

Autolus

Developing Next Generation Programmed T Cell Therapies

September 2024



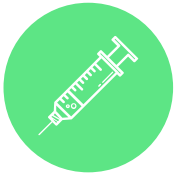
Autolus.com

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Autolus overview – scaling towards commercialization

Building a leading CAR T company developing therapies for cancer and autoimmune diseases



Obe-cel: a potentially best-in-class CAR T

- FELIX pivotal trial in r/r adult ALL showed high ORR, encouraging EFS and favorable tolerability with low levels of high-grade CRS and ICANS
- FDA PDUFA target action date November 16, 2024
- MAAs under review with EMA and MHRA



Pipeline expansion strategy

- Expand obe-cel opportunity in B cell malignancies, autoimmune diseases & life cycle strategy
 - SLE
 - B-NHL indications
 - Bi-specific therapies (CD19 /CD22; CD19/BCMA)
- Expand to additional indications with novel CAR T therapies, alone or with partners



Scalable manufacturing and in-house facility

- Demonstrated reliable clinical trial supply (96% target dose reached in FELIX pivotal study)
- New commercial cell manufacturing facility in qualification stage; planned annual capacity 2,000+ batches
- Expected vein-to-delivery time at launch of ~16 days



Strategic collaborations

- Strategic multi-platform R&D collaboration with BioNTech
- Established technology collaborations with Moderna, BMS and Cabaletta
- Long-standing academic collaboration with University College London



Strong cash position

- Cash and cash equivalents \$706M end of Q2 2024
- Fully funds obe-cel launch in adult ALL and allows for autoimmune program acceleration



LEAD CLINICAL PROGRAM

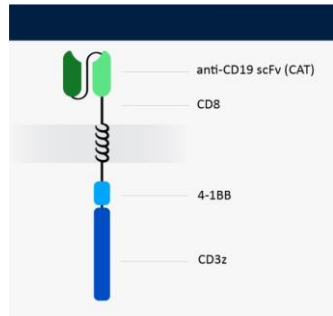
Obe-cel

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

We believe obe-cel has a unique mechanism of action

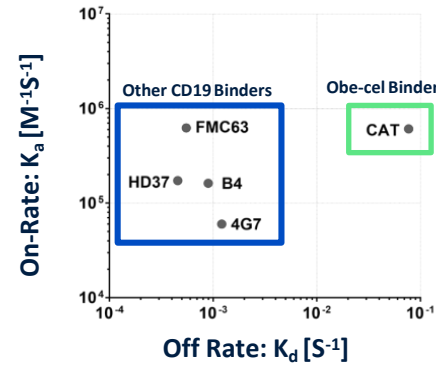
Designed for increased activity and reduced toxicity

Differentiated CD19 binder



CD19 binder with fast off-rate

Fast off-rate



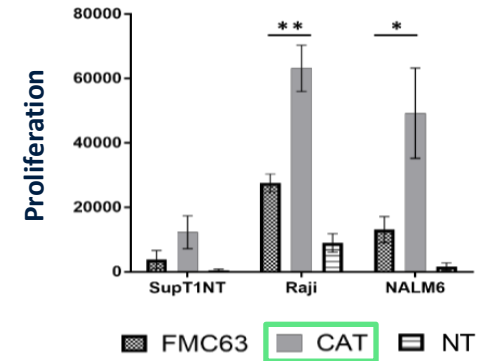
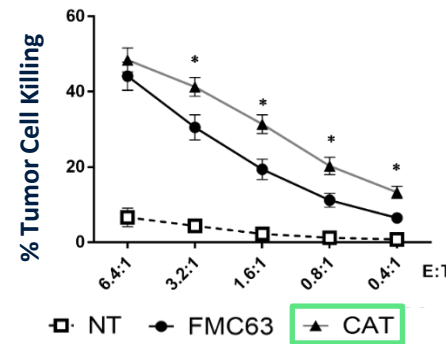
Shorter half-life of interaction compared to binders used in approved products

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

Potential for improved potency, reduced toxicity

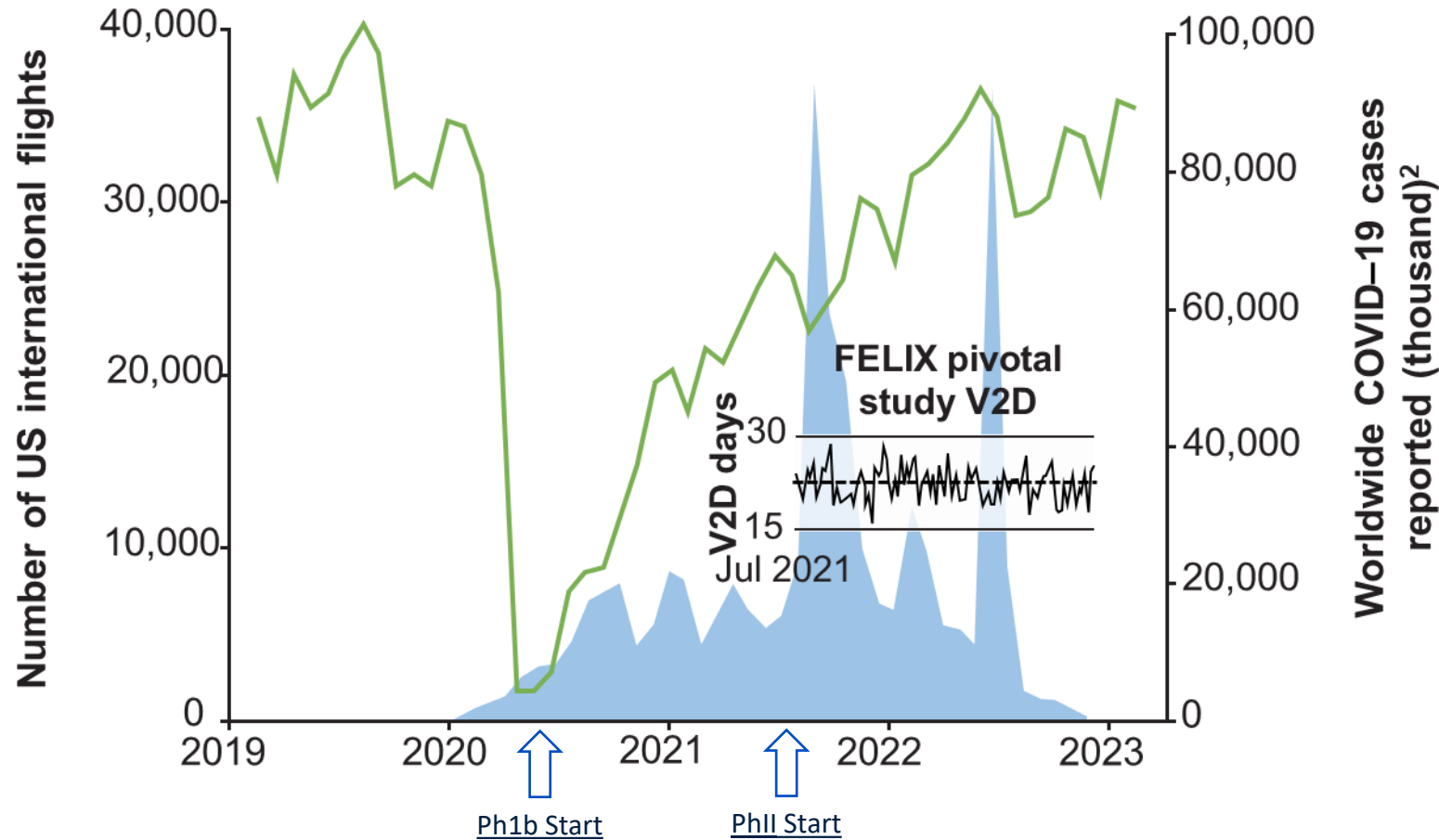
- Avoided over-activation of CAR T cells → Reduced toxicities
- Increased CAR T peak expansion → Improved persistence
- Avoided exhaustion of CAR T-cells → Improved engraftment
Improved persistence

