

CLAIMS

1. A library of T cell receptors (TCRs), wherein the library comprises at least 26 TCRs, wherein the library includes TCRs that have CDR3a and CDR3b sequences that
- 5 respectively correspond to each CDR3a / CDR3b pairing of the following list:
- CDR3a: AETLDNYGQNFV (SEQ ID NO:1)
and CDR3b: SAVDRDEPFHSNQPQH (SEQ ID NO:18);
- CDR3a: ATWLSGSARQLTF (SEQ ID NO:2)
and CDR3b: ASSNRASSYNEQF (SEQ ID NO:19);
- 10 CDR3a: AVNLYAGNMLT (SEQ ID NO:3)
and CDR3b: ASSSDFGNQPQH (SEQ ID NO:20);
- CDR3a: CGADRGGGKLIF (SEQ ID NO:4)
and CDR3b: CASSLFKGADTQYF (SEQ ID NO:21);
- CDR3a: CAYRSGLNNDMRF (SEQ ID NO:5)
15 and CDR3b: CASSLELAGPWGNEQFF (SEQ ID NO:22);
- CDR3a: AVSDNQGGKLI (SEQ ID NO:6)
and CDR3b: ASSLSAAYEQY (SEQ ID NO:23);
- CDR3a: CAVRYNNARLMF (SEQ ID NO:7)
and CDR3b: CSAPAGMGYEQYF (SEQ ID NO:24);
- 20 CDR3a: CVVNGVDSSYKLIF (SEQ ID NO:8)
and CDR3b: CASEMAGGGDNYYGYTF (SEQ ID NO:25);
- CDR3a: CLVGDEDTGRRALTF (SEQ ID NO:9)
and CDR3b: CASSFSGKASYEQYF (SEQ ID NO:26);
- CDR3a: CAVRDQTGANNLFF (SEQ ID NO:10)
25 and CDR3b: CASSPEPTSGSFNEQFF (SEQ ID NO:27);
- CDR3a: CAVNMVAGNMLTF (SEQ ID NO:11)
and CDR3b: CASSPDSSGANVLTF (SEQ ID NO:28);
- CDR3a: CAVDGNNRLAF (SEQ ID NO:12)
and CDR3b: CSVDMDWGIGGYTF (SEQ ID NO:29);
- 30 CDR3a: CAGAGYGGSQGNLIF (SEQ ID NO:13)
and CDR3b: CASSIAGGAEQYF (SEQ ID NO:30);
- CDR3a: CAYIGNAGNMLTF (SEQ ID NO:14)

and CDR3b: CASSLSYRGLGEQFF (SEQ ID NO:31);
 CDR3a: CAVYHTGFQKLVF (SEQ ID NO:15)
 and CDR3b: CASSSRQGGTYEQYF (SEQ ID NO:32);
 CDR3a: CAESMGDFNKFYF (SEQ ID NO:16)
 5 and CDR3b: CASSPGEGNQPHF (SEQ ID NO:33);
 CDR3a: CAVSTNFGNEKLTF (SEQ ID NO: 17)
 and CDR3b: CASSASLADNTGELFF (SEQ ID NO:34),
 CDR3a: CAESTGGSYIPTF (SEQ ID NO:151)
 and CDR3b: CASASDSDEKLFF (SEQ ID NO:160),
 10 CDR3a: CAVNAPGGYNKLIF (SEQ ID NO:152)
 and CDR3b: CASSISQGGYGYTF (SEQ ID NO:161),
 CDR3a: CAVERPTGGYNKLIF (SEQ ID NO:153)
 and CDR3b: CASSPGTDYEQYF (SEQ ID NO:162),
 CDR3a: CAVEDYGQNFVF (SEQ ID NO:154)
 15 and CDR3b: CSARDLSGRSLDTQYF (SEQ ID NO:163),
 CDR3a: CALSDSSGGSYIPTF (SEQ ID NO:155)
 and CDR3b: CASSLGRQTNTEAFF (SEQ ID NO:164),
 CDR3a: CAACYSGYALNF (SEQ ID NO:156)
 and CDR3b: CASSYRPKLDTEAFF (SEQ ID NO:165),
 20 CDR3a: CAVVTNDYKLSF (SEQ ID NO:157)
 and CDR3b: CASSQDLGQGSDTQYF (SEQ ID NO:166),
 CDR3a: CAMRSFAQAGTALIF (SEQ ID NO:158)
 and CDR3b: CASSQRGKGQGDEETQYF (SEQ ID NO:167), and
 CDR3a: CAGWISPQGAQKLVF (SEQ ID NO:159)
 25 and CDR3b: CASSLSTNTEAFF (SEQ ID NO:168),
 such that each listed CDR3a / CDR3b pairing is present in the TCR library;
 and/or wherein the TCR library includes TCRs that have CDR3a and CDR3b
 sequences that respectively correspond to each pairing set forth in the above list, in which
 one or two amino acids are replaced with another amino acid, such that each CDR3a /
 30 CDR3b pairing is present with up to one or two amino acid substitutions in the TCR library.

