Autolus

ASH 2022 Analyst Call

December 2022

Disclaimer

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For a discussion of other risks and uncertainties, and other important factors, any of which could cause Autolus' actual results to differ from those contained in the forward-looking statements, see the section titled "Risk Factors" in Autolus' Annual Report on Form 20-F filed with the Securities and Exchange Commission on March 10, 2022, as well as discussions of potential risks, uncertainties, and other important factors in Autolus' subsequent filings with the Securities and Exchange Commission. All information in this presentation is as of the date of the release, and Autolus undertakes no obligation to publicly update any forward-looking statement, whether as a result of new information, future events, or otherwise, except as required by law. You should, therefore, not rely on these forward-looking statements as representing the Company's views as of any date subsequent to the date of this presentation.

Overview

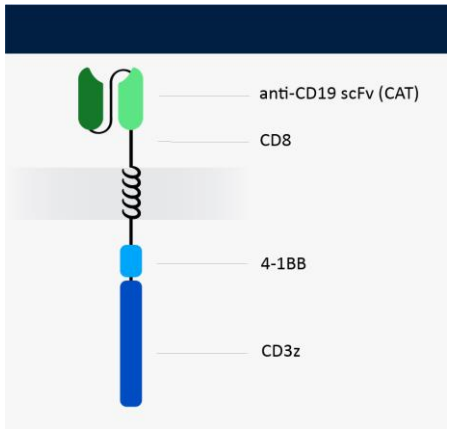
- FELIX Phase 2 Pivotal trial met primary endpoint
- Clinical data updates at ASH
  - Obe-cel - B-ALL long term follow up
  - Obe-cel - NHL/CLL cohort data update
  - AUTO4 - Peripheral T-Cell Lymphoma data update
- Recent corporate updates
  - Handover of first clean rooms for commercial manufacturing facility completed in November
  - Blackstone commit to paying $70m pre-agreed milestones
  - Priced a $150m offering which will close early this week
  - Expected cash runway extended into 2025

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

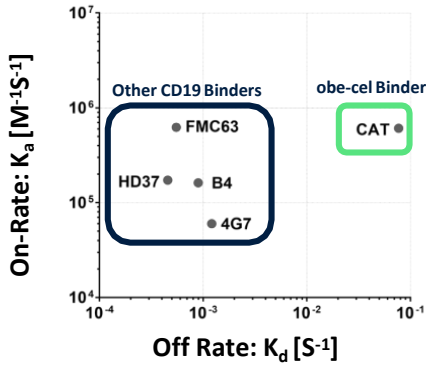
- **Improved potency, reduced toxicity**

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

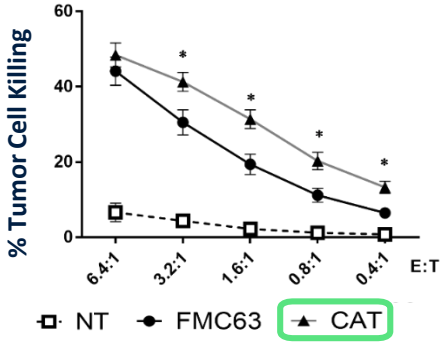
- **Fast off-rate**

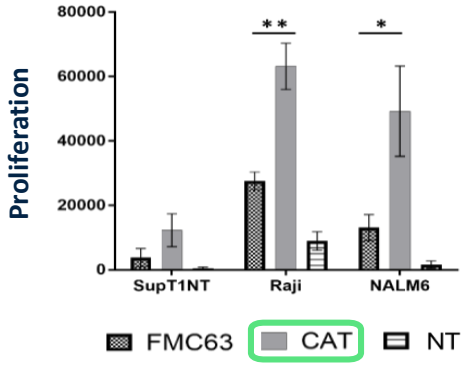


obe-cel has a shorter half-life of interaction compared to binders used in approved products

