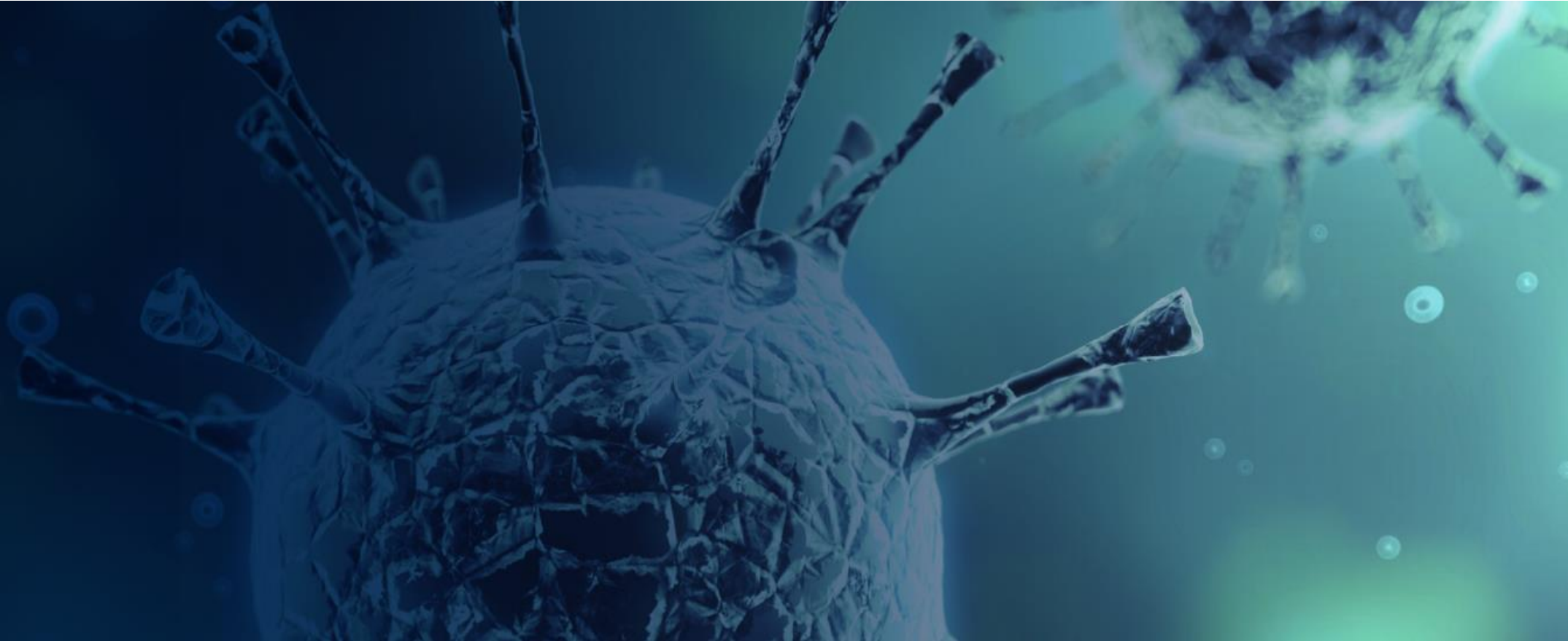


Autolus

Nasdaq: AUTL



First Quarter Financial Results and Operational Progress

May 7, 2020

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Agenda

1. Welcome and Introduction: Dr. Christian Itin, Chairman and CEO
2. Operational Highlights: Dr. Christian Itin
3. Financial Results and Overview: Andrew J. Oakley, CFO
4. Upcoming Milestones and Conclusion: Dr. Christian Itin
5. Q&A: Dr. Christian Itin and Andrew J. Oakley