Enhanced cytotoxicity and proliferation



The FELIX phase 1b/2 pivotal study

Reliable obe-cel supply for FELIX despite the COVID-19 pandemic



- US international airline flights decreased by 41% compared to flights from pre-COVID-19 pandemic¹
- BUT international flights are reliable and on time
- Sample collection and drug product delivery were successfully maintained, with no batches impacted

¹United States Department of Transportation, Bureau of Transportation Statistics 2021 [online]. Available at: <https://www.bts.gov/data-spotlight/commercial-aviation-2020-downturn-airline-passengers-employment-profits-and-flights> Accessed October 2023;

²World Health Organization COVID-19 dashboard [online]. Available at: <https://covid19.who.int/> Accessed October 2023



OBE-CEL IN ADULTS WITH R/R B-ALL

ASCO/EHA 2024

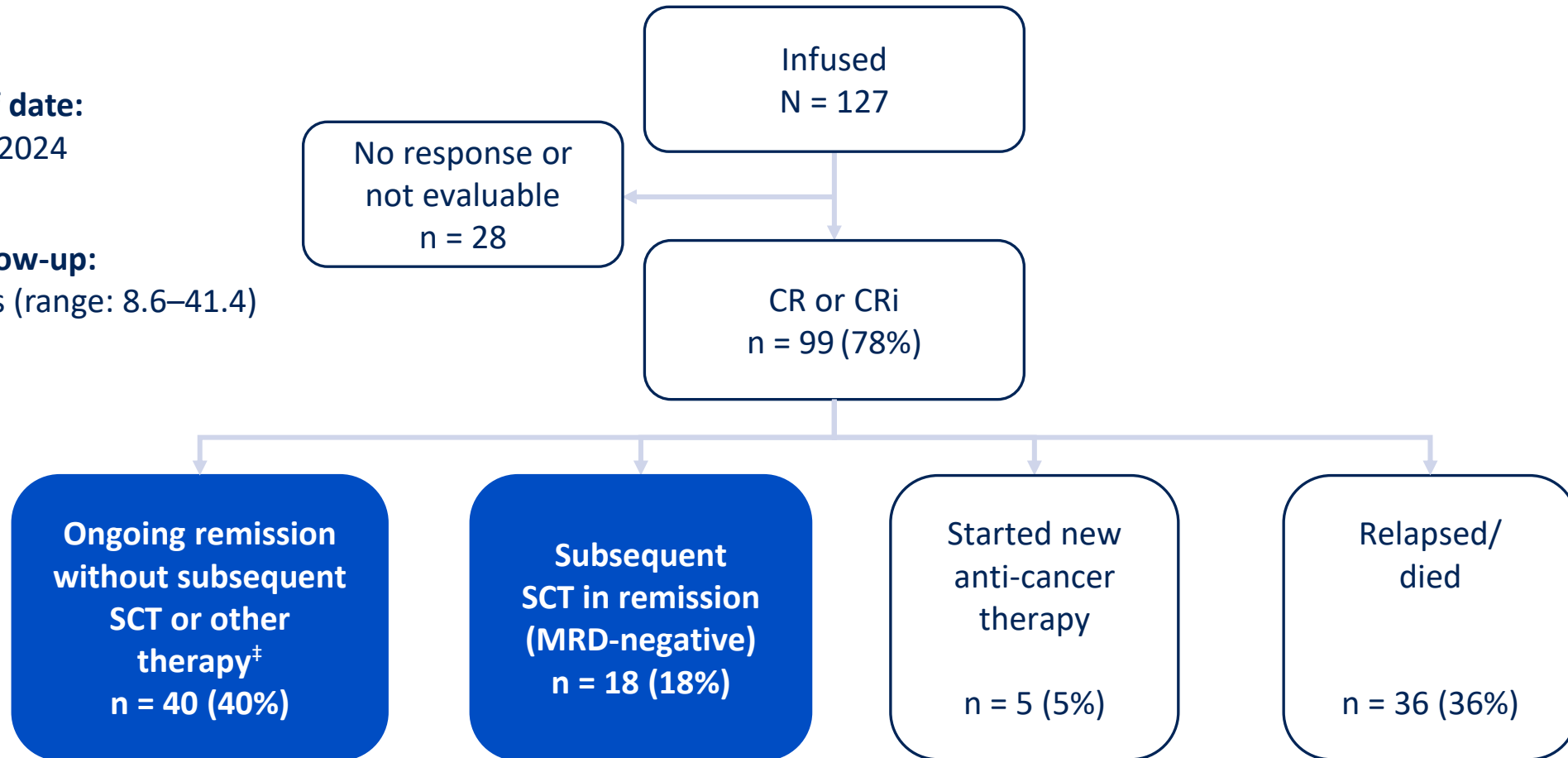
FELIX Phase 1b/2 trial

FELIX study all cohorts: Majority of responders show durable response (n=127)

40% of responders are in ongoing remission without consolidative SCT and 18% had consolidative SCT

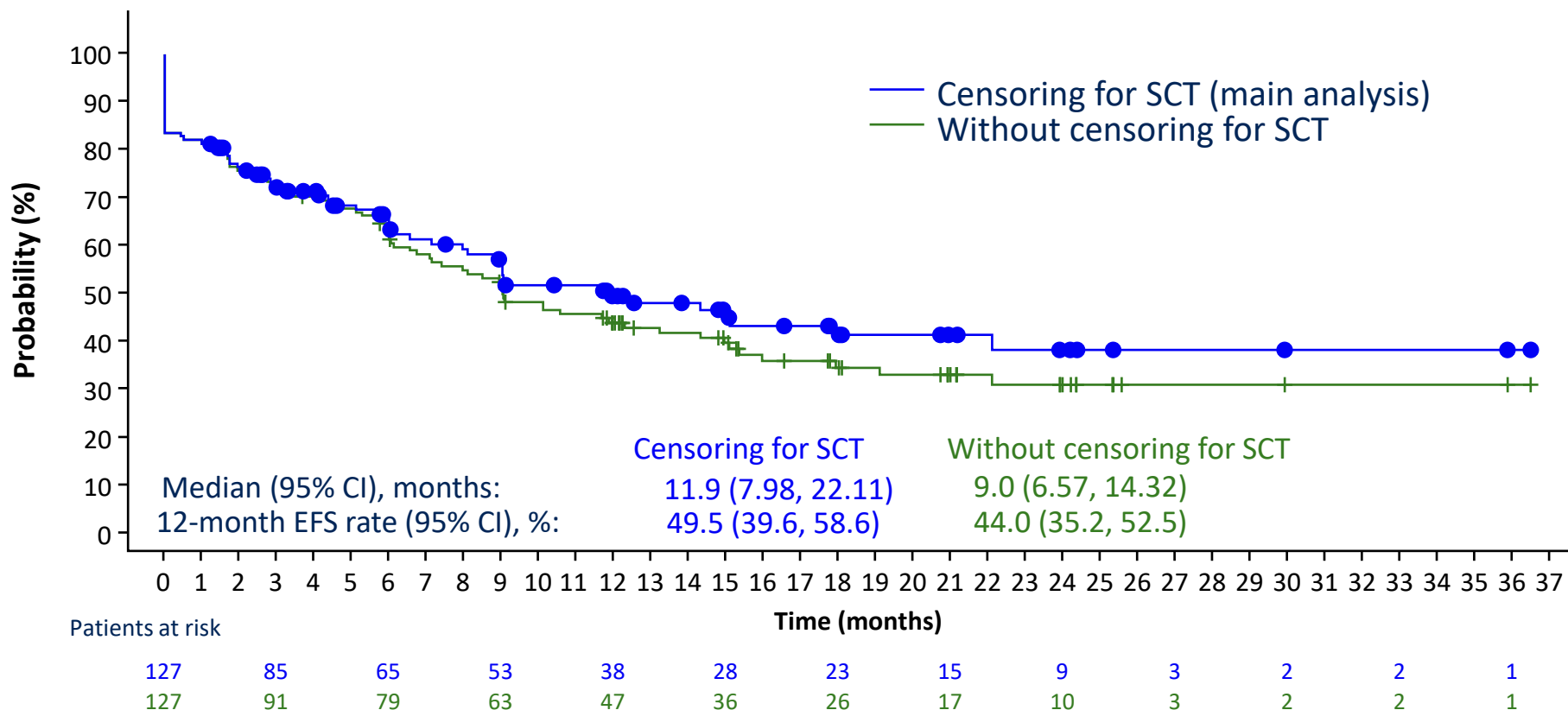
Data cut-off date:
February 7, 2024

Median follow-up:
21.5 months (range: 8.6–41.4)



