

CLAIMS

1. An anti-EphA4 antibody, wherein
the variable region of the heavy chain consists of the amino acid sequence shown in SEQ ID NO. 45, and
the variable region of the light chain consists of the amino acid sequence shown in SEQ ID NO. 46.~~the anti-EphA4 antibody comprises heavy and light chains, and comprises:~~

~~—— (a) a heavy chain CDR1 consisting of the amino acid sequence shown in SEQ ID NO. 44;~~

~~—— (b) a heavy chain CDR2 consisting of the amino acid sequence shown in SEQ ID NO. 27;~~

~~—— (c) a heavy chain CDR3 consisting of the amino acid sequence shown in SEQ ID NO. 28;~~

~~—— (d) a light chain CDR1 consisting of the amino acid sequence shown in SEQ ID NO. 29;~~

~~—— (e) a light chain CDR2 consisting of the amino acid sequence shown in SEQ ID NO. 30; and~~

~~—— (f) a light chain CDR3 consisting of the amino acid sequence shown in SEQ ID NO. 31.~~

2. The anti-EphA4 antibody according to claim 1, ~~wherein the anti-EphA4 antibody is humanized.~~

~~3. The anti-EphA4 antibody according to claim 1 or 2,~~ wherein the anti-EphA4 antibody specifically binds to EphA4 and enhances the cleavage of EphA4.

34. The anti-EphA4 antibody according to ~~any one of claims 1 to 3~~claim 1 or 2, wherein the anti-EphA4 antibody specifically binds to EphA4 and inhibits the binding between EphA4 and ephrin.

54. The anti-EphA4 antibody according to any one of claims 1 to 43, wherein
the variable region of the heavy chain consists of the amino

acid sequence shown in SEQ ID NO. 45, and

the variable region of the light chain consists of the amino acid sequence shown in SEQ ID NO. 46.

~~6. The anti-EphA4 antibody according to any one of claims 1 to 5, wherein~~
~~the constant region of the heavy chain and the constant region of the light chain comprise amino acid sequences derived from a human antibody.~~

75. The anti-EphA4 antibody according to claim ~~64~~, wherein the constant region of the heavy chain is the constant region of human IgG.

~~86.~~ The anti-EphA4 antibody according to claim 75, wherein the constant region of human IgG is the constant region of human IgG₂.

~~97.~~ The anti-EphA4 antibody according to claim ~~86~~, wherein the constant region of human IgG₂ comprises the amino acid sequence shown in SEQ ID NO. 47.

~~108.~~ The anti-EphA4 antibody according to any one of claims ~~64~~ to ~~97~~, wherein the constant region of the light chain is the constant region of human Igκ.

~~119.~~ The anti-EphA4 antibody according to claim ~~108~~, wherein the constant region of human Igκ comprises the amino acid sequence shown in SEQ ID NO. 48.

~~1210.~~ An anti-EphA4 antibody, wherein the anti-EphA4 antibody comprises heavy and light chains, the heavy chain comprises the amino acid sequence shown in SEQ ID NO. 59, and the light chain comprises the amino acid sequence shown in SEQ

ID NO. 60.

~~13~~11. The anti-EphA4 antibody according to claim ~~12~~10, wherein the C-terminal lysine of the heavy chain is deleted.

~~14~~12. An isolated nucleic acid encoding the anti-EphA4 antibody according to any one of claims 1 to ~~13~~11.

~~15~~13. A vector comprising the nucleic acid according to claim ~~14~~12.

~~16~~14. A host cell comprising the vector according to claim ~~15~~13.

~~17~~15. A method of producing an anti-EphA4 antibody, comprising a step of culturing the host cell according to claim ~~16~~14.

~~18~~16. A pharmaceutical composition comprising the anti-EphA4 antibody according to any one of claims 1 to ~~13~~11.

~~19~~17. The pharmaceutical composition according to claim ~~18~~16 for use as a medicament.

18. The pharmaceutical composition according to claim 16 for use in the treatment of~~treating~~ Alzheimer's disease.

19. Use of the pharmaceutical composition according to claim 16 in the manufacture of a medicament for the treatment of Alzheimer's disease.