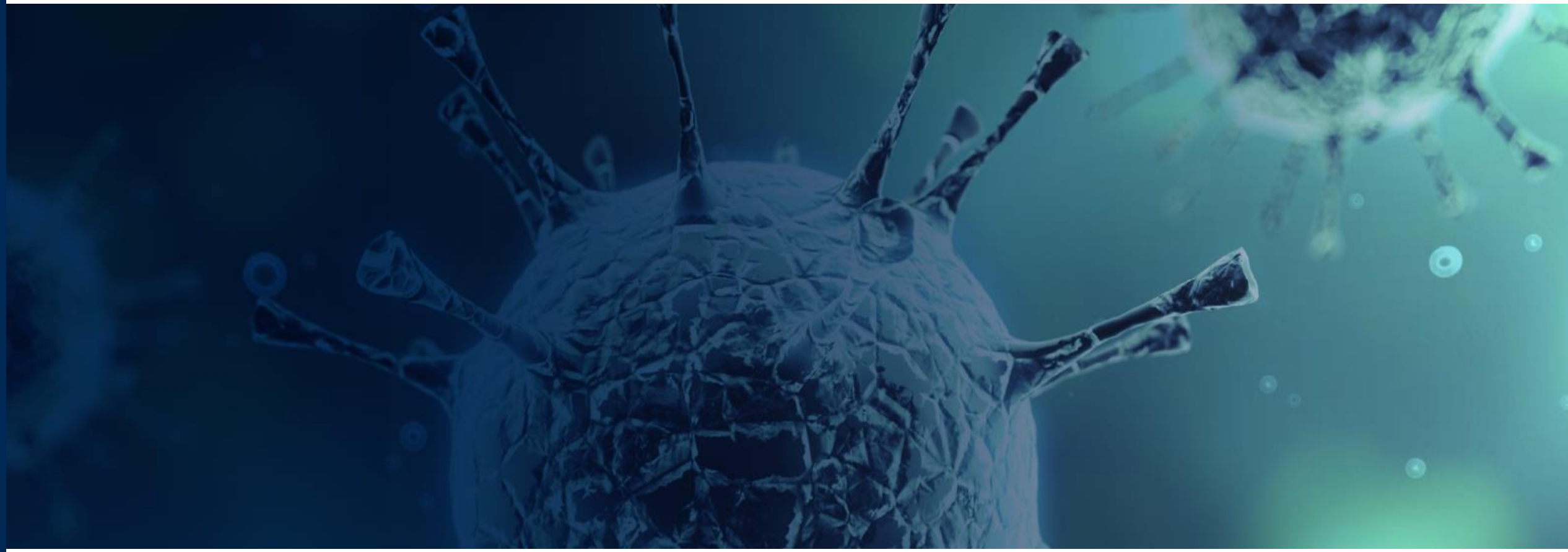
Autolus

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	AUTO1
• Approved and near approved CD19 CAR Ts use identical high affinity CD19 binder (FMC63)	• AUTO1 has an optimized CD19 CAR with a lower affinity and a fast off rate
• FMC63 has a fast on-rate and a very slow off rate	• Engages efficiently, delivering a kill, disengages rapidly like a normal T cell
• Leads to over-activation, exhaustion and high-grade CRS and neurotoxicity	• Leads to enhanced activity and lower toxicity

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

Relapsed/refractory Adult ALL clinical data

		[2]AUTO1	
	[1]Blincyto	All patients	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

[1]Kantarjian et al., 2017
[2]Roddie et al., ASH 2019 presentation
[3]Commerical 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

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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 x10^6)

Nellapu et al, 2017
Schuster et al., 2019
Abramson et al., 2019 (ASH)

