Claims

1. An antibody or an antigen-binding fragment thereof binding to NRP1, comprising:

a heavy chain variable region comprising CDRH1, CDRH2, and CDRH3, respectively, comprising sequences of SEQ ID NOS: 1 to 3 and a light chain variable region comprising CDRL1, CDRL2, and CDRL3, respectively, comprising sequences of SEQ ID NOS: 4 to 6;

a heavy chain variable region comprising CDRH1, CDRH2, and CDRH3, respectively, comprising sequences of SEQ ID NOS: 7 to 9 and a light chain variable region comprising CDRL1, CDRL2, and CDRL3, respectively, comprising sequences of SEQ ID NOS: 10 to 12, or

a heavy chain variable region comprising CDRH1, CDRH2, and CDRH3, respectively, comprising sequences of SEQ ID NOS: 7, 8 and 13 and a light chain variable region comprising CDRL1, CDRL2, and CDRL3, respectively, comprising sequences of SEQ ID NOS: 10, 14 and 15.

2. The antibody or antigen-binding fragment thereof according to claim 1, comprising a heavy chain variable region comprising heavy chain framework region (FR) comprising one sequence selected from the group consisting

of sequences of SEQ ID NOS: 28 to 33.

3. The antibody or antigen-binding fragment thereof according to claim 1, comprising a light chain variable region comprising a light chain framework region (FR) comprising one sequence selected from the group consisting of sequences of SEQ ID NOS: 34 to 42.

4. The antibody or antigen-binding fragment thereof according to claim 1, comprising a heavy chain variable region and a light chain variable region comprising as followings:

(i) a heavy chain variable region comprising a sequence of SEQ ID NO: 16 and a light chain variable region comprising a sequence of SEQ ID NO: 17;

(ii) a heavy chain variable region comprising a sequence of SEQ ID NO: 18 and a light chain variable region comprising a sequence of SEQ ID NO: 19; or

(iii) a heavy chain variable region comprising a sequence of SEQ ID NO: 20 and a light chain variable region comprising a sequence of SEQ ID NO: 21.

5. A nucleic acid encoding the antibody or antigen-binding

fragment thereof according to any one of claims 1 to 4.

6. A vector comprising the nucleic acid according to claim 5.

7. A cell transformed with the vector according to claim 6.

8. A method of producing an antibody or an antigen-binding fragment thereof binding to NRP1, comprising: (a) culturing cells according to claim 7; and (b) recovering the antibody or antigen-binding fragment thereof from the cultured cells.

9. An antibody-drug conjugate comprising the antibody or antigen-binding fragment thereof according to any one of claims 1 to 4 and a drug.

10. A composition for preventing or treating a cancer comprising the antibody or antigen-binding fragment thereof according to any one of claims 1 to 4, or the antibody-drug conjugate of claim 9 as an active ingredient.

11. The composition according to claim 10, wherein the cancer is selected from the group consisting of

glioblastoma, astrocytoma, glioma, neuroblastoma, testicular cancer, colon cancer, melanoma, pancreatic cancer, lung cancer, breast cancer, esophageal cancer, and prostate cancer.

5