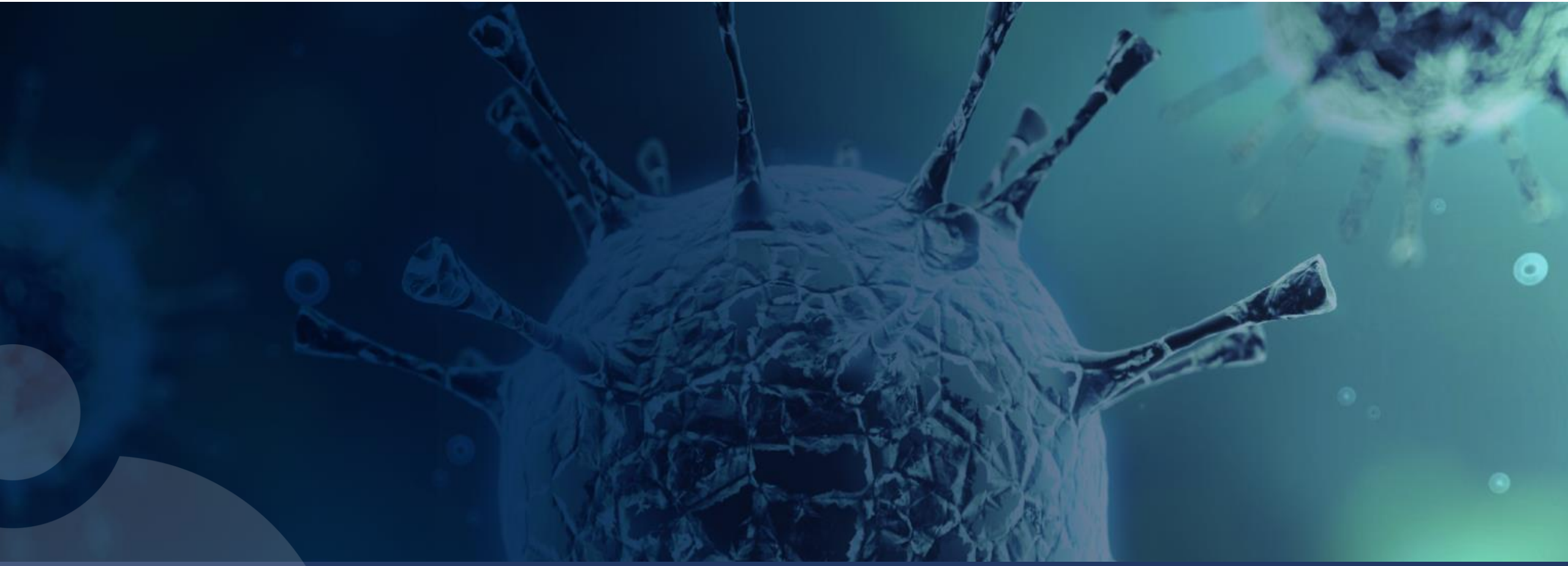
Autolus

Nasdaq: AUTL



Fourth Quarter Financial Results and Operational Progress

March 4, 2021

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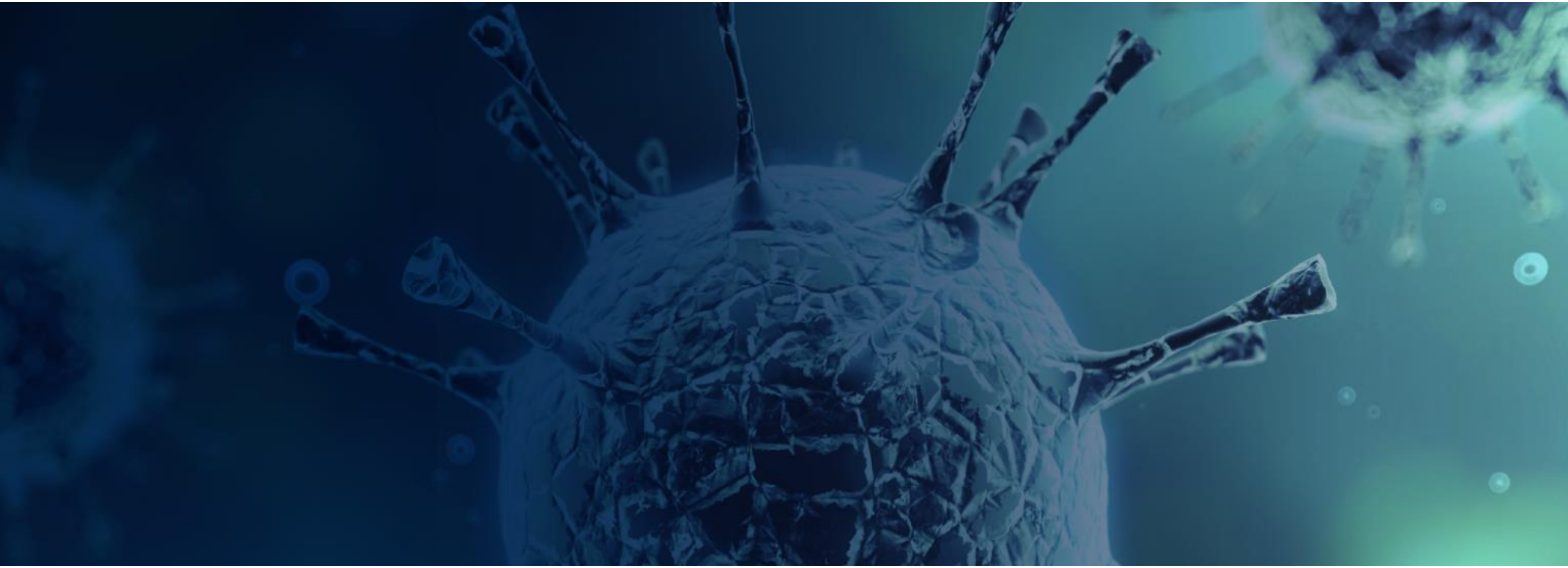
Agenda

