WHAT IS CLAIMED IS:

1. A fully human antibody or antigen-binding fragment thereof, wherein complementarity-determining regions (CDRs) thereof defined according to a KABAT system have the following amino acid sequences:

an amino acid sequence of heavy chain CDR1 comprises $GX_1TX_2SX_3X_4X_5X_6X_7$, wherein X_1 is F or Y, X_2 is F, H, Y, or W, X_3 is S or D, X_4 is Y, H, or F, X_5 is A or V, X_6 is M, I, or L, and X_7 is S or A;

an amino acid sequence of heavy chain CDR2 comprises $AISGX_8GGSX_9X_{10}YX_{11}X_{12}SVKG$, wherein X_8 is S or H, X_9 is T or H, X_{10} is Y, W, or F, X_{11} is A, H, V, or L, and X_{12} is D, A, or H;

an amino acid sequence of heavy chain CDR3 comprises $KX_{13}RPX_{14}RX_{15}X_{16}DX_{17}$, wherein X_{13} is Y, F, or H, X_{14} is S, T, or H, X_{15} is V or A, X_{16} is F, Y, H, or W, and X_{17} is S, A, F, C, H, or Y;

an amino acid sequence of light chain CDR1 comprises $SGDALX_{18}DKX_{19}X_{20}X_{21}$, wherein X_{18} is G or H, X_{19} is Y or F, X_{20} is A or M, and X_{21} is S or A;

an amino acid sequence of light chain CDR2 comprises $X_{22}X_{23}X_{24}X_{25}RX_{26}X_{27}$, wherein X_{22} is E or Q, X_{23} is D, H, or Q, X_{24} is S, A, or H, X_{25} is K, H, R, P, or N, X_{26} is P, Q, D, or N, and X_{27} is S, D, Y, or W; and

an amino acid sequence of light chain CDR3 comprises $X_{28}SNDX_{29}DX_{30}X_{31}W$, wherein X_{28} is Q or D, X_{29} is A, V, I, or L, X_{30} is S or A, and X_{31} is V, Y, W, or R.

2. The antibody or antigen-binding fragment thereof according to claim 1, wherein the CDRs thereof have the following amino acid sequences:

the heavy chain CDR1 is selected from at least one of amino acid sequences shown in SEQ ID NOs: 1 and 23-34;

the heavy chain CDR2 is selected from at least one of amino acid sequences shown in SEQ ID NOs: 2 and 35-48;

the heavy chain CDR3 is selected from at least one of amino acid sequences shown in SEQ ID NOs: 3 and 49-64;

the light chain CDR1 is selected from at least one of amino acid sequences shown in SEQ ID NOs: 4 and 65-69;

the light chain CDR2 is selected from at least one of amino acid sequences shown in SEQ ID NOs: 5 and 70-95; and

the light chain CDR3 is selected from at least one of amino acid sequences shown in SEQ ID NOs: 6

and 96-109.

3. The antibody or antigen-binding fragment thereof according to claim 1 or 2, wherein the amino acid sequences of the CDRs thereof are selected from at least one of the following groups (1)-(119):

(1) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 2, 3, 4, 5, and 6, respectively;

(2) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 24, 2, 3, 4, 5, and 6, respectively;

(3) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 25, 2, 3, 4, 5, and 6, respectively;

(4) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 26, 2, 3, 4, 5, and 6, respectively;

(5) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 29, 2, 3, 4, 5, and 6, respectively;

(6) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 30, 2, 3, 4, 5, and 6, respectively;

(7) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 31, 2, 3, 4, 5, and 6, respectively;

(8) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 32, 2, 3, 4, 5, and 6, respectively;

(9) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 33, 2, 3, 4,

5, and 6, respectively;

(10) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 37, 3, 4, 5, and 6, respectively;

(11) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 38, 3, 4, 5, and 6, respectively;

(12) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 39, 3, 4, 5, and 6, respectively;

(13) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 40, 3, 4, 5, and 6, respectively;

(14) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 41, 3, 4, 5, and 6, respectively;

(15) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 42, 3, 4, 5, and 6, respectively;

(16) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 43, 3, 4, 5, and 6, respectively;

