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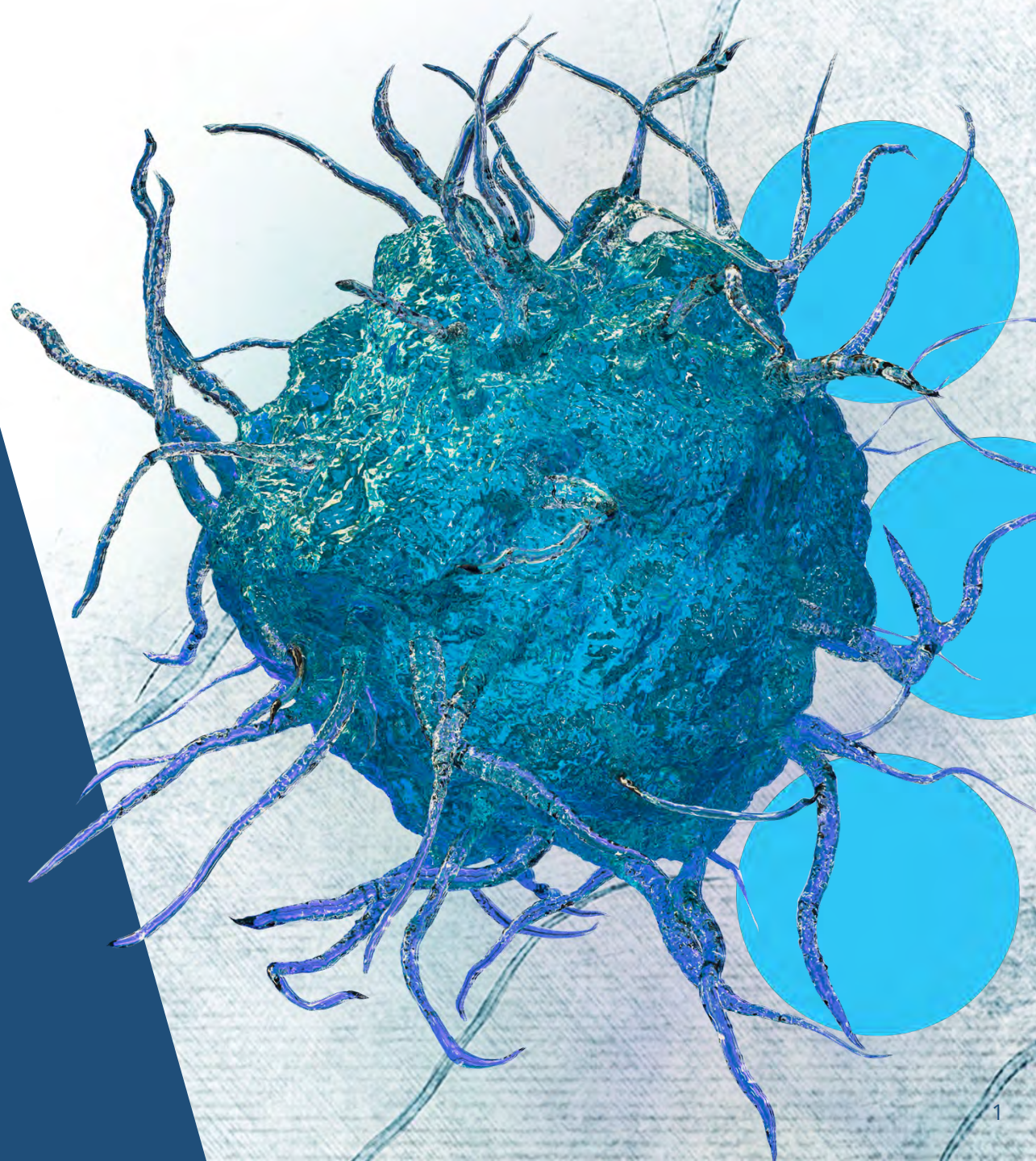
Clinical Program Update

25 April 2022

Clinical Data as of 21 April 2022



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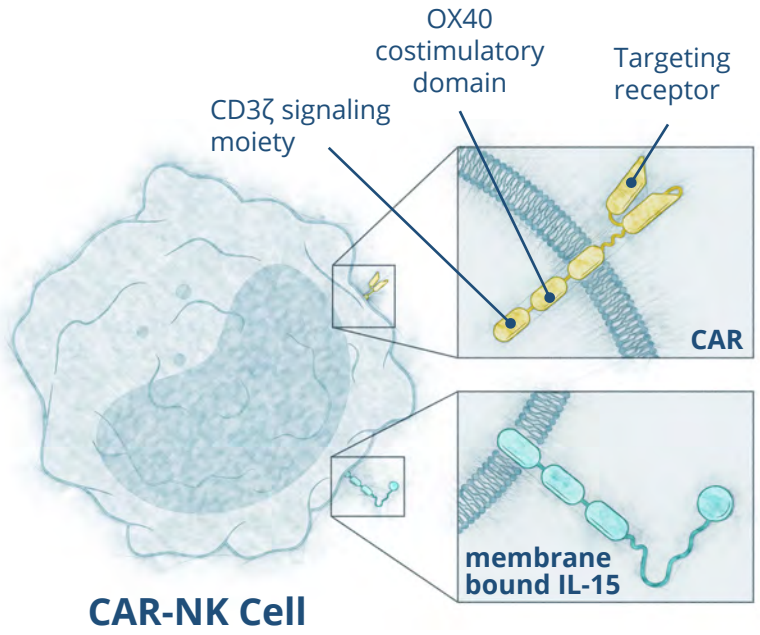
Best-in-class platform driving off-the-shelf CAR NK cell therapies

Co-lead programs in hematologic malignancies

NKX101

Targeting NKG2D ligands

- Phase 1 in r/r AML and higher-risk MDS
- Orphan Drug Designation
- NKG2D receptor is primary driver of NK cell activation and tumor killing



NKX019

Targeting CD19

- Phase 1 in r/r B cell malignancies
- Validated target
- Opportunity to differentiate from CAR T cells with broad patient access

R/R, relapsed/refractory; AML, acute myeloid leukemia; MDS, myelodysplastic syndrome; NK, natural killer; CAR, chimeric antigen receptor.