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

- **Enhanced cytotoxicity and proliferation**



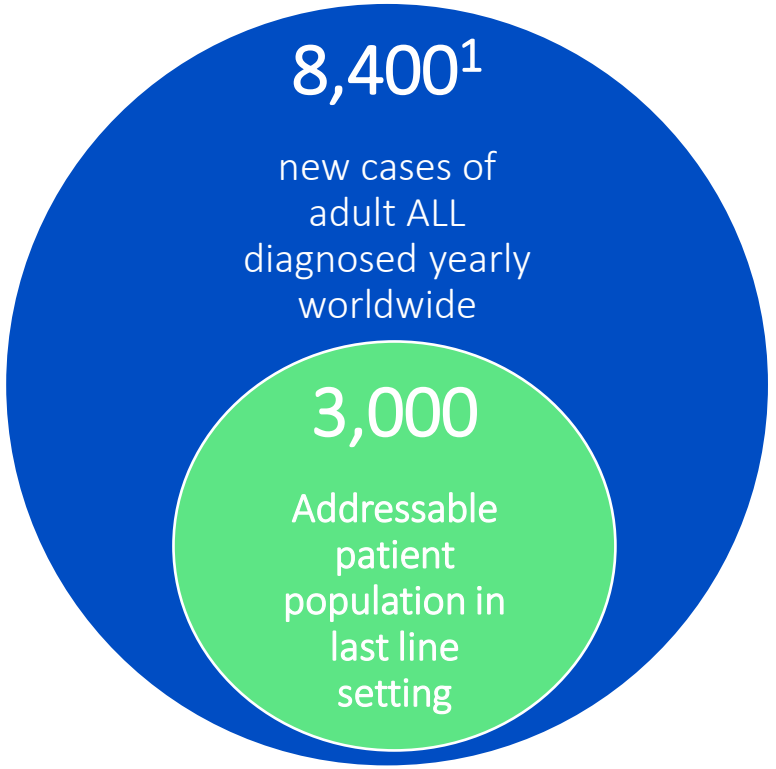


Ghorashian et al. *Nature Medicine* 2019

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 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

FELIX Phase 2 Study Overview

Interim analysis completed Q4 2022 with full study readout expected Mid 2023

FELIX 19

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

Mid 2023
Data at medical conference

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

Secondary endpoints: include MRD-negative CR EFS and DoR

Up to 100 relapsed/refractory adult ALL patients

Phase 1b run-in component, prior to single arm Phase 2 potential pivotal trial
Phase 2 pre-determined futility analysis passed in Q1 2022
Phase 2 interim analysis completed in Q4 2022

Data in MRD population expected to maximise outcomes from the study

- Expansion arm initiated for Minimal Residual Disease (MRD) disease cohort of up to 50 additional patients
- Patients enrolled in parallel to the main FELIX cohort
- The morphological cohort together with the MRD cohort aims to evaluate the profile of obe-cel in patients across all levels of disease burden in r/r adult ALL
- Data from the population has potential to support adoption as earlier line treatment, if approved

FELIX Phase 2 Pivotal trial met primary endpoint

- Phase 2 pivotal FELIX study of obecabtagene autoleucel (obe-cel) in relapsed/refractory (r/r) adult Acute Lymphoblastic Leukemia (ALL) has met its primary endpoint, based on a pre-planned interim analysis of 50 patients with morphological disease, as verified by an independent data monitoring committee (IDMC)
- The primary endpoint for the FELIX Phase 2 trial is the Overall Remission Rate (ORR), defined as Complete Remission (CR) and Complete Remission with Incomplete Blood Count Recovery (CRi)
- Obe-cel demonstrated ORR of 70% in interim analysis of 50 patients with r/r ALL
- Encouraging tolerability data observed, with 3% ≥Grade 3 Cytokine Release Syndrome (CRS) & 8% ≥Grade 3 Immune effector cell-associated neurotoxicity syndrome (ICANS) in 92 patients evaluable for safety
- Blackstone has committed to pay a pre-agreed development milestone payment of $35 million, earlier than anticipated, as a result of the joint steering committee's review of the interim analysis of the FELIX Phase 2 clinical trial
- The FELIX trial has completed screening patients for entry into the morphological cohort