2. The TCR library according to claim 1, wherein the TCRs of the library have
 the CDR3a and CDR3b sequences and the MHC restrictions, as shown the following table:

TCR	CDR3a / CDR3b	MHC restriction
1	AETLDNYGQNFV (SEQ ID NO:1) SAVDRDEPFHSNQPQH (SEQ ID NO:18)	HLA-C*0801
2	ATWLSGSARQLTF (SEQ ID NO:2) ASSNRASSYNEQF (SEQ ID NO:9)	HLA-A*0201; HLA-A*0203; HLA-A*0206; HLA-A*0207
3	AVNLYAGNMLT (SEQ ID NO:3) ASSSDFGNQPQH (SEQ ID NO:20)	HLA-A*0201; HLA-A*0203; HLA-A*0206; HLA-A*0207
4	CGADRGGGKLIF (SEQ ID NO:4) CASSLFKGADTQYF (SEQ ID NO:21)	HLA-A*0201; HLA-A*0203; HLA-A*0206; HLA-A*0207
5	CAYRSGLNNDMRF (SEQ ID NO:5) CASSLELAGPWGNEQFF (SEQ ID NO:22)	HLA-A*1101; HLA-A*1102
6	AVSDNQGGKLI (SEQ ID NO:6) ASSLSAAYEQY (SEQ ID NO:23)	HLA-B*5801 / HLA-C*0302
7	CAVRYNNARLMF (SEQ ID NO:7) CSAPAGMGYEQYF (SEQ ID NO:24)	HLA-B*5801 / HLA-C*0302
8	CVVNGVDSSYKLIF (SEQ ID NO:8) CASEMAGGGDNYGYTF (SEQ ID NO:25)	HLA-A*0201; HLA-A*0203; HLA-A*0206; HLA-A*0207
9	CLVGDEDTGRRALTF (SEQ ID NO:9) CASSFSGKASYEQYF (SEQ ID NO:26)	HLA-B*0706; HLA-B*3915
10	CAVRDQTGANNLFF (SEQ ID NO:10) CASSPEPTSGSFNEQFF (SEQ ID NO:27)	HLA-A*0201; HLA-A*0203; HLA-A*0206; HLA-A*0207
11	CAVNMVAGNMLTF (SEQ ID NO:11) CASSPDSSGANVLTf (SEQ ID NO:28)	HLA-A*0201; HLA-A*0203; HLA-A*0206; HLA-A*0207