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



Operational Highlights

Dr. Christian Itin – Chairman and CEO

Business update – fourth quarter 2020

AUTO1 potential pivotal program progressing on track, with data planned in 2022

- AUTO1 in adult ALL
  - Data from the ALLCAR19 Phase 1 study in adult ALL presented at EHA and ASH meetings in 2020
  - Pivotal program, AUTO1-AL1 (FELIX study), remains on track
  - Targeting data in 2022, assuming no COVID disruptions to clinical trial conduct
- AUTO3 in DLBCL
  - Data from the ALEXANDER study presented at EHA and ASH meetings in 2020
- Phase 1 data in childhood neuroblastoma published in Science Translational Medicine in 2020
  - Autolus plans to test AUTO6NG in a Phase 1 study in 2021
- Post period updates:-
  - Announced an intention to partner AUTO3 and adjust workforce and infrastructure footprint
  - Company sold 1,718,506 ADSs in January 2021 under its at-the-market program with Jefferies, for net proceeds of approx. $15.3 million
  - Company closed a public offering in February 2021, raising $108.1 million in net proceeds
  - Developed a decoy receptor strategy for neutralisation of SARS-CoV-2 and its mutational variants - intention to partner to progress into the clinic

Driving value with potential best-in-class adult ALL program

Focusing on delivering AUTO1, a potentially transformational treatment for Adult Acute Lymphoblastic Leukemia (ALL), as well as exploring activity in additional B-cell malignancies

Full data for AUTO1 – AL-1 (FELIX) study in adult expected in 2022

AUTO1 data in PCNSL and NHL expected in Q4 2021, AUTO1/22 in pALL expected in Q4 2021

- Plan to partner AUTO3 ahead of progressing into next phase of development
- Additional value steps in T cell lymphoma and first solid tumor indication
- Broad preclinical pipeline of next generation programs expected to transition to clinical stage in 2021/2022
- Scalable, fully enclosed manufacturing platform

No approved CAR T therapy for adult ALL patients

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

Autolus

ALL is a significant opportunity

Up to **8,400*** new cases of adult ALL diagnosed yearly worldwide

Estimated R/R patients in US & EU **3,000** addressable patient population in last line setting

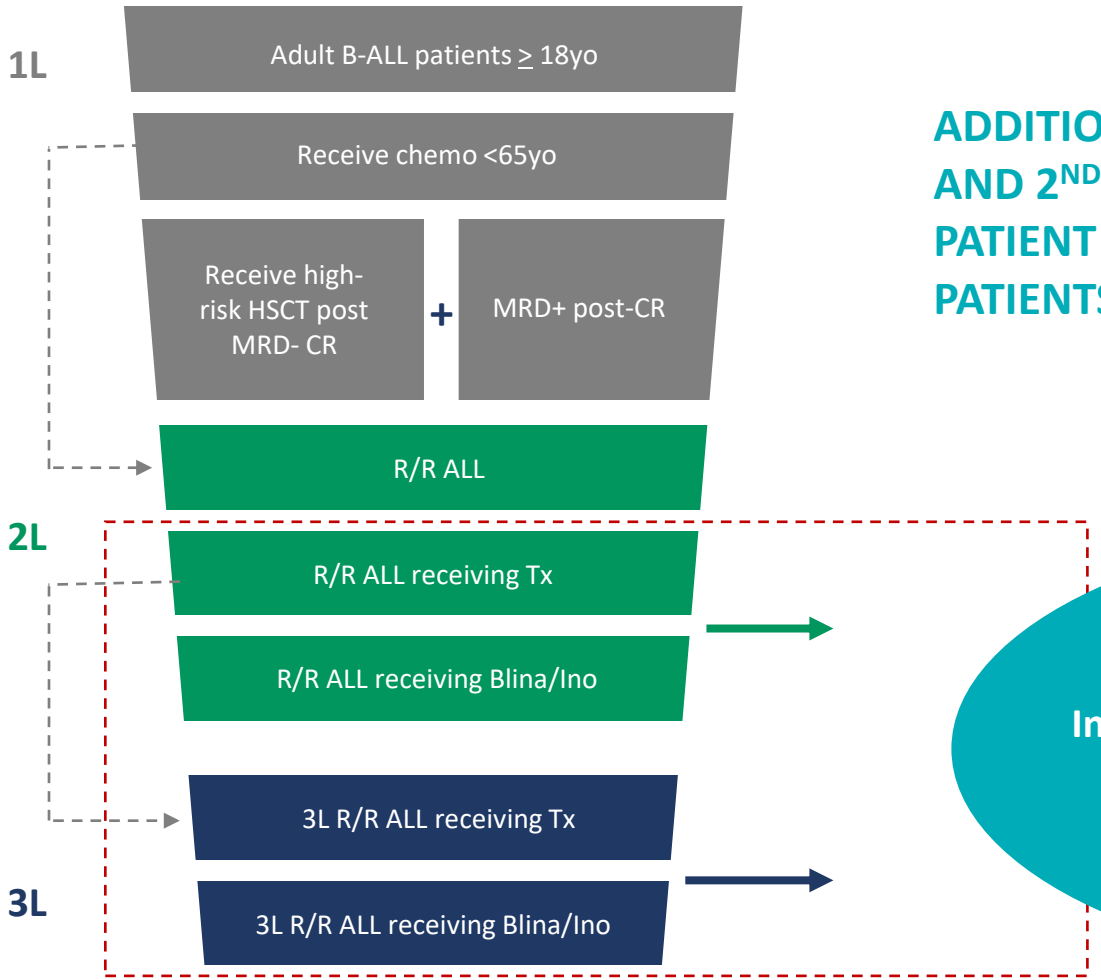
HIGH UNMET MEDICAL NEED

- 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 ALL
- Only redirected T cell therapy for adult patients is blinatumomab
- CAR T therapies are highly active, but require subsequent allograft to achieve durability
- Patients are generally more fragile with co-morbidities, yet CAR T toxicities in this setting have been notable with high incidences of severe CRS and cases of fatal CRS and neurotoxicity
- High medical need spans from front line consolidation of high risk patients to refractory and relapsed patients in 2L and 3L

