

Claims

1. An antibody comprising at least one antigen-binding region capable of binding to 5T4 (Trophoblast glycoprotein),
5 comprising a heavy chain variable region (VH) and a light chain variable region (VL) selected from the group consisting of:
 - a) a heavy chain variable region (VH) comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID NOs.: 6, 7 and 8, respectively, and a light chain variable region (VL) comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID NO: 10, AAS and SEQ ID NO: 11, respectively [059],
10 b) a heavy chain variable region (VH) comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID NOs.: 41, 42 and 43, respectively, and a light chain variable region (VL) comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID NO: 45, DAS and SEQ ID NO: 46, respectively [207], and
c) a heavy chain variable region (VH) comprising the CDR1, CDR2, and CDR3 sequences of SEQ
15 ID NOs.: 48, 49 and 50, respectively, and a light chain variable region (VL) comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID NO: 52, DAS and SEQ ID NO: 53, respectively [226] .
2. The antibody according to claim 1, wherein said antigen-binding region capable of binding to 5T4 comprises a heavy chain variable region (VH) comprising the CDR1, CDR2, and CDR3 sequences of
20 SEQ ID NOs.: 6, 7, and 8, respectively, and a light chain variable region (VL) comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID NO: 10, AAS and SEQ ID NO: 11, respectively [059].
3. The antibody according to claim 1, wherein said antigen-binding region capable of binding to 5T4 comprises a heavy chain variable region (VH) comprising the CDR1, CDR2, and CDR3 sequences of
25 SEQ ID NOs.: 41, 42 and 43, respectively, and a light chain variable region (VL) comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID NO: 45, DAS and SEQ ID NO: 46, respectively [207].
4. The antibody according to claim 1, wherein said antigen-binding region capable of binding to 5T4 comprises a heavy chain variable region (VH) comprising the CDR1, CDR2, and CDR3 sequences of
SEQ ID NOs.: 48, 49 and 50, respectively, and a light chain variable region (VL) comprising the
CDR1, CDR2, and CDR3 sequences of SEQ ID NO: 52, DAS and 53, respectively [226].

5. The antibody according to any one of the preceding claims, wherein said antigen-binding region capable of binding to 5T4 comprises a heavy chain variable region (VH) selected from the group consisting of:
 - a) a heavy chain variable region (VH) comprising the sequence of SEQ ID NO: 5 or a sequence having at least 90%, at least 95%, at least 97%, or at least 99% amino acid sequence identity to the sequence of SEQ ID NO: 5 [059],
 - b) a heavy chain variable region (VH) comprising the sequence of SEQ ID NO: 40 or a sequence having at least 90%, at least 95%, at least 97%, or at least 99% amino acid sequence identity to the sequence of SEQ ID NO: 40 [207]; and
 - c) a heavy chain variable region (VH) comprising the sequence of SEQ ID NO: 47 or a sequence having at least 90%, at least 95%, at least 97%, or at least 99% amino acid sequence identity to the sequence of SEQ ID NO: 47 [226].
6. The antibody according to any one of the preceding claims 1, 2 and 5, wherein said antigen-binding region capable of binding to 5T4 comprises a heavy chain variable region (VH) comprising the sequence of SEQ ID NO: 5 or a sequence having at least 90%, at least 95%, at least 97%, or at least 99% amino acid sequence identity to the sequence of SEQ ID NO: 5 [059].
7. The antibody according to any one of the preceding claims 1, 3 and 5, wherein said antigen-binding region capable of binding to 5T4 comprises a heavy chain variable region (VH) comprising the sequence of SEQ ID NO: 40 or a sequence having at least 90%, at least 95%, at least 97%, or at least 99% amino acid sequence identity to the sequence of SEQ ID NO: 40 [207].
8. The antibody according to any one of the preceding claims 1, 4 and 5, wherein said antigen-binding region capable of binding to 5T4 comprises a heavy chain variable region (VH) comprising the sequence of SEQ ID NO: 47 or a sequence having at least 90%, at least 95%, at least 97%, or at least 99% amino acid sequence identity to the sequence of SEQ ID NO: 47 [226].
9. The antibody according to any one of the preceding claims, wherein said antigen-binding region capable of binding to 5T4 comprises a heavy chain variable region (VH) and a light chain variable region (VL) selected from the group consisting of:
 - a) a heavy chain variable region (VH) comprising the sequence of SEQ ID NO: 5 or a sequence having at least 90%, at least 95%, at least 97%, or at least 99% amino acid sequence identity to the sequence of SEQ ID NO: 5, and a light chain variable region (VL) comprising the sequence of SEQ ID NO: 9 or a sequence having at least 90%, at least 95%, at least 97%, or at least 99% amino acid sequence identity to the sequence of SEQ ID NO: 9 [059],