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obe-cel r/r Adult ALL

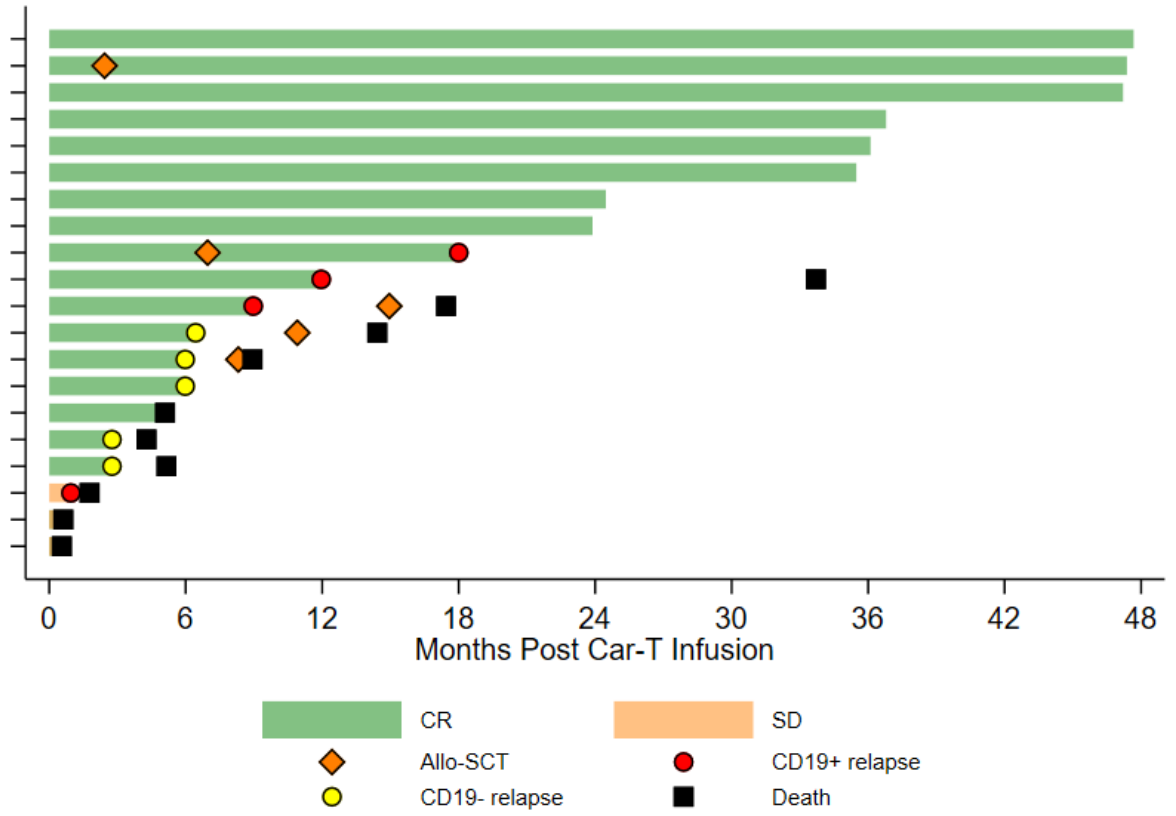
ALLCAR19 Phase 1 Long Term Follow Up

Obe-cel at ASH 2022 – B-ALL long term follow up

‘Safety, Efficiency and Long-Term Follow-up of obe-cel, a Fast-Off Rate CD19 CAR in Relapsed/Refractory B-Cell Acute Lymphoblastic Leukaemia and Other B-Cell Malignancies’