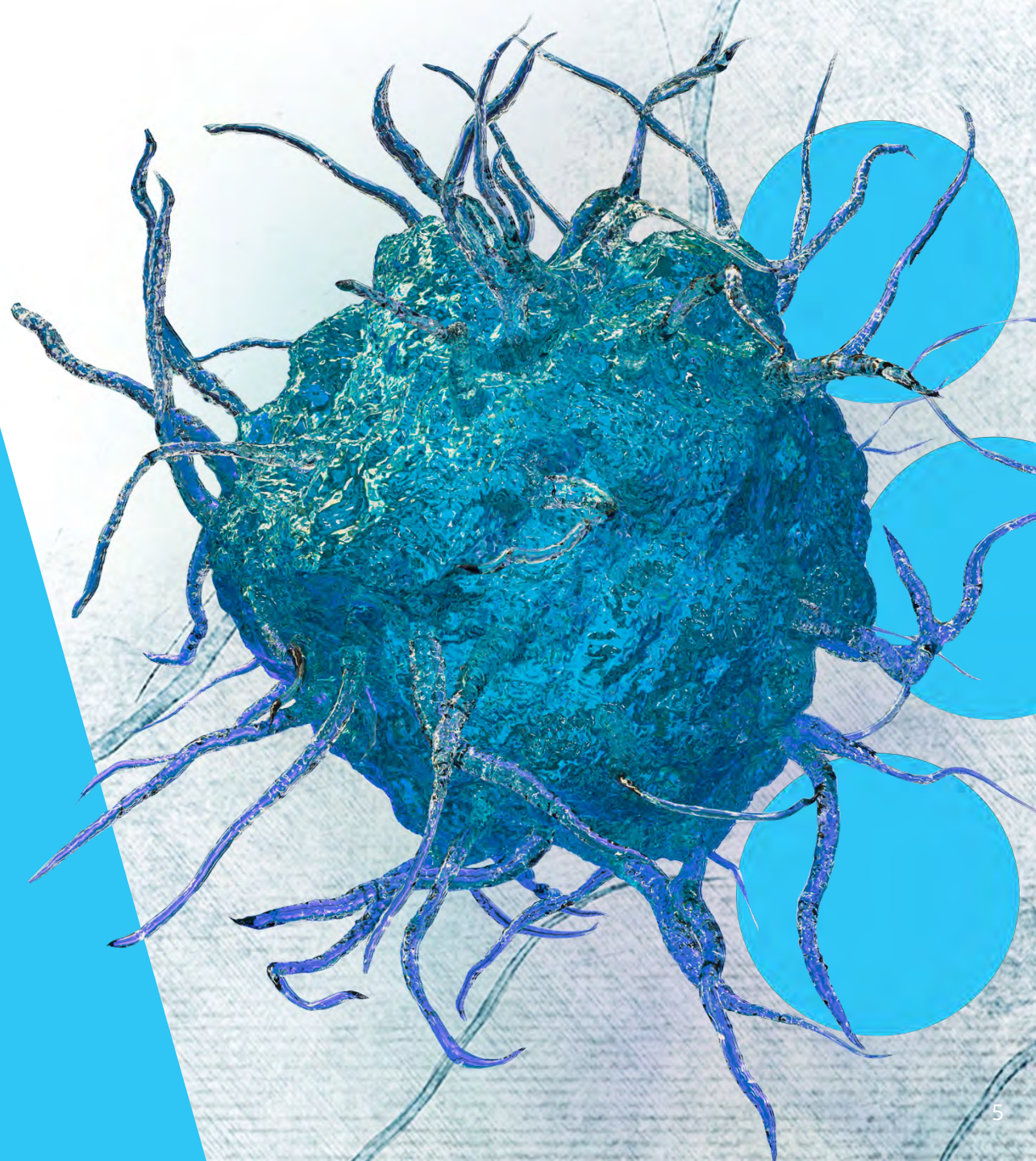
NKX101 and NKX019: Well tolerated and highly active in heavily pre-treated r/r AML and r/r NHL patients, respectively

- **NKX101**
  - No DLTs or cases of CRS, GvHD or neurotoxicity
  - 3 of 5 patients achieved CR (60%) in r/r AML at highest two dose levels in 3 dose regimen
    - 2 out of 3 CRs were MRD negative
  - Responses and blast reduction observed across dose levels
- **NKX019**
  - No DLTs or cases of CRS, GvHD or neurotoxicity
  - 5 of 6 patients responded (83%) and 3 of 6 patients achieved complete response (50%) in NHL at 1B cells x 3
    - Complete responses observed in multiple NHL histologies including DLBCL

Based on interim data from open clinical database as of 21 Apr 2022

DLT, dose-limiting toxicity; CRS, cytokine release syndrome; GvHD, graft-versus-host disease; MRD-, minimal residual disease negative; DLBCL, diffuse large B cell lymphoma.

NKX101 for the Treatment of Relapsed/Refractory AML and Higher-Risk MDS



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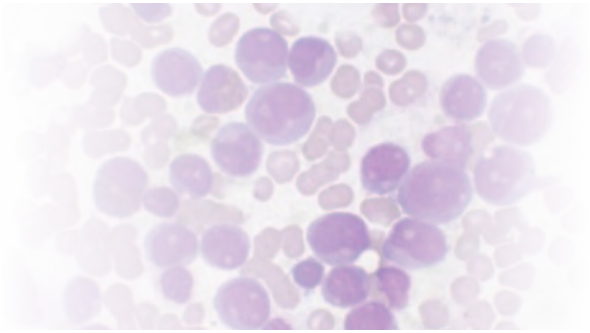
AML is a rapidly progressing leukemia with a poor prognosis



Cancer of immature blood cells or "*blasts*" in the bone marrow

- Treatment requires multiple rounds of intensive chemotherapy
- Most patients will ultimately relapse, even after prior CR
- Patients unfit for intensive chemotherapy may achieve CR with venetoclax but eventually relapse

Treatment Options - r/r AML

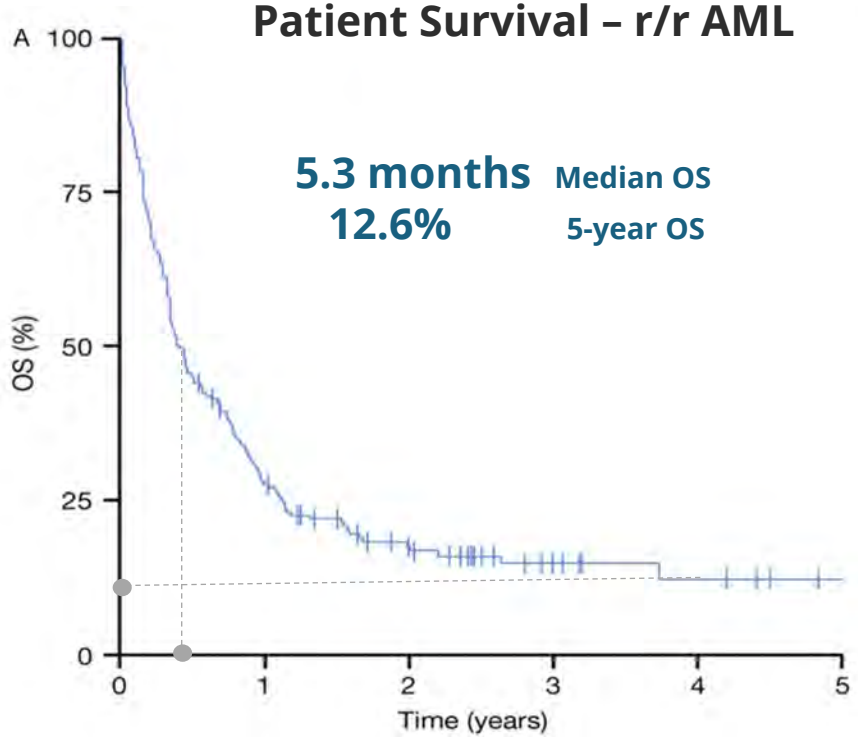
- Low response rate with traditional chemotherapy

  12 to 18% CR rate
- Approximately 50% of patients have targetable mutations (*FLT3*, *IDH1/2*)

  19 to 25% CR rate
- Long-term remission often depends on HCT in patients who are fit enough to receive it