12	CAVDGNNRLAF (SEQ ID NO:12) CSVDMDWGIGGYTF (SEQ ID NO:29)	HLA-A*1101 ; HLA-A*1102
13	CAGAGYGGSQGNLIF (SEQ ID NO:13) CASSIAGGAEQYF (SEQ ID NO:30)	HLA-B*4001
14	CAYIGNAGNMLTF (SEQ ID NO:14) CASSLSYRGLGEQFF (SEQ ID NO:31)	HLA-A*1101; HLA-A*1102
15	CAVYHTGFQKLVF (SEQ ID NO:15) CASSSRQGGTYEQYF (SEQ ID NO:32)	HLA-B*4040; HLA-C*0822
16	CAESMGDFNKFYF (SEQ ID NO:16) CASSPGEGNQPHF (SEQ ID NO:33)	HLA-A*6802; HLA-B*1510
17	CAVSTNFGNEKLTF (SEQ ID NO:17) CASSASLADNTGELFF (SEQ ID NO:34)	HLA-C*0706
18	CAESTGGSYIPTF (SEQ ID NO:151) CASASDSDDEKLFF (SEQ ID NO:160)	HLA-A*2401; HLA-A*2402; HLA-A*2407
19	CAVNAPGGYNKLIF (SEQ ID NO:152) CASSISQGGYGYTF (SEQ ID NO:161)	HLA-B*4403
20	CAVERPTGGYNKLIF (SEQ ID NO:153) CASSPGTDYEYQYF (SEQ ID NO:162)	HLA-A*1101; HLA-A*1102
21	CAVEDYGQNFVF (SEQ ID NO:154) CSARDLSGRSLDTQYF (SEQ ID NO:163)	HLA-B*3501; HLA-B*3503
22	CALSDSSGGSYIPTF (SEQ ID NO:155) CASSLGRQTNTEAFF (SEQ ID NO:164)	HLA-B*5502
23	CAACYSGYALNF (SEQ ID NO:156) CASSYRPKLDTEAFF (SEQ ID NO:165)	HLA-C*1202; HLA-C*1203

24	CAVVTNDYKLSF (SEQ ID NO:157) CASSQDLGQGSDTQYF (SEQ ID NO:166)	HLA-C*1202; HLA-C*1203
25	CAMRSFAQAGTALIF (SEQ ID NO:158) CASSQRGKGQGDEETQYF (SEQ ID NO:167)	HLA-B*5801; HLA-C*0302
26	CAGWISPQGAQKLVF (SEQ ID NO:159) CASSLSTNTEAFF (SEQ ID NO:168)	HLA-A*2401; HLA-A*2402; HLA-A*2407

, or wherein the TCRs of the library have the MHC restriction and the CDR sequences as shown in the above table, in which one or two amino acids of the CDR sequences are replaced with another amino acid.

3. The TCR library according to claim 1 or 2, wherein the TCR library includes
5 fourteen or more TCRs that are restricted to an HLA-A molecule of subtype HLA-A*02, HLA-A*11, HLA-A*68, or HLA-A*24; and/or

wherein the TCR library includes eleven or more TCRs that are restricted to an HLA-B molecule of subtype HLA-B*07, HLA-B*15, HLA-B*39, HLA-B*40, HLA-B*58, HLA-B*44, HLA-B*35, or HLA-B*55; and/or

- 10 wherein the TCR library includes nine or more TCRs that are restricted to an HLA-C molecule of subtype HLA-C*03, HLA-C*07, HLA-C*08, or HLA-C*12.

4. The TCR library according to any one of claims 1-3, wherein the TCR library includes three or more TCRs that have a CDR3a sequence comprising amino acid motif DNYG (SEQ ID NO:117), and/or six or more TCRs that have a CDR3a sequence comprising
15 amino acid motif KLI (SEQ ID NO:118), and/or six or more TCRs that have a CDR3a sequence comprising amino acid motif LTF (SEQ ID NO:122), and/or four or more TCRs that have a CDR3a sequence comprising amino acid motif AGNMLT (SEQ ID NO:123), and/or three or more TCRs that have a CDR3a sequence comprising amino acid motif GGKLI (SEQ ID NO:125), and/or eleven or more TCRs that have a CDR3a sequence comprising amino
20 acid motif CAV (SEQ ID NO:126), and/or four or more TCRs that have a CDR3a sequence comprising amino acid motif GGS (SEQ ID NO:193), and/or three or more TCRs that have a CDR3a sequence comprising amino acid motif NxRLzF (SEQ ID NO:128), wherein the x in NxRLzF (SEQ ID NO:128) is arginine (R) or alanine (A) and the z in NxRLzF (SEQ ID NO:128) is methionine (M) or alanine (A);