FELIX study all cohorts: Event-free survival (n=127)

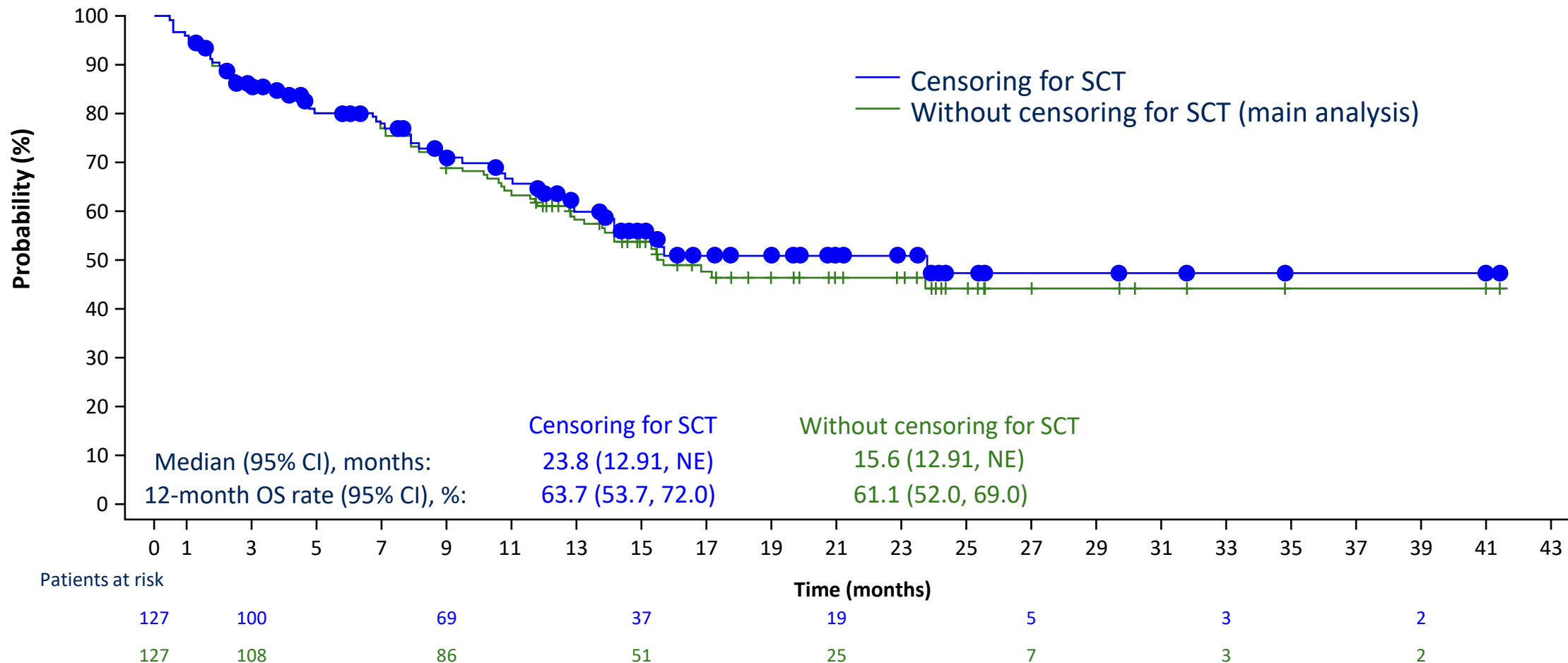
Subset of patients benefit from standalone treatment with obe-cel



- All (18/18) patients who had SCT in remission were MRD-negative
- 10/18 patients (55.6%) had ongoing CAR T persistence prior to SCT (n = 2 ongoing without event; n = 8 relapse or death)
- Characteristics similar between patients who did and did not undergo consolidative SCT

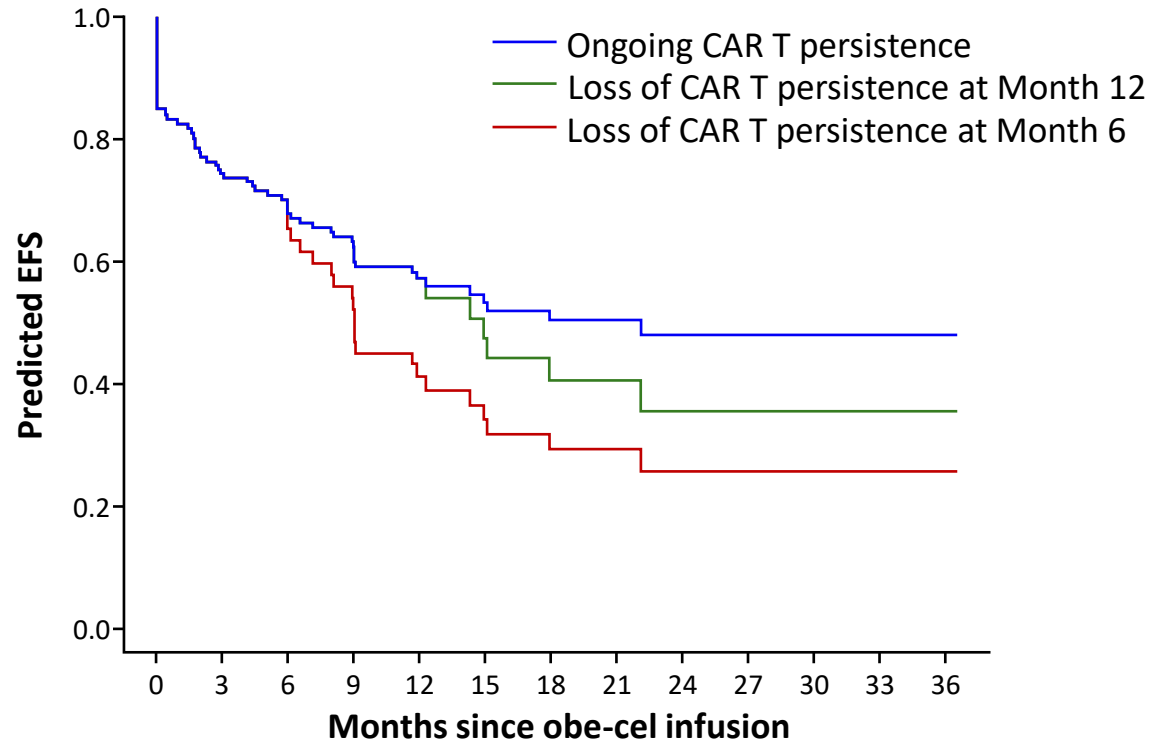
FELIX study all cohorts: Overall survival (n=127)