  Pre-transplant CR improves outcomes

Patient Survival – r/r AML



5.3 months Median OS

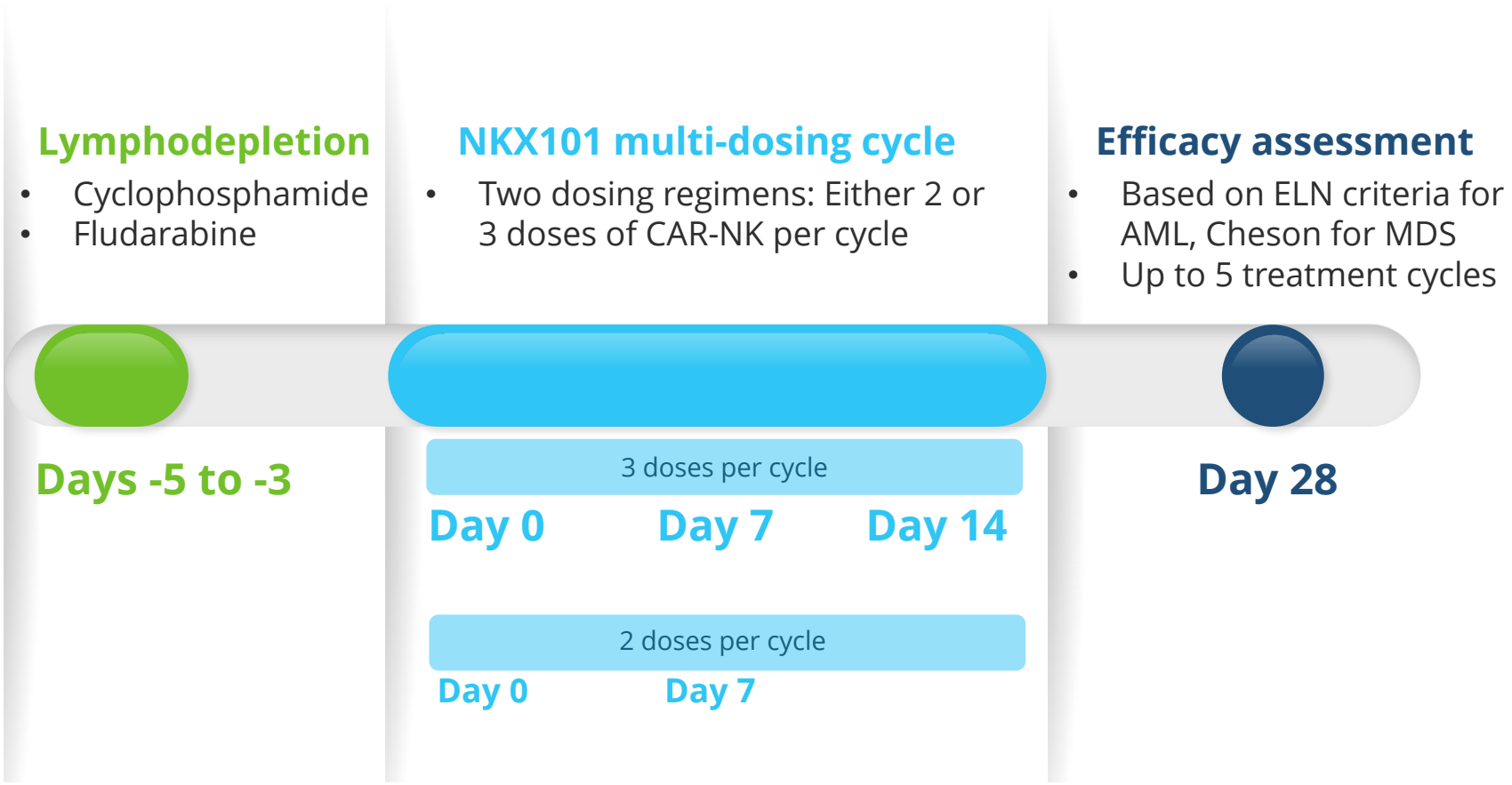
12.6% 5-year OS

AML, acute myeloid leukemia; CR: complete response; HCT: hematopoietic stem cell transplant; OS: overall survival; R/R: relapsed/refractory

Pelcovits A, et al. 2013; O'Donnell MR, et al. 2012; Brandwein, et al. 2020

NKX101 Phase 1 Trial Design

- **High-risk pre-treated patient population**
  - r/r AML or higher risk MDS, ≥1 therapy
  - Must have received targeted therapy, where approved
  - Pre- and post-allogeneic transplant
- **Key Objectives**
  - Safety and tolerability
  - Anti-tumor activity
  - Pharmacokinetics



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NKX101 patients were heavily pre-treated and multiply-relapsed with poor prognosis

Characteristics	Total (N=21)
Age, median (range)	60 (22 - 76)
Diagnosis, AML/MDS, n	17/4
Baseline ECOG 1, n	12
Months since diagnosis, median (range)	**13 (2 – 54)**
Baseline blast %, median (range)	27 (3 - 85)
Baseline ANC <1 × 10^9/L	15
Median prior lines of therapy (range)	**3 (1 - 12)**
Prior allogeneic transplant, n	4
Prior venetoclax, n	20

3 Median lines of prior therapy

100% 17 of 17 patients with AML had prior venetoclax

71% 15 of 21 patients had neutropenia

ANC: absolute neutrophil count; ECOG: Eastern Cooperative Oncology Group.

Based on interim data from open clinical database as of 21 Apr 2022

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NKX101 was well-tolerated across all regimens and dose levels

- **No dose-limiting toxicities**
  - Currently enrolling cohort at 1.5 billion cells × 3 doses
- **Myelosuppression and infection consistent with lymphodepletion and underlying disease were the most common higher-grade toxicities**
  - Two patients with Grade 2 infusion reactions, transient fever, chills, fluid responsive hypotension
- **No CAR T-like toxicities observed at any dose**
  - No cytokine release syndrome
  - No ICANS/ neurotoxicity
  - No graft-versus-host disease

≥ G3 AEs in > 1 subject	Total (N=21)
Hematologic Events	
Thrombocytopenia	10 (48%)
Febrile neutropenia	8 (38%)
Neutropenia	7 (33%)
Anemia	6 (29%)
White blood cell count decreased	2 (10%)
Leukocytosis	2 (10%)
Infections	
Pneumonia	5 (24%)
Sepsis	2 (10%)
Other	
Hypoxia^	4 (19%)
Fatigue	2 (10%)

**Treatment emergent adverse events regardless of relationship*
Based on interim data from open clinical database as of 21 Apr 2022
^ In the setting of febrile neutropenia/pneumonia
ICANS: Immune Effector Cell- Associated Neurotoxicity Syndrome.

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Favorable dose response to both increased number of cells / dose and number of doses / cycle in AML

	AML: ORR *(CR, CRi, MLFS, PR)*	AML: CR	MDS: ORR *(CR, marrow CR, PR)*
NKX101 – 3 doses / cycle (Day 0, 7, 14)			
1B / 1.5B x 3	3/5 (60%)	3/5 (60%) **2/3 MRD-**	0/2 (0%)
100M / 300M x 3	4/6 (67%)	0/6 (0%)	No patients treated
Overall Responses	**7/11 (64%)**	**3/11 (27%)**	0/2 (0%)
NKX101 – 2 doses / cycle (Day 0, 7)			
1.5B x 2	0/3 (0%)	0/3 (0%)	No patients treated
150M / 450M x 2	1/3 (33%)	0/3 (0%)	0/2 (0%)
Overall Responses	**1/6 (17%)**	**0/6 (0%)**	0/2 (0%)

Based on interim data from open clinical database as of 21 Apr 2022

AML, acute myeloid leukemia; CR, complete response; CRi; complete response with incomplete hematologic recovery; HR-MDS, higher-risk myeloid disease syndrome; MLFS, morphological leukemia-free state; MRD-, minimal residual disease negative; ORR, overall response rate; PR, partial response.