B-ALL patients

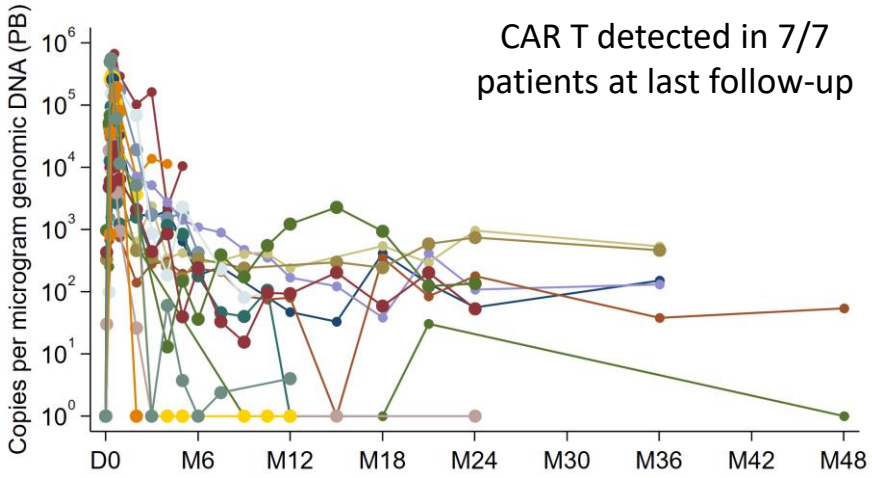
- Of the 20 infused B-ALL patients, 8/20 (40%) are in ongoing CR at a median FU of 36 months (IQR 24-47) post obe-cel
- 7/8 (35%) maintain remission without any further therapy (including TKI)



ALLCAR19 data cut: 2-NOV-2022

Long-term CAR T persistence correlates with long-term remission

Median CAR T cell levels in peripheral blood



Obe-cel - ALLCAR19

- 7/8 (35%) maintain remission without any further therapy
- In all these patients CAR T cells persist at last assessment
- 1/8 received a stem cell transplant and lost CAR T cells

ALLCAR19 data cut: 2-NOV-2022

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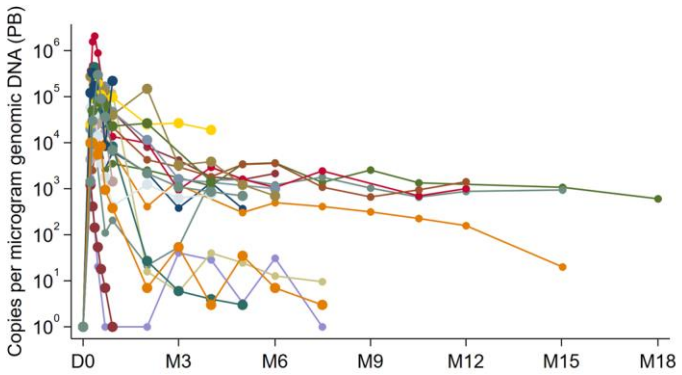
Obe-cel r/r NHL and CLL