FDA GRANTED ORPHAN DRUG DESIGNATION FOR AUTO1 IN ALL

*SEER and EUCAN estimates (respectively) for US and EU epi

Adult ALL is a promising commercial opportunity with limited competition



ADDITIONAL POTENTIAL FOR AUTO1 TO MOVE TO 1ST AND 2ND LINES **, WHICH INCREASES THE ADDRESSABLE PATIENT POPULATION TO APPROX. 5,000 ADULT ALL PATIENTS

Initial Market Opportunity in 2L+ R/R aALL
~3000 patients in US/EU/JP

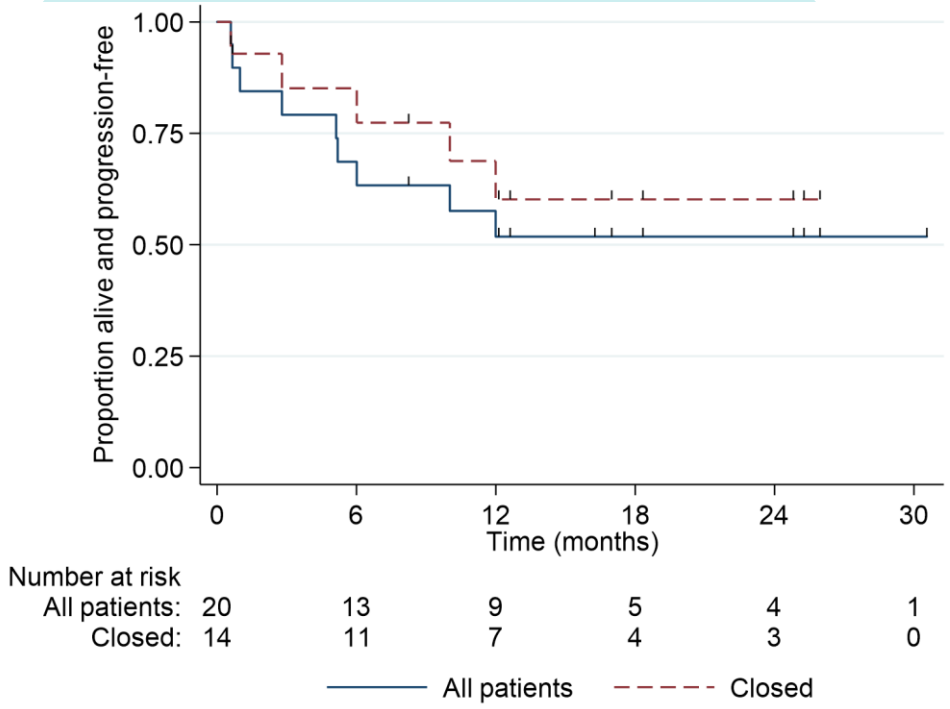
*Company estimate, based on US, EU5 and Japan
**Subject to successful clinical progress

Key features of a successful CAR T Cell Therapy for adult ALL

AUTO1 is uniquely placed to address current limitations of therapy

Challenge	Product Property	CAR T Feature	Benefit
Fast proliferating disease	Very high level of anti-leukemic activity	Rapid CAR T mediated kill and high level of CAR T expansion	High response rates
Almost stem cell like nature of leukemic cells	Sustain long term pressure on leukemia	Long CAR T persistence	Durable responses
Poor patient condition	Good tolerability	Minimize high grade CRS and NT	Manageable AE profile

Event-free survival of 52% at 12 months supports AUTO1's unique profile



		All patients Est [95% CI]	Closed process† Est [95% CI]
	N*	19	13
	ORR	84%	92%
	MRD Neg CR	84%	92%
DOR			
	Median	Not reached	Not reached
	6 months	81% [52%, 94%]	83% [48%, 96%]
	12 months	68% [39%, 85%]	65% [31%, 85%]
EFS			
	Median	Not reached	Not reached
	6 months	69% [43%, 85%]	85% [52%, 96%]
	12 months	52% [28%, 71%]	60% [29%, 81%]
OS			
	Median	Not reached	Not reached
	6 months	68% [43%, 84%]	85% [51%, 96%]
	12 months	63% [37%, 80%]	76% [43%, 92%]

*N = All patients with at least M1 follow-up or RIP prior to Month 1
† Closed process is the commercial manufacturing process
Event = death or morphological relapse
DOR, EFS and OS data are preliminary considering the small n

AUTO1 has potential as a standalone therapy

A cross study comparison of AUTO1 vs current standard of care

	AUTO1[1]	Standard of Care	
	All patients	Blinatumomab[2]	Inotuzumab[3]
Patient Numbers	19	271	109
CR/ CRi Rate	84%	44%	80.7%
EFS 6m ***(EFS 12m)***	69% ***(52%)***	31%	mPFS 5m
CRS ≥ Grade 3†	0%	3%	0%
Neurotox ≥ Grade 3†	15%*	13%	0%
Other notable toxicities			14% Hepatic VoD

