Abstract: P869

Title: UPDATED RESULTS OF A PHASE I, OPEN-LABEL STUDY OF BCMA/CD19 DUAL-TARGETING FASTCAR-T GC012F FOR PATIENTS WITH RELAPSED/REFRACTORY MULTIPLE MYELOMA (RRMM)

Abstract Type: Poster Presentation

Session Title: Myeloma and other monoclonal gammopathies - Clinical

Background:

GC012F is a B cell maturation antigen (BCMA) and CD19 dual-targeting chimeric antigen receptor (CAR)-T cell developed on the novel FasTCAR-T platform enabling 22-36 h manufacturing. Our previous results presented at ASCO and EHA 2022 for 29 pts (NCT04236011; NCT04182581), demonstrated that GC012F treatment led to deep and durable response in RRMM pts. Furthermore, initial results showed considerable efficacy and safety of GC012F in the treatment of newly diagnosed high-risk transplant-eligible MM pts (Blood 2022; 140 (Supplement 1): 889–890). Here we present updated results on study of GC012F for RRMM with a longer follow-up.

Aims:

This multicenter, open-label, phase I study was aimed to evaluate the safety and efficacy of GC012F in RRMM patients.

Methods:

From October 2019 to January 2022, 29 heavily pretreated RRMM pts (age 27-76) with a median of 5 prior lines therapies (range 2-9) were enrolled and received GC012F CAR-T cells. 26 (89.7%) pts were high risk (HR-mSMART), 8 (27.6%) pts with EM disease, 24 (82.8%) pts refractory to last therapy. 10 (34.5%) pts had received prior anti-CD38 and 11 (37.9%) pts were treated with auto-HSCT. After lymphodepletion over 2-3 days (30 $mg/m^2/d$, $300mg/m^2/d$ Flu/Cy), GC012F CAR-T cells were administered as single infusion at 3 dose levels: $1x10^5/kg$ (DL1) n=2, $2x10^5/kg$ (DL2) n=10 and $3x10^5/kg$ (DL3) n=17.

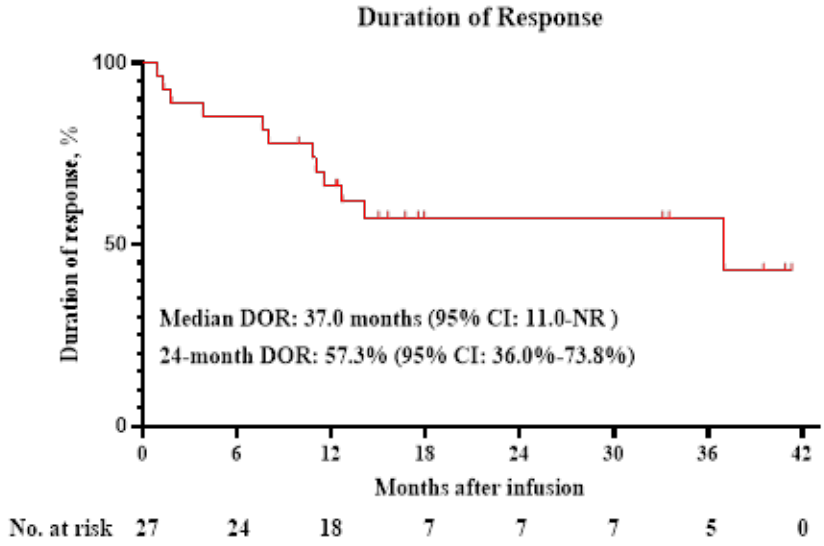
Results:

At the time of data cut-off (January 30, 2023), 29 eligible pts had been evaluated for response with the last patient completed 12 months efficacy follow up. Overall response rate (ORR) was 93.1% (27/29), stringent complete response (sCR) 82.8% (24/29), and ≥ very good partial response (VGPR) 89.7% (26/29). All patients dosed (29/29) achieved MRD negativity by flow cytometry (sensitivity 10^{-4}-10^{-6}). To date best response is MRD- sCR in 24/29 patients (82.8%) across all dose levels. According to the Kaplan-Meier method, the updated median duration of response (mDOR) was 37.0 months (95%CI, 11.0-NR)（Figure 1）and the median progression free survival (mPFS) was 38.0 months (95%CI, 11.8-NR). Cytokine Release Syndrome (CRS) was reported in 25 (86.2%) pts, which was mostly ≤grade 2 (n=23, 79.3%), and only 2 pts (6.9%) with grade 3 CRS. No ICANS was observed (Graded by ASBMT criteria). Median duration of CRS was 3 days (1-8 d). PK analysis showed no significant differences among all three dose levels. The median time of CAR-T persistence was 410 days (range: 51-1183 days) and GC012F was still detectable in 23 (79.3%) pts at 6 months and in 16 (55.2%) pts at 12 months after infusion. sBCMA plasma levels started declining at day 4 in 80% (8/10) patients, falling sharply at day 10 in 100% (19/19), and reaching minimal levels from 30 to 60 days post infusion in 100% (29/29) patients.

Summary/Conclusion:

The updated results showed GC012F continues to provide deep and durable responses, and a very high MRD negativity rate in RRMM pts, including in pts refractory to anti-CD38, PIs and IMiDs. Given the promising results of the current study, further clinical studies will be conducted to confirm the efficacy as well as safety of GC012F therapy for RRMM patients.

Figure 1



Keywords: relapsed/refractory, CAR-T, Multiple myeloma