ALLCAR19 Phase 1 Data Update

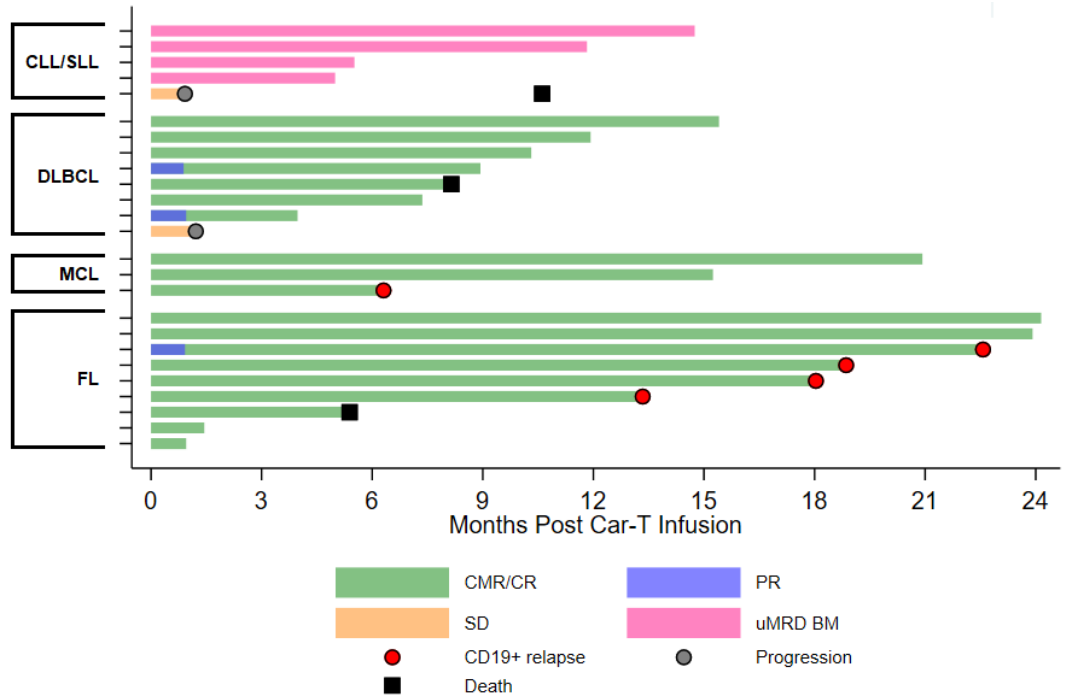
Obe-cel at ASH 2022 – NHL/CLL cohort

High level of clinical activity with well manageable safety profile

ALLCAR19 – B-NHL and CLL	
n	25
ORR	
All patients	92%
Follicular Lymphoma	100%
Mantle Cell Lymphoma	100%
DLBCL	88%
CLL/SLL	80%
CRS ≥ Grade 3	0%
CRS any grade	56%
Neurotox/ICANS ≥ Grade 3	0%
Neurotox/ICANS any Grade	4%



CAR T cell levels in peripheral blood



- Median Follow-Up time from infusion in NHL/CLL cohort: 12.9 months (IQR 7.4-18.0)
- High ORR, with long term persistence driving durable outcomes
- Favourable safety profile with low ICANS and no high grade CRS

ALLCAR19 data cut: 2-NOV-2022

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AUTO1/22 r/r pALL

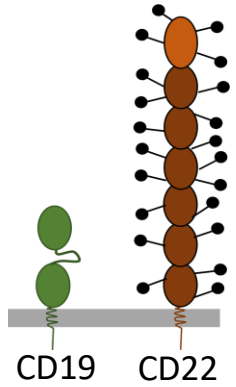
CARPALL Phase 1 Data Update

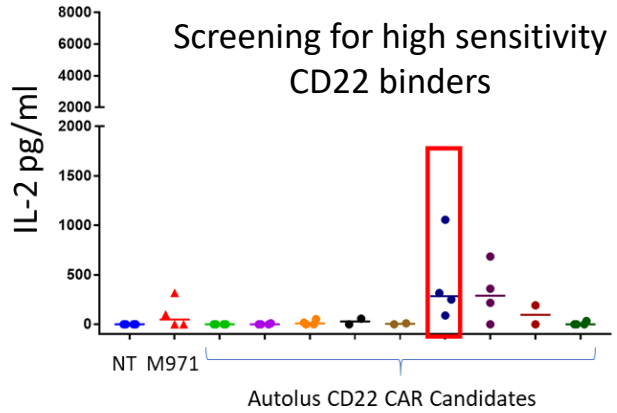
Pediatric Acute Lymphoblastic Leukemia: AUTO1/22 CARPALL study

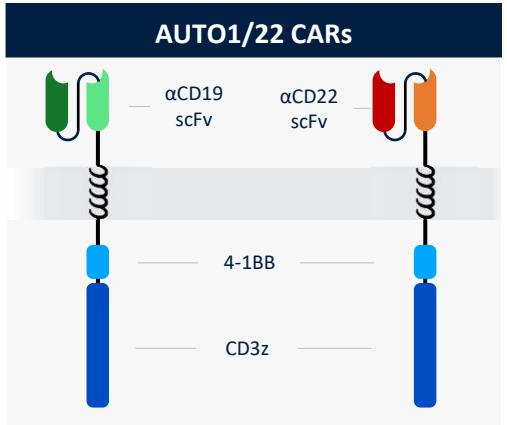
CD19 negative antigen escape is a common cause of treatment failure

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 tolerability 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

AUTO1/22 for pediatric ALL patients: ASH 2022

Robust efficacy and favourable safety data seen despite the high risk patient cohort

CARPALL Disease Response (n=12)	
Molecular MRD neg CR/Cri by d30	10
Disease progression	2
Relapse	
Antigen negative relapse	0
Emergence of molecular MRD	3
CD19+/CD22+ relapse	2