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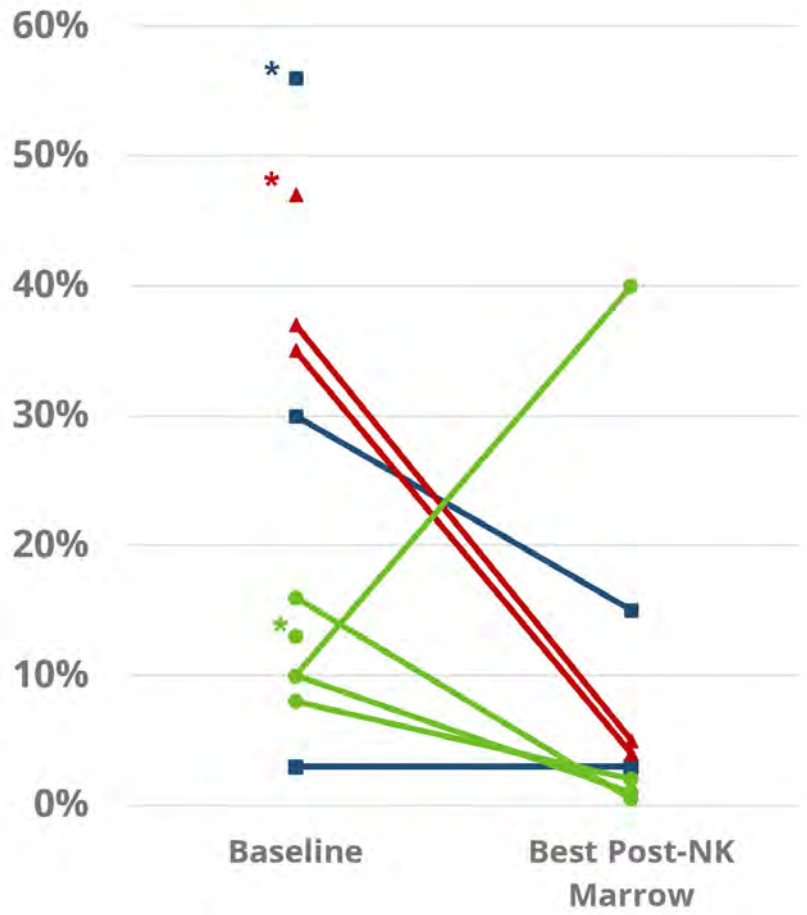
NKX101 drives AML blast reduction at all dose levels in 3 dose regimen with some patients achieving MRD-

Dose Level	Baseline marrow blasts[#]	Best post-NK response
1.5B × 3	13%	PD
1B × 3	8%	**CR (MRD-)**
	16%	**CR (MRD+)** MLFS end of Cycle 1, CR end of Cycle 2
	10%	PD
	10%	**CR (MRD-)**
300M × 3	35%	MLFS
	37%	MLFS
	47%	PD
100M × 3	30%	PR
	56%	PD
	3%	MLFS

3/5 CR at highest doses in go-forward 3-dose regimen



MLFS, morphologic leukemia free state; MRD-, minimal residual disease negative; MRD+, minimal residual disease positive; PR, partial response; PD, progressive disease.

* PD, Peripheral blast progression

[#]Baseline is the most recent available data prior to first dose
Based on interim data from open clinical database as of 21 Apr 2022

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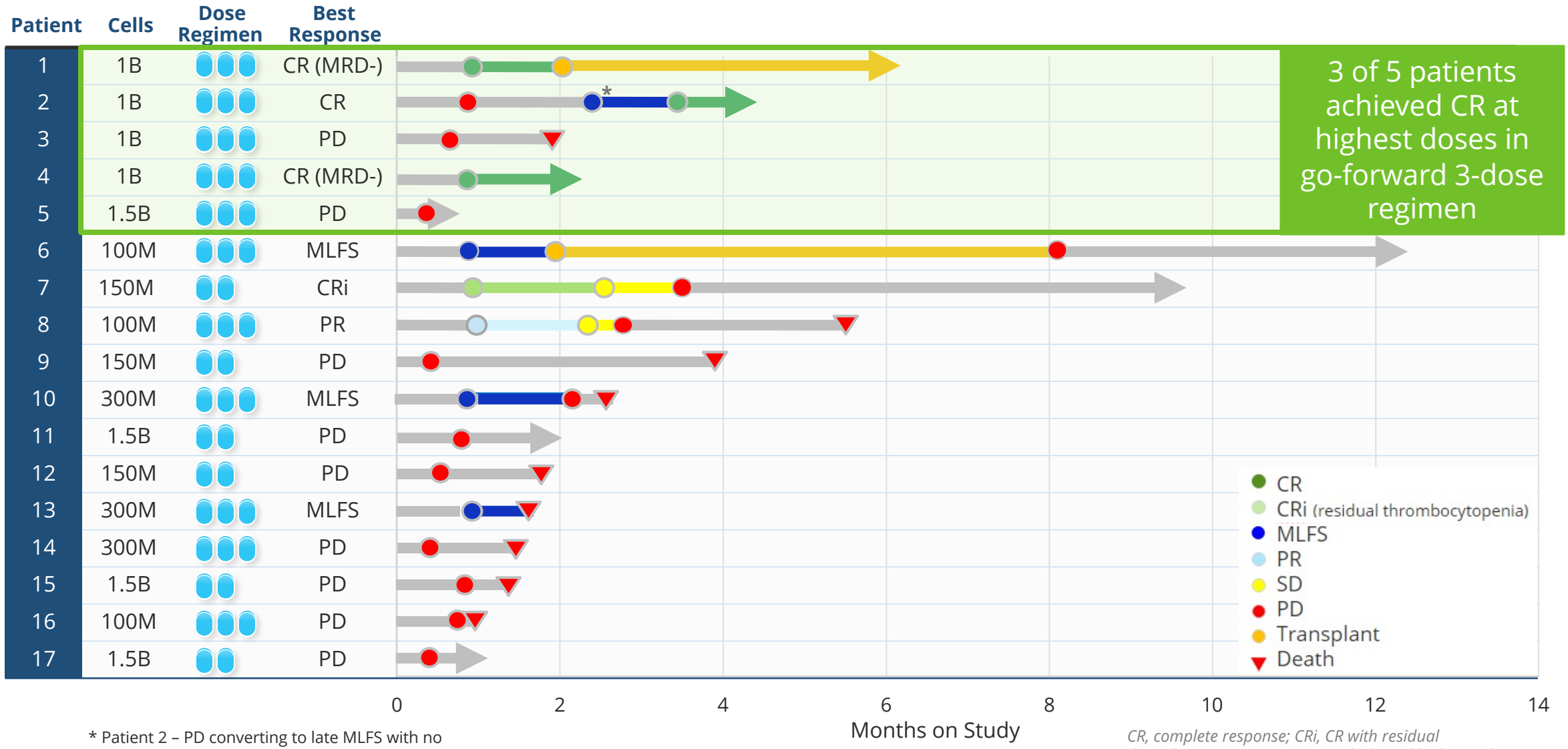
NKX101 demonstrated clinical activity across dose levels in AML



* Patient 2 – PD converting to late MLFS with no intervening therapy, then CR post Cycle 2 of NKX101

Based on interim data from open clinical database as of 21 Apr 2022

CR, complete response; CRi, CR with residual thrombocytopenia; MLFS, morphological leukemia-free state; PD, progressive disease; PR, partial response; SD, stable disease.

