CLAIMS

1. An isolated peptide ~~comprising~~ consisting of an amino acid sequence set forth in SEQ ID No. 91~~, wherein said peptide is not a full-length polypeptide~~; or a pharmaceutically acceptable salt of the peptide.

2. The isolated peptide according to claim 1, wherein said peptide maintains the ability to bind to a molecule of the human major histocompatibility complex (MHC) class-I ~~or II~~, and wherein said peptide is capable of stimulating ~~CD4 and/or~~ CD8 T cells.

~~3. The isolated peptide according to claim 1 or claim 2, wherein said peptide has an overall length of from 9 to 100, preferably from 9 to 30, and more preferred from 9 to 16 amino acids, and most preferred wherein the peptide consists or consists essentially of an amino acid sequence according to SEQ ID No. 91.~~

4~~3~~. The isolated peptide according to any one of claims 1 to ~~3~~2, wherein said peptide ~~is modified and/or~~ includes non-peptide bonds.

~~5~~4. The isolated peptide according to any one of claims 1 to 4~~3~~, wherein said peptide is part of a fusion protein, in particular comprising N-terminal amino acids of the HLA-DR antigen-associated invariant chain (Ii).

~~6~~5. An *in vitro* method for producing activated cytotoxic T lymphocytes (CTL), the method comprising contacting *in vitro* CTL with antigen loaded human class I ~~or II~~ MHC molecules expressed on the surface of a suitable antigen-presenting cell or an artificial construct mimicking an antigen-presenting cell for a period of time sufficient to activate said CTL in an antigen specific manner, wherein said antigen is a peptide according to any one of claims 1 to ~~5~~4.

~~7~~6. An activated cytotoxic T lymphocyte (CTL), produced by the method according to claim ~~6~~5, that selectively recognises a cell which aberrantly expresses a polypeptide comprising an amino acid sequence as defined in any one of claims 1 to 4~~3~~.

~~8~~7. ~~A method for killing target cells in a patient which target cells aberrantly express a polypeptide comprising an amino acid sequence defined in any one of claims 1 to 4, the method comprising administering to the patient~~ Use of an effective number of cytotoxic T lymphocytes (CTL) according to claim ~~7~~6 in the manufacture of a medicament for killing target cancer cells in a patient which target cancer cells aberrantly express a polypeptide consisting of an amino acid sequence of SEQ ID No. 91.

~~9~~8. An isolated antibody that specifically recognizes the peptide according to any one of claims 1 to 4, preferably a peptide according to any one of claims 1 to ~~4~~3 that is bound to an MHC molecule.

~~10~~9. ~~Use of a~~An isolated peptide according to any one of claims 1 to ~~5~~4, the activated cytotoxic T lymphocyte according to claim ~~7~~6 or the antibody according to claim ~~9~~8, for use in the treatment of cancer ~~or in the manufacture of a medicament for treating cancer~~, wherein said cancer is breast cancer, or a cancer which shows an ~~overexpression of a protein from which~~ over-presentation of a peptide consisting of SEQ ID No. 91 ~~is derived from~~.

~~11~~10. The isolated peptide according to any one of claims 1 to ~~5~~4, the activated cytotoxic T lymphocyte according to claim ~~7~~6, or the antibody according to claim ~~9~~8, for use in a method of treating cancer in a subject, wherein the isolated peptide, the activated cytotoxic T lymphocyte or the antibody is to be administered to the subject, and wherein said cancer is breast cancer, or a cancer which shows an ~~overexpression of a protein from which~~ over-presentation of a peptide consisting of SEQ ID No. 91 ~~is derived from~~.

~~12~~11. The ~~use according to claim 10 or the~~ isolated peptide, the activated cytotoxic T lymphocyte according to claim 6 or the antibody for use ~~of~~ according to claim 8 or claim ~~11~~9, wherein said cancer which shows an ~~overexpression of a protein from which~~over-presentation of a peptide consisting of SEQ ID No. 91 is derived from is selected from astrocytoma, pilocytic astrocytoma, dysembryoplastic neuroepithelial tumor, oligodendrogliomas, ependymoma, glioblastoma multiforme, mixed gliomas, oligoastrocytomas, medulloblastoma, retinoblastoma, neuroblastoma, germinoma, teratoma, gangliogliomas, gangliocytoma, central gangliocytoma, primitive neuroectodermal tumors (PNET, e.g. medulloblastoma, medulloepithelioma,

neuroblastoma, retinoblastoma, ependymoblastoma), tumors of the pineal parenchyma (e.g. pineocytoma, pineoblastoma), ependymal cell tumors, choroid plexus tumors, neuroepithelial tumors of uncertain origin (e.g. gliomatosis cerebri, astroblastoma), glioblastoma prostate tumor, esophageal cancer, colorectal cancer, clear cell renal cell carcinoma, lung cancer, CNS, ovarian, melanoma pancreatic cancer, squamous cell carcinoma, leukemia medulloblastoma, colon, rectum, stomach, kidney, lung, pancreas, prostate, and skin.