- 5 b) a heavy chain variable region (VH) comprising the sequence of SEQ ID NO: 12 or a sequence having at least 90%, at least 95%, at least 97%, or at least 99% amino acid sequence identity to the sequence of SEQ ID NO: 12, and a light chain variable region (VL) comprising the sequence of SEQ ID NO: 16 or a sequence having at least 90%, at least 95%, at least 97%, or at least 99% amino acid sequence identity to the sequence of SEQ ID NO: 16 [076],
- 10 c) a heavy chain variable region (VH) comprising the sequence of SEQ ID NO: 19 or a sequence having at least 90%, at least 95%, at least 97%, or at least 99% amino acid sequence identity to the sequence of SEQ ID NO: 19, and a light chain variable region (VL) comprising the sequence of SEQ ID NO: 23 or a sequence having at least 90%, at least 95%, at least 97%, or at least 99% amino acid sequence identity to the sequence of SEQ ID NO: 23 [085],
- 15 d) a heavy chain variable region (VH) comprising the sequence of SEQ ID NO: 26 or a sequence having at least 90%, at least 95%, at least 97%, or at least 99% amino acid sequence identity to the sequence of SEQ ID NO: 26, and a light chain variable region (VL) comprising the sequence of SEQ ID NO: 30 or a sequence having at least 90%, at least 95%, at least 97%, or at least 99% amino acid sequence identity to the sequence of SEQ ID NO: 30 [106],
- 20 e) a heavy chain variable region (VH) comprising the sequence of SEQ ID NO: 33 or a sequence having at least 90%, at least 95%, at least 97%, or at least 99% amino acid sequence identity to the sequence of SEQ ID NO: 33, and a light chain variable region (VL) comprising the sequence of SEQ ID NO: 37 or a sequence having at least 90%, at least 95%, at least 97%, or at least 99% amino acid sequence identity to the sequence of SEQ ID NO: 37 [127],
- 25 f) a heavy chain variable region (VH) comprising the sequence of SEQ ID NO: 40 or a sequence having at least 90%, at least 95%, at least 97%, or at least 99% amino acid sequence identity to the sequence of SEQ ID NO: 40, and a light chain variable region (VL) comprising the sequence of SEQ ID NO: 44 or a sequence having at least 90%, at least 95%, at least 97%, or at least 99% amino acid sequence identity to the sequence of SEQ ID NO: 44 [207],
- 30 g) a heavy chain variable region (VH) comprising the sequence of SEQ ID NO: 47 or a sequence having at least 90%, at least 95%, at least 97%, or at least 99% amino acid sequence identity to the sequence of SEQ ID NO: 47, and a light chain variable region (VL) comprising the sequence of SEQ ID NO: 51 or a sequence having at least 90%, at least 95%, at least 97%, or at least 99% amino acid sequence identity to the sequence of SEQ ID NO: 51 [226].
10. The antibody according to any one of the preceding claims, wherein said antigen-binding region capable of binding to 5T4 comprises a heavy chain variable region (VH) and a light chain variable region (VL) selected from the group consisting of:

- a) a heavy chain variable region (VH) comprising the sequence of SEQ ID NO: 5, and a light chain variable region (VL) comprising the sequence of SEQ ID NO: 9 [059],
 - b) a heavy chain variable region (VH) comprising the sequence of SEQ ID NO: 40, and a light chain variable region (VL) comprising the sequence of SEQ ID NO: 44 [207]; and
 - 5 c) a heavy chain variable region (VH) comprising the sequence of SEQ ID NO: 47, and a light chain variable region (VL) comprising the sequence of SEQ ID NO: 51 [226].
11. The antibody according to any of the preceding claims, wherein the antibody is a full-length antibody, such as a full length IgG1 antibody.
 12. The antibody according to any one of the preceding claims, which is a monospecific antibody.
 - 10 13. The antibody according to any one of claims 1 to 11, which is a bispecific antibody.
 14. The antibody according to claim 13, comprising an antigen binding region of an antibody capable of binding to CD3, such as human CD3 ϵ (epsilon), such as human CD3 ϵ (epsilon) as specified in SEQ ID NO: 4.
 - 15 15. The antibody according to claim 14, wherein the antigen-binding region capable of binding to CD3 comprises
 - a heavy chain variable region (VH) comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID NOs.: 54, 55 and 56, respectively; [wildtype anti-CD3 (SP34/humanized SP34, WO2015001085 (Genmab)) – VH CDR sequences];
 - and,
 - 20 a light chain variable region (VL) comprising comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID NO: 58, GTN and 59, respectively [wildtype anti-CD3, VL CDR sequences].
 16. The antibody according to claim 14 or 15, wherein the antigen binding region capable of binding to CD3 comprises
 - 25 a heavy chain variable region (VH) comprising the sequence of SEQ ID NO: 57, or a sequence having at least 90%, at least 95%, at least 97%, or at least 99% amino acid sequence identity to the sequence of SEQ ID NO: 57 [wildtype anti-CD3 – VH full length sequence];
 - and,
 - 30 a light chain variable region (VL) comprising the sequence of SEQ ID NO: 60 or a sequence having at least 90%, at least 95%, at least 97%, or at least 99% amino acid sequence identity to the sequence of SEQ ID NO: 60, [wild type anti-CD3 – VL full length sequence].