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Case Study: Molecular remission following NKX101

Patient Profile

- 68-year-old male
- **AML** with *IDH1* mutation
- Refractory to 4 prior lines of therapy, including venetoclax, ivosidenib and gemtuzumab
- At study entry, 8% blasts by morphology with 25% del(20q) by FISH

Efficacy

Post- Cycle 1 assessment

- CR, MRD- via FISH
- Normocellular marrow

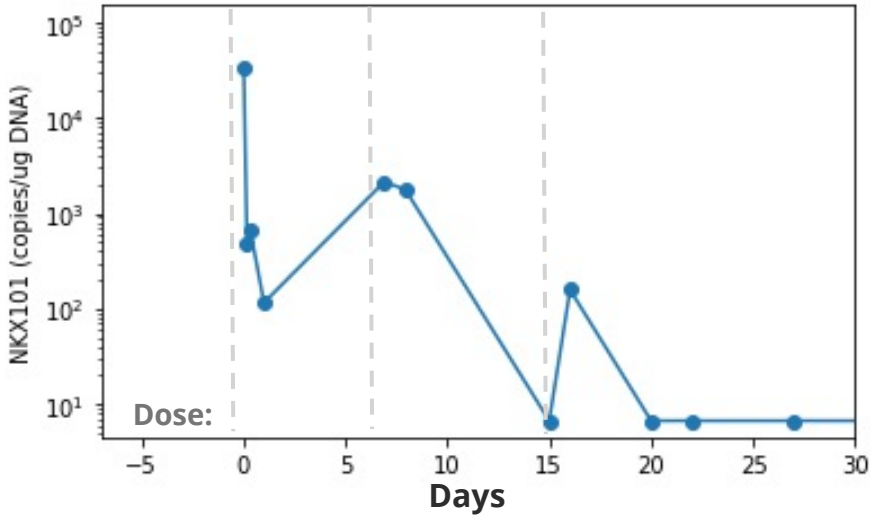
Safety

- Well tolerated
- ≥ Grade 3 events, anemia, neutropenia, decreased platelet count

Follow up

- Underwent consolidative HCT
- In CR 6 months after treatment with NKX101

NKX101 detected after every dose
3 doses of 1 billion CAR NK cells per dose
Expected NK-like PK and clearance Day 20



Based on interim data from open clinical database as of 21 Apr 2022

FISH, fluorescence in situ hybridization; HCT, hematopoietic cell transplant; MRD-, minimal residual disease negative.

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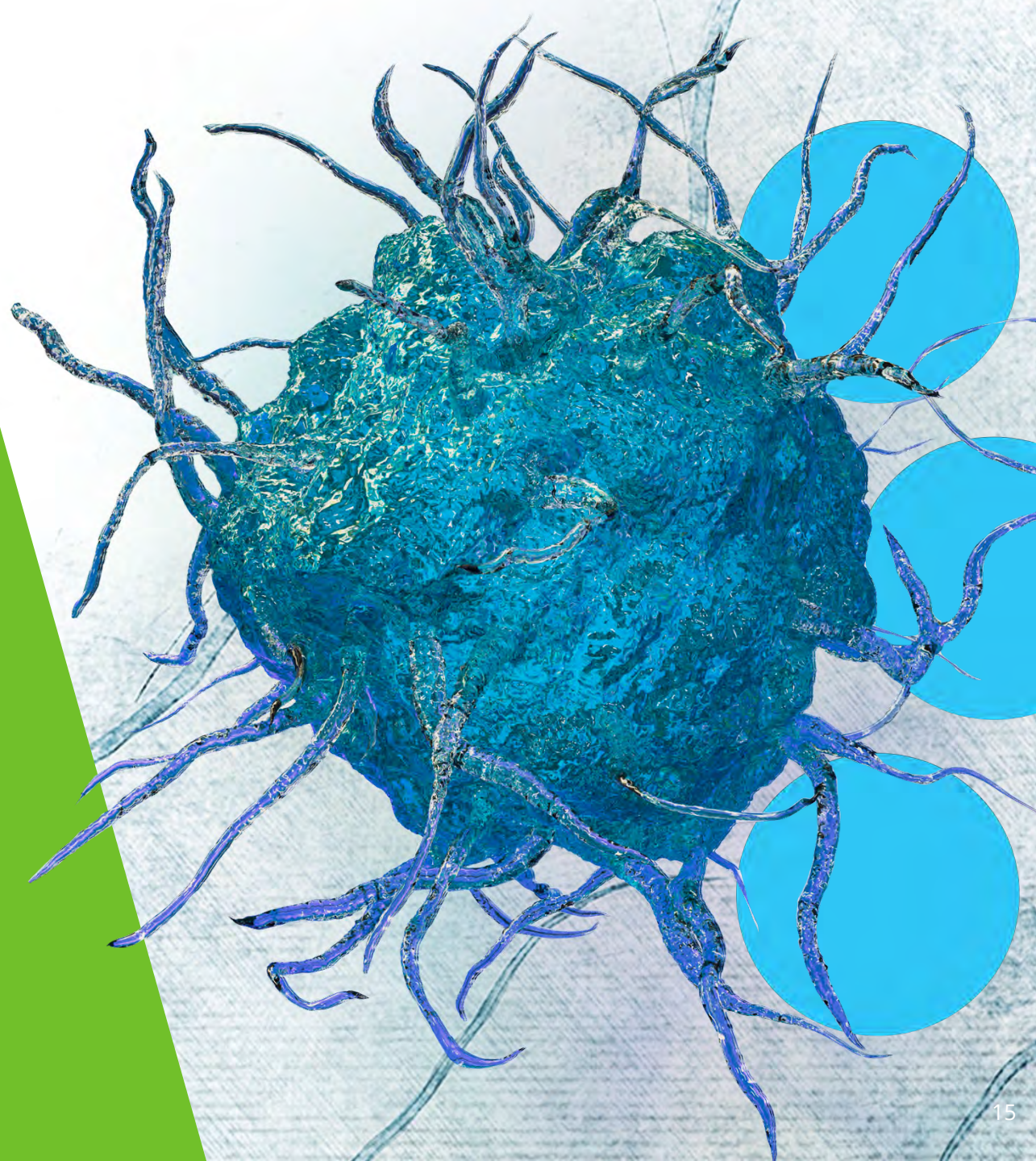
Summary: NKX101 was well-tolerated and highly active in heavily pre-treated AML patients

- No DLTs or cases of CRS, GvHD or neurotoxicity
- 3 of 5 patients achieved CR (60%) in r/r AML at highest two dose levels in 3-dose regimen
  - 2 out of 3 CRs were MRD negative
- Responses and blast reduction observed across dose levels
  - Dose response
  - Deepening of response with additional cycle
- Next steps
  - Dosing of AML patients at 1.5B cells x 3 in dose escalation study
  - Potential for approval in r/r AML with single arm expansion cohort data
  - Potential to move to earlier lines in combination
  - Next data update 2H 2022

Based on interim data from open clinical database as of 21 Apr 2022

NKX019 for the Treatment of Relapsed/Refractory B-Cell Malignancies



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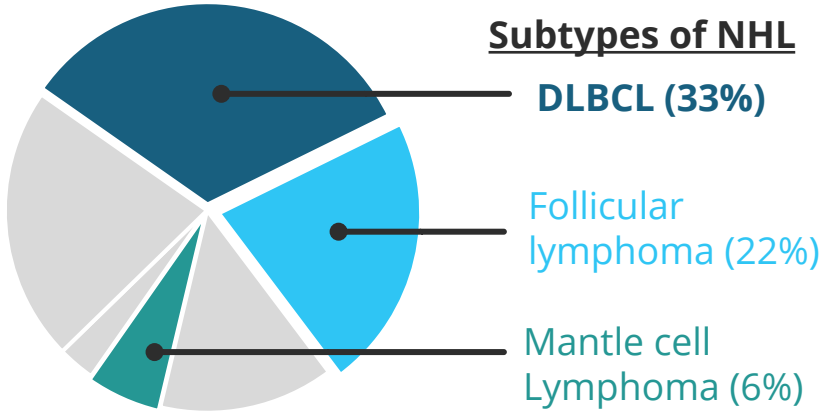
Non-Hodgkin lymphomas are cancers derived from B cells and include aggressive and indolent forms

