



Total	N=11
Molecular MRD neg CR/Cri by d60	9 (82%)
Disease progression	2 (18%)
Events in responders	3
Emergence of molecular MRD	1
CD19+/CD22+ relapse	2

- The study results demonstrate that dual CD19/22 targeting CAR T cells show a favourable safety profile, with robust expansion/persistence and early efficacy in a heavily pre-treated cohort
  - Favourable safety profile to date: no severe CRS, 1 Grade 4 ICANS but atypical
  - No antigen negative relapse was seen in responding patients
  - At median follow up of 8.7 months, 6 of 9 responding patients were in MRD-ve complete response (1-12 mo)

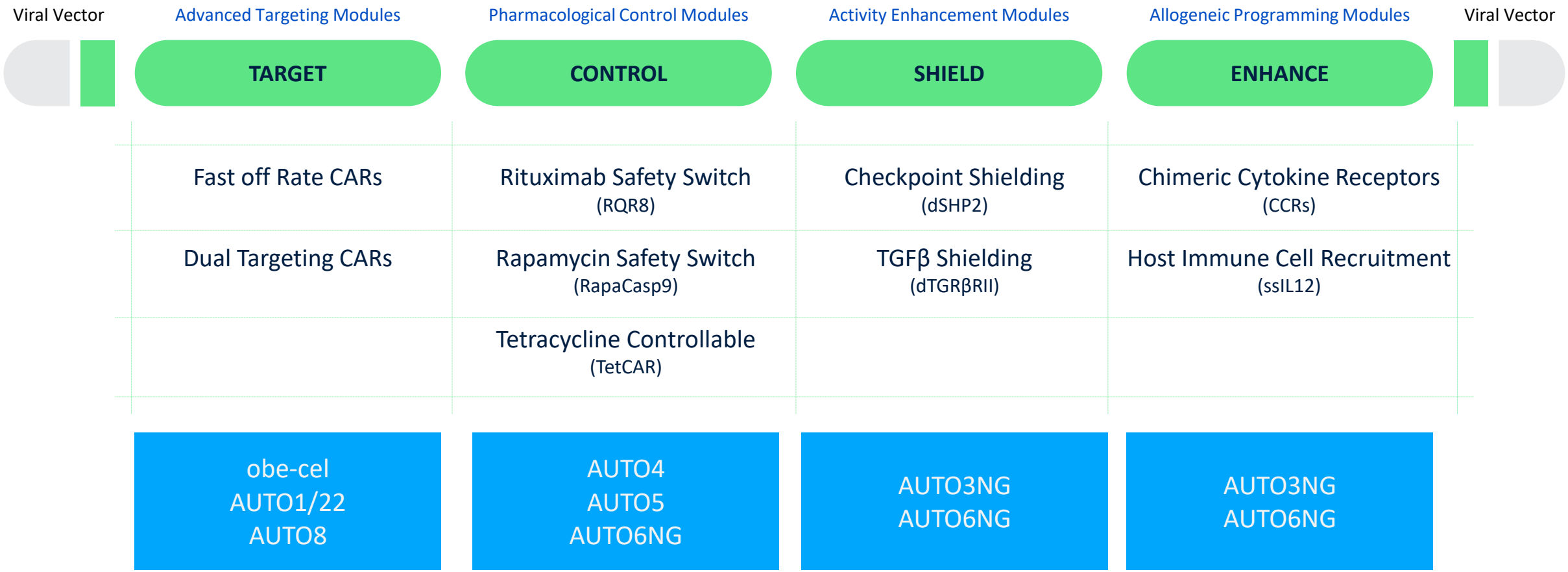
Data Cut-off: 27-May-2022

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



Pipeline beyond obe-cel

Designed to address limitations of current T cell therapies

PRODUCT	INDICATION	TARGET	STUDY	PRE CLINICAL	PHASE 1	PHASE 2/ PIVOTAL	BLA
AUTO4	TRBC1+ Peripheral TCL	TRBC1	LibrA T1				
AUTO5	TRBC2+ Peripheral TCL	TRBC2					
AUTO6NG	Neuroblastoma; Other tumour types	GD2					
AUTO8	Multiple Myeloma	BCMA & CD19	MCARTY*				