17. The antibody according to any one of claims 14 to 16, wherein said antigen binding region capable of binding to CD3 with an equilibrium dissociation constant K_D within the range of 200 – 1000 nM, such as within the range of 300 – 1000 nM, within the range of 400 – 1000 nM, within the range of 500 – 1000 nM, within the range of 300 – 900 nM within the range of 400 – 900 nM, within the range of 400 – 700 nM, within the range of 500 – 900 nM, within the range of 500 – 800 nM, within the range of 500 – 700 nM, within the range of 600 – 1000 nM, within the range of 600 – 900 nM, within the range of 600 – 800 nM, or such as within the range of 600 – 700 nM.
18. The antibody according to any one of claims 14 or 16, wherein said antigen binding region capable of binding to CD3 with an equilibrium dissociation constant K_D within the range of 1 – 100 nM, such as within the range of 5 – 100 nM, within the range of 10 – 100 nM, within the range of 1 – 80 nM, within the range of 1 – 60 nM within the range of 1 – 40 nM, within the range of 1 – 20 nM, within the range of 5 – 80 nM, within the range of 5 – 60 nM, within the range of 5 – 40 nM, within the range of 5 – 20 nM, within the range of 10 – 80 nM, within the range of 10 – 60 nM, within the range of 10 – 40 nM, or such as within the range of 10 – 20 nM.
19. The antibody according to any one of claims 14 to 18, wherein
- the antigen binding region capable of binding to CD3 comprises a heavy chain variable (VH) region comprising a CDR1 sequence, a CDR2 sequence and a CDR3 sequence,
- the heavy chain variable (VH) region, when compared to a heavy chain variable (VH) region comprising the sequence set forth in SEQ ID NO: 57, has an amino acid substitution in one of the CDR sequences, the substitution being selected from the group consisting of: T31M, T31P, N57E, H101G, H101N, G105P, S110A, S110G, Y114M, Y114R, Y114V, the positions being numbered according to the sequence of SEQ ID NO: 57 [VH_huCD3-H1L1]; and
- the wild type light chain variable (VL) region comprises the CDR1, CDR2 and CDR3 sequences set forth in SEQ ID NO: 58, GTN and SEQ ID NO: 59, respectively.
20. The antibody according to any one of claims 14 and 19, wherein the antigen-binding region capable of binding to CD3 comprises:
- a) a heavy chain variable region (VH) comprising CDR1, CDR2, and CDR3 having the sequences as set forth in SEQ ID NOs: 61, 55, and 56 [VH CDR1-T31P + Wild type VH CDRs 2,3], respectively, and a light chain variable region (VL) comprising CDR1, CDR2, and CDR3

