

What is claimed:

1. An isolated antibody or antigen binding portion thereof, which specifically binds to an alpha-chain of a human IL-7 receptor (IL-7R), said anti-IL-7R antibody and antigen-binding portion thereof comprising a heavy chain (HC) CDR1, CDR2, and CDR3, and a light chain (LC) CDR1, CDR2, and CDR3, wherein:

- (i) the heavy chain CDR1 comprises an amino acid sequence set forth in SEQ ID NOs: 13;
- (ii) the heavy chain CDR2 comprises an amino acid sequence set forth in SEQ ID NO: 14;
- (iii) the heavy chain CDR3 comprises an amino acid sequence set forth in SEQ ID NO: 15;
- (iv) the light chain CDR1 comprises an amino acid sequence set forth in SEQ ID NO: 16;
- (v) the light chain CDR2 comprises an amino acid sequence set forth in SEQ ID NO: 17; and
- (vi) the light chain CDR3 comprises an amino acid sequence set forth in SEQ ID NO: 18.

2. An immunoconjugate comprising the anti-IL-7R antibody or antigen-binding portion thereof of claim 1, linked to an immunotherapeutic agent.

3. A kit comprising the anti-IL-7R antibody or antigen-binding portion thereof of claim 1, and an instruction for use.

4. The anti-IL-7R antibody or antigen-binding portion thereof of claim 1, which comprises a heavy chain variable (VH) and a light chain variable region (VL), wherein the VH comprises the amino acid sequence set forth in SEQ ID NO: 19 and the VL comprises the amino acid sequence set forth in SEQ ID NO: 20.

5. The anti-IL-7R antibody or antigen-binding portion thereof of claim 4, wherein the anti-IL-7R antibody comprises a heavy chain and a light chain, wherein the heavy chain comprises the amino acid sequence set forth in SEQ ID NO: 21 and the light chain comprises the amino acid sequence set forth in SEQ ID NO: 22.

6. The anti-IL-7R antibody or antigen-binding portion thereof of claim 1, wherein the antibody is selected from the group consisting of: an IgG1, IgG2, IgG3, and IgG4.

7. The anti-IL-7R antibody or antigen-binding portion thereof of claim 6, wherein the antibody is an IgG1 antibody.

8. The anti-IL-7R antibody or antigen-binding portion thereof of claim 7, comprising an effectorless IgG1 Fc.

9. The anti-IL-7R antibody or antigen-binding portion thereof of claim 4, wherein the antibody is selected from the group consisting of: an IgG1, IgG2, IgG3, and IgG4.

10. The anti-IL-7R antibody or antigen-binding portion thereof of claim 9, wherein the antibody is an IgG1 antibody.

11. The anti-IL-7R antibody or antigen-binding portion thereof of claim 10, comprising an effectorless IgG1 Fc.

12. The anti-IL-7R antibody or antigen-binding portion thereof of claim 1, wherein the antigen-binding portion thereof is Fab, F(ab')₂, Fv, or scFv.

13. The anti-IL-7R antibody or antigen-binding portion thereof of claim 4, wherein the antigen-binding portion thereof is Fab, F(ab')₂, Fv, or scFv.

14. A composition comprising the anti-IL7R antibody or antigen-binding portion thereof of claim 1, and a pharmaceutically acceptable carrier.

15. A composition comprising the anti-IL7R antibody or antigen-binding portion thereof of claim 4, and a pharmaceutically acceptable carrier.

16. A composition comprising the anti-IL7R antibody or antigen-binding portion thereof of claim 5, and a pharmaceutically acceptable carrier.

17. A composition comprising the anti-IL7R antibody or antigen-binding portion thereof of claim 6, and a pharmaceutically acceptable carrier.

18. A composition comprising the anti-IL7R antibody or antigen-binding portion thereof of claim 7, and a pharmaceutically acceptable carrier.

19. A composition comprising the anti-IL7R antibody or antigen-binding portion thereof of claim 8, and a pharmaceutically acceptable carrier.

20. A composition comprising the anti-IL7R antibody or antigen-binding portion thereof of claim 9, and a pharmaceutically acceptable carrier.

21. A composition comprising the anti-IL7R antibody or antigen-binding portion thereof of claim 10, and a pharmaceutically acceptable carrier.

22. A composition comprising the anti-IL7R antibody or antigen-binding portion thereof of claim 11, and a pharmaceutically acceptable carrier.

23. A composition comprising the anti-IL7R antibody or antigen-binding portion thereof of claim 12, and a pharmaceutically acceptable carrier.

24. A composition comprising the anti-IL7R antibody or antigen-binding portion thereof of claim 13, and a pharmaceutically acceptable carrier.

25. The immunoconjugate of claim 2, wherein the immunotherapeutic agent is an antimetabolite, an alkylating agent, a DNA minor groove binder, a DNA intercalator, a DNA crosslinker, a histone deacetylase inhibitor, a nuclear export inhibitor, a proteasome inhibitor, a topoisomerase I or II inhibitor, a heat shock protein inhibitor, a tyrosine kinase inhibitor, an antibiotic, or an anti-mitotic agent.