- Favourable tolerability profile with no severe CRS
- Excellent CAR T expansion, including CD22CAR expressing cells
- Very encouraging activity:
  - 83% (10/12) MRD negative CR/CRi/CCR
  - Despite high-risk pts (4 Kymriah failures, 3 CD19neg disease, 3 non-CNS extramedullary disease)
- 1 year EFS 60% despite the high-risk patient cohort
- No antigen-ve relapse seen in responding patients
- At median FU 8.7 months, 5 of 10 responding patients were in MRD-ve complete response (4-12 months)

CARPALL data cut: 30-OCT-2022

Obe-cel Summary

- FELIX Phase 2 Pivotal trial met primary endpoint:
  - Obe-cel demonstrated ORR of 70% in interim analysis of 50 patients with r/r adult ALL
  - Encouraging tolerability data with 3% ≥Grade 3 CRS & 8% ≥Grade 3 ICANS in 92 patients evaluable for safety

- ALLCAR19 r/r adult ALL long term follow data supports differentiated product profile
  - 35% of patients remain in CR at a median follow up of 3 years without need for additional anti-leukemia therapy
  - Long-term CAR T persistence correlates with long-term remission

- The profile of obe-cel continues to impress in MCL, DLBCL, FL and CLL patients
  - 92% overall response rate and 78% of responding patients without disease progression (median FU of 12.9 months)
  - Favorable safety profile with low ICANS and no high grade CRS

- AUTO1/22 shows encouraging response rates and durability
  - 83% of patients achieving MRD negative complete responses
  - No antigen negative relapses observed

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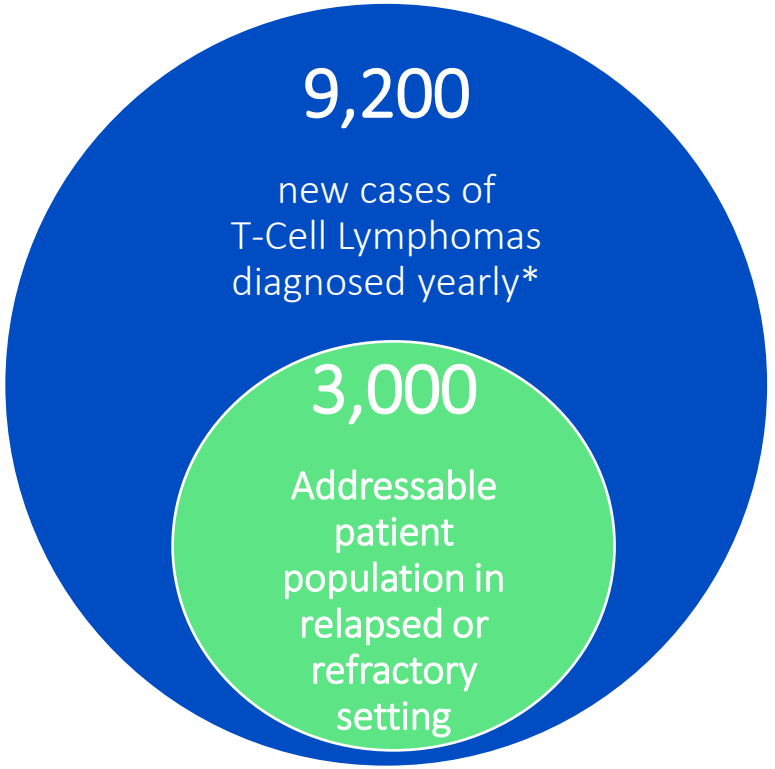
AUTO4 in Peripheral T-Cell Lymphoma

LibraT1 Phase 1 Data Update

AUTO4 and AUTO5 for Peripheral T-Cell Lymphoma

T-Cell Lymphoma is an aggressive disease with a very poor prognosis

- A large portion of T-Cell Lymphoma patients are refractory/relapse following first-line treatment (68%)[3]
- Standard of care is variable and often based on high-dose chemotherapy and stem cell transplants:
  - Median 5 yrs OS: 32% [1]
- Relapsed/refractory patients have a worse prognosis
  - Median PFS approximately 3 months/ Median OS < 6 months [2,3]
- Brentuximab survival benefit restricted to CD30 positive ALCL subtype[4]
  - approx. 12% of total PTCL patient population[4,5]
- T-cell lymphoma has not benefited from advances in immunotherapy
  - Pan T-cell depletion highly toxic; few/no tumor-specific antigen targets



