WHAT IS CLAIMED IS:

1. A nucleic acid encoding a chimeric antigen receptor (CAR) comprising:

(a) a nucleic acid having at least about 95%, at least about 97%, at least about 98%, at least about 99%, or at least about 99.5% sequence identity to SEQ ID NO:1, or 4, wherein said nucleic acid encodes an anti-fluorescein scFv; or

(b) a nucleic acid having the sequence set forth in SEQ ID NO:1, or 4;

wherein, optionally, said nucleic acid of (a) or (b) further comprises a nucleic acid encoding an IgG4 hinge domain, a CD3ζ activation domain, and a 4-1BB co-stimulation domain.

2. A polypeptide encoding a chimeric antigen receptor (CAR) comprising:

(a) a polypeptide having at least about 95%, at least about 97%, at least about 98%, at least about 99%, or at least about 99.5% sequence identity to SEQ ID NO: 2, or 3, wherein said polypeptide encodes an anti-fluorescein scFv; or

(b) a polypeptide having the sequence set forth in SEQ ID NO: 2, or 3, wherein said polypeptide encodes an anti-fluorescein scFv, and

wherein, optionally, said polypeptide of (a) or (b) further comprises a polypeptide encoding an IgG4 hinge domain, a CD3ζ activation domain, and a 4-1BB co-stimulation domain.

3. A vector comprising the nucleic acid of claim 1.

4. The vector of claim 3, wherein said vector is a lentiviral vector.

5. A cell comprising the nucleic acid or vector of any one of claims 1, 3, or 4.

6. The cell of claim 5, wherein the cell is a T lymphocyte or cytotoxic T lymphocyte.

7. The polypeptide of claim 2, wherein said polypeptide comprises or consists of humanized, or human amino acid sequences.

8. A cell comprising the polypeptide of claim 2 or 7.

9. The cell of claim 8, wherein the cell is a T lymphocyte or cytotoxic T lymphocyte.

10. A method of ameliorating or treating a cancer in a patient comprising:

labeling a cancer in said patient with a small molecule ligand having a fluorescein isothiocyanate (FITC) moiety; and

administering to said patient a chimeric antigen receptor (CAR) T cell composition comprising the cell, T lymphocyte or cytotoxic T lymphocyte of claims 5, 6 or 9.

11. The method of claim 10, wherein the CAR T cell composition is administered before labeling the cancer with the small molecule ligand having a FITC moiety.

12. The method of claim 10 or 11, wherein the CAR T cell composition comprises autologous cells.

Claims:

1. A nucleic acid encoding a chimeric antigen receptor (CAR) comprising:

(a) a polynucleotide encoding an anti-fluorescein scFv and nucleic acid having at least about 95% sequence identity to SEQ ID NO:01, or 04; or

(b) a polynucleotide having the sequence set forth in SEQ ID NO:01, or 04.

2. A polypeptide encoded by the nucleic acid of claim 1.

3. The polypeptide of claim 2, wherein said polypeptide comprises or consists of humanized, or human amino acid sequences.

4. A cell comprising the polypeptide of claim 3.

5. A cell comprising the polypeptide of claim 2.

6. The cell of claim 5, wherein the cell is a T lymphocyte or cytotoxic T lymphocyte.

7. A vector comprising the nucleic acid of claim 1.

8. A cell comprising the vector of claim 7.

9. The vector of claim 7, wherein said vector is a lentiviral vector.

10. A cell comprising the vector of claim 9.

11. A cell comprising the nucleic acid of claim 1.

12. The cell of claim 11, wherein the cell is a T lymphocyte or cytotoxic T lymphocyte.

13. The nucleic acid of claim 1 comprising a polynucleotide having at least 95% sequence identity to SEQ ID NO:01.

14. The nucleic acid of claim 1 comprising a polynucleotide having at least 95% sequence identity to SEQ ID NO:04.