(17) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 2, 49, 4, 5, and 6, respectively;

(18) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 2, 50, 4, 5, and 6, respectively;

(19) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 2, 51, 4,

5, and 6, respectively;

(20) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 2, 52, 4, 5, and 6, respectively;

(21) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 2, 53, 4, 5, and 6, respectively;

(22) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 2, 54, 4, 5, and 6, respectively;

(23) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 2, 55, 4, 5, and 6, respectively;

(24) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 2, 56, 4, 5, and 6, respectively;

(25) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 2, 57, 4, 5, and 6, respectively;

(26) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 2, 3, 66, 5, and 6, respectively;

(27) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 2, 3, 4, 70, and 6, respectively;

(28) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 2, 3, 4, 71, and 6, respectively;

(29) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 2, 3, 4, 72,

and 6, respectively;

(30) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 2, 3, 4, 73, and 6, respectively;

(31) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 2, 3, 4, 74, and 6, respectively;

(32) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 2, 3, 4, 75, and 6, respectively;

(33) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 2, 3, 4, 76, and 6, respectively;

(34) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 2, 3, 4, 77, and 6, respectively;

(35) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 2, 3, 4, 5, and 96, respectively;

(36) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 2, 3, 4, 5, and 97, respectively;

(37) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 2, 3, 4, 5, and 98, respectively;

(38) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 2, 3, 4, 5, and 99, respectively;

(39) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 2, 3, 4, 5,

and 100, respectively;

(40) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 38, 3, 4, 5, and 97, respectively;

(41) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 2, 57, 4, 5, and 100, respectively;

(42) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 42, 57, 4, 5, and 99, respectively;

(43) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 42, 57, 4, 73, and 6, respectively;

(44) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 2, 57, 4, 73, and 100, respectively;

(45) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 42, 3, 4, 73, and 100, respectively;

(46) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 42, 53, 66, 5, and 6, respectively;

(47) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 25, 2, 53, 4, 5, and 99, respectively;

(48) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 42, 57, 66, 5, and 99, respectively;

(49) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 38, 57, 4,

73, and 99, respectively;

(50) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 42, 57, 4, 73, and 100, respectively;

(51) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 31, 57, 4, 76, and 100, respectively;

(52) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 25, 2, 53, 4, 73, and 99, respectively;

(53) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 42, 53, 4, 73, and 100, respectively;

(54) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 25, 2, 53, 66, 5, and 99, respectively;

(55) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 39, 53, 66, 5, and 100, respectively;

(56) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 42, 57, 4, 73, and 104, respectively;

(57) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 42, 57, 66, 73, and 104, respectively;

(58) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 46, 57, 4, 73, and 104, respectively;

(59) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 42, 64, 4,

73, and 104, respectively;

(60) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 42, 63, 4, 73, and 104, respectively;

(61) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 25, 42, 57, 4, 85, and 100, respectively;

(62) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 31, 42, 57, 4, 87, and 100, respectively;

(63) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 46, 57, 4, 73, and 106, respectively;

(64) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 42, 63, 66, 73, and 100, respectively;

(65) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 25, 42, 57, 4, 85, and 104, respectively;

(66) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 25, 42, 63, 4, 73, and 104, respectively;

(67) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 29, 42, 62, 4, 87, and 100, respectively;

(68) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 32, 42, 63, 4, 73, and 105, respectively;

(69) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 46, 63, 4,

85, and 100, respectively;

(70) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 47, 63, 66, 73, and 100, respectively;

(71) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 42, 63, 66, 73, and 104, respectively;

(72) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 25, 42, 63, 66, 73, and 104, respectively;

(73) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 25, 42, 63, 4, 85, and 104, respectively;

(74) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 46, 64, 4, 87, and 104, respectively;

(75) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 48, 63, 66, 85, and 100, respectively;

(76) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 43, 63, 66, 73, and 106, respectively;

(77) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 42, 57, 4, 88, and 100, respectively;

(78) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 42, 57, 4, 89, and 100, respectively;

(79) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 42, 57, 4,

90, and 100, respectively;

(80) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 42, 57, 4, 92, and 100, respectively;

(81) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 42, 57, 4, 91, and 100, respectively;