Potential long-term plateau

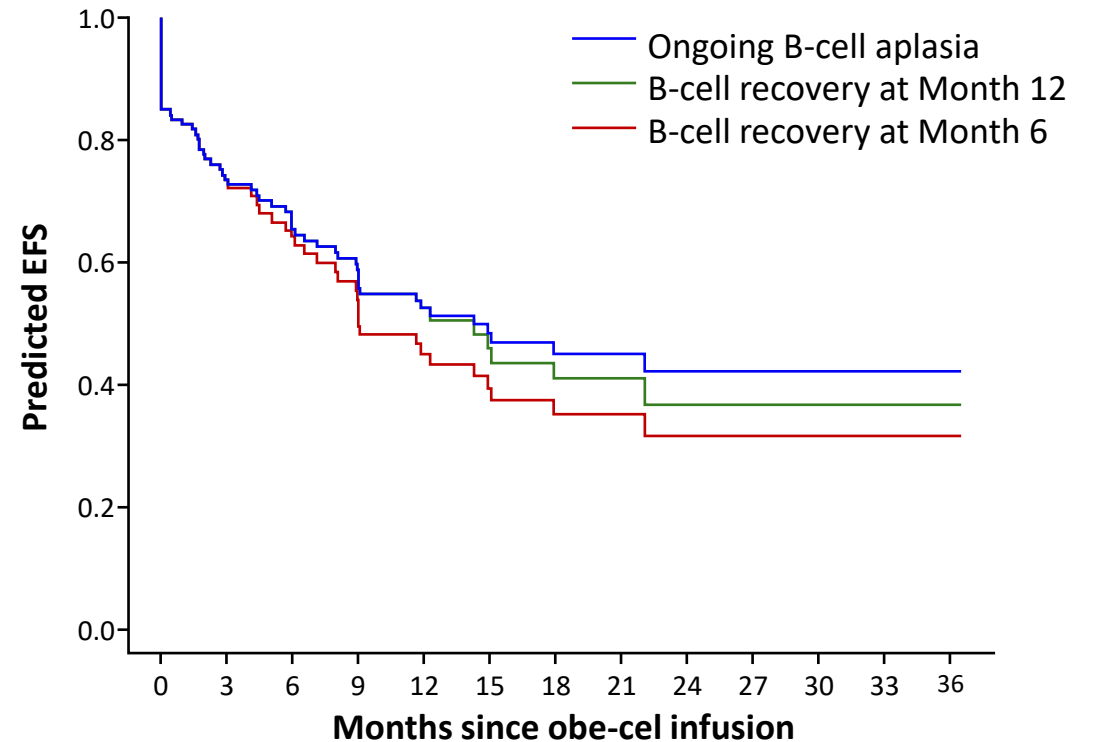


FELIX study all cohorts: CAR T persistence and predicted relapse

Ongoing CAR T persistence correlates with long-term EFS



HR 2.7 (95% CI: 1.4, 5.3)



HR 1.7 (95% CI: 0.7, 3.8)

ASCO 2024 takeaway messages

FELIX study - pooled analysis of all cohorts

- 40% of responders in ongoing remission without subsequent SCT/other therapy, with a median follow-up of 21.5 months
- Survival outcomes show potential of long-term plateau
- SCT consolidation in remission following obe-cel did not improve EFS or OS
- Ongoing CAR T persistence was associated with improved EFS

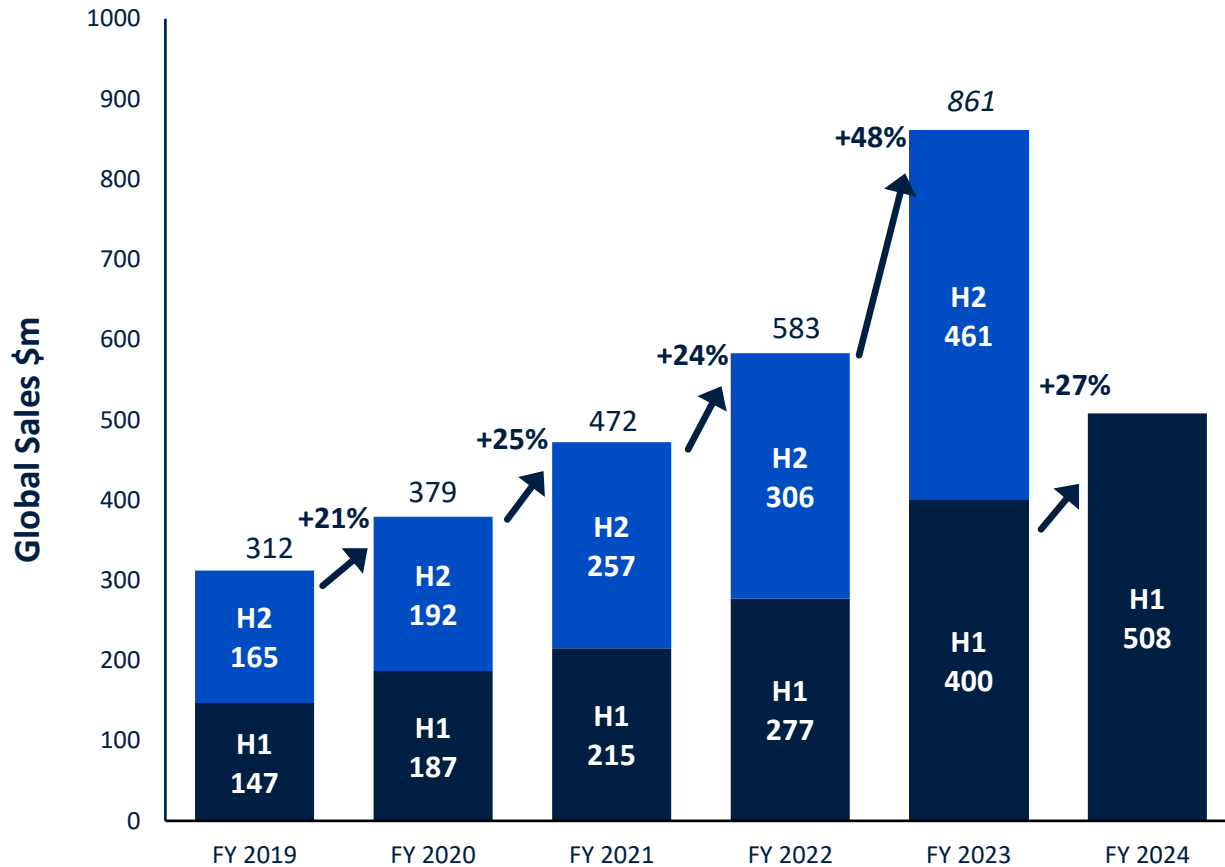


ALL: unmet need
and market overview

If approved, obe-cel could launch into an expanding ALL market

Blincyto[®], current market leader, sales increased 48% year-over-year to \$861 million for the full year 2023

Reported Blincyto[®] sales¹



- Blincyto[®] sales price estimated to be \$103.5k² (for 1 cycle) supporting approx >2,500 commercial adult ALL patients across all lines of treatment. Sales of \$508M for H1 2024, a 27% increase vs. prior period
- Kymriah[®] is priced at \$582k in pediatric ALL. Breyanzi[®] is priced at \$487k in DLBCL³. Tecartus[®] is priced at \$462k³ for adult ALL
- Breyanzi[®] and other CAR T cell therapies are expanding delivery center footprint
- If approved, obe-cel has the potential to be best-in-class curative therapy and expanding use beyond academic transplant centers

1. As per Amgen quarterly SEC filings

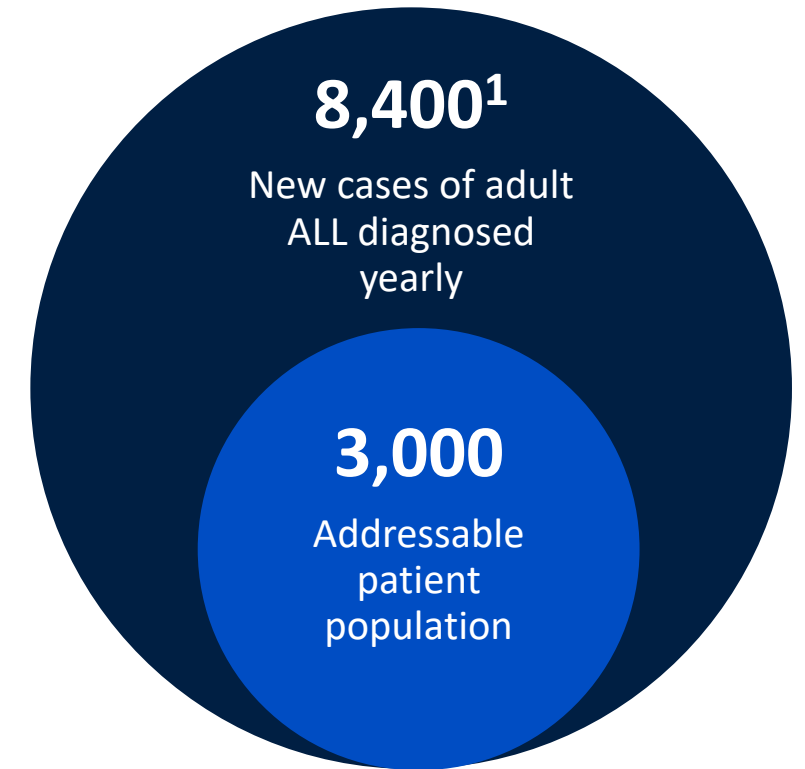
2. <https://www.cms.gov/medicare/payment/all-fee-service-providers/medicare-part-b-drug-average-sales-price/asp-pricing-files>