- Observed in patients with > 50% tumor burden

1. Roddie et al., ASH 2020

2. Kantarjian et al., 2017/ USPI (product label)

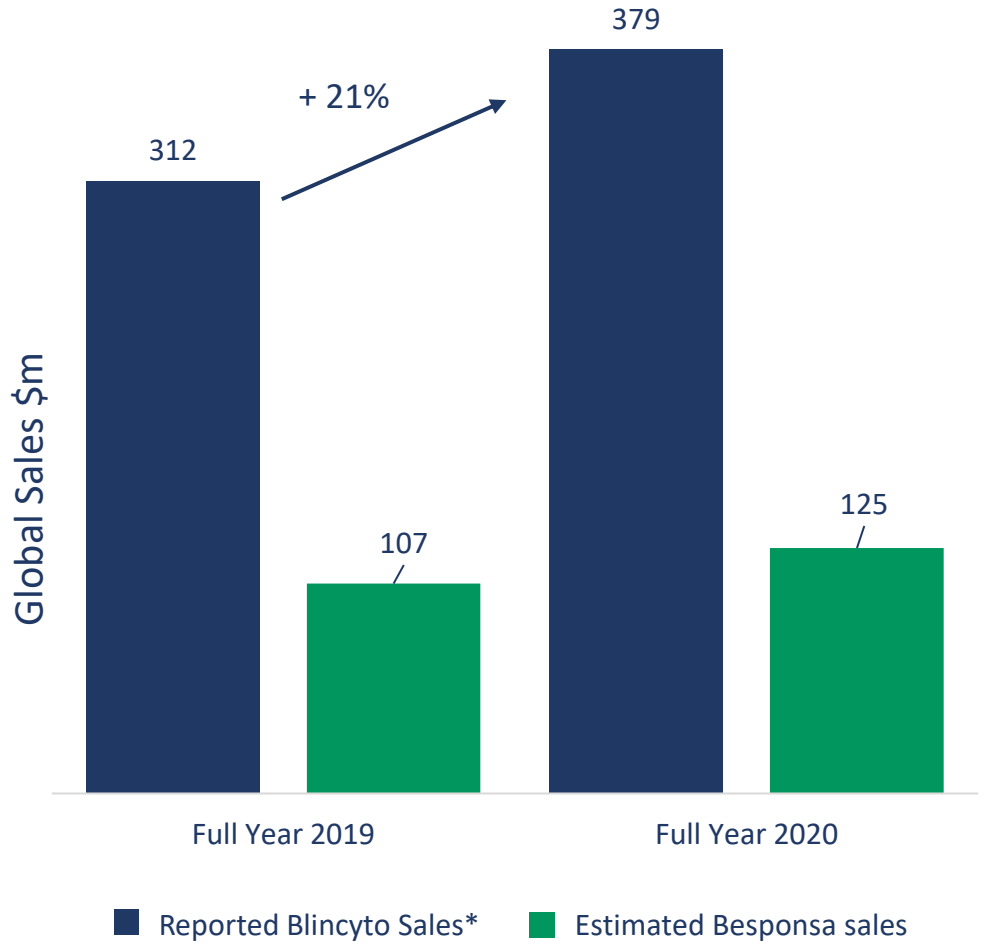
3. Kantarjian et al., 2016/ USPI (product label)

†20 patients evaluable for safety

- Approximately 50% of blinatumomab and inotuzumab patients received subsequent HSCT
- Veno-Occlusive Disease (VoD) during treatment and following subsequent HSCT, with the latter causing a higher post-HSCT non-relapse mortality rate, has limited inotuzumab uptake

AUTO1 could launch into an expanding market

Benefitting from a potentially superior clinical profile



- Blincyto sales price estimated to be $178k± (based on 2 cycles) resulting in approx. 2,100 commercial patients (of which approx. 85% are >18 years **)
- Growth attributed by Amgen* to expansion in the community hospital segment growing the market beyond academic transplant centers, continued strong growth at 29% y-o-y for Q4
- Kymriah is priced at $475k in pediatric ALL. Breyanzi (lisocabtagene maraleucel) is priced at $410k in DLBCL±±.
- Breyanzi and other CAR T cell therapies are expanding delivery centre footprint
- AUTO1 expected to have a superior clinical profile
  - Expected to be only potentially curative therapy with a tolerability profile to take advantage of an expanding delivery footprint

*As per Amgen SEC quarterly filings

** Komodo Health 2015 – 2020
± https://www.medscape.com/viewarticle/836879
± ± Bristol Myers finally wins FDA approval for cancer cell therapy | BioPharma Dive

Capitalizing on the unique profile of AUTO1 in adult ALL

Exploration of AUTO1 activity in additional B-Cell malignancies

PRODUCT	INDICATION	TARGET	PHASE 1	PHASE 1B/2
AUTO1	Adult ALL	CD19	**ALLCAR19**	**FELIX (AUTO1-AL1)**
AUTO1	iNHL & CLL	CD19	**ALLCAR19 ext.**	
AUTO1	Primary CNS Lymphoma*	CD19	**CAROUSEL**	
AUTO1/22	Pediatric ALL	CD19 & CD22	**CARPALL ext.**	

OPPORTUNITY TO PURSUE IN EARLIER LINES OF THERAPY AND INDICATIONS OF ADULT ALL

*Primary CNS lymphoma annual incidence approx.1400 cases in the US.