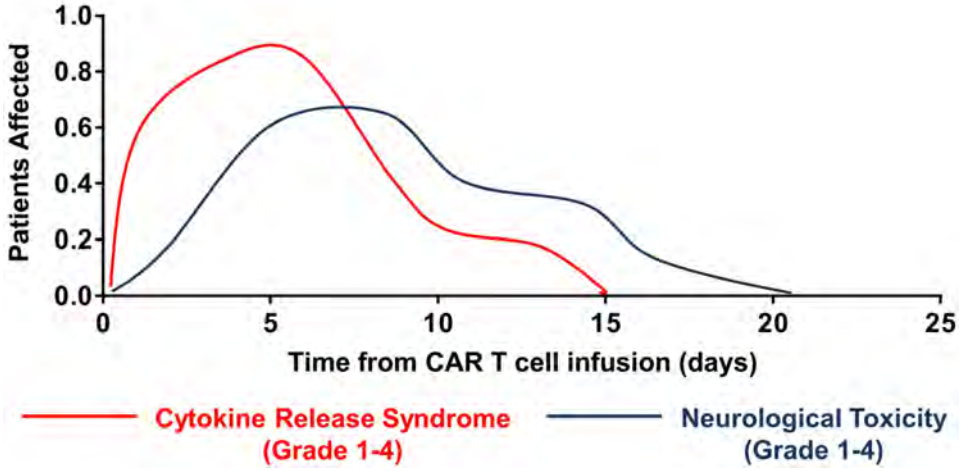
- All forms express B-cell antigens, such as CD19
- DLBCL has a poor prognosis and r/r disease is especially challenging
  - **32-54% CR** rate in r/r LBCL with CAR T cells
  - Other salvage therapies median OS of ~6 months



Safety and accessibility limit widespread CAR T use

- Toxicities are common and life-threatening
  - Over 25% of patients require ICU admission
  - Grade 3+ CRS: 13-49%, Grade 3+ ICANS: 18-31%
- Limited number of specialized sites
- 9-34% of patients in pivotal trials did not receive cells

CAR T toxicity observed in 60 to 80% of patients



CAR, chimeric antigen receptor; CRS, cytokine release syndrome; DLBCL, diffuse large B-cell lymphoma; ICANS: immune cell associated neurotoxicity syndrome; ICU: intensive care unit; LBCL: large B-cell lymphoma; NHL, non-Hodgkin lymphoma; USPI: U.S. Prescribing Information. US, United States.

Lowry and Linch. 2006; Crump M, et al. 2017; Azoulay et al, 2020; Locke, 2017; YESCARTA® USPI; KYMRIAH® USPI; BREYANZI® USPI

NKX019 Phase 1 Trial Design

- **High-risk, high-need patient population**
  - r/r NHL, CLL and B-ALL
  - ≥2 prior therapies
  - CAR T naïve
- **Key Objectives**
  - Safety and tolerability
  - Anti-tumor activity
  - Pharmacokinetics

NCT05020678

CAR, chimeric antigen receptor; CLL, chronic lymphocytic leukemia; B-ALL, B cell acute lymphocytic leukemia; NHL, non-Hodgkin lymphoma.

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Mirroring real-world CAR T, NKX019 patients were heavily pre-treated, with a poor prognosis

Characteristic	Total (N=13)
Age, median (range)	**54 (21-82)**
Baseline ECOG 1	**7**
Australia/US	**10/3**
Diagnosis	
Large B cell lymphoma[#]	**5**
Follicular lymphoma	**3**
Marginal zone lymphoma	**1**
Mantle cell lymphoma	**1**
B-cell acute lymphoblastic leukemia	**3**
Prior lines of therapy, median (range)	**4 (2 - 7)**

Based on interim data from open clinical database as of 21 Apr 2022

5 of 10 NHL patients with aggressive LBCL

Median lines of prior therapy

[#]LBCL includes 4 DLBCL and 1 FL3b

ECOG, Eastern Cooperative Oncology Group.

NKX019 was well-tolerated across all dose levels

- **No dose-limiting toxicities up to 1 billion cells x 3 dose level**
  - Currently enrolling cohort at 1.5 billion cells × 3 doses
- **Myelosuppression consistent with LD was the most common higher-grade toxicity**
  - One patient with Grade 1 infusion reaction, transient fever
- **No CAR T-like toxicities at any dose**
  - No cytokine release syndrome
  - No ICANS/ neurotoxicity
  - No graft-versus-host disease

≥ G3 AEs in > 1 subject	Total (N=13)
Hematologic Events	
Neutropenia	9 (69%)
Thrombocytopenia	5 (38%)
Febrile neutropenia	3 (23%)
Anemia	2 (15%)

**Treatment emergent adverse events regardless of relationship based on interim data from open clinical database as of 21 Apr 2022*

LD: lymphodepletion, ICANS: Immune Effector Cell- Associated Neurotoxicity Syndrome.

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Favorable dose response in aggressive NHL with increased dose of NKX019

	NKX019 300M cells x 3 doses		NKX019 1B cells x 3 doses	
	ORR *(CR, PR)*	**CR**	**ORR** *(CR, PR)*	**CR**
All NHL	**2/4 (50%)**	**1/4 (25%)**	**5/6 (83%)**	**3/6 (50%)**
LBCL[#]	1/3 (33%)	0/3 (0%)	1/2 (50%)	1/2 (50%)
MCL	No patients treated	No patients treated	1/1 (100%)	1/1 (100%)
FL	1/1 (100%)	1/1 (100%)	2/2 (100%) [2 PR]	0/2 (0%)
MZL	No patients treated	No patients treated	1/1 (100%)	1/1 (100%)
B-ALL	0/1 (0%)	0/1 (0%)	0/2 (0%)	0/2 (0%)

[#]LBCL includes 4 DLBCL and 1 FL3b

ALL, acute lymphoblastic leukemia; CR, complete response; FL, follicular lymphoma; IR, indeterminant response; LBCL, large B-cell lymphoma; MCL, mantle zone lymphoma; NHL, non-Hodgkin lymphoma; ORR, overall response rate; PR, partial response.

Based on interim data from open clinical database as of 21 Apr 2022

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NKX019 drove responses in every NHL subtype treated

Dose Level	Diagnosis	Baseline Disease	Best Response
1B x 3	DLBCL	Nodal	**CR**
	MCL	Nodal, marrow	**CR**
	FL	Nodal, liver, Spleen	**PR**, now in 3rd cycle
	MZL	Nodal, extra-nodal	**CR**
	FL	Nodal	**PR**, now in 2nd cycle
	DLBCL	Liver, bone, marrow	SD, now in 2nd cycle
300M x 3	FL	Nodal, spleen	**CR**
	FL3b	Nodal, liver, Spleen	**PR**
	DLBCL	Bulky nodal, liver, extra-nodal	PD
	DLBCL	Nodal, spleen	PD

- Dose response observed
- Responses observed after single cycle and across indolent and aggressive histologies
- All CRs are ongoing
- Protocol includes consolidation of CR
- Outpatient administration allowed after 1st cycle

Based on interim data from open clinical database as of 21 Apr 2022

CR, complete response; DLBCL, diffuse large B cell lymphoma; FL, follicular lymphoma; FL3b, follicular lymphoma Grade 3b; IR, indeterminate response using LYRIC refinement; MCL, mantle cell lymphoma; MZL, marginal zone lymphoma; PR, partial response; PD, progressive disease.