- having the sequences as set forth in SEQ ID NO: 58, the sequence GTN, and the sequence as set forth in SEQ ID NO: 59, respectively [Wild type VL CDRs 1,2,3], or
- 5 b) a heavy chain variable region (VH) comprising CDR1, CDR2, and CDR3 having the sequences as set forth in SEQ ID NOs: 63, 55, and 56 [VH CDR1-T31M + Wild type VH CDRs 2,3], respectively, and a light chain variable region (VL) comprising CDR1, CDR2, and CDR3 having the sequences as set forth in SEQ ID NO: 58, the sequence GTN, and the sequence as set forth in SEQ ID NO: 59, respectively [Wild type VL CDRs 1,2,3], respectively, or
- 10 c) a heavy chain variable region (VH) comprising CDR1, CDR2, and CDR3 having the sequences as set forth in SEQ ID NOs: 54, 65, and 56 [VH CDR-N57E + Wild type VH CDRs 1,3], respectively, and a light chain variable region (VL) comprising CDR1, CDR2, and CDR3 having the sequences as set forth in SEQ ID NO: 58, the sequence GTN, and the sequence as set forth in SEQ ID NO: 59, respectively [Wild type VL CDRs 1,2,3], respectively, or
- 15 d) a heavy chain variable region (VH) comprising CDR1, CDR2, and CDR3 having the sequences as set forth in SEQ ID NOs: 54, 55, and 67 [Wild type VH CDRs 1,2 + VH CDR3-H101G], respectively, and a light chain variable region (VL) comprising CDR1, CDR2, and CDR3 having the sequences as set forth in SEQ ID NO: 58, the sequence GTN, and the sequence as set forth in SEQ ID NO: 59, respectively [Wild type VL CDRs 1,2,3] , respectively.
- 20 e) a heavy chain variable region (VH) comprising CDR1, CDR2, and CDR3 having the sequences as set forth in SEQ ID NOs: 54, 55, and 69 [Wild type VH CDRs 1,2 + VH CDR3-H101N], respectively, and a light chain variable region (VL) comprising CDR1, CDR2, and CDR3 having the sequences as set forth in SEQ ID NO: 58, the sequence GTN, and the sequence as set forth in SEQ ID NO: 59, respectively [Wild type VL CDRs 1,2,3] , respectively;
- 25 f) a heavy chain variable region (VH) comprising CDR1, CDR2, and CDR3 having the sequences as set forth in SEQ ID NOs: 54, 55, and 71 [Wild type VH CDRs 1,2 + VH CDR3-G105P], respectively, and a light chain variable region (VL) comprising CDR1, CDR2, and CDR3 having the sequences as set forth in SEQ ID NO: 58, the sequence GTN, and the sequence as set forth in SEQ ID NO: 59, respectively [Wild type VL CDRs 1,2,3] ,
- 30 g) a heavy chain variable region (VH) comprising CDR1, CDR2, and CDR3 having the sequences as set forth in SEQ ID NOs: 54, 55, and 73 [Wild type VH CDRs 1,2 + VH CDR3-S110A], respectively, and a light chain variable region (VL) comprising CDR1, CDR2, and

- CDR3 having the sequences as set forth in SEQ ID NO: 58, the sequence GTN, and the sequence as set forth in SEQ ID NO: 59, respectively [Wild type VL CDRs 1,2,3], respectively, or
- 5 h) a heavy chain variable region (VH) comprising CDR1, CDR2, and CDR3 having the sequences as set forth in SEQ ID NOs: 54, 55, and 75 [Wild type VH CDRs 1,2 + VH CDR3-S110G], respectively, and a light chain variable region (VL) comprising CDR1, CDR2, and CDR3 having the sequences as set forth in SEQ ID NO: 58, the sequence GTN, and the sequence as set forth in SEQ ID NO: 59, respectively [Wild type VL CDRs 1,2,3], respectively,
- 10 i) a heavy chain variable region (VH) comprising CDR1, CDR2, and CDR3 having the sequences as set forth in SEQ ID NOs: 54, 55, and 77 [Wild type VH CDRs 1,2 + VH CDR3-Y114V], respectively, and a light chain variable region (VL) comprising CDR1, CDR2, and CDR3 having the sequences as set forth in SEQ ID NO: 58, the sequence GTN, and the sequence as set forth in SEQ ID NO: 59, respectively [Wild type VL CDRs 1,2,3], respectively,
- 15 j) a heavy chain variable region (VH) comprising CDR1, CDR2, and CDR3 having the sequences as set forth in SEQ ID NOs: 54, 55, and 79 [Wild type VH CDRs 1,2 + VH CDR3-Y114M], respectively, and a light chain variable region (VL) comprising CDR1, CDR2, and CDR3 having the sequences as set forth in SEQ ID NO: 58, the sequence GTN, and the sequence as set forth in SEQ ID NO: 59, respectively [Wild type VL CDRs 1,2,3], respectively, or
- 20 k) a heavy chain variable region (VH) comprising CDR1, CDR2, and CDR3 having the sequences as set forth in SEQ ID NOs: 54, 55, and 81 [Wild type VH CDRs 1,2 + VH CDR3-Y114R], respectively, and a light chain variable region (VL) comprising CDR1, CDR2, and CDR3 having the sequences as set forth in SEQ ID NO: 58, the sequence GTN, and the sequence as set forth in SEQ ID NO: 59, respectively [Wild type VL CDRs 1,2,3], respectively.
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21. The antibody according to any one of claims 14 and 19, wherein the antigen-binding region capable of binding to CD3 comprises a heavy chain variable region (VH) comprising CDR1, CDR2, and CDR3 having the sequences as set forth in SEQ ID NOs: 54, 55, and 67 [Wild type VH CDRs 1,2 + VH CDR3-H101G], respectively, and a light chain variable region (VL) comprising CDR1, CDR2, and CDR3 having the sequences as set forth in SEQ ID NO: 58, the sequence GTN, and the sequence as set forth in SEQ ID NO: 59, respectively [Wild type VL CDRs 1,2,3], respectively.
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22. The antibody according to any one of claims 14 and 19, wherein
the antigen-binding region capable of binding to 5T4 comprises a heavy chain variable region (VH) comprising CDR1, CDR2, and CDR3 sequences of SEQ ID NOs.: 6, 7 and 8, respectively,
and a light chain variable region (VL) comprising the CDR1, CDR2, and CDR3 sequences of SEQ
ID NO: 10, AAS and SEQ ID NO: 11, respectively [059];
and
the antigen-binding region capable of binding to CD3 comprises a heavy chain variable region (VH) comprising CDR1, CDR2, and CDR3 having the sequences as set forth in SEQ ID NOs: 54, 55, and 67 [Wild type VH CDRs 1,2 + VH CDR3-H101G], respectively, and a light chain variable region (VL) comprising CDR1, CDR2, and CDR3 having the sequences as set forth in SEQ ID NO: 58, the sequence GTN, and the sequence as set forth in SEQ ID NO: 59, respectively [Wild type VL CDRs 1,2,3], respectively.
23. The antibody according to any one of claims 14 and 19, wherein
the antigen-binding region capable of binding to 5T4 comprises a heavy chain variable region (VH) comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID NOs.: 41, 42 and 43, respectively, and a light chain variable region (VL) comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID NO: 45, DAS and 46, respectively [207];
and
the antigen-binding region capable of binding to CD3 comprises a heavy chain variable region (VH) comprising CDR1, CDR2, and CDR3 having the sequences as set forth in SEQ ID NOs: 54, 55, and 67 [Wild type VH CDRs 1,2 + VH CDR3-H101G], respectively, and a light chain variable region (VL) comprising CDR1, CDR2, and CDR3 having the sequences as set forth in SEQ ID NO: 58, the sequence GTN, and the sequence as set forth in SEQ ID NO: 59, respectively [Wild type VL CDRs 1,2,3] , respectively.
24. The antibody according to any one of claims 14 and 19 to 21, wherein
the antigen-binding region capable of binding to 5T4 comprises a heavy chain variable region (VH) comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID NOs.: 48, 49 and 50, respectively, and a light chain variable region (VL) comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID NO: 52, DAS and 53, respectively [226];
and
the antigen-binding region capable of binding to CD3 comprises a heavy chain variable region (VH) comprising CDR1, CDR2, and CDR3 having the sequences as set forth in SEQ ID NOs: 54,

