CLAIMS

1. A composition for treating a subject with multiple myeloma, comprising a therapeutically effective amount of anti-B cell maturation antigen (BCMA) chimeric antigen receptor (CAR) T cells, wherein the therapeutically effective amount is from 15.0 x 10^7 to 80.0 x 10^7 anti-BCMA CAR T cells, and wherein the anti-BCMA CAR comprises amino acids 22-493 of the amino acid sequence set forth in SEQ ID NO: 9.

2. The composition of claim 1, wherein the anti-BCMA CAR comprises the amino acid sequence set forth in SEQ ID NO: 9.

3. The composition of claim 1 or 2, wherein the anti-BCMA CAR is encoded by the nucleotide sequence set forth in SEQ ID NO: 10.

4. The composition of any one of claims 1 to 3, further comprising a pharmaceutically acceptable carrier.

5. The composition of any one of claims 1 to 4, formulated in a solution comprising a cryopreservation medium.

6. The composition of any one of claims 1 to 5, wherein

the therapeutically effective amount is from 15.0 x 10^7 to 45.0 x 10^7 anti-BCMA CAR T cells

7. The composition of any one of claims 1-6, wherein the anti-BCMA CAR T cells are produced by transduction with a lentiviral vector encoding the anti-BCMA CAR.

8. The composition of claim 7, wherein the lentiviral vector copy number (VCN) is about 2.0 copies per anti-BCMA CAR T cell.

9. The composition of claim 7 or claim 8, wherein the lentiviral vector is a human immunodeficiency virus 1 (HIV-1) vector.

10. A pharmaceutical composition for treating a subject with multiple myeloma, comprising a population of T cells transduced with a lentivirus encoding an anti-BCMA CAR, wherein the population of T cells comprises from 15.0 x 10^7 to 80.0 x 10^7 anti-BCMA CAR T cells, and wherein the anti-BCMA CAR comprises amino acids 22-493 of the amino acid sequence set forth in SEQ ID NO: 9.

11. The pharmaceutical composition of claim 10, wherein the anti-BCMA CAR comprises the amino acid sequence set forth in SEQ ID NO: 9.

12. The pharmaceutical composition of claim 10 or 11, wherein the anti-BCMA CAR is encoded by the nucleotide sequence set forth in SEQ ID NO: 10.

13. The pharmaceutical composition of any one of claims 10-12, further comprising a pharmaceutically acceptable carrier.

14. The pharmaceutical composition of any one of claims 10-13, wherein the composition comprises from 15.0 x 10^7 to 45.0 x 10^7 anti-BCMA CAR T cells

15. The pharmaceutical composition of any one of claims 10-14, wherein the T cells comprise $CD8^+$ T cells.

16. The composition or pharmaceutical composition of any one of claims 1-15, wherein the cells are human cells.

17. The composition or pharmaceutical composition of any one of claims 1 to 16, for use in the treatment of a subject that has been diagnosed with relapsed/refractory multiple myeloma or a subject that has relapsed/refractory multiple myeloma.

18. The composition of claim 17, wherein:

(a) the multiple myeloma was refractory to at least three treatment regimens, including a proteasome inhibitor and an immunomodulatory agent;

(b) the multiple myeloma was double-refractory to one or more treatment regimens; or

(c) the multiple myeloma was refractory to daratumumab, lenalidomide, pomalidomide, bortezomib, and/or carfilzomib.

19. The composition of claim 17 or claim 18, wherein the subject was treated with an autologous hematopoietic stem cell transplant prior to administration of the composition or pharmaceutical composition.

20. The composition of any one of claims 17 to 19, wherein the subject was lymphodepleted with cyclophosphamide 300 mg/m^2 and fludarabine 30 mg/m^2 prior to administration of the composition or pharmaceutical composition.

21. The composition of any one of claims 17-20, wherein the cells were obtained from the subject.