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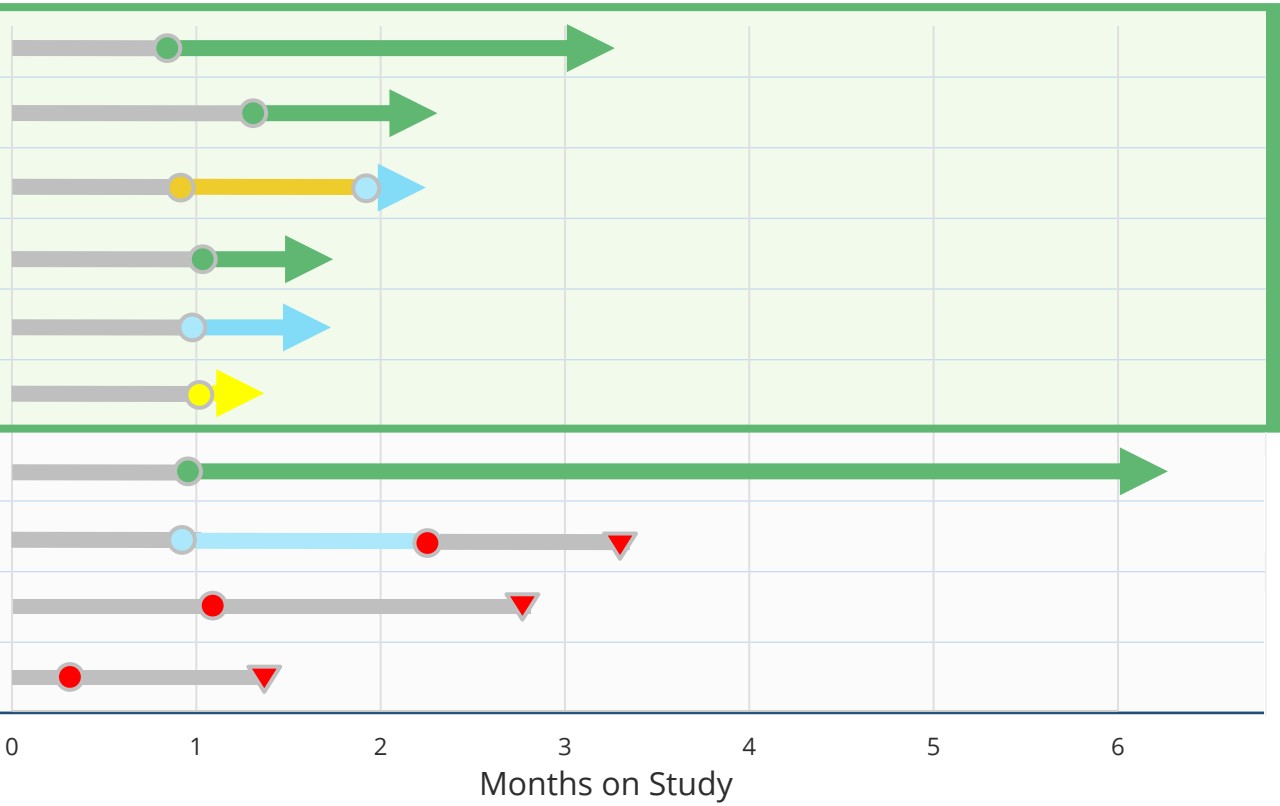
NKX019 provides rapid responses, including complete responses

Patient	Cells	Diagnosis	Best Response
1	1.0B x 3	DLBCL	**CR**
2	1.0B x 3	MZL	**CR**
3	1.0B x 3	FL	**PR**, now in 3rd cycle
4	1.0B x 3	MCL	**CR**
5	1.0B x 3	FL	**PR**, now in 2nd cycle
6	1.0B x 3	DLBCL	SD
7	300M x 3	FL	**CR**
8	300M x 3	FL3b	**PR**
9	300M x 3	DLBCL	PD
10	300M x 3	DLBCL	PD



3 CR and 2 PR among 6 patients with NHL treated with 3 doses of 1.0 billion cells

Based on interim data from open clinical database as of 21 Apr 2022

aNHL, aggressive NHL; CR, complete response; DLBCL, diffuse large B-cell lymphoma; FL, follicular lymphoma; iNHL, indolent NHL; MCL, mantle cell lymphoma; MZL, marginal zone lymphoma; NHL, non-Hodgkin's lymphoma; PD, progressive disease; PR, partial response; SD, stable disease.

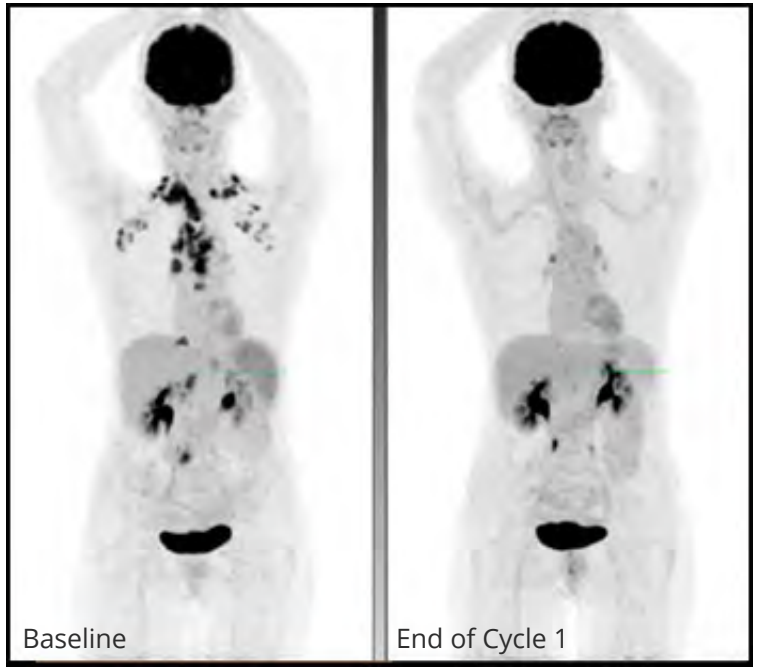
Case studies: Single cycle, rapid complete responses with NKX019 across doses in r/r NHL

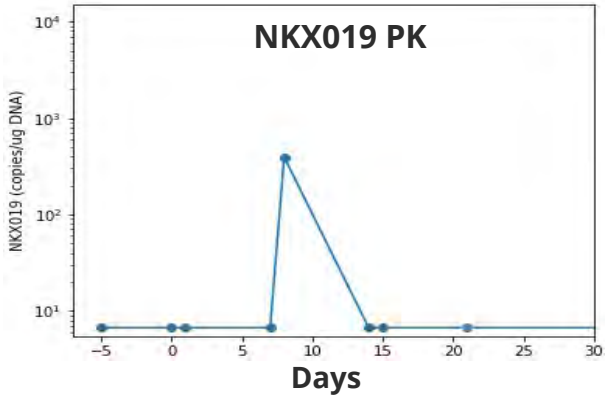
Patient Profile
- 73-year-old female with extensive high-risk FL
- Relapsed after R-bendamustine, refractory to experimental BCL2i