55, and 67 [Wild type VH CDRs 1,2 + VH CDR3-H101G], respectively, and a light chain variable region (VL) comprising CDR1, CDR2, and CDR3 having the sequences as set forth in SEQ ID NO: 58, the sequence GTN, and the sequence as set forth in SEQ ID NO: 59, respectively [Wild type VL CDRs 1,2,3], respectively.

- 5** 25. The antibody according to any one of claims 14 and 19 to 24, wherein the antigen-binding region capable of binding to human CD3 comprises a VH sequence and a VL sequence selected from the group consisting of:
- a) a VH sequence as set forth in SEQ ID NO: 62 [VH T31P full length sequence] and a VL sequence as set forth in SEQ ID NO: 60 [Wild type full length sequence],
 - 10** b) a VH sequence as set forth in SEQ ID NO: 64 [VH T31M full length sequence] and a VL sequence as set forth in SEQ ID NO: 60,
 - c) a VH sequence as set forth in SEQ ID NO: 66 [VH N57E full length sequence] and a VL sequence as set forth in SEQ ID NO: 60,
 - d) a VH sequence as set forth in SEQ ID NO: 68 [VH H101G full length sequence] and a VL sequence as set forth in SEQ ID NO: 60,
 - 15** e) a VH sequence as set forth in SEQ ID NO: 70 [VH H101N full length sequence] and a VL sequence as set forth in SEQ ID NO: 60,
 - f) a VH sequence as set forth in SEQ ID NO: 72 [VH G105P full length sequence] and a VL sequence as set forth in SEQ ID NO: 60,
 - 20** g) a VH sequence as set forth in SEQ ID NO: 74 [VH S110A full length sequence] and a VL sequence as set forth in SEQ ID NO: 60,
 - h) a VH sequence as set forth in SEQ ID NO: 76 [VH S110G full length sequence] and a VL sequence as set forth in SEQ ID NO: 60,
 - i) a VH sequence as set forth in SEQ ID NO: 78 [VH Y114V full length sequence] and a VL sequence as set forth in SEQ ID NO: 60,
 - 25** j) a VH sequence as set forth in SEQ ID NO: 80 [VH Y114M full length sequence] and a VL sequence as set forth in SEQ ID NO: 60; and
 - k) a VH sequence as set forth in SEQ ID NO: 82 [VH Y114R full length sequence] and a VL sequence as set forth in SEQ ID NO: 60.
- 30** 26. The antibody according to any one of claims 14 and 19 to 25, wherein the antigen-binding region capable of binding to human CD3 comprises a VH sequence as set forth in SEQ ID NO: 68 [VH H101G full length sequence] and a VL sequence as set forth in SEQ ID NO: 60.

