

CLAIMS

1. An antibody that binds to NKp46, or an antibody fragment thereof comprising at least the antigen binding portion, wherein the antibody or antibody fragment comprises three complementarity determining regions (CDRs) of a heavy-chain (HC) variable region comprising SEQ ID No: 7 and three CDRs of a light-chain (LC) variable region comprising SEQ ID No: 8, or an analog or derivative thereof having at least 90% sequence identity with said antibody or fragment sequence.
2. The antibody or the antibody fragment according to claim 1, comprising a set of six CDRs wherein: HC CDR1 is EYSMH (SEQ ID No: 1); HC CDR2 is GISPNSGGTSYNQKFKG (SEQ ID No: 2); HC CDR3 is RDFHSSFDY (SEQ ID No: 3); LC CDR1 is RASQSIDYDLH (SEQ ID No: 4); LC CDR2 is YASQSIG (SEQ ID No: 5); and LC CDR3 is QNGHSFPLT (SEQ ID No: 6).
3. The antibody or the antibody fragment according to any one of claims 1 or 2, comprising:
 - (1) a heavy chain variable region set forth in SEQ ID No: 7, or an analog having at least 95% sequence similarity with said heavy chain variable region sequence;
 - (2) a light chain variable sequence set forth in SEQ ID No: 8, or an analog having at least 95% sequence similarity with said light chain variable region sequence; or
 - (3) a heavy chain and a light chain, wherein the heavy chain comprises SEQ ID No: 7 and the light chain comprises SEQ ID No: 8.
4. An antibody fragment according to any one of claims 1 to 3, wherein the antibody fragment is a single chain Fv (scFv); or wherein the antibody binds to human NKp46 with an affinity of 10^{-11} M to 10^{-16} M.
5. The antibody or the antibody fragment according to any one of claims 1 to 4, wherein the antibody is a humanized antibody; preferably, the humanized antibody comprises a heavy chain comprising SEQ ID No: 14, and a light chain comprising a sequence selected from the group consisting of SEQ ID Nos: 15 and 16.
6. A polynucleotide sequence encoding at least one sequence of a heavy chain or a light chain region of an antibody or antibody fragment according to any one of claims 1 to 5.
7. A multi-specific antibody comprising a binding site of an antibody according to any one of claims 1 to 5.

8. The multi-specific antibody of claim 7, wherein the multi-specific antibody is a bi-specific antibody further comprises a binding site having specificity to a tumor antigen.
9. The multi-specific antibody of claim 7, wherein the multi-specific antibody is a bi-specific antibody further comprises a binding site having specificity to a viral, bacterial or fungal antigen.
10. The multi-specific antibody of claim 7, wherein the multi-specific antibody is a tri-specific antibody further comprising a binding site specific to CD160 or CD16 or further comprising a binding site specific to a tumor antigen
11. The multi-specific antibody of claim 7, said multi-specific antibody is fused or conjugated to a cytokine.
12. A pharmaceutical composition comprising as an active ingredient, at least one antibody or fragment thereof, or a multi-specific binding molecule according to any one of claims 1 to 5 and 7 to 11, and a pharmaceutical acceptable excipient, diluent, salt or carrier.
13. The pharmaceutical composition of claim 12, for use in the treatment of cancer.
14. The pharmaceutical composition of claim 12, for use in the treatment of an infection, wherein the infection is a viral infection, a bacterial infection, or a fungal infection.
15. A chimeric antigen receptor (CAR) comprising at least one antibody or antibody fragment according to any one of claims 1 to 5.