Operational Highlights

Dr. Christian Itin

Chairman and CEO

Corporate highlights – first quarter 2020

Advancing our clinical programs to value inflection

- AUTO1 in adult ALL; AUTO1-AL1 pivotal study initiated
 - IND accepted; US sites will be initiated starting Q2 2020
 - First site opened in the UK March 2020 (MHRA CTA approval in January)
 - On track for full data by end 2021
- AUTO3 in DLBCL
 - Ph2 decision point mid-2020
 - Outpatient cohort to be initiated H2 2020
- Additional clinical data expected at ASCO and EHA through May and June 2020
 - AUTO1 in adult ALL (EHA), plan to present updated data, with additional follow up post ASH
 - AUTO3 in DLBCL (ASCO & EHA), plan to present updated data
- Investor calls planned post ASCO and EHA

Corporate highlights – first quarter 2020

Advancing our pre-clinical programs to value inflection

- Pre-clinical data updates expected at AACR II
 - AUTO5 in T-cell lymphomas
 - AUTO6NG in SCLC
 - AUTO7 in Prostate Cancer
 - Investor call planned post AACR II
- Manufacturing
 - Continued to manufacture, without interruption, from the Cell and Gene Therapy Catapult
 - Commercial vector supply agreement with MolMed

AUTO1: Key features

Designed for durability of responses without allo-transplant and no severe CRS

Conventional CD19 CARs

- Approved and near approved CD19 CAR Ts use identical high affinity CD19 binder (FMC63)
- FMC63 has a fast on-rate and a very slow off rate
- Leads to over-activation, exhaustion and high-grade CRS and neurotoxicity

AUTO1

- AUTO1 has an optimized CD19 CAR with a lower affinity and a fast off rate
- Engages efficiently, delivering a kill, disengages rapidly like a normal T cell
- Leads to enhanced activity and lower toxicity

AUTO1 may be best-in-class redirected T cell therapy

Relapsed/refractory Adult ALL clinical data

	¹ Blincyto	All patients	² AUTO1
			Closed Process ³
Patient Numbers	271	16	9
CR Rate	42%	87% [◇]	100%
EFS 6m	31%	68% [◇]	100%
CRS ≥ Grade 3	3%	0%	0%
Neurotox ≥ Grade 3	13%	19% [‡]	12% [‡]

◇ 15 patients evaluable for efficacy with at least 4 weeks follow up or RIP prior to Month 1
 ‡ All three patients had > 50% tumor burden
 Data cutoff 25-Nov-2019

¹Kantarjian et al., 2017
²Roddie et al., ASH 2019 presentation
³Commerical manufacturing process

- AUTO1 preliminary data suggest manageable safety profile and a high level of clinical activity
- KTE-X19 CR Rate 68-84%, Grade ≥3 cytokine release syndrome (CRS) events occurred in 22-29% and neurologic events 11-38% of patients*

Sources: Prevalence calculated using SEER and EUCAN and extrapolated using IMS; American Cancer Society
 Gilbert et al., 2017 (SITC)
 *Shah et al, ASCO 2019

AUTO1 is the first Autolus program to move into a pivotal study

Pivotal study, AUTO1-AL1, in adult ALL:

- CTA approved by the MHRA in January 2020 and US IND accepted by the FDA in April 2020
- Ph1b run-in component in Q2, 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
- On track for full data by end 2021

Desired characteristics for broad use of a CAR T therapy for DLBCL

Sustained CRs, low toxicity & toxicity management and broad healthcare utilization

- High sustained complete response rate
 - Preventing target negative relapse
 - Preventing checkpoint mediated resistance / exhaustion
- Safety profile suitable for out patient therapy
 - Low severe CRS without intensive management
 - Low neurotoxicity rates

AUTO3 has been designed to be highly active with a profile suitable for all settings of care including outpatient therapy and oncology clinics.