27. The antibody according to any one of claims 19 to 26, wherein
- the antigen-binding region capable of binding to 5T4 comprises a heavy chain variable region (VH) comprising the sequence of SEQ ID NO: 5 or a sequence having at least 90%, at least 95%, at least 97%, or at least 99% amino acid sequence identity to the sequence of SEQ ID NO: 5 [059 - VH full length sequence];
- and
- the antigen-binding region capable of binding to human CD3 comprises a VH sequence as set forth in SEQ ID NO: 68 [VH H101G full length sequence] and a VL sequence as set forth in SEQ ID NO: 60.
28. The antibody according to any one of claims 14 and 19 to 26, wherein
- the antigen-binding region capable of binding to 5T4 comprises a heavy chain variable region (VH) comprising the sequence of SEQ ID NO: 40 or a sequence having at least 90%, at least 95%, at least 97%, or at least 99% amino acid sequence identity to the sequence of SEQ ID NO: 40 [207 - VH full length sequence];
- and
- the antigen-binding region capable of binding to human CD3 comprises a VH sequence as set forth in SEQ ID NO: 68 [VH H101G full length sequence] and a VL sequence as set forth in SEQ ID NO: 60.
29. The antibody according to any one of claims 14, 19 to 21, and 24 to 26, wherein
- the antigen-binding region capable of binding to 5T4 comprises a heavy chain variable region (VH) comprising the sequence of SEQ ID NO: 47 or a sequence having at least 90%, at least 95%, at least 97%, or at least 99% amino acid sequence identity to the sequence of SEQ ID NO: 47 [226 - VH full length sequence];
- and
- the antigen-binding region capable of binding to human CD3 comprises a VH sequence as set forth in SEQ ID NO: 68 [VH H101G full length sequence] and a VL sequence as set forth in SEQ ID NO: 60.
30. The antibody according to any of claims 14 and 19 to 27, wherein
- the antigen-binding region capable of binding to 5T4 comprises a heavy chain variable region (VH) comprising the sequence of SEQ ID NO: 5 or a sequence having at least 90%, at least 95%, at least 97%, or at least 99% amino acid sequence identity to the sequence of SEQ ID NO: 5, and a heavy chain light region (VL) comprising the sequence of SEQ ID NO: 9 or a

sequence having at least 90%, at least 95%, at least 97%, or at least 99% amino acid sequence identity to the sequence of SEQ ID NO: 9 [059];

and

5 the antigen-binding region capable of binding to human CD3 comprises a VH sequence as set forth in SEQ ID NO: 68 [VH H101G full length sequence] and a VL sequence as set forth in SEQ ID NO: 60.

31. The antibody according to any of claims 14, 19 to 26 and 28, wherein

10 the antigen-binding region capable of binding to 5T4 comprises a heavy chain variable region (VH) comprising the sequence of SEQ ID NO: 40 or a sequence having at least 90%, at least 95%, at least 97%, or at least 99% amino acid sequence identity to the sequence of SEQ ID NO: 40, and a heavy chain light region (VL) comprising the sequence of SEQ ID NO: 44 or a sequence having at least 90%, at least 95%, at least 97%, or at least 99% amino acid sequence identity to the sequence of SEQ ID NO: 44 [207 – VH + VL full length sequences];

and

15 the antigen-binding region capable of binding to human CD3 comprises a VH sequence as set forth in SEQ ID NO: 68 [VH H101G full length sequence] and a VL sequence as set forth in SEQ ID NO: 60.

32. The antibody according to any of claims 14, 19 to 25 and 29, wherein

20 the antigen-binding region capable of binding to 5T4 comprises a heavy chain variable region (VH) comprising the sequence of SEQ ID NO: 47 or a sequence having at least 90%, at least 95%, at least 97%, or at least 99% amino acid sequence identity to the sequence of SEQ ID NO: 47, and a heavy chain light region (VL) comprising the sequence of SEQ ID NO: 51 or a sequence having at least 90%, at least 95%, at least 97%, or at least 99% amino acid sequence identity to the sequence of SEQ ID NO: 51 [226 – VH + VL full length sequences];

25 and

the antigen-binding region capable of binding to human CD3 comprises a VH sequence as set forth in SEQ ID NO: 68 [VH H101G full length sequence] and a VL sequence as set forth in SEQ ID NO: 60.

