Early results of a safety and efficacy study of allogeneic TruUCAR™ GC502 in patients with relapsed/refractory B-cell acute lymphoblastic leukemia (r/r B-ALL)

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BACKGROUND

- CD19 targeted autologous CAR-T cell therapies have been approved for the treatment of r/r B-ALL and greatly improved patient outcome. However, some patients may not be eligible to receive autologous CAR-T therapy due to inferior quality of their own T-cells or other factors.
- TruUCAR™ GC502 is an allogeneic, universal CAR-T product with a CD19/CD7 dual directed CAR. Preclinical data of GC502 were reported at ASH 2021 (Abstract 148500).
- Here, we report early clinical results from a phase I open-label, non-randomized, prospective investigator initiate trial (IIT) of GC502 in r/r B-ALL patients.

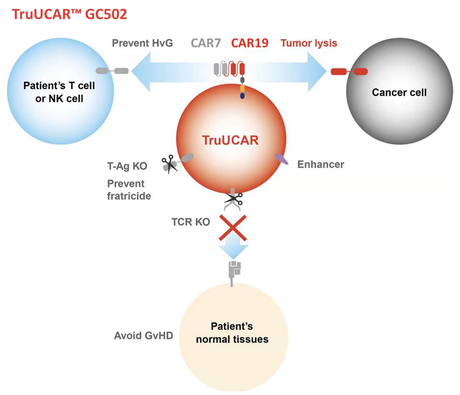
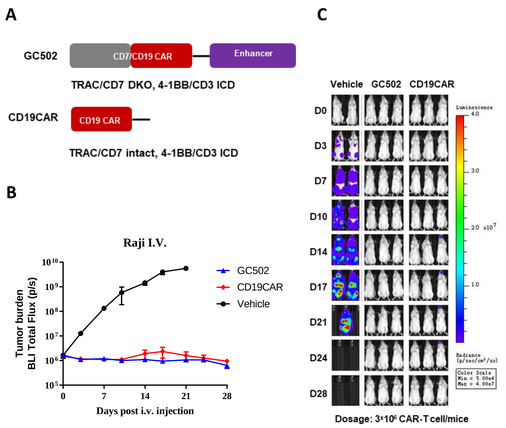


Figure 1. GC502 Demonstrated Robust anti-leukemia Efficacy in a B-ALL Xenograft Model



A. *Schematic illustration of GC502 and CD19 CAR.*
B-C. *GC502 demonstrated potent CD19 CAR efficacy in a Raji-based murine xenograft model for B-ALL.*

METHODS

Study Design

Single-arm, open-label study to evaluate the safety and anti-leukemia efficacy

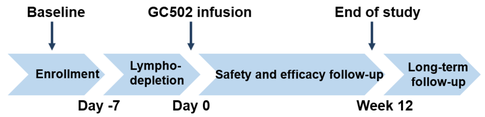
Key inclusion criteria

- r/r B-ALL patients with CD19+ expression
- Expected survival > 3 months, ECOG score 0-1
- No active infection

Endpoints

- Primary endpoint:
  - Dose limiting toxicities (DLTs) within 4 weeks post infusion
  - Adverse events within 12 weeks post infusion
- Secondary endpoints:
  - Objective response rate (ORR)
  - duration of response (DOR), Progression free survival (PFS), Overall survival (OS)
  - Pharmacokinetics (PK) of GC502 UCAR-T cells

Figure 2. Study Design for NCT05105867



GC502 Dose Escalation	Dose
Dose Level -1	0.5 x 10^7 CAR+ T cells/kg
Dose Level 1	1.0 x 10^7 CAR+ T cells/kg
Dose Level 2	1.5 x 10^7 CAR+ T cells/kg
Dose Level 3	2.0 x 10^7 CAR+ T cells/kg
LD regimen	**Dose**
Fludarabine	30mg/m^2/day x 4-5 days
Cyclophosphamide	750 - 2000mg/m^2/day x 4-5 days

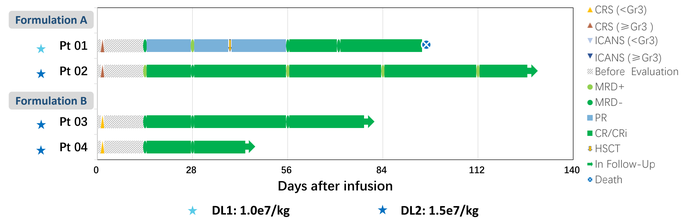
Table 1. Patient Demographics and Disease Characteristics