(82) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 42, 57, 4, 94, and 100, respectively;

(83) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 42, 57, 4, 93, and 100, respectively;

(84) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 42, 57, 4, 93, and 109, respectively;

(85) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 23, 42, 57, 4, 73, and 100, respectively;

(86) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 29, 42, 57, 4, 73, and 100, respectively;

(87) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 27, 42, 57, 4, 73, and 108, respectively;

(88) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 27, 42, 57, 4, 73, and 107, respectively;

(89) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 27, 42, 57,

4, 73, and 109, respectively;

(90) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 27, 42, 57, 65, 73, and 100, respectively;

(91) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 27, 42, 57, 69, 73, and 100, respectively;

(92) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 27, 42, 57, 65, 73, and 109, respectively;

(93) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 27, 42, 57, 4, 93, and 109, respectively;

(94) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 27, 42, 57, 65, 86, and 100, respectively;

(95) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 27, 42, 57, 4, 86, and 100, respectively;

(96) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 27, 42, 57, 67, 73, and 108, respectively;

(97) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 27, 42, 57, 4, 95, and 108, respectively;

(98) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 27, 42, 57, 4, 94, and 108, respectively;

(99) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 27, 45, 57,

4, 73, and 100, respectively;

(100) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 27, 45, 57, 65, 73, and 100, respectively;

(101) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 27, 45, 57, 68, 73, and 100, respectively;

(102) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 27, 45, 57, 4, 73, and 108, respectively;

(103) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 27, 45, 57, 4, 73, and 107, respectively;

(104) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 27, 45, 57, 4, 73, and 109, respectively;

(105) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 27, 45, 57, 69, 73, and 100, respectively;

(106) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 27, 45, 57, 65, 73, and 109, respectively;

(107) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 27, 45, 57, 4, 86, and 100, respectively;

(108) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 27, 45, 57, 4, 93, and 109, respectively;

(109) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 27, 45, 57,

65, 86, and 100, respectively;

(110) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 34, 42, 57, 65, 73, and 100, respectively;

(111) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 44, 57, 68, 73, and 100, respectively;

(112) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 45, 57, 65, 73, and 100, respectively;

(113) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 45, 57, 69, 73, and 100, respectively;

(114) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 1, 45, 57, 4, 86, and 100, respectively;

(115) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 28, 42, 57, 4, 73, and 108, respectively;

(116) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 27, 42, 59, 4, 73, and 108, respectively;

(117) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 27, 42, 58, 4, 73, and 108, respectively;

(118) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 27, 42, 60, 4, 73, and 108, respectively;

(119) the heavy chain CDR1, the heavy chain CDR2, the heavy chain CDR3, the light chain CDR1, the light chain CDR2, and the light chain CDR3 are amino acid sequences shown in SEQ ID NOs: 27, 42, 61,

4, 73, and 108, respectively.

4. The antibody or antigen-binding fragment thereof according to any one of claims 1-3, wherein a heavy chain variable region thereof has an amino acid sequence having at least 75%, 80%, 85%, 90%, 95%, 98%, 99%, or 100% identity to a sequence shown in SEQ ID NO: 7, and a light chain variable region thereof has an amino acid sequence having at least 75%, 80%, 85%, 90%, 95%, 98%, 99%, or 100% identity to a sequence shown in SEQ ID NO: 8.

5. The antibody or antigen-binding fragment thereof according to any one of claims 1-4, further comprising a heavy chain constant region shown in SEQ ID NO: 9 and a light chain constant region shown in SEQ ID NO: 10.

6. The antibody or antigen-binding fragment thereof according to any one of claims 1-5, wherein the antibody or antigen-binding fragment thereof comprises a single-chain antibody, a single-domain antibody, a diabody, a triabody, a disulfide-stabilized antibody, a nanobody, a Fab fragment, a Fab' fragment, a $(Fab')_2$ fragment, a minibody, a monoclonal antibody, a polyclonal antibody, a monospecific antibody, a bispecific antibody, a multispecific antibody, a monovalent antibody, a multivalent antibody, a chimeric antibody, a fusion protein comprising an antigen-binding site of an antibody, or a full-length antibody immunoglobulin IgG1, IgG2, IgG3, IgG4, IgA, IgE, IgM, or IgD.