*Collaboration with UCL

Three key elements to address T Cell Lymphomas

A companion diagnostic: AUTO4 and AUTO5

Multiple approaches de-risked for development

Companion Diagnostic

Stratify into TRBC1 + and TRBC2 + lymphoma

> ~40% of T cell lymphomas are TRBC1+

AUTO4 – TRBC1+ TCL

AUTO5 – TRBC2+ TCL

> ~60% of T cell lymphomas are TRBC2+

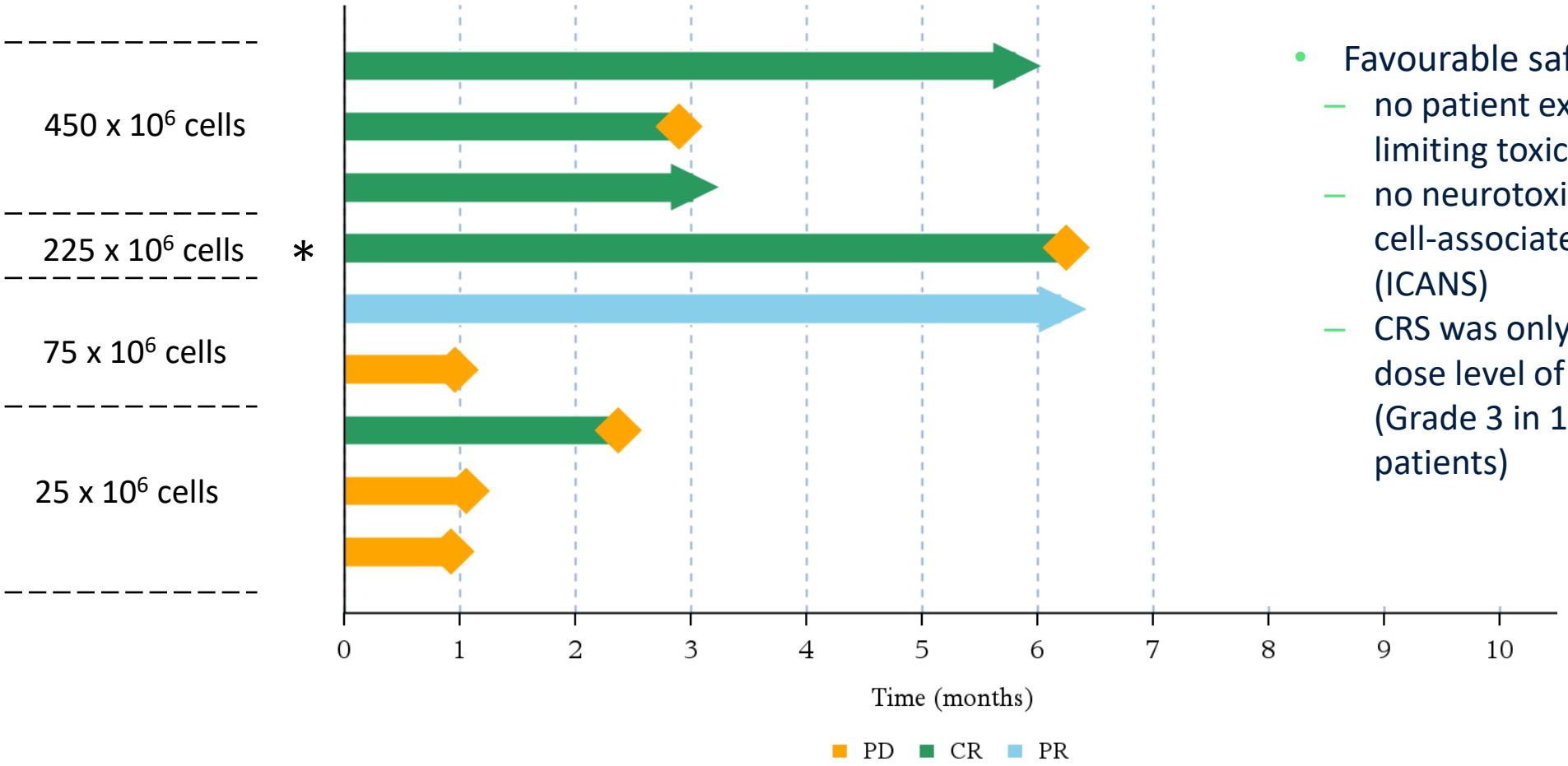
Current Development Milestone

Phase 1 dose escalation

Candidate selected

AUTO4 in T cell lymphoma: Initial data encouraging

All patients treated at highest dose level had a complete metabolic response – EHA June 2022, longer follow up H2 2022