- and/or wherein the TCR library includes four or more TCRs that have a CDR3b sequence comprising amino acid motif NQPQH (SEQ ID NO:133), and/or 21 or more TCRs that have a CDR3b sequence comprising amino acid motif ASS (SEQ ID NO:134), and/or four or more TCRs that have a CDR3b sequence comprising amino acid motif EQFF (SEQ ID NO:139), and/or nine or more TCRs that have a CDR3b sequence comprising amino acid motif QYF (SEQ ID NO:141), and/or ten or more TCRs that have a CDR3b sequence comprising amino acid motif EQ (SEQ ID NO:142), and/or four or more TCRs that have a CDR3b sequence comprising amino acid motif GYTF (SEQ ID NO:150), and/or four or more TCRs that have a CDR3b sequence comprising amino acid motif TEAFF (SEQ ID NO:192).
- 5
- 10
5. The TCR library according to any one of the preceding claims, wherein the TCRs of the library have the CDRs shown in the following table:

TCR, a/b chain	CDR1	CDR2	CDR3
TCR1, α	DSSSTY (SEQ ID NO:58)	IFSNMDM (SEQ ID NO:35)	AETLDNYGQNFV (SEQ ID NO:1)
TCR1, β	DFQATT (SEQ ID NO:72)	SNEGSKA (SEQ ID NO:47)	SAVDRDEPFHSNQPQH (SEQ ID NO:18)
TCR2, α	TSINN (SEQ ID NO:59)	IRSNERE (SEQ ID NO:36)	ATWLSGSARQLTF (SEQ ID NO:2)
TCR2, β	SGHDY (SEQ ID NO:73)	FNNNVP (SEQ ID NO:48)	ASSNRASSYNEQF (SEQ ID NO:19)
TCR3, α	DRGSQS (SEQ ID NO:60)	IYSNGD (SEQ ID NO:37)	AVNLYAGNMLT (SEQ ID NO:3)
TCR3, β	SGHVS (SEQ ID NO:74)	FQNEAQ (SEQ ID NO:49)	ASSSDFGNQPQH (SEQ ID NO:20)
TCR4, α	KTLYG (SEQ ID NO:61)	LQKGEE (SEQ ID NO:38)	CGADRGGGKLIF (SEQ ID NO:4)
TCR4, β	MDHEN (SEQ ID NO:75)	SYDVKM (SEQ ID NO:50)	CASSLFKGADTQYF (SEQ ID NO:21)

TCR5, α	TSESDYY (SEQ ID NO:62)	QEAYKQQ N (SEQ ID NO:39)	CAYRSGLNNDMRF (SEQ ID NO:5)
TCR5, β	SGHAT (SEQ ID NO:76)	FQNNGV (SEQ ID NO:51)	CASSLELAGPWGNEQFF (SEQ ID NO:22)
TCR6, α	SSVSVY (SEQ ID NO:63)	YLSGSTLV (SEQ ID NO:40)	AVSDNQGGKLI (SEQ ID NO:6)
TCR6, β	SGHNS (SEQ ID NO:77)	FNNNVP (SEQ ID NO:48)	ASSLSAAIEQY (SEQ ID NO:23)
TCR7, α	TSGFNG (SEQ ID NO:64)	NVLDGL (SEQ ID NO:41)	CAVRYNNARLMF (SEQ ID NO:7)
TCR7, β	DFQATT (SEQ ID NO:72)	SNEGSKA (SEQ ID NO:47)	CSAPAGMGIEQYF (SEQ ID NO:24)
TCR8, α	NSASQS (SEQ ID NO:65)	VYSSGN (SEQ ID NO:42)	CVVNGVDSSYKLIF (SEQ ID NO:8)
TCR8, β	MDHEN (SEQ ID NO:75)	SYDVKM (SEQ ID NO:50)	CASEMAGGGDNYGYTF (SEQ ID NO:25)
TCR9, α	NIATNDY (SEQ ID NO:66)	GYKTK (SEQ ID NO:43)	CLVGDEDTGRRALTF (SEQ ID NO:9)
TCR9, β	MNHEY (SEQ ID NO:78)	SMNVEV (SEQ ID NO:52)	CASSFSGKASIEQYF (SEQ ID NO:26)
TCR10, α	SVFSS (SEQ ID NO:67)	VVTGGEV (SEQ ID NO:44)	CAVRDQTGANNLFF (SEQ ID NO:10)
TCR10, β	LGHNA (SEQ ID NO:79)	YNFKEQ (SEQ ID NO:53)	CASSPEPTSGSFNEQFF (SEQ ID NO:27)
TCR11, α	DRGSQS (SEQ ID NO:60)	IYSNGD (SEQ ID NO:37)	CAVNMVAGNMLTF (SEQ ID NO:11)
TCR11, β	SGHTA (SEQ ID	FQGTGA (SEQ ID	CASSPDSSGANVLTF (SEQ ID NO:28)