7. The antibody or antigen-binding fragment thereof according to any one of claims 1-6, wherein a heavy chain thereof is an amino acid sequence obtained by mutation of at least 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, or 17 positions occurring on a sequence shown in SEQ ID NO: 11, and the mutation comprises an insertion, deletion, and/or substitution.

8. The antibody or antigen-binding fragment thereof according to any one of claims 1-7, wherein the mutation is a substitution, and an amino acid position for the substitution is selected from at least one of positions 27, 29, 31, 32, 33, 34, 35, 54, 58, 59, 61, 62, 100, 103, 105, 106, and 108 of the sequence shown in SEQ ID NO: 11.

9. The antibody or antigen-binding fragment thereof according to any one of claims 1-8, wherein a light chain variable region thereof is an amino acid sequence obtained by mutation of at least 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, or 14 positions occurring on a sequence shown in SEQ ID NO: 12, and the mutation comprises an insertion, deletion, and/or substitution.

10. The antibody or antigen-binding fragment thereof according to any one of claims 1-9, wherein the mutation is a substitution, and an amino acid position for the substitution is selected from at least one of positions 28, 31, 32, 33, 49, 50, 51, 52, 54, 55, 88, 92, 94, and 95 of the sequence shown in SEQ ID NO: 12.

11. A polynucleotide, wherein the polynucleotide encodes the antibody or antigen-binding fragment thereof according to any one of claims 1-10.

12. A recombinant vector, wherein the recombinant vector comprises the polynucleotide according to claim 11.

13. A host cell, wherein the host cell comprises the polynucleotide according to claim 11 and/or the recombinant vector according to claim 12.

14. A pharmaceutical composition, wherein the pharmaceutical composition comprises the antibody or antigen-binding fragment thereof according to any one of claims 1-10.

15. A kit, wherein the kit comprises the antibody or antigen-binding fragment thereof according to any one of claims 1-10.

16. A multispecific antibody, wherein the multispecific antibody comprises the antibody or antigen-binding fragment thereof according to any one of claims 1-10, and further comprising one or more second antibodies or antigen-binding fragments thereof which bind specifically to other antigens.

17. The multispecific antibody according to claim 16, wherein the second antibody or the antigen-binding fragment thereof is selected from a full-length antibody, a Fab, a Fab'', a (Fab'')2, an Fv, an scFv,

an scFv-scFv, a minibody, a diabody, or an sdAb.

18. An antibody conjugate, wherein the antibody conjugate comprises the antibody or antigen-binding fragment thereof according to any one of claims 1-10, and a second functional structure selected from an Fc, a radioisotope, a half-life extending structural moiety, a detectable label, and a drug.

19. The antibody conjugate according to claim 18, wherein

the half-life extending structural moiety is selected from an albumin-binding structure, a transferrin-binding structure, a polyethylene glycol molecule, a recombinant polyethylene glycol molecule, a human serum albumin, a human serum albumin fragment, and a human serum albumin-binding polypeptide;

the detectable label is selected from a fluorophore, a chemiluminescent compound, a bioluminescent compound, an enzyme, an antibiotic resistance gene, and a contrast agent; and/or

the drug is selected from a cytotoxin and an immunomodulator.

20. Use of the antibody or antigen-binding fragment thereof according to any one of claims 1-10, the multispecific antibody according to claim 16 or 17, and/or the antibody conjugate according to claim 18 or 19 in preparing a drug, a reagent, or a kit for detecting, preventing, alleviating, or treating a disease.

21. The use according to claim 20, wherein the disease is associated with elevated expression levels of oligomers, dimers, tetramers, or higher-order multimers of S100A8 and S100A9.

22. The use according to claim 20, wherein the disease comprises myocardial infarction and myocardial ischemia/reperfusion injury.

23. Use of the antibody or antigen-binding fragment thereof according to any one of claims 1-10, the multispecific antibody according to claim 16 or 17, and/or the antibody conjugate according to claim 18 or 19 in preparing a drug, a reagent, or a kit for reducing a myocardial infarct size, improving a cardiac function, or improving a microcirculatory function.