3. Red Book pricing database <https://www.ibm.com/products/micromedex-red-book/pricing>

Over 8,000 new cases of adult ALL annually worldwide

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®
 - Both therapies are highly active, but frequently followed by subsequent treatments (e.g. alloSCT)
 - Blincyto®: favorable 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 levels of severe ICANS, and requires vasopressors for many patients
- Opportunity to expand the addressable patient population in earlier lines of therapy



Critical drivers for potential market adoption if approved

Clinical data¹

Durable and robust response as a standalone option

- The ORR (CR/CRi) in all patients who received obe-cel in the FELIX study was 78%¹
- The 12-month EFS and OS rates were 49.5% and 61.1% respectively (median follow up of 21.5 months)
- 40% of responders in ongoing remission without subsequent SCT/other therapy, (median follow-up of 21.5 months), suggesting long-term plateau

Predictable and manageable tolerability

- Low rates of Grade ≥ 3 CRS (2%) and low rates of Grade ≥ 3 ICANS (7%)

Treatment experience goals

Timely & reliable product supply

- Quality product with low out-of-spec rates
- Timely delivery
 - Sufficient capacity and manufacturing slot access
 - Short vein-to-release times

Best-in-class commercial systems and services integration

- Optimize relationship with accredited treatment centers

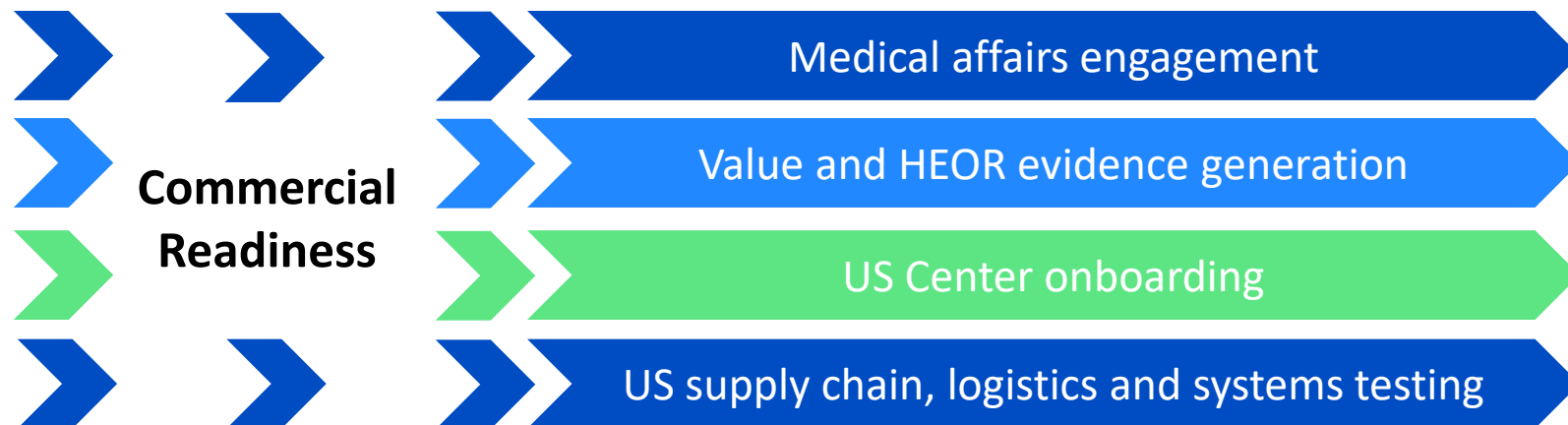
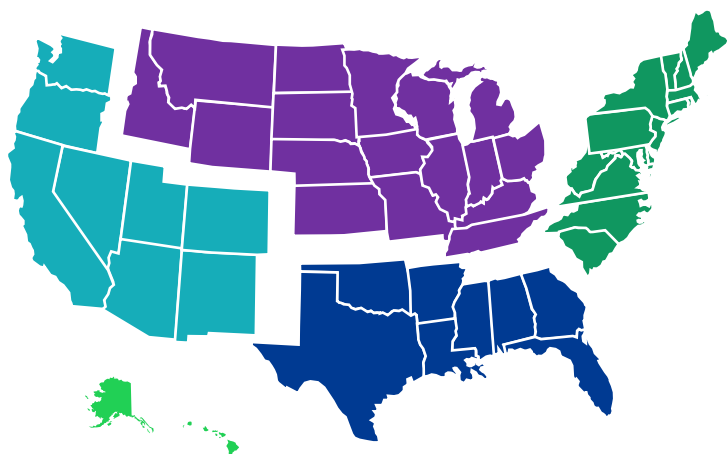
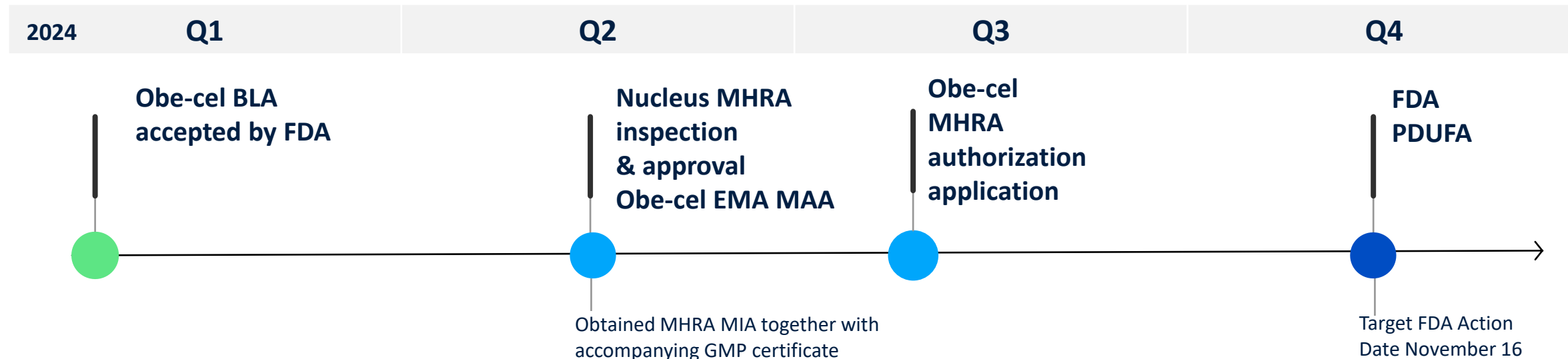
**Commercial Launch
Readiness Plan**



Commercial Launch Readiness

Obe-cel steps to commercialization

Roadmap to a commercial launch in r/r adult ALL



US treatment center timelines for authorization and first patient readiness



Centers have their own internal processes / requirements to fulfil prior to administering CAR T; therefore, not every center will be ready to prescribe upon receiving Autolus authorization



Autolus Authorization

1. Conduct final trainings based on FDA approved label
2. Administer Risk Evaluation & Mitigation Strategy training



Example Center-defined Activities (*varies by center*)