Characteristic	n = 4
Median age (range) – years	28 (15-34)
Disease at screening	
relapsed/refractory B-ALL	4
Number of prior lines of therapy	
1 to 3	0
≥4	4
Median (range)	5 (4-7)
High Risk*	2
Extramedullary lesions	1
Prior CART therapy[1]	4
Prior allo-HSCT	1
Bone marrow tumor burden at baseline(%)	
< 5	0
5 to 25	2
> 25	2
Median (range)	48.1 (19.5-92)

Data cut-off as of Feb. 22nd,2022
**1 patient diagnosed with ph+; 1 patient had extramedullary lesions*
[1]Prior CART including CD19 and CD19-CD22 CART

RESULTS

Figure 3. Response Assessment *Data cut-off as of Feb. 22nd,2022*



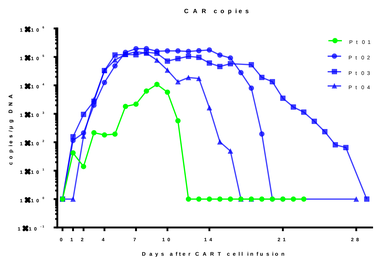
- ***4*** *pts had received a single dose of GC502: 1 at 1x10^7/kg, 3 at 1.5x10^7/kg*
- ***3/4*** *pts achieved MRD- complete response (MRD- CR/CRi) and maintained through their last assessment*
- *1 pt was assessed MRD- in BM but was assessed PR due to EM disease and received allo-HSCT at D39 and achieved MRD-CR however died of infection post transplant on day 95*

Table 2. Treatment emergent adverse events within 28 days

N=4	All Grades (n, %)	Grade 1-2 (n, %)	Grade 3 (n, %)	Grade 4 (n, %)	Grade 5 (n, %)
AEs related to GC502					
Cytokine release syndrome (CRS)	4 (100)	2 (50)	2 (50)	0 (0)	0 (0)
Acute graft-versus-host disease (aGvHD)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
ICANS	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
TEAEs					
Febrile neutropenia	4 (100)	0 (0)	4 (100)	0 (0)	0 (0)
Anemia	4 (100)	1 (25)	3 (75)	0 (0)	0 (0)
Γ-GT increased	4 (100)	1 (25)	2 (50)	1 (25)	0 (0)
Thrombocytopenia	3 (75)	0 (0)	2 (50)	1 (25)	0 (0)
ALT increased	3 (75)	0 (0)	3 (75)	0 (0)	0 (0)
AST increased	2 (50)	0 (0)	2 (50)	0 (0)	0 (0)

AE, Adverse event; ICANS, Immune effector cell-associated neurotoxicity syndrome
ICANS & CRS will be graded using the ASTCT Consensus Grading (Lee et al. 2019)
AEs were graded according to CTCAE v5.0

Figure 4. GC502 Expansion in Peripheral Blood



- *GC502 expansion measured by qPCR,*
- *Peak day 7-9.*
- *3/4 pts achieved MRD-CR/CRi. The patient who did achieve a PR at day 28 did not show adequate cellular expansion and received allo-HSCT at day 39.*

RESULTS

Table 3. GC502 Expansion in Peripheral Blood was Analyzed by qPCR

Patient #	Tumor Burden	Dose Level	Peak TruUCAR Copies/ug DNA
Pt 01	92%	1	10849（Day9）
Pt 02	61%	2	195400（Day8）
Pt 03	20%	2	146458（Day8）
Pt 04	19.5%	2	153432（Day7）

CONCLUSIONS

Early results of TruUCAR™ GC502 in patients with r/r B-ALL demonstrate

- **A very promising rate of responses at month 1 assessment (n=3 MRD-CR/CRi) in heavily pretreated patients including those who had received prior CAR-T therapies including CD19 and CD19-CD22 CAR-T**
- **TruUCAR™ GC502 showed manageable and reversible adverse events in 2 different dose levels and 2 different formulations**
  - **Formulation A: 2/2 Gr 3 CRS**
  - **Formulation B: 2/2 Gr 2 CRS**
  - **No Gr 4/5 CRS, no ICANs, no GVHD**
- **TruUCAR™ GC502 expansion observed in all patients**
- **The study is ongoing and continues to accrue pts**

ACKNOWLEDGEMENTS

We would like to thank the patients, their families, the investigators and all the caregivers involved in this study and Gracell Biotechnologies Ltd. for providing TruUCAR™ GC502.

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