~~13~~12. A kit comprising:

(a) a container comprising a pharmaceutical composition containing the isolated peptide according to any one of claims 1 to ~~5~~4, the activated cytotoxic T lymphocyte according to claim ~~7~~6, or the antibody according to claim ~~9~~8, in solution or in lyophilized form;

(b) optionally, a second container containing a diluent or reconstituting solution for the lyophilized formulation;

(c) optionally, at least one more peptide selected from the group consisting of SEQ ID No. 1 to 90, and SEQ ID No. 92 to 131, and

(d) optionally, instructions for (i) use of the solution or (ii) reconstitution and/or use of the lyophilized formulation, and

optionally further comprising one or more of (iii) a buffer, (iv) a diluent, (v) a filter, (vi) a needle, or (vii) a syringe.

~~14~~13. An isolated T-cell receptor that is reactive with an HLA ligand ~~having:~~

~~at least 80% identity to an amino acid sequence set forth in SEQ ID No. 91; or~~

~~at least 90% identity, or at least 95% identity, to SEQ ID No. 91; or~~

~~wherein the HLA ligand comprises the amino acid sequence set forth in SEQ ID No. 91; or~~

wherein the HLA ligand consists of the amino acid sequence set forth in SEQ ID No. 91.

~~15~~14. A fusion protein, comprising:

(a) an amino acid sequence ~~that is at least 80% identical to~~consisting of SEQ ID No. 91; and

(b) N-terminal amino acids 1-80 of HLA-DR antigen-associated invariant chain (Ii~~), or~~

~~wherein said amino acid sequence of (a) is at least 90% identical, preferably at least 95% identical, to SEQ ID No. 91, or~~

~~wherein said amino acid sequence of (a) consists of SEQ ID No. 91~~.

~~16~~15. An isolated nucleic acid linked to a heterologous promoter sequence, encoding for:
(a) the peptide according to any one of claims 1 to ~~5~~4;
(b) the T cell receptor according to claim ~~14~~13; or
(c) the fusion protein according to claim ~~15~~14,
optionally wherein the isolated nucleic acid is DNA, cDNA, PNA, RNA, or combinations thereof.

~~17~~16. An expression vector comprising a nucleic acid according to claim ~~16~~15.

~~18~~17. The isolated peptide according to any one of claims 1 to ~~5~~4, the nucleic acid according to claim ~~16~~15, or the expression vector according to claim ~~17~~16, for use in medicine.

~~19~~18. A host cell comprising the nucleic acid according to claim ~~16~~15, or the expression vector according to claim ~~17~~16, optionally wherein the host cell is an antigen presenting cell, for example a dendritic cell.

~~20~~19. A method for producing: (a) the peptide according to any one of claims 1 to ~~5~~4; or (b) the T cell receptor according to claim ~~14~~13; or (c) the fusion protein according to claim ~~15~~14, said method comprising culturing the host cell according to claim ~~19~~18, and isolating said peptide, said T cell receptor, or said fusion protein, from said host cell and/or its culture medium.

~~21~~20. The method according to claim ~~6~~5, wherein said antigen-presenting cell comprises an expression vector capable of expressing the peptide according to any one of claims 1 to ~~5~~4.

~~22~~21. An activated cytotoxic T lymphocyte (CTL), produced by the method according to claim ~~6~~ 5 or claim ~~21~~20.

~~23. A method of killing target cancer cells in a patient, the method comprising administering to said patient an effective number of cytotoxic T lymphocytes (CTL) according to claim 22.~~

~~24~~22. Use of the peptide according to any one of claims 1 to ~~5~~4, the T cell receptor according to claim ~~14~~13, the fusion protein according to claim ~~15~~14, the nucleic acid according to claim ~~16~~15, the expression vector according to claim ~~17~~16, the host cell according to claim ~~19~~18, or the activated cytotoxic T lymphocyte according to claim ~~22~~21~~, as a medicament, or~~ in the manufacture of a medicament for treating cancer, wherein said cancer is breast cancer, or a cancer which shows an over-presentation of a peptide consisting of SEQ ID No. 91.