Widespread adoption of CAR T products has been limited by toxicities

High rates and severity of toxicities require intensive management and inpatient care

	Yescarta [#]	Kymriah/ JCAR017 [#]	AUTO3
Best CRR	54%	40-53%	55%*
Ongoing CR rate	36% at 6m	29-35% at 6m	tbd
CRS ≥ grade 3	11%	2-23%	0%
NTX any grade	64%	21-30%	0%
NTX ≥ grade 3	28%	10-12%	0%
Toxicity management	Intensive		Minimal
Healthcare utilization	Inpatient Treatment		Outpatient Positioning

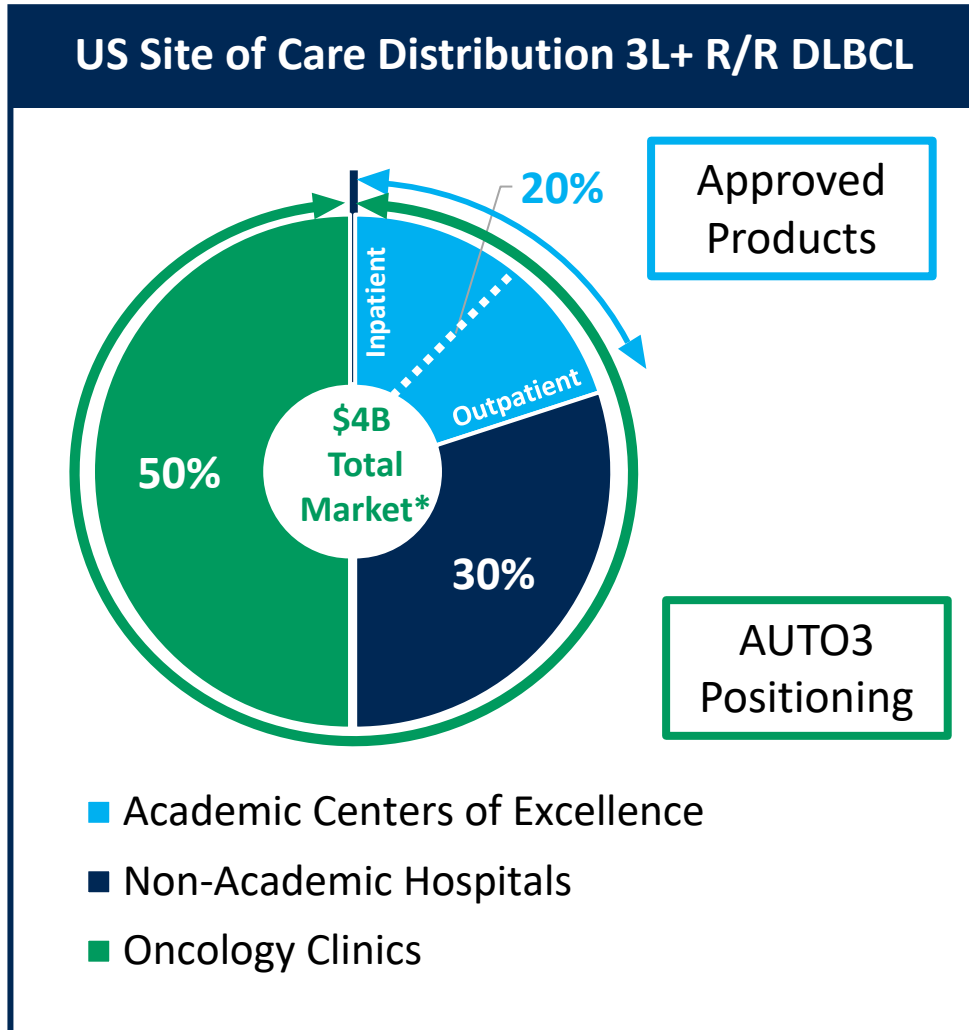
All CRs ongoing at a median f/u of 2 months (1-12 month)

[#] CRS rates achieved with intensive management

AUTO3: Jan 2020 Data cut (AUTO3 + Pembro ≥ 150 x10⁶)
 Nellapu et al, 2017
 Schuster et al., 2019
 Abramson et al., 2019 (ASH)

AUTO3 is designed to reach total addressable r/r DLBCL population

AUTO3 has the potential to be a true outpatient therapy



Source: US Retrospective Claims Analysis by Site of Distribution
*Autolus approximate estimates

Approved CD19 CAR T Products

- Patients receive approved products as inpatients in CoEs because of the high rate & severity of toxicities plus intensity of patient management
- Market opportunity limited to ~20% of patients