30 33. The antibody according to any one of the preceding claims, wherein each antigen-binding region comprises a heavy chain variable region (VH) and a light chain variable region (VL), and wherein

- said variable regions each comprise three CDR sequences, CDR1, CDR2 and CDR3, respectively, and four framework sequences, FR1, FR2, FR3 and FR4, respectively.
34. The antibody according to claim 33, wherein the antibody comprises two heavy chain constant regions (CH), and two light chain constant regions (CL).
- 5 35. The antibody according to claim 33 or 34, wherein said antibody comprises a first and a second heavy chain, each of said first and second heavy chain comprises at least a hinge region, a CH2 and CH3 region,
- 10 wherein the amino acid in the position corresponding to K409 in a human IgG1 heavy chain is R in said first heavy chain, and the amino acid in the position corresponding to F405 in a human IgG1 heavy chain is L in said second heavy chain, or *vice versa*.
36. The antibody according to any one of the preceding claims, wherein the antibody comprises a first and a second heavy chain, and wherein in both the first and the second heavy chain, the amino acid residues at the positions corresponding to positions L234 and L235 in a human IgG1 heavy chain according to EU numbering are F and E, respectively.
- 15 37. The antibody according to any one of the preceding claims, wherein antibody comprises a first and a second heavy chain, and wherein in both the first and the second heavy chain, the amino acid residue at the position corresponding to position D265 in a human IgG1 heavy chain according to EU numbering is A.
38. The antibody according to any one of the preceding claims, wherein
- 20 a) the antigen-binding region(s) capable of binding to 5T4 is/are humanized, and/or
- b) the antigen-binding region capable of binding to CD3, if present, is humanized.
39. The antibody according to any one of the preceding claims, wherein
- a) the antigen-binding region(s) capable of binding to 5T4 is/are human, and/or
- b) the antigen-binding region capable of binding to CD3, if present, is human.
- 25 40. The antibody according to any one of the preceding claims, wherein said antibody comprises a kappa (κ) light chain.
41. The antibody according to any one of the preceding claims, wherein said antibody comprises a lambda (λ) light chain.
42. The antibody according to any of the preceding claims, wherein said antibody comprises a lambda (λ) light chain and a kappa (κ) light chain; e.g. an antibody with a heavy chain and a lambda light
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- chain which comprise the binding region capable of binding to CD3, and a heavy chain and a kappa light chain which comprise the binding region capable of binding to 5T4.
43. The bispecific antibody according to any one of claims 14, 19-21, 24-26, 29, and 32 to 42, comprising
- 5 an antigen-binding region capable of binding 5T4, which comprises a heavy chain variable region (VH) sequence as set forth in SEQ ID NO: 40, and a light chain variable region (VL) sequence as set forth in SEQ ID NO: 44 [207],
- an antigen-binding region capable of binding to human CD3 comprises a VH sequence as set forth in SEQ ID NO: 68 [VH H101G full length sequence] and a VL sequence as set forth in SEQ ID NO:
- 10 60,
- a first and a second heavy chain, wherein
- in said first heavy chain the amino acids in the positions corresponding to positions L234, L235, D265 and K409 in a human IgG1 heavy chain, are F, E, A and R respectively, the amino acid positions being numbered according to EU numbering,
- 15 in said second heavy chain the amino acids in the positions corresponding to positions L234, L235, D265 and F405 in a human IgG1 heavy chain, are F, E, A and L respectively, the amino acid positions being numbered according to EU numbering,
- an Fc region, which is a human IgG1 isotype; and
- a kappa light chain constant region consisting of the sequence set forth in SEQ ID NO: 95, and a
- 20 lambda light chain constant region consisting of the sequence set forth in Seq ID NO: 96.
44. An immunoconjugate or antibody-drug conjugate (ADC) comprising the antibody according to any one of the preceding claims, and a therapeutic moiety, such as a cytotoxic agent, a chemotherapeutic drug, a cytokine, an immunosuppressant, antibiotic, or a radioisotope.
45. A nucleic acid construct comprising
- 25 a) a nucleic acid sequence encoding a heavy chain sequence of an antibody comprising an antigen-binding region capable of binding to 5T4 as defined in any one of claims 1-43, and/or
- b) a nucleic acid sequence encoding a light chain sequence of an antibody comprising an antigen-binding region capable of binding to 5T4 as defined in any one of claims 14 to 43.
- 30 46. The nucleic acid construct according to claim 45, further comprising