- ✓ Center Electronic Health Records order sets for obe-cel
- ✓ Pharmacy & Therapeutics Committee review
- ✓ Value assessment
- ✓ Financial clearance finalized
- ✓ External center authorization document
- ✓ Addition to Authorized Treatment Center locator

*FDA=US Food and Drug Administration; PDUFA=Prescription Drug User Fee Act

The Nucleus – Our Commercial Manufacturing Facility

State of the art design and operations established – groundbreaking to complete validation in 2 years

- Facility ~70,000 sq ft
- Modular build (70% built off-site)
- Timeline to validation reduced by ~60%
- Excellent BREEAM sustainability rating
- Designed for 2,000+ batches per year
- Target vein to delivery 16 days at launch

Design



Build



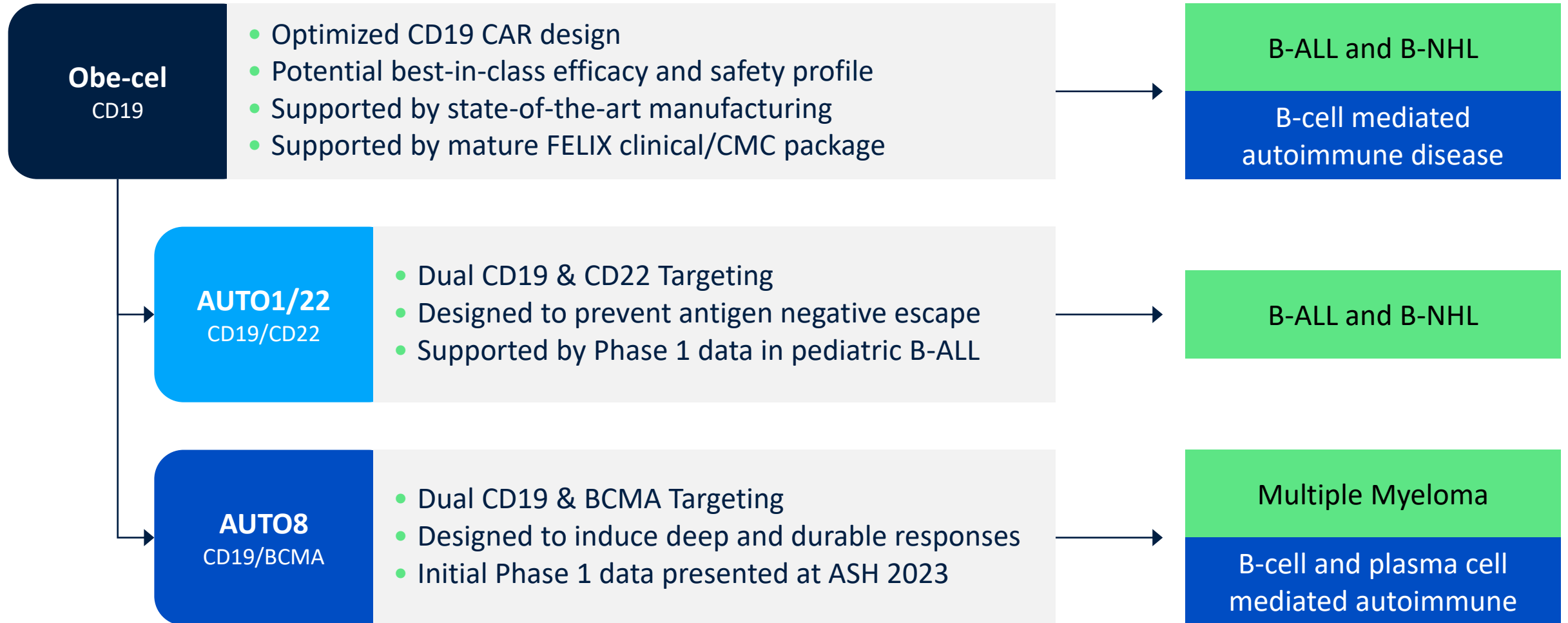
Operations



Expanding the obe-cel opportunity

Deep value program with potentially broad applicability

The obe-cel product family and franchise opportunity



Uniquely positioned to develop CAR T therapy candidate in autoimmune disease

Obe-cel's potential characteristics

Favorable tolerability to drive physician and patient acceptability in rheumatology settings

Deep cut into the CD19+ B and plasma cell compartment to remove all autoreactive clones

Development of robust, economical and scalable manufacturing and commercial infrastructure

Potential for smaller clinical program and accelerated regulatory path to launch if a high degree of treatment effect is observed

Supporting evidence

- Potential best-in-class risk/benefit profile in pivotal FELIX trial in adult ALL
- Low rates of high-grade CRS and ICANS across all patients observed to date in the cancer setting

- Evaluation in B-ALL with very high rate of MRD negative complete remissions (95% of evaluated responders) in FELIX study

- Potential approved, commercial manufacturing facility in adult ALL with attractive cost of goods at launch for SLE
- Commercial systems and CAR T center services established with potential adult ALL launch

- Treatment effect reported in Erlangen* proof-of concept using a different CAR T product candidate
- Clinical safety data from ALLCAR19 and FELIX as well as potential commercial patient data to supplement SLE pivotal study

Phase 1 study in r/r SLE – enrollment ongoing

Primary goal of the Phase 1 study will be confirming the fixed dose in adult SLE patients

CARLYSLE Study

- A Single-Arm, Open-Label, Phase I Study to Determine the Safety, Tolerability and Preliminary Efficacy of Obecabtagene Autoleucel in Patients with Severe, Refractory Systemic Lupus Erythematosus (SLE)*

Study details

- Number of patients: 6 (option to add further cohort of 6 patients)
- Primary endpoint: to establish the tolerability and safety of obe-cel in patients with severe, refractory SLE
- Secondary endpoints: to evaluate the preliminary efficacy of obe-cel using measures of SLE disease activity
- Dosing: 50×10^6 CD19 CAR-positive T cells
- Follow up: up to 12 months
- 3 centers enrolling in UK and Spain

- Initial clinical data expected in late 2024

Key features of obe-cel in NHL, AUTO1/22 in pALL and AUTO8 in MM

Obe-cel in NHL*

- 22 r/r NHL patients treated (DLBCL, MCL, FL)
- 21 of 22 patients achieved a metabolic CR
- No \geq grade 3 CRS and no ICANS of any grade reported
- Durable outcomes and CART cell persistence
- Majority of patients in ongoing remission with a median f/u of 21 months

AUTO1/22 in pALL*

- Kymriah ineligible r/r pALL patients (4 Kymriah failures, 3 CD19neg disease, 3 non-CNS extramedullary disease)
- Favorable adverse event profile with no severe CRS
- Excellent CAR T expansion and very encouraging activity:
- 83% MRD negative CR/Cri
- 1-year EFS 60%
- At median FU 8.7 months, no cases of leukemic relapse or emergence of MRD related to antigen escape

AUTO8 in r/r MM*

- 11 r/r MM patients treated
- No \geq grade 3 CRS and no ICANS of any grade reported
- ORR 100%; 3 PR*, 1 VGPR*, 7 CR*/sCR* (all evaluable MRD-)
- Two patients remained in sCR at >12 months; overall PFS was not reached
- Additional dose levels to be explored

*Roddie et al., ASH 2023 Poster 2114

*Ghorashian et al., EBMT Annual Meeting 2023






*Lee et al., ASH 2023

Partnerships, pipeline programs and technologies




A broad portfolio of potential next
generation modular T cell therapies

Autolus pipeline

Obe-cel product family

Product	Indication	Target	Study Name	Partner	Phase	Status/Expected Milestones
Obe-cel	Adult B-ALL	CD19	FELIX		Pivotal	Submitted to EMA, MHRA and FDA (PDUFA November 16, 2024)
Obe-cel	Systemic Lupus Erythematosus	CD19	CARLYSLE		Phase 1	Initial data late 2024
Obe-cel	B-NHL and CLL	CD19	ALLCAR19		Phase 1	Data in peer reviewed journal
Obe-cel	PCNSL	CD19	CAROUSEL		Phase 1	Data in peer reviewed journal
AUTO1/22	Pediatric ALL	CD19 & CD22	CARPALL	 	Phase 1	Data in BLOOD August 2023
AUTO8	Multiple Myeloma	CD19 & BCMA	MCARTY		Phase 1	Update in 2025