	NO:80)	NO:54)	
TCR12, α	DSVNN (SEQ ID NO:68)	IPSGT (SEQ ID NO:45)	CAVDGNNRLAF (SEQ ID NO:12)
TCR12, β	SQVTM (SEQ ID NO:81)	ANQGSEA (SEQ ID NO:55)	CSVDMDWGIGGYTF (SEQ ID NO:29)
TCR13, α	SVFSS (SEQ ID NO:67)	VVTGGEV (SEQ ID NO:44)	CAGAGYGGSQGNLIF (SEQ ID NO:13)
TCR13, β	LNHDA (SEQ ID NO:82)	SQIVND (SEQ ID NO:56)	CASSIAGGAEQYF (SEQ ID NO:30)
TCR14, α	TSESDYY (SEQ ID NO:62)	QEAYKQQ N (SEQ ID NO:39)	CAYIGNAGNMLTF (SEQ ID NO:14)
TCR14, β	MNHEY (SEQ ID NO:78)	SMNVEV (SEQ ID NO:52)	CASSLSYRGLGEQFF (SEQ ID NO:31)
TCR15, α	VSGLRG (SEQ ID NO:69)	LYSAGEE (SEQ ID NO:46)	CAVYHTGFQKLVF (SEQ ID NO:15)
TCR15, β	MDHEN (SEQ ID NO:75)	SYDVKM (SEQ ID NO:50)	CASSSRQGGTYEQYF (SEQ ID NO:32)
TCR16, α	DSSSTY (SEQ ID NO:58)	IFSNMDM (SEQ ID NO:35)	CAESMGDFNKFYF (SEQ ID NO:16)
TCR16, β	MNHEY (SEQ ID NO:78)	SMNVEV (SEQ ID NO:52)	CASSPGEGNQPHF (SEQ ID NO:33)
TCR17, α	DRVSQS (SEQ ID NO:70)	IYSNGD (SEQ ID NO:37)	CAVSTNFGNEKLTF (SEQ ID NO:17)
TCR17, β	SGDLS (SEQ ID NO:83)	YYNGEE (SEQ ID NO:57)	CASSASLADNTGELFF (SEQ ID NO:34)
TCR18, α	DSSSTY (SEQ ID	IFSNMDM (SEQ ID	CAESTGGSYIPTF (SEQ ID NO:151)