AUTO3 continues to show differentiated product profile in DLBCL

Data presented at ASH 2020, with data cut-off date of October 30, 2020

- Key Phase 1 observations:
  - High level of complete remissions (CR) of 51% overall
  - At the highest dose level of 450M cells the CR rate was 73%
  - Very low levels of high-grade CRS and neurotoxicity
  - AUTO3 administration together with the pembrolizumab dosing regimens (D-1 and D14/D35/D56) were well tolerated
  - Among the five patients who achieved a CR having received 3 doses of pembrolizumab, none had progressed as of the data cut-off date
  - Demonstrated feasibility to administer AUTO3 in outpatient setting

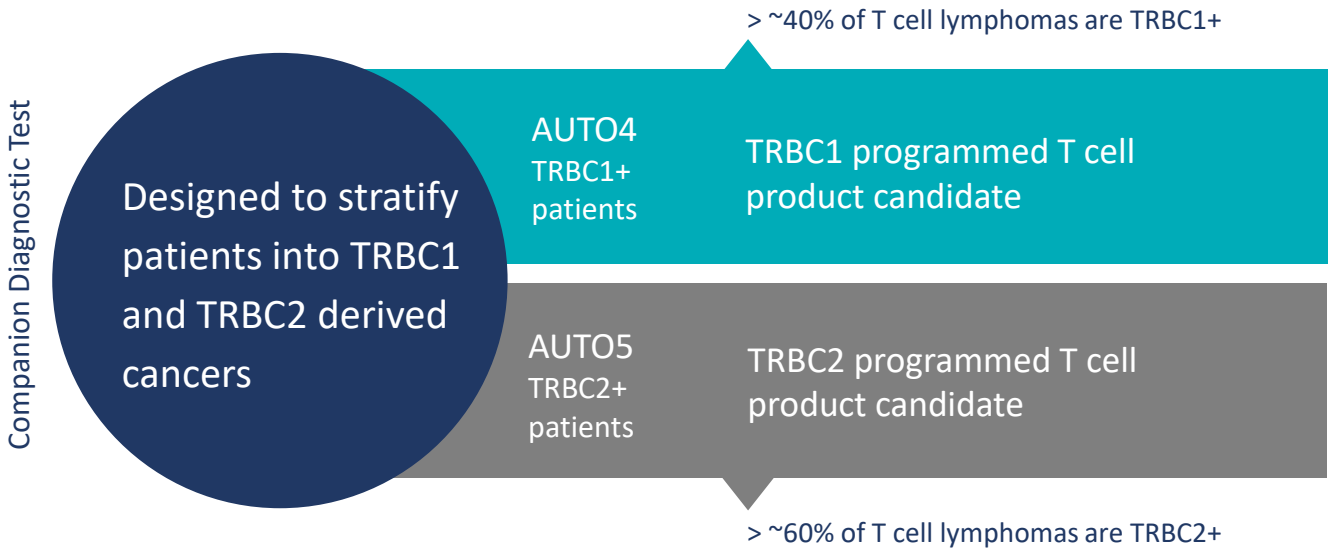
- Potential path forward for development of AUTO3
  - Phase 2 designs under evaluation:
    - 3L r/r DLBCL setting
    - 2L/3L transplant ineligible DLBCL setting
  - Planned Phase 2 dosing regimen
    - Dose range of 150M to 450M cells, as patients benefitted from therapy at 150M, 300M and 450M cell dose levels
    - 3 doses of pembrolizumab with a schedule of D-1, D28, D56
  - Implement manufacturing process enhancements (incl. stable cell line for vector manufacturing)

COMPANY INTENDS TO PARTNER AUTO3, AHEAD OF PROGRESSING INTO THE NEXT PHASE OF DEVELOPMENT

T Cell Lymphoma

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

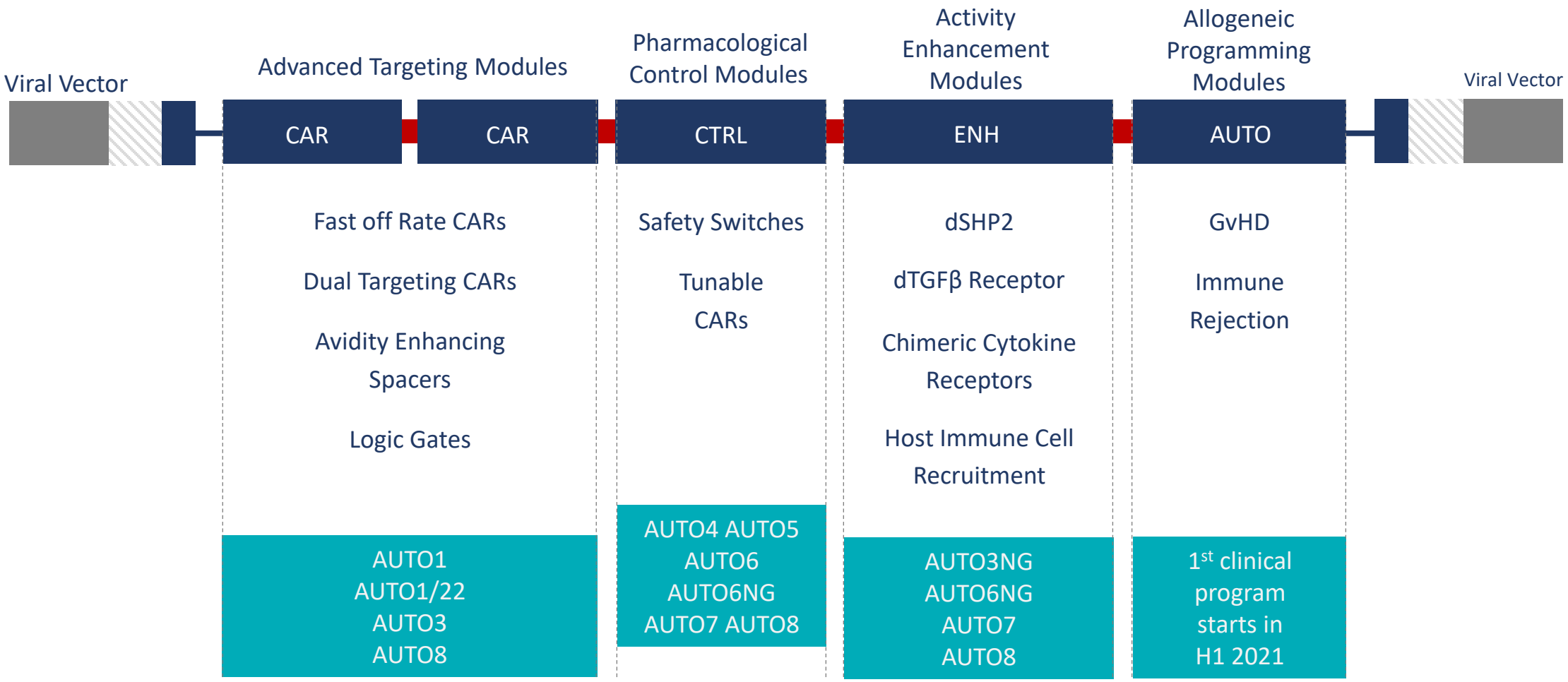
AUTOLUS USES THREE KEY ELEMENTS TO ADDRESS T CELL LYMPHOMAS—AUTO4, AUTO5 AND A COMPANION DIAGNOSTIC TEST



