

CLAIMS

1. A method of selecting a sample comprising T cells for adoptive immunotherapy, the method comprising determining the expression of any one of granzyme B, granzyme K, perforin, CD107a, IFN γ , IL-2, TNF, or any combination thereof, by lymphocytes in the sample and selecting the sample for adoptive immunotherapy if at least a threshold level of the lymphocytes in the sample express any one of granzyme B, granzyme K, perforin, CD107a, IFN γ , IL-2, TNF, or a combination thereof.
2. A method of selecting a sample comprising T cells for inclusion in a cell bank, the method comprising determining the expression of any one of granzyme B, granzyme K, perforin, CD107a, IFN γ , IL-2, TNF, or any combination thereof, by lymphocytes in the sample and selecting the sample for inclusion in a cell bank if at least a threshold level of the lymphocytes in the sample express any one of granzyme B, granzyme K, perforin, CD107a, IFN γ , IL-2, TNF, or a combination thereof.
3. A method of selecting for adoptive immunotherapy a sample comprising T cells from a library of samples, the method comprising screening the library of samples for the expression of any one of granzyme B, granzyme K, perforin, CD107a, IFN γ , IL-2, TNF, or any combination thereof, by lymphocytes in the samples and selecting a sample from the library of samples for adoptive immunotherapy in which at least a threshold level of the lymphocytes in the sample express any one of granzyme B, granzyme K, perforin, CD107a, IFN γ , IL-2, TNF, or a combination thereof.
4. A method of selecting for inclusion in a cell bank samples comprising T cells from a library of samples, the method comprising screening the library of samples for the expression of any one of granzyme B, granzyme K, perforin, CD107a, IFN γ , IL-2, TNF, or any combination thereof, by lymphocytes in the samples and selecting samples for inclusion in a cell bank in which at least a threshold level of the lymphocytes in the sample express any one of granzyme B, granzyme K, perforin, CD107a, IFN γ , IL-2, TNF, or a combination thereof.
5. A method of selecting a sample comprising T cells for *ex vivo* expansion, comprising:
 - (a) inducing proliferation in T cells from a portion of the sample,

(b) determining the expression of any one of granzyme B, granzyme K, perforin, CD107a, IFN γ , IL-2, TNF, or any combination thereof, by the lymphocytes in the portion of the sample; and

(c) selecting the sample for expansion if at least a threshold level of the lymphocytes express any one of granzyme B, granzyme K, perforin, CD107a, IFN γ , IL-2, TNF, or a combination thereof.

6. The method of claim 5, further comprising selecting the sample for inclusion into a cell bank.

7. The method of claim 5, further comprising selecting the sample for adoptive immunotherapy.

8. The method of any one of claims 1 to 7, wherein the threshold level for CD107a is at least 0.5%.

9. The method of any one of claims 1 to 7, wherein the threshold level for CD107a is at least 1%.

10. The method of any one of claims 1 to 7, wherein the threshold level for CD107a is at least 2%.

11. The method of any one of claims 1 to 10, wherein the threshold level for IFN γ is at least 0.5%.

12. The method of claim 11, wherein the threshold level for IFN γ is at least 1%.

13. The method of claim 11, wherein the threshold level for IFN γ is at least 2%.

14. The method of any one of claims 1 to 13, wherein the threshold level for IL-2 is at least 0.5%.

15. The method of claim 14, wherein the threshold level for IL-2 is at least 1%.

16. The method of claim 14, wherein the threshold level for IL-2 is at least 2%.

17. The method of claim 14, wherein the threshold level for IL-2 is at least 10%.

18. The method of any one of claims 1 to 17, wherein the threshold level for TNF is at least 0.5%.

19. The method of claim 18, wherein the threshold level for TNF is at least 1%.
20. The method of claim 18, wherein the threshold level for TNF is at least 2%.
21. The method of any one of the preceding claims, wherein the expression of any one of granzyme B, granzyme K, perforin, CD107a, IFN γ , IL-2, TNF, or any combination thereof is determined by Fluorescence Activated Cell Sorting (FACS) or ELISpot.
22. The method of any one of claims 1 to 21, wherein the T cells are incubated with antigen-presenting cells to induce proliferation of the T cells before the expression of any one of granzyme B, granzyme K, perforin, CD107a, IFN γ , IL-2, TNF, or any combination thereof by the lymphocytes is determined.
23. The method of any one of claims 1 to 22, further comprising determining the expression of CD8 by cells in the sample and selecting the sample if at least 20% of the cells express CD8.
24. The method of claim 23, wherein the sample is selected if at least 25% of the cells express CD8.
25. The method of claim 23, wherein the sample is selected if at least 30% of the cells express CD8.
26. The method of any one of claims 1 to 25, further comprising determining the expression of CD4 by cells in the sample and selecting the sample if at least 10% of the cells express CD4.
27. The method of claim 26, wherein the sample is selected if at least 15% of the cells in the sample express CD4.
28. The method of claim 26, wherein the sample is selected if at least 25% of the cells in the sample express CD4.
29. The method of any one of claims 1 to 28, wherein the selected T cells are stored in a cell bank after selection.
30. The method of any one of claims 1 to 29, wherein the T cells express a TCR specific for an Epstein-Barr Virus (EBV) peptide presented on a class I MHC.
31. The method of claim 30, wherein the EBV peptide comprises any one of a LMP1 peptide, a LMP2A peptide, an EBNA1 peptide, or fragments thereof.