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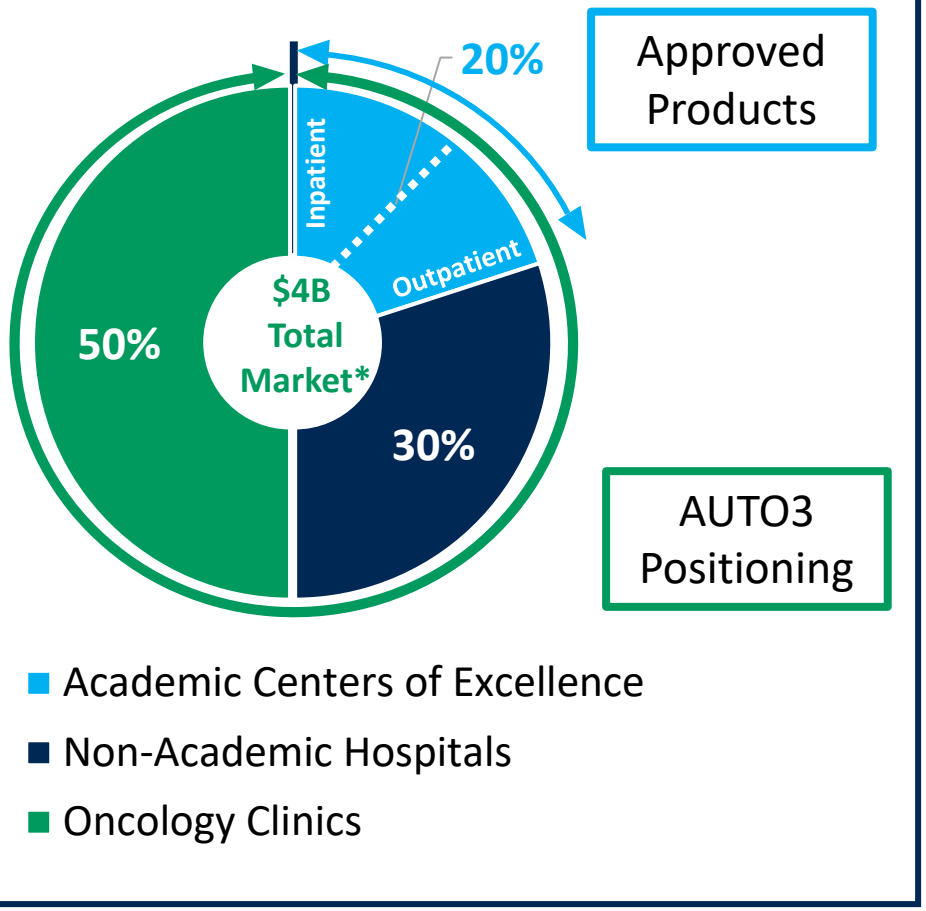
AUTO3 is designed to reach total addressable r/r DLBCL population

AUTO3 has the potential to be a true outpatient therapy

US Site of Care Distribution 3L+ R/R DLBCL



Source: 2016 IMS & CMS patient claims data,
*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

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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

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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	• Ph1 long-term follow up Q2 & Q4 2020 • Ongoing recruitment and dose last patient H1 2021
AUTO1NG	Pediatric ALL	CD19 & 22	• Start Ph1 H1 2020
AUTO3	DLBCL	CD19 & 22	• Ph1 data Q2 & Q4 2020 • Decision on Ph2 mid-2020
AUTO3NG	DLBCL	CD19 & 22	• Ready to start Ph1 H2 2020, life cycle mgmt
Multiple Myeloma			
AUTO8	Multiple Myeloma	BCMA & CAR X	• Start Ph1 study H2 2020
T Cell Lymphoma			
AUTO4	TRBC1+ Peripheral TCL	TRBC1	• Ph1 interim data Q4 2020
GD2+ Tumors			
AUTO6NG	Neuroblastoma; Melanoma; Osteosarcoma; SCLC	GD2	• Start Ph1 Q4 2020
Allogeneic Approach			
NA	NA	NA	• Start Ph1 Q4 2020

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

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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