- 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 relapse 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 H2 2021
- AUTO5 to enter Phase 1 study in H2 2021

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

Advanced T cell programming



Broad pipeline of next generation programs

Designed to address limitations of current T cell therapies

PRODUCT	INDICATION	TARGET	PRECLINICAL	PHASE 1*
AUTO1/22	Pediatric ALL	CD19 & CD22		Started Q4 2020
AUTO5	TRBC2+ Peripheral TCL	TRBC2		H2 2021
AUTO6NG	Neuroblastoma; Melanoma; Osteosarcoma; SCLC	GD2		H2 2021
AUTO7	Prostate Cancer	PSMA		H1 2022
AUTO8	Multiple Myeloma	BCMA & CAR X		mid 2021

B Cell Malignancies T Cell Lymphoma GD2+ Tumors Prostate Cancer Multiple Myeloma

*Planned Trial Initiations

NG = Next Generation, SCLC = Small Cell Lung Cancer

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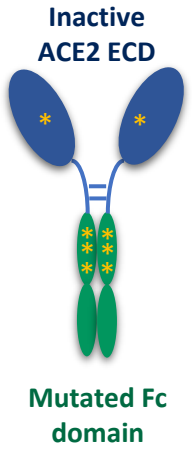
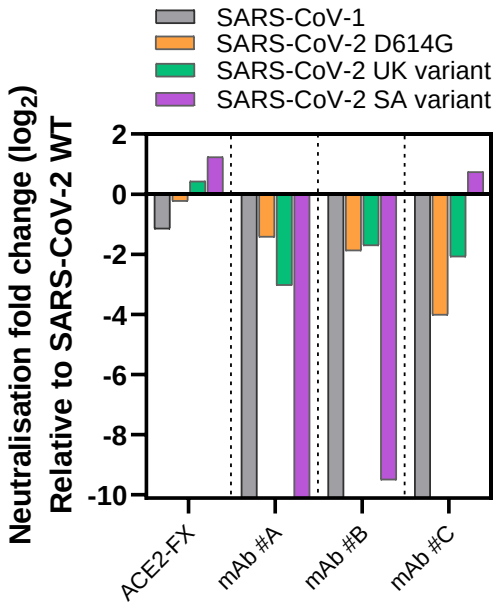
Autolus ACE2 fusion soluble receptor decoy

Partnerable COVID project with potential universal application for SARS-COV virus family