AUTO3 Products

- Minimal tox management of AUTO3 should allow treatment across all settings of care
- Increased healthcare utilization of AUTO3 grows the addressable market and maximizes reimbursement options compared to approved products
- >80% of 3L+ and 2L DLBCL patients treated outside of academic CoEs

Opportunity to expand the current Alexander study

Enhanced value proposition for AUTO3 in the outpatient setting

- Company on track to deliver further data from Ph1/2 Alexander study at ASCO and EHA
- Ph2 decision point mid-2020
- Positive safety profile supports outpatient use
- Plan to add a 20 patient cohort to ongoing Ph1/2 ALEXANDER study in H2 2020, with treatment in an outpatient setting, to confirm feasibility of design for potential pivotal study
- Broad outpatient access substantially increases the commercial opportunity

Financial Results

Andrew J. Oakley

CFO

Financial summary

USD m	1Q 2019	1Q 2020	Variance
Grant Income	2.0	0.3	(1.7)
R&D	(22.6)	(31.3)	(8.7)
G&A	(9.6)	(7.6)	2.0
Total Op Expenses, net.	(30.2)	(38.6)	(8.4)
Interest Income	0.5	0.5	0.0
Other Income	(0.9)	4.5	5.4
Tax Benefit	3.4	3.7	0.3
Net Loss	(27.2)	(29.9)	(2.7)

USD m	Dec 31 2019	Mar 31 2020	Variance
Cash Balance	210.6	243.3	32.7

Cash runway into 2022

Upcoming Milestones and Conclusions

Dr. Christian Itin

Chairman and CEO

Multiple clinical data points expected through 2020

Product	Indication	Target	Event
B Cell Malignancies			
AUTO1	Adult ALL	CD19	<ul style="list-style-type: none"> • Ph1 long-term follow up Q2 & Q4 2020 • Ongoing recruitment and dose last patient H1 2021
AUTO1NG	Pediatric ALL	CD19 & 22	<ul style="list-style-type: none"> • Start Ph1 H1 2020
AUTO3	DLBCL	CD19 & 22	<ul style="list-style-type: none"> • Ph1 data Q2 & Q4 2020 • Decision on Ph2 mid-2020
AUTO3NG	DLBCL	CD19 & 22	<ul style="list-style-type: none"> • Ready to start Ph1 H2 2020, life cycle mgmt
Multiple Myeloma			
AUTO8	Multiple Myeloma	BCMA & CAR X	<ul style="list-style-type: none"> • Start Ph1 study H2 2020
T Cell Lymphoma			
AUTO4	TRBC1+ Peripheral TCL	TRBC1	<ul style="list-style-type: none"> • Ph1 interim data Q4 2020
GD2+ Tumors			
AUTO6NG	Neuroblastoma; Melanoma; Osteosarcoma; SCLC	GD2	<ul style="list-style-type: none"> • Start Ph1 Q4 2020
Allogeneic Approach			
NA	NA	NA	<ul style="list-style-type: none"> • Start Ph1 Q4 2020

Clinical and Pre-clinical data presentations at ASCO, EHA and AACR II

Autolus poised for value inflection in 2020

- AUTO1
 - Initiating recruitment for UK & US in Autolus' first pivotal program in Adult ALL in Q2 2020
 - Granted orphan drug designation by the FDA for treatment of ALL
 - Pediatric ALL – moving forward with AUTO1/AUTO1NG
- AUTO3
 - Ph1 data update to be presented at ASCO and EHA 2020
 - Outpatient treatment cohort to start H2 2020 to support broad utilization of AUTO3 in DLBCL
 - Decision on Ph2 targeted for mid-2020
- Additional value inflection in 2020 from our preclinical solid tumor and hem-onc programs
- Key data releases expected at upcoming medical conferences
 - Presentations targeted for AACR, ASCO, EHA, SITC and ASH
 - Investor updates expected following each medical conference
- Strong balance sheet with \$243.3m in cash as of March 31, 2020

Q&A

Dr. Christian Itin (Chairman and CEO)

Andrew J. Oakley (CFO)



Thank you