

CLAIMS

[Claim 1]

A monoclonal antibody or an antibody fragment thereof that binds to CCR8, having:

a light chain variable region including

a CDR1 having the amino acid sequence of SEQ ID NO: 2,

a CDR2 having the amino acid sequence of SEQ ID NO: 3, and

a CDR3 having the amino acid sequence of SEQ ID NO: 4, and

a heavy chain variable region including

a CDR1 having the amino acid sequence of SEQ ID NO: 5,

a CDR2 having the amino acid sequence of SEQ ID NO: 6, and

a CDR3 having the amino acid sequence of SEQ ID NO: 7,

wherein asparagine at position 4 in the amino acid sequence of SEQ ID NO: 3 is substituted with glutamine; and glycine at position 11 in the amino acid sequence of SEQ ID NO: 2 is substituted with arginine.

[Claim 2]

The antibody or an antibody fragment thereof according to claim 1, which is a humanized monoclonal antibody or an antibody fragment thereof.

[Claim 3]

The humanized monoclonal antibody or an antibody fragment thereof according to claim 2, having

a light chain variable region having the amino acid sequence of SEQ ID NO: 42, and

a heavy chain variable region having the amino acid sequence of SEQ ID NO: 41,

wherein asparagine at position 58 in the amino acid sequence of SEQ ID NO: 42 is substituted with glutamine, and glycine at position 34 in the amino acid sequence of SEQ ID NO: 42 is substituted with arginine.

[Claim 4]

The humanized monoclonal antibody or an antibody fragment thereof according to claim 2, having

a light chain variable region having the amino acid sequence of SEQ ID NO: 59, and a heavy chain variable region having the amino acid sequence of SEQ ID NO: 41.

[Claim 5]

The humanized monoclonal antibody or an antibody fragment thereof according to any one of claims 2 to 4, further having:

a light chain constant region having the amino acid sequence of SEQ ID NO: 52, and

a heavy chain constant region having the amino acid sequence of SEQ ID NO: 53,

wherein lysine is optionally added to the C-terminal end of SEQ ID NO: 53.

[Claim 6]

A pharmaceutical composition comprising the antibody or an antibody fragment thereof according to any one of claims 1 to 5.

[Claim 7]

A pharmaceutical composition comprising the antibody or an antibody fragment thereof according to any one of claims 1 to 5, for use in inhibiting a binding of CCR8 to a CCR8 ligand.

[Claim 8]

A pharmaceutical composition comprising the antibody or an antibody fragment thereof according to any one of claims 1 to 5, for use as a neutralizing antibody.

[Claim 9]

A pharmaceutical composition comprising the monoclonal antibody or an antibody fragment thereof according to any one of claims 1 to 5 that binds to CCR8, for use in recognizing tyrosine at position 17 in the amino acid sequence set forth in SEQ ID NO: 1.

[Claim 10]

The pharmaceutical composition according to claim 9, for use in inhibiting a binding of CCR8 to a CCR8 ligand.

[Claim 11]

The pharmaceutical composition according to any one of claims 6 to 10, wherein the antibody has ADCC activity.

[Claim 12]

The pharmaceutical composition according to any one of claims 6 to 10, wherein the antibody is an IgG antibody.

[Claim 13]

The pharmaceutical composition according to any one of claims 6 to 12, for use in treating cancer.

[Claim 14]

A polynucleotide encoding a light chain variable region or a heavy chain variable region of the antibody according to any one of claims 1 to 4.

[Claim 15]

An expression vector comprising the polynucleotide according to claim 14.