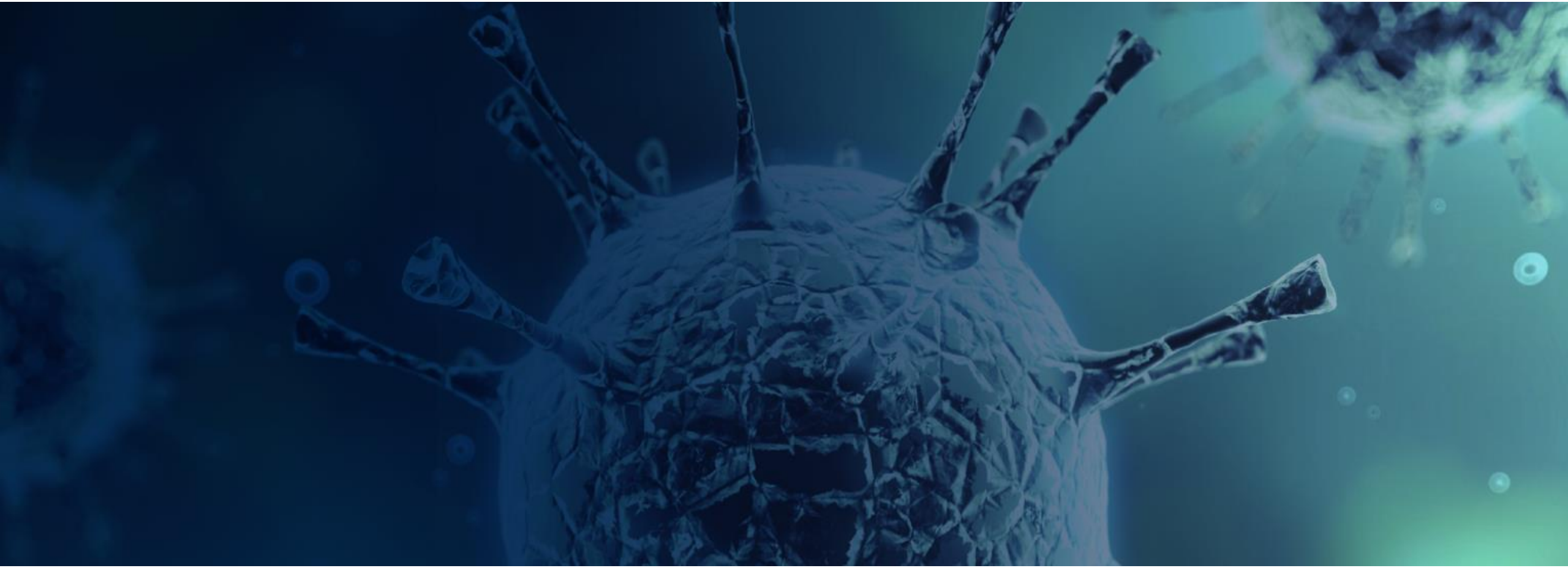


ACE2-Fx: Universal SARS-COV inhibition

- ACE2 Fx achieves viral neutralization by acting as a decoy receptor for the spike protein of SARS-CoV-1&2 and reducing its binding to target cells
- ACE2 catalytic domain mutated to inhibit activity on renin/angiotensin axis and mutated Fc domain provides extended half life without engaging FcRc
- Universally applicable protection without need for determination of the specific viral sub-variant
- Does not drive mutational drift

SARS-COV2 Challenges in a Post-vaccine World

- Patients with B cell malignancies or patients suffering from immune suppression will require access to effective passive immunization against SARS-COV2
- Mutational drift of SARS-COV2 will reduce effectiveness of both vaccines and mAbs
- What is needed is a universally applicable passive immunization to support patients with immune suppression and to minimize healthcare resources impact of new SARS-COV variants while vaccines are being adapted to them



Financial Results

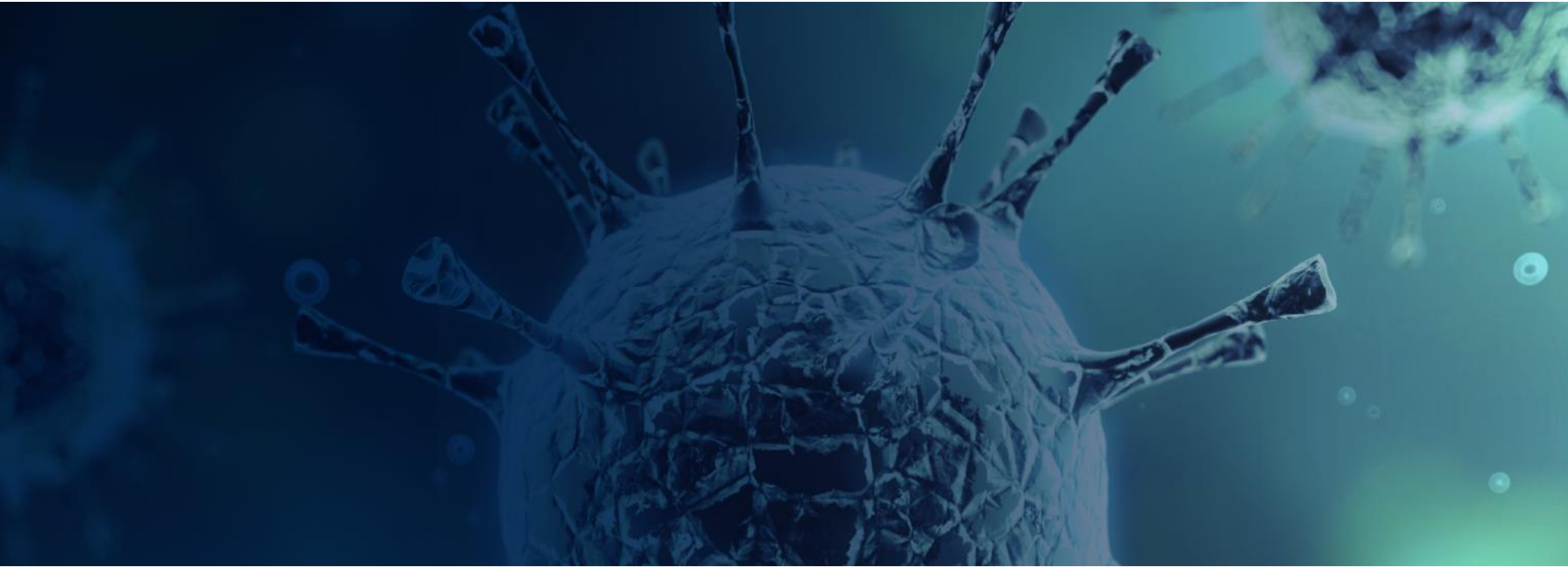
Andrew J. Oakley - CFO

Financial summary

USD m	FY 2020	FY 2019	Variance
Grant Income	1.5	2.9	(1.4)
License Income	0.2	-	0.2
R&D	(134.9)	(105.4)	(29.5)
G&A	(35.0)	(39.5)	4.5
Loss on Impairment of Leasehold Improvements	-	(4.1)	4.1
Total Op Expense, Net**	(168.1)	(146.1)	(22.0)
Interest Income	0.5	2.5	(2.0)
Other Income	1.4	4.5	(3.1)
Tax Benefit	24.2	15.2	9.0
Net Loss	(142.1)	(123.8)	(18.2)
Cash Balance	153.3*	210.6	(57.3)

