

What is claimed is:

1. An isolated nucleic acid, comprising a nucleotide sequence that encodes the polypeptide of SEQ ID NO: 3.
2. The isolated nucleic acid of claim 1, wherein the nucleotide sequence is SEQ ID NO: 1.
3. An isolated recombinant cell comprising the isolated nucleic acid of claim 2, wherein the isolated recombinant cell expresses the polypeptide of SEQ ID NO: 2.
4. The isolated recombinant cell of claim 3, wherein the cell is a T cell.
5. A viral vector comprising the isolated nucleic acid of claim 1.
6. The viral vector of claim 5, wherein the nucleotide sequence is SEQ ID NO: 1.
7. A method of preparing expanded transduced T cells expressing a chimeric antigen receptor (CAR) for lysing breast tumor cells, the method comprising:
 - obtaining T cells from a subject having a breast tumor;
 - transducing the T cells *in vitro* with a vector that contains a nucleic acid encoding a CAR including a scFv having the sequence of SEQ ID NO: 3 that specifically recognizes stage-specific embryonic antigen 4 (SSEA4), whereby the transduced T cells express the CAR; and
 - expanding the transduced T cells expressing the CAR *in vitro*;wherein the breast tumor cells express SSEA4.
8. The method of claim 7, wherein the CAR has the amino acid sequence of SEQ ID NO: 4.

9. The method of claim 8, wherein the vector is a lentivirus, a gamma retrovirus, or an adeno-associated virus.

10. The viral vector of claim 5, wherein the viral vector is a lentiviral vector, a gamma-retroviral vector, or an adeno-associated viral vector.