*Japan, US and EU5 (DRG Epidemiology Data)

[1] Weisenburger et al., Blood 2011; [2]Mak et al, JCO 2013; [3]Bellei M et al, Haematologica 2018, [4]Horwitz et al, Lancet, 2019, [5]Vose et al., JCO 2008

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

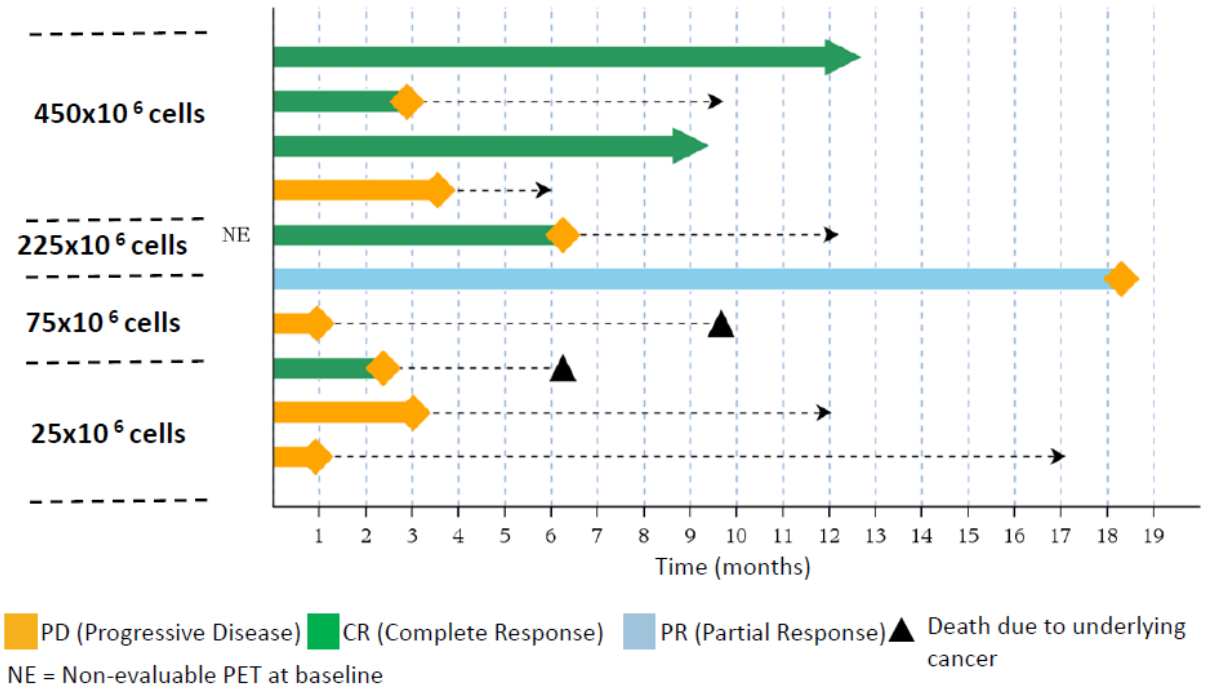
Phase 1 dose escalation

Candidate selected

AUTO4 for Peripheral T-Cell Lymphoma: ASH 2022

Patients achieve durable metabolic complete responses

- AUTO4 treatment was well tolerated with no dose-limiting toxicities
- Ongoing responses at 9 and 12 months post-dosing at the highest dose tested (450x106) are encouraging
- No CAR T cell expansion was seen in peripheral blood but CAR T cells were detected in an on-treatment lymph node biopsy
- The study is ongoing, with additional patients due to be treated to define the recommended phase II dose

