

What is claimed is:

1. An anti-TNFRSF25 antibody or antigen binding fragment thereof, wherein the antibody or antibody fragment comprises:
 - (i) a heavy chain variable region comprising heavy chain CDR1, CDR2, and CDR3 sequences, wherein the heavy chain CDR1 sequence is GFTFSNHDLN (SEQ ID NO:12), the heavy chain CDR2 sequence is YISSASGLISYADAVRG (SEQ ID NO:14); and the heavy chain CDR3 sequence is DPAYTGLYALDF (SEQ ID NO:26) or DPPYSGLYALDF (SEQ ID NO:16); and
 - (ii) a light chain variable region comprising light chain CDR1, CDR2, and CDR3 sequences, wherein the light chain CDR1 sequence is TLSSELSWYTIV (SEQ ID NO:25), the light chain CDR2 sequence is LKSDGSHSKGD (SEQ ID NO:21), and the light chain CDR3 sequence is CGAGYTLAGQYGWV (SEQ ID NO:23).
2. The antibody or antigen binding fragment of claim 1, further comprising variable region framework (FW) sequences juxtaposed between the CDRs according to the formula (FW1)-(CDR1)-(FW2)-(CDR2)-(FW3)-(CDR3)-(FW4), wherein the variable region FW sequences in the heavy chain variable region are heavy chain variable region FW sequences, and wherein the variable region FW sequences in the light chain variable region are light chain variable region FW sequences.
3. The antibody or antigen binding fragment of claim 2, wherein the variable region FW sequences are human.
4. The antibody or antigen binding fragment of claim 1, further comprising human heavy chain and light chain constant regions.
5. The antibody or antigen binding fragment of claim 4, wherein the constant regions are selected from the group consisting of human IgG1, IgG2, IgG3, and IgG4.
6. The antibody or antigen binding fragment of claim 5, wherein the constant regions are IgG1.
7. The antibody or antigen binding fragment of claim 4, wherein the constant regions are IgG4.
8. The antibody or antigen binding fragment of claim 1, wherein tumor cell apoptosis in a subject is increased following administration of the antibody or antigen binding fragment to the subject at a dose of about 0.1 mg/kg to about 50 mg/kg.
9. A pharmaceutical composition comprising a pharmaceutically acceptable carrier and the antibody or antigen binding fragment of claim 1.

10. An article of manufacture comprising the pharmaceutical composition of claim 9 and at least one additional agent for treating cancer.
11. The article of manufacture of claim 10, wherein the at least one additional agent is an agent that targets CTLA-4, PD-1, PD-L1, LAG-3, Tim-3, TNFRSF4, TNFRSF9, TNFRSF18, CD27, CD39, CD47, CD73, or CD278, or is an A2A receptor antagonist or a TGF-beta antagonist.
12. The article of manufacture of claim 10, wherein the at least one additional agent is a B7 family costimulatory molecule, a TNF receptor superfamily costimulatory molecule, a vaccine composition, or a chemotherapeutic agent.
13. The article of manufacture of claim 10, wherein the at least one additional agent comprises chimeric antigen receptor-transfected T cells or expanded tumor infiltrating lymphocytes for use in an adoptive T cell therapy in vitro or in a subject.
14. The article of manufacture of claim 10, wherein the at least one additional agent is used during the in vitro manufacturing process of an autologous T cell therapy.
15. The composition of claim 9 for use in treating a tumor in a subject, wherein said composition is to be administered in an amount effective to induce apoptosis of TNFRSF25-expressing tumor cells in the tumor.
16. The composition of claim 9 for use in stimulating proliferation of CD8⁺ T cells in a subject, wherein the composition is to be administered in a therapeutically effective amount.
17. The composition of claim 16, wherein proliferation of CD8⁺ T cells is increased by at least about 20% as compared to the baseline level of proliferation prior to the administration, as determined by flow cytometry analysis of antigen specific CD8⁺ T cells.
18. The composition of claim 9 for use in stimulating proliferation of CD4⁺ FoxP3⁺ regulatory T cells in a subject, wherein the composition is to be administered to the subject in a therapeutically effective amount.
19. The use of the composition of claim 9 in the manufacture of a medicament for treating a tumor in a subject, wherein the composition is to be administered in an amount effective to induce apoptosis of TNFRSF25-expressing tumor cells in the tumor.
20. The use of the composition of claim 9 in the manufacture of a medicament for stimulating proliferation of CD8⁺ T cells in a subject, wherein the composition is to be administered to the subject in a therapeutically effective amount.

21. The use of claim 20, wherein proliferation of CD8⁺ T cells is increased by at least about 20% as compared to the baseline level of proliferation prior to the administration, as determined by flow cytometry analysis of antigen specific CD8⁺ T cells.
22. The use of the composition of claim 9 in the manufacture of a medicament for stimulating proliferation of CD4⁺ FoxP3⁺ regulatory T cells in a subject, wherein the composition is to be administered in a therapeutically effective amount.
23. The use of the pharmaceutical composition of claim 9 in the manufacture of a medicament for eliciting an immune response in a subject.