	NO:58)	NO:35)	
TCR18, β	SNHLY (SEQ ID NO:187)	FYNNEI (SEQ ID NO:175)	CASASDSDDEKLFF (SEQ ID NO:160)
TCR19, α	YGGTVN (SEQ ID NO:181)	YFSGDPLV (SEQ ID NO:169)	CAVNAPGGYKNLIF (SEQ ID NO:152)
TCR19, β	LNHDA (SEQ ID NO:82)	SQIVND (SEQ ID NO:56)	CASSISQGGYGYTF (SEQ ID NO:161)
TCR20, α	DSVNN (SEQ ID NO:68)	IPSGT (SEQ ID NO:45)	CAVERPTGGYKNLIF (SEQ ID NO:153)
TCR20, β	SGHRS (SEQ ID NO:188)	YFSETQ (SEQ ID NO:176)	CASSPGTDYEQYF (SEQ ID NO:162)
TCR21, α	DSAIYN (SEQ ID NO:182)	IQSSQRE (SEQ ID NO:170)	CAVEDYGQNFVF (SEQ ID NO:154)
TCR21, β	DFQATT (SEQ ID NO:72)	SNEGSKA (SEQ ID NO:47)	CSARDLSGRSLDTQYF (SEQ ID NO:163)
TCR22, α	TRDTTTY (SEQ ID NO:183)	RNSFDEQ N (SEQ ID NO:171)	CALSDSSGGSYIPTF (SEQ ID NO:155)
TCR22, β	SEHNR (SEQ ID NO:189)	FQNEAQ (SEQ ID NO:49)	CASSLGRQTNTEAFF (SEQ ID NO:164)
TCR23, α	DSASNY (SEQ ID NO:184)	IRSNVGE (SEQ ID NO:172)	CAACYSGYALNF (SEQ ID NO:156)
TCR23, β	MNHEY	SVGAGI	CASSYRPKLDTEAFF (SEQ ID NO:165)

	(SEQ ID NO:78)	(SEQ ID NO:177)	
TCR24, α	DSAIYN (SEQ ID NO:182)	IQSSQRE (SEQ ID NO:170)	CAVVTNDYKLSF (SEQ ID NO:157)
TCR24, β	LGHDT (SEQ ID NO:190)	YNNKEL (SEQ ID NO:178)	CASSQDLGQGSDTQYF (SEQ ID NO:166)
TCR25, α	TSDQSYG (SEQ ID NO:185)	QGSYDEQ N (SEQ ID NO:173)	CAMRSFAQAGTALIF (SEQ ID NO:158)
TCR25, β	LGHNA (SEQ ID NO:79)	YNFKEQ (SEQ ID NO:53)	CASSQRGKGQGDEETQYF (SEQ ID NO:167)
TCR26, α	TTLN (SEQ ID NO:186)	LVKSGEV (SEQ ID NO:174)	CAGWISPQGAQKLVF (SEQ ID NO:159)
TCR26, β	SSHAT (SEQ ID NO:191)	FNIEAQ (SEQ ID NO:180)	CASSLSTNTEAFF (SEQ ID NO:168)

, or wherein the TCRs of the library have CDR sequences corresponding to the CDRs set forth in the above table, wherein one or two amino acids of the CDRs of the TCR as set forth in the table may be replaced with another amino acid in the TCRs of the library.

6. The TCR library according to claim 5, wherein the TCR library includes four or more TCRs that have a CDR1a sequence comprising amino acid motif DSSSTY (SEQ ID NO:58), and/or five or more TCRs that have a CDR1a sequence comprising amino acid motif SQS (SEQ ID NO:87), and/or three or more TCRs that have a CDR1a sequence comprising amino acid motif TSESDYY (SEQ ID NO:62), and/or three or more TCRs that have a CDR1a sequence comprising amino acid motif SVFSS (SEQ ID NO:67), and/or three or more TCRs that have a CDR1a sequence comprising amino acid motif SxNN (SEQ ID NO:84), wherein the x in SxNN (SEQ ID NO:84) is isoleucine (I) or valine (V);

and/or wherein the TCR library includes four or more TCRs that have a CDR1b sequence comprising amino acid motif DFQATT (SEQ ID NO:72), and/or eight or more TCRs that have a CDR1b sequence comprising amino acid motif SG (SEQ ID NO:95), and/or four or more TCRs that have a CDR1b sequence comprising amino acid motif GHN (SEQ ID NO:102), and/or seven or more TCRs that have a CDR1b sequence comprising amino acid motif MxHEz (SEQ ID NO:97), wherein the x in MxHEz (SEQ ID NO:97) is asparagine (N) or aspartic acid (D) and wherein the z in MxHEz (SEQ ID NO:97) is asparagine (N) or tyrosine (Y);