Additional pipeline programs

Product	Indication	Target	Study Name	Partner	Phase	Status/Expected Milestones
AUTO4	TRBC1+ Peripheral TCL	TRBC1	LibrA T1		Phase 1	Data in peer reviewed journal
AUTO5	TRBC2+ Peripheral TCL	TRBC2	–		Preclinical	Data in peer reviewed journal
AUTO6NG	Neuroblastoma	GD2	MAGNETO	 	Phase 1	Open and actively recruiting
AUTO9	Acute Myeloid Leukemia	CD33, CD123 & CLL1	TBD		Preclinical	Estimated Phase 1 start 2025

* BioNTech holds an option to co-fund and co-commercialize



Oncology



Autoimmune

Leveraging our industry leading technology platform via partnerships

Technology partnerships

Leveraging our modular programming technology to generate safer and more effective therapies

Tumor targeting, pharmacological control and activity enhancement for cellular therapies

Validating collaborations with leading pharma and biotech companies

Potential for value creation through near term option exercise fees, milestone payments and royalties from net sales



Leveraging technology platform for BioNTech's programs



Access to the RQR8 safety switch for selected cell therapy programs for the treatment of cancer



Access to proprietary binders for the development of mRNA-based therapeutics for the treatment of cancer



Upcoming news flow

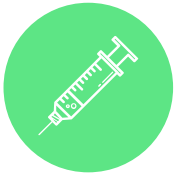
Autolus planned news flow

Anticipated Milestone or Data Catalysts	Anticipated Timing
Obe-cel U.S. FDA PDUFA target action date	November 16, 2024
Obe-cel FELIX data update at ASH 2024	December 2024
Obe-cel in autoimmune disease – initial data from SLE Phase 1 study	Late 2024

Summary

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Autolus

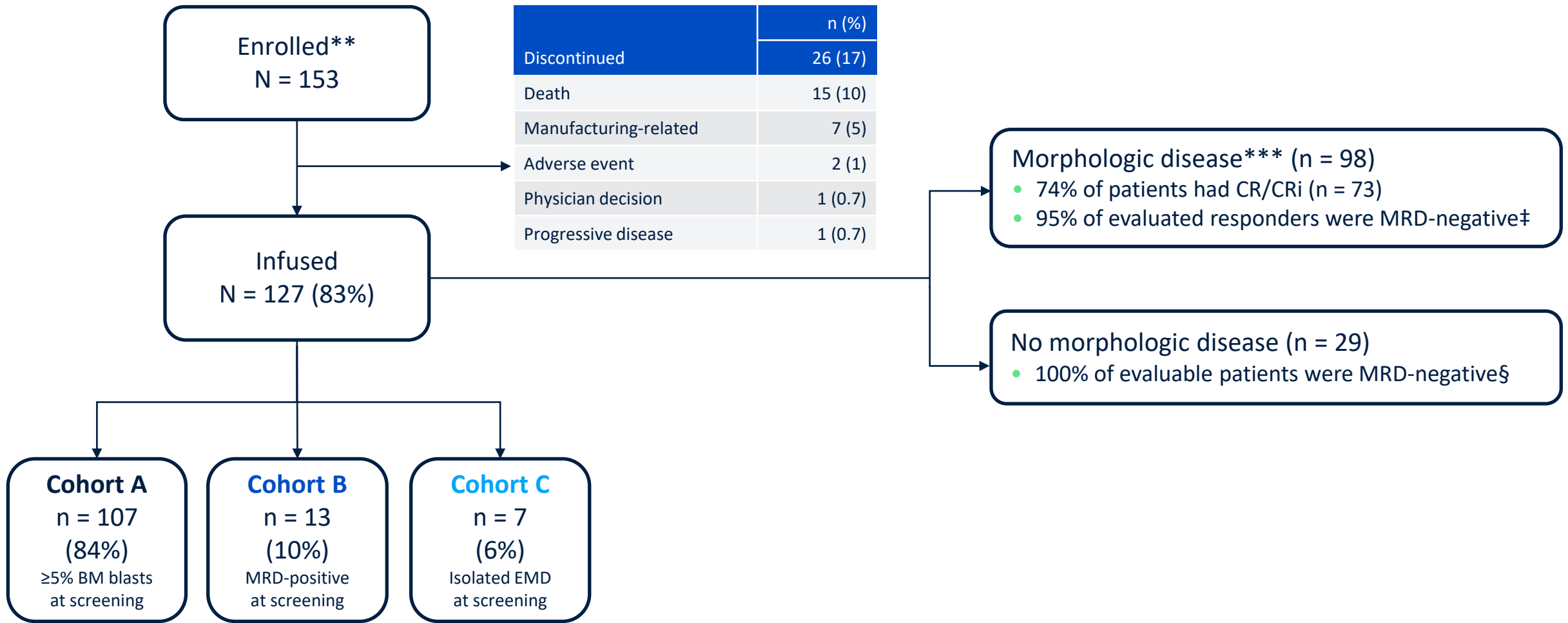
Thank you

Autolus

Appendix

FELIX Phase 1b/2 pooled analysis: patient disposition

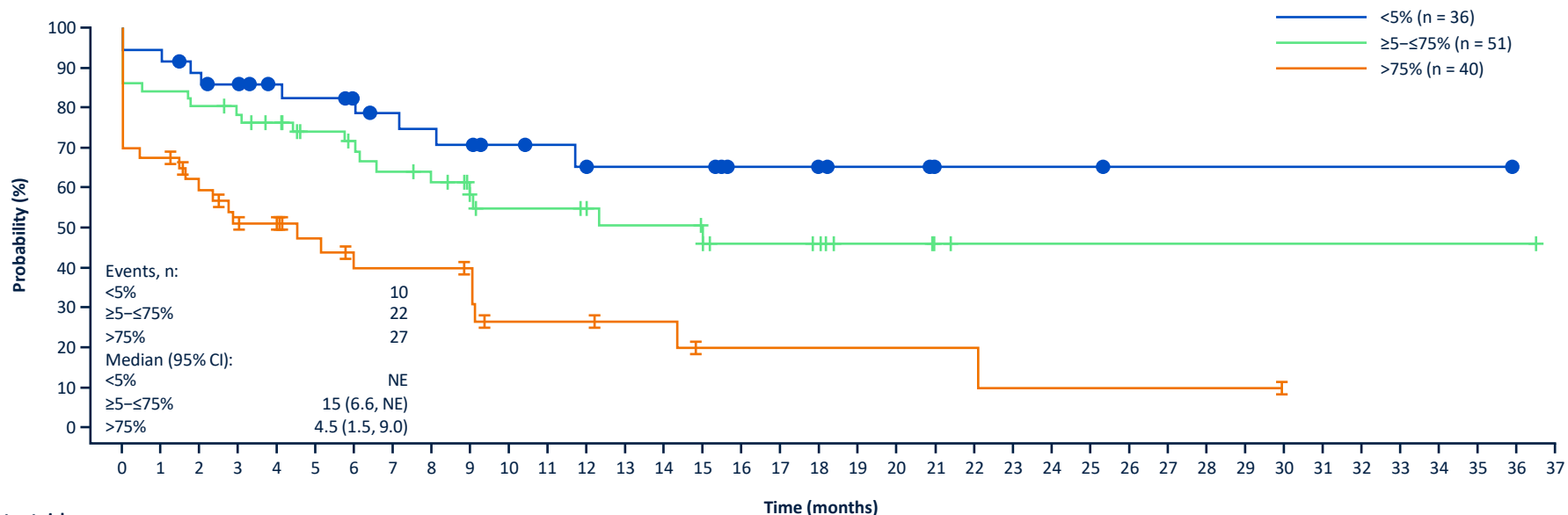
127/153 (83%) enrolled patients received obe-cel*



