Claims

[Claim 1]

A monoclonal antibody binding to a region of Aggrus consisting of a sequence of at least 5 residues of the amino acid sequence represented by SEQ ID NO: 1 (GIRIEDLPT), or a fragment consisting of a functional fragment thereof.

[Claim 2]

The monoclonal antibody or the fragment consisting of a functional fragment thereof according to claim 1, wherein the monoclonal antibody is produced by a hybridoma of deposition No. NITE BP-03041 (PG4D1) or NITE BP-03042 (PG4D2).

[Claim 3]

The monoclonal antibody or the fragment consisting of a functional fragment thereof according to claim 1, wherein the monoclonal antibody is chimeric or humanized.

[Claim 4]

A hybridoma of deposition No. NITE BP-03041 or NITE BP-03042.

[Claim 5]

An Aggrus-CLEC-2 binding inhibitor comprising a monoclonal antibody or a fragment consisting of a functional fragment thereof according to any one of claims 1 to 3.

[Claim 6]

The Aggrus-CLEC-2 binding inhibitor according to claim 5, further comprising at least one monoclonal antibody recognizing an epitope present in the region represented by SEQ ID NO: 2 (GAEDDVVTPGTSEDRYK), chimeric antibody thereof, humanized antibody thereof, and/or fragment consisting of a functional fragment thereof.

[Claim 7]

The Aggrus-CLEC-2 binding inhibitor according to claim 6, wherein the monoclonal antibody recognizing the epitope present in the region of SEQ ID NO: 2 is P2-0, MS-1, MS-3, and/or MS-4.

[Claim 8]

A pharmaceutical composition for inhibition of platelet aggregation, inhibition of thrombus formation, inhibition of cancer progression or metastasis, or anti-inflammation, comprising a monoclonal antibody or a fragment consisting of a functional fragment thereof according to any one of claims 1 to 3.

[Claim 9]

The pharmaceutical composition according to claim 8, further comprising at least one monoclonal antibody recognizing an epitope present in the region represented by SEQ ID NO: 2 (GAEDDVVTPGTSEDRYK), chimeric antibody thereof, humanized antibody thereof, and/or fragment consisting of a functional fragment thereof.

[Claim 10]

The pharmaceutical composition according to claim 9, wherein the monoclonal antibody recognizing the epitope present in the region of SEQ ID NO: 2 is P2-0, MS-1, MS-3, and/or MS-4.

[Claim 11]

A testing reagent for detection of Aggrus expression, comprising a monoclonal antibody or a fragment consisting of a functional fragment thereof according to any one of claims 1 to 3.

[Claim 12]

A region of Aggrus overlapping with a PLAG4 domain necessary for the binding to CLEC-2, wherein

the region is represented by SEQ ID NO: 1 (GIRIEDLPT).

[Claim 13]

The region of Aggrus overlapping with a PLAG4 domain necessary for the binding to CLEC-2 according to claim 12, wherein

the amino acid sequence consists of the amino acid sequence represented by SEQ ID NO: 3 (RIEDL).

[Claim 14]

An Aggrus-CLEC-2 binding inhibitor consisting of a peptide comprising a region according to claim 12 or 13.

[Claim 15]

A pharmaceutical composition for inhibition of platelet aggregation, inhibition of thrombus formation, inhibition of cancer progression or metastasis, or anti-

inflammation, comprising a peptide comprising a region according to claim 12 or 13 as an active ingredient.

[Claim 16]

A method for screening for an inhibitor of the binding between CLEC-2 and Aggrus, comprising

using, as an index, binding to an Aggrus epitope consisting of a sequence of at least 5 residues of the amino acid sequence represented by SEQ ID NO: 1 (GIRIEDLPT).

[Claim 17]

The screening method according to claim 16, wherein binding to the amino acid sequence represented by SEQ ID NO: 3 (RIEDL) is used as an index.

[Claim 18]

A method for screening for an inhibitor of the binding between CLEC-2 and Aggrus, comprising

using, as an index, binding to the amino acid sequence represented by SEQ ID NO: 4 (EDXXTS).

CLAIMS

1. A monoclonal antibody or a fragment consisting of a functional fragment thereof, specifically binding to a region of Aggrus consisting of the amino acid sequence represented by SEQ ID NO: 3 (RIEDL), and having a dissociation constant ($K_{D)}$ for Aggrus of $\leq 3 \times 10^{-10}$ M, as measured by BIACORE wherein said functional fragment is selected from the group consisting of Fab, Fab', $F(ab')_2$, a single chain antibody (scFv), and a disulfide-stabilized V fragment (dsFv), said monoclonal antibody and said functional fragment thereof inhibiting the interaction between Aggrus and CLEC-2.

2. The monoclonal antibody or the fragment consisting of a functional fragment thereof according to claim 1, wherein the monoclonal antibody according to claim 1 is obtainable by using an amino acid sequence consisting of a region from a threonine residue at position 76 to a threonine residue at position 89 as an immunogen.

3. The monoclonal antibody or the fragment consisting of a functional fragment thereof according to claim 1, wherein the monoclonal antibody is chimeric or humanized.

4. An Aggrus-CLEC-2 binding inhibitor comprising a monoclonal antibody or a fragment consisting of a functional fragment thereof according to any one of claims 1 to 3.

5. The Aggrus-CLEC-2 binding inhibitor according to claim 4, further comprising at least one monoclonal antibody or a fragment consisting of a functional fragment thereof, recognizing an epitope present in the region represented by SEQ ID NO: 2 (GAEDDWTPGTSEDRYK), chimeric antibody thereof, humanized antibody thereof, wherein said functional fragment is selected from the group consisting of Fab, Fab', $F(ab')_2$, a single chain antibody (scFv), and a disulfide-stabilized V fragment (dsFv).

6. A pharmaceutical composition for use in the treatment of thrombosis, cancer progression, cancer metastasis, or inflammation, comprising a monoclonal antibody or a fragment

consisting of a functional fragment thereof according to any one of claims 1 to 3.

7. The pharmaceutical composition for use according to claim 6, further comprising at least one monoclonal antibody or a fragment consisting of a functional fragment thereof, recognizing an epitope present in the region represented by SEQ ID NO: 2 (GAEDDVVTPGTSEDRYK), chimeric antibody thereof, humanized antibody thereof.

8. A pharmaceutical composition for use as a medicament, the pharmaceutical composition comprising a monoclonal antibody or a fragment consisting of a functional fragment thereof according to any one of claims 1 to 3.

9. Use of a monoclonal antibody or a fragment consisting of a functional fragment thereof according to any one of claims 1 to 3, in the manufacture of a medicament for the treatment of thrombosis, cancer progression, cancer metastasis, or inflammation.

10. The use of claim 9 wherein at least one monoclonal antibody or a fragment consisting of a functional fragment thereof, recognizing an epitope present in the region represented by SEQ ID NO: 2 (GAEDDVVTPGTSEDRYK), chimeric antibody thereof, humanized antibody thereof.

11. A testing reagent for detection of Aggrus expression, comprising a monoclonal antibody or a fragment consisting of a functional fragment thereof according to any one of claims 1 to 3.

12. A method for screening for an inhibitor of the binding between CLEC-2 and Aggrus, comprising selecting a compound that inhibits the binding of CLEC-2 to an Aggrus epitope represented by SEQ ID NO: 3 (RIEDL).