

What is claimed is:

1. A method of predicting a response to CD19 CAR-T treatment in a subject having cancer, comprising measuring a baseline SPD in the subject, determining the SPD range, wherein a low SPD range indicates a likelihood of positive response to the CAR-T treatment.
2. The method of claim 1, where the SPD can fall within one of 4 ranges, whereby the lower the range in which the SPD falls the higher the likelihood of response to CD19 CAR-T treatment is.
3. The method of claim 2, wherein the four ranges comprise the following:
SPD Quartile 1, from about 100 (inclusive) to about 2000 mm² (inclusive), median SPD of about 840;
SPD Quartile 2, from about 2000 (non inclusive) to about 3700 mm² (inclusive), median SPD of about 2820;
SPD Quartile 3, from about 3700 (non inclusive) to about 6700 mm² (inclusive), median SPD of about 5100; and
SPD Quartile 4, from about 6700 (non inclusive) to about 24,000 mm² (inclusive), median SPD of about 9300.
4. The method of any one of claims 1 through 3, wherein the subject is subsequently treated with CD19 CAR-T treatment when the baseline SPD value is in the SPD Quartiles 1 through 4.
5. A method of treating cancer in a subject in need thereof, comprising administering a therapeutically effective amount of a CD19 CAR-T treatment to a subject in which the baseline SPD value is in the SPD Quartiles 1 through 4.
6. A method of predicting a likelihood of relapse after CD19 CAR-T treatment in a subject having cancer, comprising determining the number of lines of prior therapy in the subject, determining where the number falls within one of four ranges, whereby the higher the number of lines of prior therapy the higher likelihood of relapse after CD19 CAR-T treatment for the subject is predicted to be.
7. A method of predicting the likelihood of ongoing response to CD19 CAR-T treatment in a subject having cancer, comprising measuring the baseline number of lines of prior therapy in the subject, determining where the number falls within one of four ranges, whereby the lower the range indicates the likelihood of ongoing response to CD19 CAR-T treatment.

8. The method of any one of claims 6 and 7, wherein the ranges of number of lines of prior therapy are 1-2; 3; 4; or ≥ 5 .
9. The method of any one of claims 6 through 8, further comprising subsequently administering CD19 CAR-T treatment to the subject in which the number of lines of prior therapy are 1-2; 3; 4; or ≥ 5 .
10. A method of treating cancer in a subject in need thereof, comprising administering a therapeutically effective amount of a CD19 CAR-T treatment to a subject in which the number of lines of prior therapy in the subject is 1-2; 3; 4; or ≥ 5 .
11. The method of any one of claims 1-10, wherein the cancer is a hematologic cancer or relapsed/refractory diffuse large B cell lymphoma.
12. The method of any one of claims 1-11, wherein the CD19 CAR-T treatment comprises treatment with axicabtagene ciloleucel (Yescarta), tisagenlecleucel (Kymriah), JCAR017, JCAR015, JCAR014, Uppsala U. anti-CD19 CAR (NCT02132624), or UCART19.
13. A method of predicting long-term response durability to treatment of cancer with anti-CD19 CAR-T cell treatment in a patient in need thereof, the method comprising assessing progression free survival at 3 months after a single dose of treatment, wherein achievement of complete or partial response at 3 months is predictive of long-term response durability in the patient.
14. The method of claim 13, wherein the anti-CD19 CAR-T treatment comprises treatment with axicabtagene ciloleucel (Yescarta), tisagenlecleucel (Kymriah), JCAR017, JCAR015, JCAR014, Uppsala U. anti-CD19 CAR (NCT02132624), or UCART19.
15. The method of claim 13 or 14, wherein the cancer is a hematological cancer.
16. The method of claim 15, wherein the cancer is relapsed/refractory diffuse large B cell lymphoma.
17. The method of any one of claims 13 through 16, wherein long-term response durability comprises a complete or partial response lasting more than 9 months, more than 12 months, more than 18 months, or more than 24 months.
18. The method of any one of claims 1 through 17, wherein the subject is ≥ 65 years old.
19. The method of any one of claims 1 through 17, wherein the subject is < 65 years old.
20. The method of any one of claims 1 through 19, wherein the CD19 CAR-T treatment is administered as first line therapy.