32. A composition comprising the T cells of any one of claims 1 to 31 for use in treating a subject in need thereof.
33. The composition for the use of claim 32, wherein the subject in need thereof has cancer.
34. The composition for the use of claim 33, wherein the cancer is an Epstein-Barr Virus-associated cancer.
35. The composition for the use of claim 33 or 34, wherein the subject has nasopharyngeal carcinoma, NK/T cell lymphoma, Epstein-Barr Virus-associated gastric carcinoma, or Epstein-Barr Virus-associated leiomyosarcoma.
36. The composition for the use of any one of claims 32 to 35, wherein the subject in need thereof has post-transplant lymphoproliferative disorder.
37. The composition for the use of any one of claims 32 to 36, wherein the subject has an autoimmune disorder.
38. The composition for the use of claim 37, wherein the autoimmune disorder is multiple sclerosis.
39. The composition for the use of any one of claims 32 to 38, wherein the T cells are allogeneic to the subject.
40. The composition for the use of any one of claims 32 to 39, wherein the T cells are obtained from a cell bank.
41. The composition for the use of any one of claims 32 to 38, wherein the T cells are autologous to the subject.
42. A cell bank of samples comprising T cells, wherein the cell bank is enriched for samples in which at least a threshold level of lymphocytes in the sample express a biomarker, wherein the threshold level of lymphocytes expressing the biomarker is:
 - (a) at least 1% of lymphocytes in the sample express CD107a;
 - (b) at least 1% of the lymphocytes in the sample express IFN γ ;
 - (c) at least 1% of the lymphocytes in the sample express IL-2;
 - (d) at least 1% of the lymphocytes in the sample express TNF;
 - (e) at least 5% of lymphocytes in the sample express granzyme B;

- (f) at least 3% of the lymphocytes in the sample express granzyme K;
 - (h) at least 2% of the lymphocytes in the sample express perforin;
 - (i) at least 20% of the lymphocytes in the sample express CD8;
 - (j) at least 10% of the lymphocytes in the sample express CD4;
 - (k) at least 5% of the lymphocytes in the sample express PD-1;
 - (l) at least 8% of the lymphocytes in the sample express TIM-3;
 - (m) at least 3% of the lymphocytes in the sample express LAG-3; or
 - (n) at least 8% of the lymphocytes in the sample express CTLA-4.
43. The cell bank of claim 42, wherein the cell bank is enriched for samples in which at least a threshold level of lymphocytes in the sample express two or more biomarkers.
44. The cell bank of claim 42, wherein the cell bank is enriched for samples in which at least a threshold level of lymphocytes in the sample express three or more biomarkers.
45. The cell bank of claim 42, wherein the cell bank is enriched for samples in which at least a threshold level of lymphocytes in the sample express four or more biomarkers.
46. The cell bank of claim 42 to 45, wherein at least 25% of the samples in the cell bank have at least the threshold level of lymphocytes in the sample expressing the biomarker.
47. The cell bank of claim 42 to 45, wherein at least 50% of the samples in the cell bank have at least the threshold level of lymphocytes in the sample expressing the biomarker.
48. The cell bank of claim 42 to 45, wherein at least 75% of the samples in the cell bank have at least the threshold level of lymphocytes in the sample expressing the biomarker.
49. The cell bank of claim 42 to 45, wherein 100% of the samples in the cell bank have at least the threshold level of lymphocytes in the sample expressing the biomarker.
50. A method of selecting a subject for autologous adoptive immunotherapy, comprising:
- a) inducing proliferation of the T cells obtained from the subject,
 - b) determining the expression of CD107a by the T cells, and
 - c) selecting the subject for autologous adoptive immunotherapy if at least a threshold level of the lymphocytes express CD107a.
51. A method of selecting a subject as a T cell donor, comprising:
- a) inducing proliferation of the T cells obtained from the subject, and

b) determining the expression of CD107a by the T cells, and
c) selecting the subject as a T cell donor if at least a threshold level of the T cells express CD107a.

52. The method of any one of claims 1 to 41, wherein the T cells are CD8⁺ T cells.
53. The method of claim 52, wherein the CD8⁺ T cells are cytotoxic T lymphocytes (CTLs).
54. The method of claim 53, wherein the CTLs express IFN γ , TNF, IL-2 and CD107.
55. The method of any one of claims 1 to 41, wherein the T cells are CD4⁺ T cells.
56. The cell bank of any one of claims 42 to 49, wherein the T cells are CD8⁺ T cells.
57. The cell bank of claim 56, wherein the CD8⁺ T cells are cytotoxic T lymphocytes (CTLs).
58. The cell bank of claim 57, wherein the CTLs express IFN γ , TNF, IL-2 and CD107.
59. The cell bank of any one of claims 42 to 49, wherein the T cells are CD4⁺ T cells.