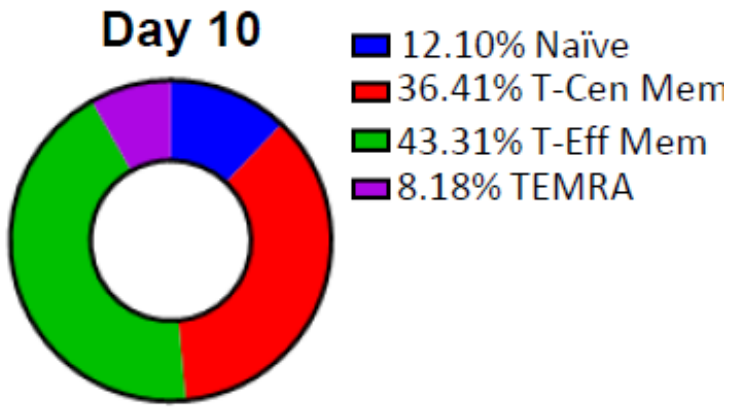


AUTO4 data cut: 7-NOV-2022

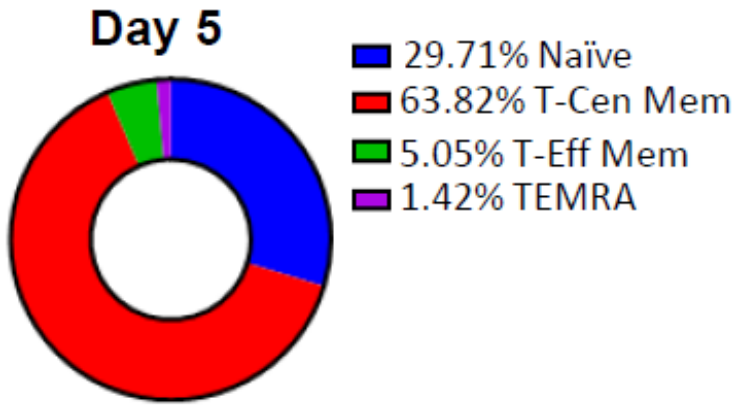
AUTO4 for Peripheral T-Cell Lymphoma: ASH

Optimization of the AUTO4 manufacturing process has been performed, resulting in a product candidate with a more naïve and central memory phenotype

Old Manufacturing Process



Next Generation Process



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Concluding Remarks

Recent corporate updates

- Strategic collaboration and financing agreement with Blackstone Life Sciences announced on November 8, 2021
  - Investment of $100m in equity and up to $150m in product financing

- Per the above agreement, we have reached two important product financing milestones totalling $70m :
  - We will receive a pre-agreed milestone payment of $35m[1], earlier than anticipated, based on the recently announced data from the interim analysis of the FELIX trial
  - Blackstone has also committed to pay a pre-agreed payment of $35m[1], as a result of completion of planned activities supporting the performance and qualification of obe-cel manufacturing process

- Cash balance $163.1m at Sept 30, 2022 (not including $19.1m tax credit received post period)
  - Addition of $70m non dilutive funds confirms current cash guidance of runway into 2024, w/o proceeds from the announced public offering
  - Public offering priced and expected to close early this week, total gross proceeds of $150m

- Cash runway expected into 2025

1. These payments are being made pursuant to the November 2021 strategic collaboration and financing agreement entered into by Blackstone Life Sciences and Autolus

Autolus planned news flow

- obe-cel
  - FELIX - Phase 2 trial in adult ALL to be presented at a medical conference in mid-2023 and working towards the submission of a Biologics License Application (BLA) by the end of 2023 to the U.S. Food and Drug Administration (FDA)
  - ALLCAR19 Phase 1 trial in adult ALL trial follow up data expected in 2023
  - ALLCAR19 Phase 1 extension trial in r/r B-NHL and CLL ongoing, follow up data expected in 2023
  - CAROUSEL Phase 1 trial in Primary CNS Lymphoma ongoing, follow up data expected in 2023

- Pipeline
  - CARPALL - Phase 1 trial of AUTO1/22 in Pediatric ALL ongoing; follow up data expected in 2023
  - LibrA T1 Phase 1 study of AUTO4 in peripheral T cell lymphoma ongoing; follow up expected in 2023
  - AUTO8 Phase 1 study dosed first patient, first data expected H2 2023
  - AUTO6NG in Neuroblastoma – start Phase 1 H1 2023

- Manufacturing
  - Commercial facility qualification and validation work in 1H 2023, GMP license expected in 2H 2023

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Thank you