A CRISPR-edited allogeneic anti-CD19 CAR-T cell therapy with a PD-1 knockout (CB-010) for relapsed/refractory B cell non-Hodgkin lymphoma (r/r-BNL): Updated phase 1 results from the ANTLER trial

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BACKGROUND

- Feasibility and safety of allogeneic CAR-T cell therapy in the r/r-BNL setting; the largest phase 1 CAR-T trial to date with CD19-targeting therapy

METHODS

- Phase 1 trial conducted at 12 centers in the USA
- CB-010 CAR-T cells were created using a CRISPR/Cas9-based transduction system to delete PD-1 and express an anti-CD19 CAR
- CB-010 was designed to have a self-replicating, T cell receptor-expressing element

STUDY POPULATION

- Partial response (PR) or complete response (CR)

SAFETY AND TOLERABILITY

- 25% of patients (N=20) experienced at least one grade 3 or 4 TEAE

CB-010 TREATMENT AND RP2D

- Key trial endpoints
  - Efficacy: ORR, PFS, OS
  - Safety: TEAEs, infections, grade 3 or 4 infections

EFFICACY

- Efficacy: ORR, PFS, OS
- Safety: TEAEs, infections, grade 3 or 4 infections

HLA AND ASSOCIATION WITH PFS

- HLA compatibility and PFS

IMPACT OF HLA ON CB-010 PK

- HLA and CB-010 PK

TRANSLATIONAL ANALYSES

- Pharmacokinetics

CONCLUSIONS

- CB-010 treatment showed encouraging clinical activity in this heavily pretreated patient population, with promising tolerability

Figure 1. ANTLER clinical trial design

Figure 2. Efficacy outcomes in all patients by CB-010 dose (N=44)

Figure 3. Pharmacokinetics parameters

Figure 4. Changes in B cells, T cells, and NK cells over time in all patients

Figure 5. Progression-free survival by level of HLA matching in all treated patients (N=44)

Figure 6. Progression-free survival by level of HLA matching in patients with LBCl (N=40)

Figure 7. PK by HLA match level

Table 1. Patient demographics and disease characteristics

Table 2. Dose for all treated patients

Table 3. Treatment-emergent adverse events in ≥20% of all patients

Table 4. Notable treatment-emergent adverse events