*Seven patients received Dose 1 only; **All eligibility criteria met and the leukapheresate accepted for manufacturing; obe-cel, obecabtagene autoleucel; Roddie et al., ASH 2023, Data cut-off date: September 13, 2023; ***Morphologic disease defined as ≥5% BM blasts or presence of EMD regardless of BM blast status; ‡MRD status available for 64/73 patients, as assessed by NGS or flow cytometry; §MRD status available for 27/29 patients, as assessed by NGS or flow cytometry; BM, bone marrow; CR, complete remission; CRi, CR with incomplete hematologic recovery; EMD, extramedullary disease; MRD, measurable residual disease; NGS, next-generation sequencing; obe-cel, obecabtagene autoleucel

ASH2023: EFS by leukemic burden prior to lymphodepletion*

Lower leukemic burden is associated with better outcomes



Patients at risk

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
<5% (n = 36)	36	34	31	28	25	24	22	20	19	18	14	13	11	11	11	11	8	8	7	6	6	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	0	0
≥5-≤75% (n = 51)	51	43	41	39	36	31	28	25	23	18	15	15	13	12	12	9	8	8	7	4	4	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0
>75% (n = 40)	40	27	22	18	17	13	10	10	10	9	5	5	5	4	4	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0

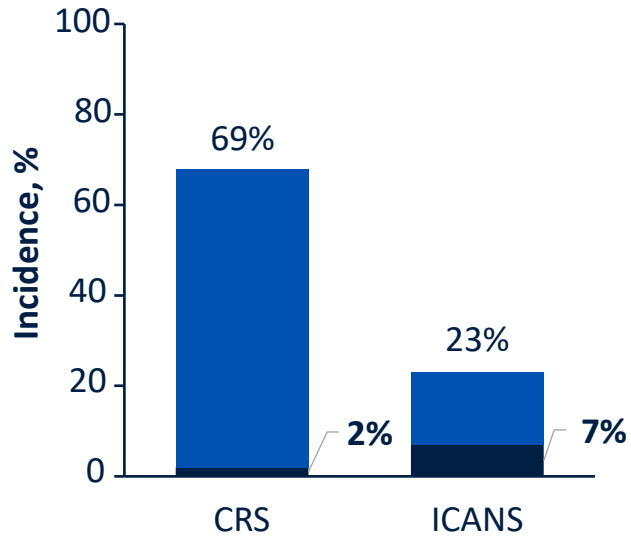
BM blasts % prior to lymphodepletion	<5% (n = 36)	≥5-≤75% (n = 51)	>75% (n = 40)
Median EFS (95% CI), months	NE	15.0 (6.6, NE)	4.5 (1.5, 9.0)
6-month EFS (95% CI), %	83 (65, 92)	72 (57, 82)	40 (23, 56)
12-month EFS (95% CI), %	65 (44, 80)	55 (38, 69)	27 (12, 44)

*Censoring new non-protocol anti-cancer therapies including SCT with disease assessment by IRRC (data cut-off date: September 13, 2023); BM, bone marrow; CI, confidence interval; EFS, event-free survival; IRRC, Independent Response Review Committee; NE, not evaluable; SCT, stem cell transplant; Roddie et al., ASH 2023

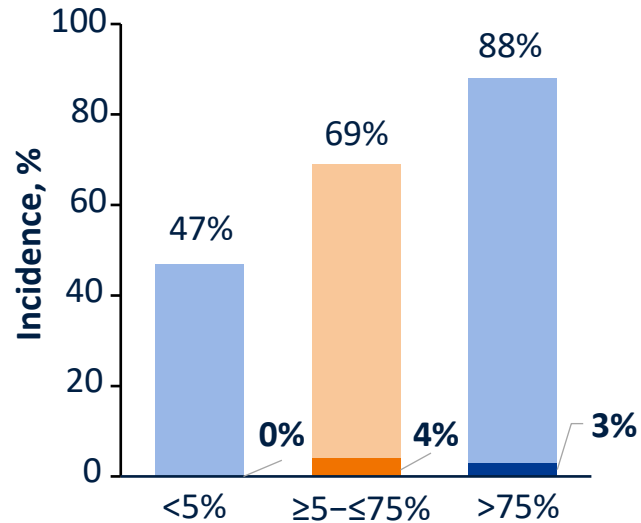
ASH2023 FELIX Phase 1b/2 pooled analysis: CRS and ICANS

Low rates of Grade ≥ 3 CRS and/or ICANS were observed

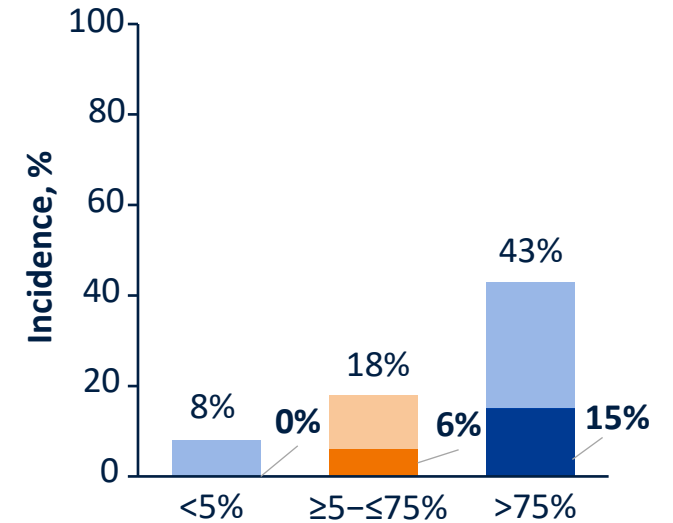
CRS and ICANS in all patients



CRS by % BM blasts



ICANS by % BM blasts



BM blasts % at lymphodepletion

Light colors = grade ≤ 2
Dark colors = grade ≥ 3

- No grade ≥ 3 CRS and/or ICANS were observed in patients with <5% BM blasts at lymphodepletion
- Vasopressors were used to treat CRS in 2.4% of patients
- The treatment was generally well tolerated
- Two deaths were considered treatment-related per investigator assessment: neutropenic sepsis (n = 1); acute respiratory distress syndrome and ICANS (n = 1)

ASH 2023 takeaway messages

- Obe-cel successfully manufactured in 95% of leukapheresed patients
- High remission rates independent of leukemic burden at lymphodepletion
- 50% EFS estimate at 12 months, with only 17% of responders proceeding to SCT while in remission
- Favorable safety profile: 2% grade ≥ 3 CRS and 7% grade ≥ 3 ICANS
- Severe toxicity mostly limited to patients with high leukemic burden at lymphodepletion
- Durable remission rates and toxicity inversely correlated with leukemic burden at lymphodepletion
- Assessment of leukemic burden at lymphodepletion is essential for risk/benefit stratification

Strategic multi-platform R&D collaboration with BioNTech

CAR T Cell Therapies

BioNTech to financially support obe-cel planned/potential commercial launch in adult ALL (Acute Lymphoblastic Leukemia) and expansion of development program

Development Product Options

BioNTech to receive co-development and co-commercialization options for AUTO1/22 (CD19/22) and AUTO6NG (GD2) programs

Commercial Infrastructure Access

BioNTech to receive option to access Autolus' GMP product supply and commercial infrastructure for their CAR T program, BNT211

Technology Platform License

BioNTech to receive license and options to access proprietary binders, safety switches and technologies for certain BioNTech programs

Deal Financials

Upfront Payments

- \$200 million upfront for equity
- \$50 million upfront cash

Downstream Economics

- Up to \$580 million in further option exercise and milestones payments
- BioNTech to receive up to mid-single digit royalty on obe-cel project financing
- Autolus eligible for an additional equity investment of \$20m, an option exercise payment and profit share based on products manufactured for BioNTech's BNT211 program
- BioNTech has option to co-fund and co-commercialize AUTO1/22 and AUTO6NG, if approved, in return for profit share
- Technology license and options provided in exchange for milestones and royalties