***Not including $123.4m in net proceeds from the sale of ADSs in January and February 2021**

Cash runway into H1 2023



Upcoming Milestones and Conclusions

Dr. Christian Itin – Chairman and CEO

Multiple clinical milestones anticipated through 2021/2022

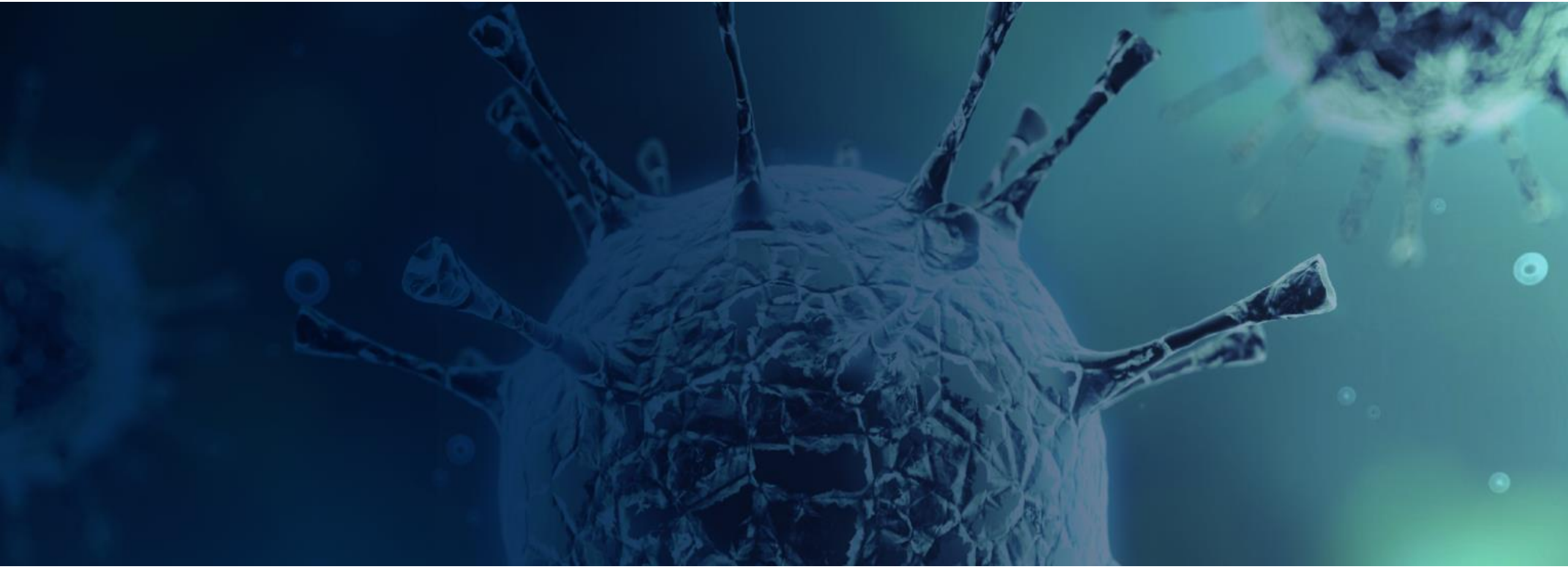
PRODUCT	INDICATION	TARGET	PHASE	NEXT MILESTONE
AUTO1	Adult ALL	CD19	Pivotal*	Phase 1 long-term follow up, AL-1 data in 2022
AUTO1 /22	Pediatric ALL	CD19/CD22	Phase 1	Started Phase 1 Q4 2020, data in Q4 2021
AUTO1	B-NHL	CD19	Phase 1	Started Phase 1 Q3 2020, data updates 2021
AUTO1	PCNSL	CD19	Phase 1	Start Phase 1 Q1 2021
AUTO3	DLBCL	CD19/CD22	Phase 1	Phase 1 long-term follow up, intend to partner
AUTO4	TRBC1+ Peripheral TCL	TRBC1+ Peripheral TCL	Phase 1	Phase 1 interim data H2 2021
AUTO5	TRBC2+ Peripheral TCL	TRBC2+ Peripheral TCL	Preclinical	Start Phase 1 H2 2021
AUTO6 NG	Neuroblastoma; Osteosarcoma; SCLC	GD2	Preclinical	Start Phase 1 H2 2021
AUTO7	Prostate	PSMA	Preclinical	Start Phase 1 H1 2022
AUTO8	Multiple Myeloma	BCMA/CAR-X	Preclinical	Start Phase 1 study mid 2021
ALLO Program	Undisclosed	Undisclosed	Preclinical	Start Phase 1 H1 2021

*Subject to confirmation by regulatory authorities.

B Cell Malignancies T Cell Lymphoma Solid Tumors Multiple Myeloma Allogenic

Autolus poised for potential value inflection

- AUTO1 and AUTO1/22
  - AUTO1 INN name (Obecabtagene Autoleucel,or Obe-cel) has been published
  - Currently enrolling Autolus' first Phase 1b/2 potential pivotal program (FELIX) in adult ALL. Data expected in 2022
  - Pediatric ALL - AUTO1/22 Phase 1 started in Dec 2020, first data expected for Q4 2021
  - ALLCAR study extension in iNHL and CLL ongoing, data updates to be released at EHA 2021
  - Opportunity to develop AUTO1 in Primary CNS Lymphoma, CAROUSEL study start planned for Q1 2021
- AUTO3
  - Company plans to seek a partner for the AUTO3 program, prior to further development
- AUTO4
  - Phase 1 interim data expected in 2021
- Multiple next generation development candidates entering clinical development in 2021
- Including January proceeds under at-the-market program and February 2021 raise, cash runway into H1 2023
- Cash Balance at Dec 31, 2020 was approx. $153.3m, not including $123.4m in net proceeds from the sale of ADSs in Q1 2021



Q&A