and/or wherein the TCR library includes nine or more TCRs that have a CDR2a sequence comprising amino acid: SN (SEQ ID NO:104), and/or three or more TCRs that have a CDR2a sequence comprising amino acid motif GGE (SEQ ID NO:107), and/or four or more TCRs that have a CDR2a sequence comprising amino acid motif YK (SEQ ID NO:109), and/or three or more TCRs that have a CDR2a sequence comprising amino acid motif GEE (SEQ ID NO:111);

and/or wherein the TCR library includes four or more TCRs that have a CDR2b sequence comprising amino acid motif SNEGSKA (SEQ ID NO:47), and/or three or more TCRs that have a CDR2b sequence comprising amino acid motif FNNNVP (SEQ ID NO:48), and/or four or more TCRs that have a CDR2b sequence comprising amino acid motif FQN (SEQ ID NO:179), and/or four or more TCRs that have a CDR2b sequence comprising amino acid motif SYDVKM (SEQ ID NO:50), and/or four or more TCRs that have a CDR2b sequence comprising amino acid motif SMNVEV (SEQ ID NO:52).

7. A TCR selected from the TCR library according to any one of the preceding claims, wherein the selected TCR does not comprise SEQ ID NO:1 or 18, wherein the selected TCR does not comprise SEQ ID NO:2 or 19, and wherein the selected TCR does not comprise SEQ ID NO:3 or 20.

8. An isolated nucleic acid encoding the alpha and/or beta chain of TCR according to claim 7.

9. The isolated nucleic acid according to claim 8, wherein the nucleic acid encodes both the alpha and beta chain.

10. The isolated nucleic acid according to claim 9, wherein the nucleic acid comprises:

(a) a nucleic acid sequence encoding a TCR α -chain comprising a variable region and a constant region;

(b) a nucleic acid sequence encoding a TCR β -chain comprising a variable region and a constant region; and

(c) a nucleic acid sequence encoding a cleavable linker,

wherein sequence (c) is located in the isolated nucleic acid between sequences (a) and (b), and wherein sequences (a), (b) and (c) are in the same reading frame.

11. A pair of isolated nucleic acids, each according to claim 8, wherein a first member of the pair encodes the alpha chain and wherein a second member of the pair encodes the beta chain.

12. A vector comprising the nucleic acid or nucleic acids according to any one of claims 8-11.

13. A library of isolated nucleic acids according to claims 8-11, or of vectors according to claim 12, wherein the library of nucleic acids or vectors encodes a TCR library according to any one of claims 1-6.

14. A method of producing a T cell that is capable of participating in an immune reaction against an HBV infected cell, an HBV/HDV co-infected cell, and/or against a transformed cell that expresses an HBV antigen, the method comprising introducing a nucleic acid according to any one of claims 8-11 or a vector according to claim 12 into a recipient T cell or T cell precursor and then propagating the recipient T cell or T cell precursor.

15. The method according to claim 14, wherein recipient T cell or T cell precursor has been obtained from a patient who has, or had, or is at risk of contracting an HBV infection, an HDV infection, and/or a hepatocellular carcinoma.

16. The method according to claim 15, wherein the nucleic acid or vector is introduced into the recipient T cell or T cell precursor by electroporation.

17. The method according to claim 15 or claim 16, wherein the recipient T cell is an activated T cell.

18. A method of selecting a patient for treatment, wherein the method comprises determining the HLA-A haplotype, the HLA-B haplotype, and/or the HLA-C haplotype of the patient, and then selecting a TCR from a TCR library according to any one of claims 1-6, wherein the selected TCR is restricted to an HLA-A, HLA-B, and/or HLA-C molecule expressed by the patient.

19. The method according to claim 18, wherein the patient has, or had, or is at risk of contracting an HBV infection, an HDV infection, and/ or a hepatocellular carcinoma.

20. The method according to claim 18 or claim 19, wherein the method further comprises detecting an HBV antigen and/or an HBV nucleic acid fragment in a sample that
5 has been taken from the patient prior to selecting the TCR from the TCR library.