- a) a nucleic acid sequence encoding a heavy chain sequence of an antibody comprising an antigen-binding region capable of binding to CD3 as defined in any one of claims 14 to 43; and/or
- b) a nucleic acid sequence encoding a light chain sequence of an antibody comprising an antigen-binding region capable of binding to CD3 as defined in any one of claims 14 to 43.
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47. An expression vector comprising
- a) a nucleic acid sequence encoding a heavy chain sequence of an antibody comprising an antigen-binding region capable of binding to 5T4 as defined in any one of claims 1 to 43, and/or
- 10 b) a nucleic acid sequence encoding a light chain sequence of an antibody comprising an antigen-binding region capable of binding to 5T4 as defined in any one of claims 1 to 43.
48. An expression vector according to claim 69, further comprising
- a) a nucleic acid sequence encoding a heavy chain sequence of an antibody comprising an antigen-binding region capable of binding to CD3 as defined in any one of claims 14 to 43; and/or
- 15 b) a nucleic acid sequence encoding a light chain sequence of an antibody comprising an antigen-binding region capable of binding to CD3 as defined in any one of claims 14 to 43.
49. A cell comprising a nucleic acid construct as defined in any one of claims 45 to 46, or an expression vector as defined in claim 47 to 48, such as a cell that has been obtained by transfecting a host cell with said nucleic acid construct or expression vector, such as a recombinant host cell.
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50. The cell according to claim 49, wherein said host cell is of human origin, such as a human embryonic kidney (HEK) cell, such as a HEK/Expi cell, or is of rodent origin, such as a Chinese hamster ovary cell, such as a CHO/N50 cell.
51. A composition comprising an antibody or immunoconjugate or antibody-drug conjugate (ADC) as defined in any one of claims 1 to 44.
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52. A pharmaceutical composition comprising an antibody or immunoconjugate or antibody-drug conjugate (ADC) as defined in any one of claims 1 to 44 and a pharmaceutically acceptable carrier.
53. Use of an antibody or immunoconjugate or antibody-drug conjugate (ADC) as defined in any of claims 1 to 44 for the manufacture of a medicament for the treatment of cancer, wherein the cancer is characterized by expression of 5T4 in at least some of the tumor cells.
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54. The use according to any one of claims 55 to 56, wherein the cancer is selected from the group consisting of kidney/renal cancer, breast cancer, colorectal cancer, prostate cancer, ovarian cancer, bladder cancer, uterine/endometrial/ cervical cancer, lung cancer, gastro-intestinal cancer, stomach cancer, pancreatic cancer, thyroid cancer, head and neck cancer, lymphoma, acute myeloid leukemia.
55. A method for producing an antibody as defined in any of claims 1 to 43, comprising the steps of
- a) culturing a host cell comprising an expression vector as defined in claim 51 or 52; and
 - b) and purifying said antibody from the culture medium.
56. A method for producing an antibody as defined in any one of claims 14 to 43, comprising the steps of
- a) Providing an antibody capable of binding to 5T4 by culturing a host cell comprising an expression vector as defined in claim 47 or 48 under conditions allowing expression of the antibody capable of binding to 5T4, and purifying the antibody capable of binding to 5T4 from the culture medium;
 - b) Providing an antibody capable of binding to CD3 by culturing a host cell comprising an expression vector comprising
 - I) a nucleic acid sequence encoding a heavy chain sequence of an antibody comprising an antigen-binding region capable of binding to CD3 as defined in any one of claims 14-43; and
 - II) a nucleic acid sequence encoding a light chain sequence of an antibody comprising an antigen-binding region capable of binding to CD3 as defined in any one of claims 14-43;
 under conditions allowing expression of the antibody capable of binding to CD3, and purifying the antibody capable of binding to CD3 from the culture medium;
 - c) incubating said antibody capable of binding to 5T4 together with said antibody capable of binding to CD3 under reducing conditions sufficient to allow cysteines in the hinge region to undergo disulfide-bond isomerization, and
 - d) obtaining said antibody.
57. A kit-of-parts, such as a kit for use as a companion diagnostic/for identifying within a population of patients those patients which have a propensity to respond to treatment with an antibody as defined in any one of claims 1 to 43 or an immunoconjugate or antibody-drug conjugate (ADC) as

defined in claim 44, or for predicting efficacy of said antibody or immunoconjugate or ADC when used in treatment of a patient, comprising an antibody as defined in any one of claims 1 to 43; and instructions for use of said kit.

58. An anti-idiotypic antibody, which binds to the antigen-binding region capable of binding to 5T4 as defined in any one of claims 1 to 43.
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