- Favourable safety profile
  - no patient experienced any dose limiting toxicity
  - no neurotoxicity/immune effector cell-associated neurotoxicity (ICANS)
  - CRS was only seen at the highest dose level of 450 x 10^6 CAR T cells (Grade 3 in 1 patient; Grade 1-2 in 3 patients)

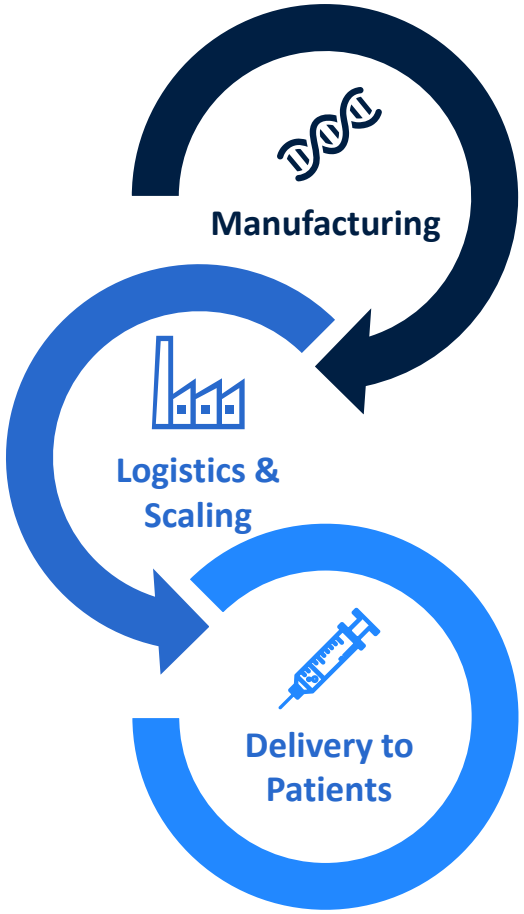
Efficacy assessments were performed by the Investigators according to the Lugano Classification.
† Evaluable Set consists of patients who have received an infusion of AUTO4 treatment and completed the Day 28 evaluation.
All patients had relapsed/refractory disease at time of Part B screening and enrolment.
* Patient was PET-negative at the start of pre-conditioning therapy.

Data Cut off: 26 April 2022

Manufacturing

Build of facility in Stevenage, UK, progressing on track

Building a fully integrated manufacturing and logistics platform



Financial Results

Financial summary

Cash runway into 2024, assuming Blackstone milestones received

USD m	Q2 2022	Q2 2021	Variance
Grant Income	-	0.1	(0.1)
License Income	-	1.5	(1.5)
R&D	(38.2)	(32.1)	(6.1)
G&A	(8.3)	(7.2)	(1.1)
Total Op Expense, Net	(46.5)	(37.7)	(8.8)
Interest Income	0.1	-	0.1
Other expense, net	(1.3)	(1.8)	0.5
Interest expense	(1.8)	-	(1.8)
Tax Benefit	7.5	6.4	1.1
Net Loss	(42.1)	(33.2)	(8.9)
USD m	**Q2 2022**	**Q4 2021**	**Variance**
Cash Balance	216.4	310.3	(93.9)

Summary

Multiple catalysts in H2 2022

Autolus Newsflow

obe-cel initial FELIX data in adult ALL in Q4 2022

- obe-cel
  - FELIX Phase 2 study in adult ALL ongoing; first data expected in Q4 2022 and full data in H1 2023
  - Evaluation in r/r B-NHL and CLL ongoing, follow up data expected in H2 2022
  - Evaluation in Primary CNS Lymphoma ongoing, follow up data expected in 2023

- AUTO1/22
  - AUTO1/22 Phase 1 (CARPALL) study in Pediatric ALL ongoing
  - Longer term follow-up data in H2 2022

- AUTO4 /AUTO5
  - AUTO4 Phase 1 (LibrA T1) study in Peripheral T cell lymphoma ongoing, follow up data expected H2 2022

- Pipeline transitioning to Phase 1 in 2022
  - AUTO8 Phase 1 study dosed first patient
  - AUTO6NG in Neuroblastoma – start Phase 1 H2 2022

- Cash balance at June 30, 2022, $216.4 million

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Thank you