21. The method according to any one of claims 18-20, wherein the patient has not received a liver transplant.

22. The method according to any one of claims 18-20, wherein the patient has received, or is scheduled to receive, a liver transplant.

10 23. The method according to claim 22, wherein the method further comprises determining the HLA-A haplotype, the HLA-B haplotype, and/or the HLA-C haplotype of the transplanted liver.

24. A T cell comprising a TCR selected from the TCR library according to any one of claims 1-6, for use in a method of treating a patient that has been selected according to
15 the method of any one of claims 18-23.

25. A method of treating a patient that has been selected by the method of any one of claims 15-20, the method comprising administering to the patient a T cell that expresses a selected TCR selected from the TCR library according to any one of claims 1-6.

26. The T cell for the use according to claim 24, or the method according to claim
20 25, wherein the T cell is administered via intravenous infusion.

27. The T cell for the use according to claim 24, or the method according to claim 25, wherein the T cell is administered via intra-tumoral injection.

28. The T cell for the use according to claim 24, or the method according to claim 25, wherein the T cell is administered via intra-arterial injection.

25 29. The T cell for the use, or the method according to any one of claims 25-28, wherein the T cell that expresses the TCR selected from the library has been produced by introducing a nucleic acid according to any one of claims 8-11 or a vector according to claim 12 into a T cell, wherein the T cell is an autologous T cell that had been harvested from the patient, or is an allogeneic T cell that had been harvested from a donor.

30. The method according to any one of claims 25-29, wherein the patient has been diagnosed with recurrent HBV-related HCC.

31. The method according to any one of claims 25-30, wherein the patient has received, or is scheduled to receive, a liver transplant.

5 32. A T cell that expresses a TCR according to claim 7.

33. The T cell according to claim 32, wherein the T cell also expresses a further endogenous TCR that is not from the TCR library.

34. The T cell according to claim 32 or claim 33, wherein the T cell is a CD8+ T cell.

10 35. The T cell according to any one of claims 32-34 for use in medicine.

36. The T cell according to any one of claims 32-34 for use in a method of treating a patient that has been selected by the method of any one of claims 18-23, the method comprising administering the T cell to the patient.

15 37. The T cell for the use according to claim 36, wherein the T cell is administered via intravenous infusion.

38. The T cell for the use according to claim 36 or claim 37, wherein the T cell has been produced by introducing a nucleic acid according to any one of claims 8-11 or a vector according to claim 12 into a T cell, wherein the T cell is an autologous T cell that had been harvested from the patient, or is an allogeneic T cell that had been harvested from a donor.

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39. The T cell for the use according to any one of claims 36-38, wherein the patient has been diagnosed with recurrent HBV-related HCC.

40. The T cell for the use according to any one of claims 36-39, wherein the patient has received, or is scheduled to receive, a liver transplant.

25 41. Use of the T cell according to any one of claims 32-34 in the manufacture of a medicament for treating a patient that has been selected by the method of any one of claims 18-23.

42. Use of the TCR according to claim 7 in the manufacture of a medicament for treating a patient that has been selected by the method of any one of claims 18-23.

43. The use according to claim 41, wherein the T cell is administered to the patient via intravenous infusion.

44. The use according to claim 41 or claim 43, wherein the T cell has been produced by introducing a nucleic acid according to any one of claims 8-11 or a vector
5 according to claim 12 into a T cell, wherein the T cell is an autologous T cell that had been harvested from the patient, or is an allogeneic T cell that had been harvested from a donor.

45. The use according to any one of claims 41-42, wherein the patient has been diagnosed with recurrent HBV-related HCC.

46. The use according to any one of claims 41-45, wherein the patient has
10 received, or is scheduled to receive, a liver transplant.

47. The TCR library, the TCR, the T cell, the T cell for use, the method, or the use according to any one of the preceding claims, wherein the TCR is a chimeric TCR.

48. The TCR according to claim 7, wherein the TCR is a soluble TCR.

49. A natural killer cell (NK cell) cell that expresses a TCR according to claim 7.

15 50. A natural killer T cell (NKT cell) that expresses a TCR according to claim 7.