Efficacy
- **CR after 1 cycle of 300M cells x 3**

Safety
- No ≥ Grade 3 AEs

Follow-up
- Remains in CR 6 months after NKX019



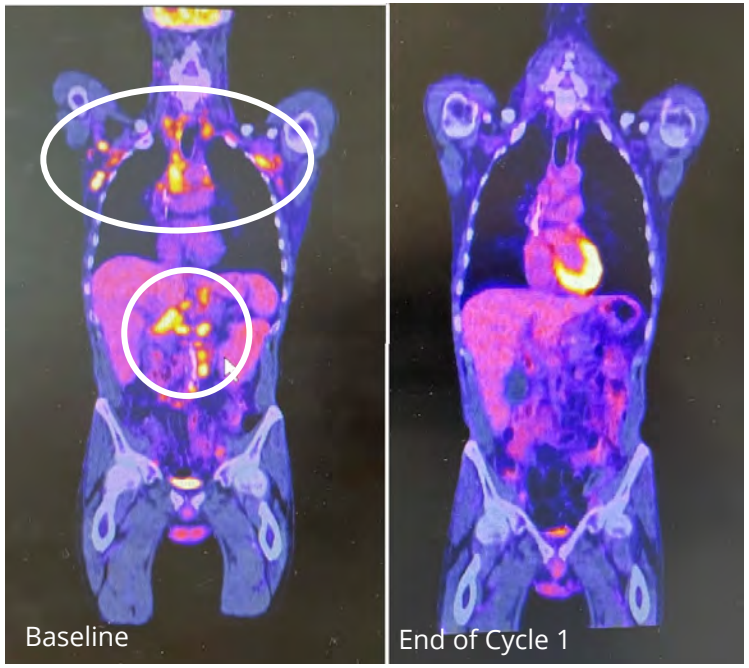


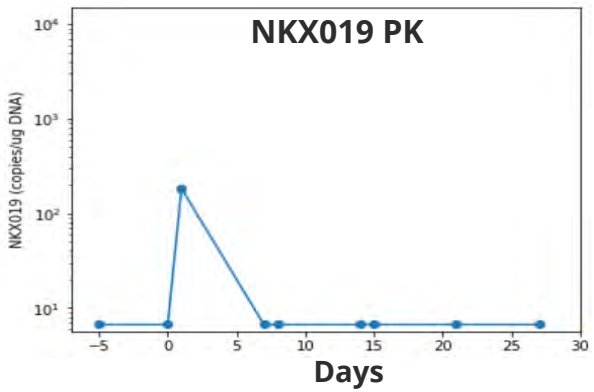
Patient Profile
- 53-year-old male with extensive DLBCL
- Relapsed after R-EPOCH and R-ICE

Efficacy
- **CR after 1 cycle of 1B cells x 3**

Safety
- ≥ Grade 3 AEs-lymphocyte, neutrophil, WBC count decreased

Follow-up
- Completed consolidation cycle and remains in CR 3 months after NKX019





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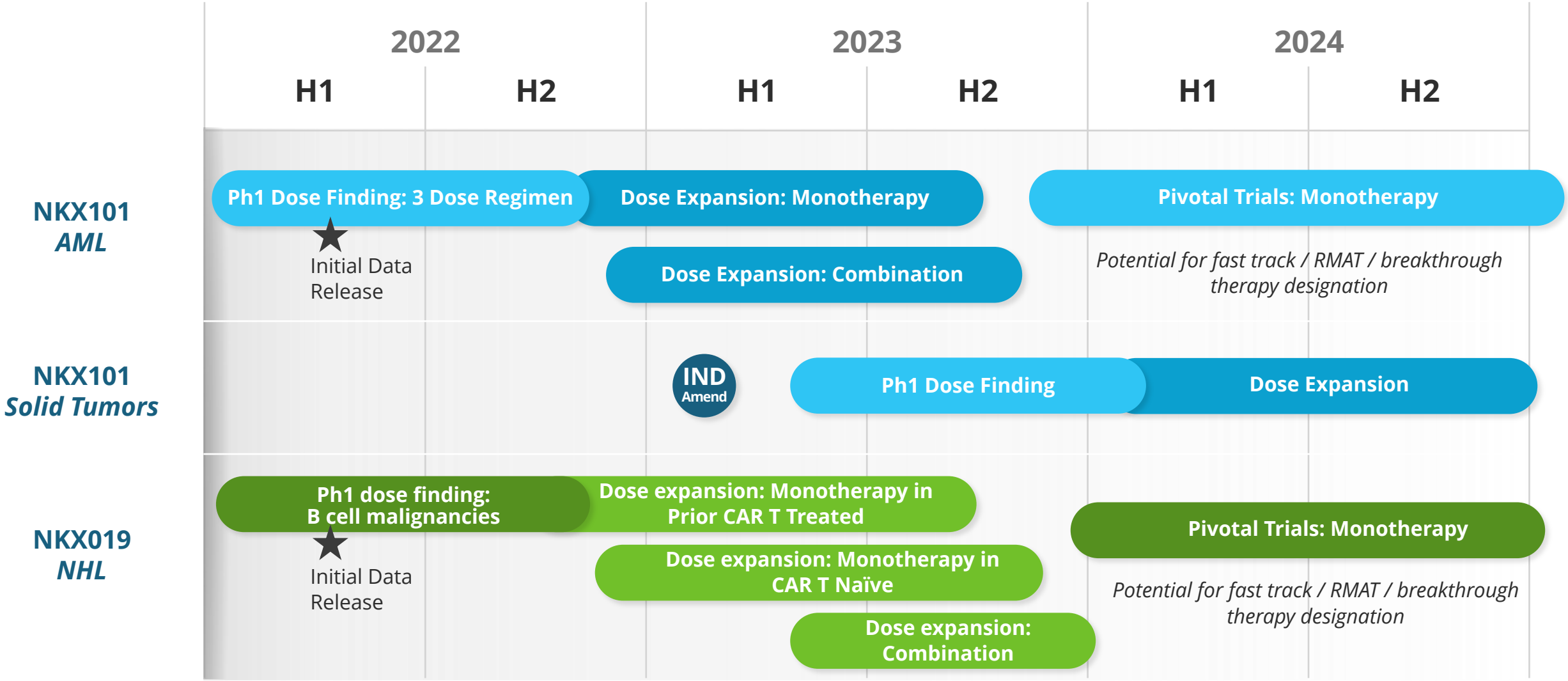
Based on interim data from open clinical database as of 21 Apr 2022

NKX019 shows compelling preliminary activity and safety in NHL with the potential to address multiple unmet needs

- No DLTs or cases of CRS, GvHD or neurotoxicity
- 5 of 6 patients responded (83% ORR) and 3 of 6 patients achieved complete response (50% CR) in NHL at 1B cells × 3 dose level
  - Complete responses observed in multiple NHL histologies including DLBCL
- Durability of at least 5 months with one patient at lowest dose of 300M cells x 3
- Next steps
  - Potential to improve and deepen responses with higher dose of 1.5B cells x 3
  - Planned expansion cohorts in both CAR T treated and CAR T naïve LBCL
  - Potential combination studies in expansion cohorts
  - Next data update 2H 2022

Based on interim data from open clinical database as of 21 Apr 2022

Potential upcoming milestones for clinical programs



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Emerging clinical data from both NKX101 and NKX019 programs validate the Nkarta platform

- ✓ Promising preliminary activity with favorable safety profiles
- ✓ Allogeneic and off-the-shelf therapies available on demand
- ✓ Potential to pursue accelerated regulatory pathway options, earlier line combination regimens for both programs
- ✓ Significant progress toward fulfilling the mission to:

  Discover, develop and deliver novel off-the-shelf NK cell therapy product candidates that have a profound impact on cancer patients

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