

CLAIMS

[Claim 1]

An antibody or a functional fragment thereof that binds to a cleaved mutant CALR protein, wherein the antibody or the functional fragment thereof is selected from the following (c), (d), and (e):

(c) an antibody in which CDR1, CDR2, and CDR3 of the immunoglobulin VH chain are polypeptides consisting of the amino acid sequences set forth in SEQ ID NOs: 17, 18, and 19, respectively; and CDR1, CDR2, and CDR3 of the immunoglobulin VL chain are polypeptides consisting of the amino acid sequences set forth in SEQ ID NOs: 26, 27, and 28, respectively;

(d) an antibody in which CDR1, CDR2, and CDR3 of the immunoglobulin VH chain are polypeptides consisting of the amino acid sequences set forth in SEQ ID NOs: 20, 21, and 22, respectively; and CDR1, CDR2, and CDR3 of the immunoglobulin VL chain are polypeptides consisting of the amino acid sequences set forth in SEQ ID NOs: 29, 30, and 31, respectively; and

(e) an antibody in which CDR1, CDR2, and CDR3 of the immunoglobulin VH chain are polypeptides consisting of the amino acid sequences set forth in SEQ ID NOs: 23, 24, and 25, respectively; and CDR1, CDR2, and CDR3 of the immunoglobulin VL chain are polypeptides consisting of the amino acid sequences set forth in SEQ ID NOs: 32, 33, and 34, respectively.

[Claim 2]

The antibody or the functional fragment thereof that binds to the cleaved mutant CALR protein according to Claim 1, wherein the antibody or the functional fragment thereof is selected from the following (C), (D), and (E):

(C) an antibody comprising an immunoglobulin VH chain consisting of an amino acid sequence set forth in SEQ ID NO: 5 or an amino acid sequence having deletion, substitution, or addition of one to ten amino acids in the amino acid sequence set forth in SEQ ID NO: 5 and an immunoglobulin VL chain consisting of an amino acid sequence set forth in SEQ ID NO: 8 or an amino acid sequence having deletion, substitution, or addition of one to ten amino acids in the amino acid sequence set forth in SEQ ID NO: 8;

(D) an antibody comprising an immunoglobulin VH chain consisting of an amino acid sequence set forth in SEQ ID NO: 6 or an amino acid sequence having deletion, substitution, or addition of one to ten amino acids in the amino acid sequence set forth in SEQ ID NO: 6 and an immunoglobulin VL chain consisting of an amino acid sequence set forth in SEQ ID NO: 9 or an amino acid sequence having deletion, substitution, or addition of one to ten amino acids in the amino acid sequence set forth in SEQ ID NO: 9; and

(E) an antibody comprising an immunoglobulin VH chain consisting of an amino acid sequence set forth in SEQ ID NO: 7 or an amino acid sequence having deletion, substitution, or addition of one to ten amino acids in the amino acid sequence set forth in SEQ ID NO: 7 and an immunoglobulin VL chain consisting of an amino acid sequence

set forth in SEQ ID NO: 10 or an amino acid sequence having deletion, substitution, or addition of one to ten amino acids in the amino acid sequence set forth in SEQ ID NO: 10.

[Claim 3]

A pharmaceutical composition comprising the antibody or the functional fragment thereof according to Claim 1 or 2.

[Claim 4]

The pharmaceutical composition according to Claim 3, wherein the pharmaceutical composition is a diagnostic, preventive, or therapeutic agent for a myeloproliferative neoplasm.

[Claim 5]

A method for detecting a mutant CALR protein in a biological sample,

wherein the detection is immunological detection using the antibody or the functional fragment thereof according to Claim 1 or 2.

[Claim 6]

A diagnostic method for a myeloproliferative neoplasm, comprising detecting a mutant CALR protein in a biological sample, wherein the detection is immunological detection using the antibody or the functional fragment thereof according to Claim 1 or 2.

[Claim 7]

The antibody or the functional fragment thereof according to Claim 1 or 2, for use in diagnosis of a myeloproliferative neoplasm.

[Claim 8]

Use of the antibody or the functional fragment thereof according to Claim 1 or 2, for producing a diagnostic agent for a myeloproliferative neoplasm.