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Claims

1. A peptide consisting of an amino acid sequence of SEQ ID No. 323, wherein said peptide binds to molecule(s) of the major histocompatibility complex (MHC) and/or induces T cells cross-reacting with said peptide; or a pharmaceutical acceptable salt thereof.

2. The peptide according to claim 1, wherein said peptide includes non-peptide bonds.

3. An isolated antibody, in particular a soluble or membrane-bound antibody, that specifically recognizes the peptide according to any of claim 1 when bound to an MHC molecule.

4. A recombinant, soluble or membrane-bound T-cell receptor that is reactive with an HLA ligand, wherein said ligand consists of SEQ ID No. 323.

5. The T-cell receptor according claim 4, wherein said T-cell receptor is provided as a soluble molecule and optionally carries a further effector function, such as an immune stimulating domain or toxin.

6. The T-cell receptor according to claim 4, wherein the ligand is part of a peptide-MHC complex.

7. A nucleic acid, encoding for a peptide according to any one of claims 1 or 2, or encoding for a TCR according to claims 4 to 6 , optionally linked to a heterologous promoter sequence.

8. An expression vector expressing the nucleic acid according to claim 7.

9. A recombinant host cell comprising the peptide according to any one of claims 1 to 2, the nucleic acid according to claim 7 or the expression vector according to claim 8, wherein said host cell for example is an antigen presenting cell such as a dendritic cell, or wherein said host cell for example is a T cell or NK cell.

10. A method for producing the peptide according to any one of claims 1 to 2, or the TCR according to claims 4 to 6, said method comprising culturing a host cell according to Claim 9, and isolating said peptide or TCR from said host cell and/or its culture medium.

11. An *in vitro* method for producing activated T lymphocytes, the method comprising contacting *in vitro* T cells with antigen loaded human class I 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 T cells in an antigen specific manner, wherein said antigen is a peptide according to claim 1.

12. The peptide according to any one of claims 1 to 2, the antibody according to claim 3, the TCR according to claims 4 to 6, the nucleic acid according to claim 7, the expression vector according to claim 8, or the host cell according to claim 10 for use in therapy.

13. Use of the peptide according to any one of claims 1 to 2, the antibody according to claim 3, the TCR according to claims 4 to 6, the nucleic acid according to claim 7, the expression vector according to claim 8, or the host cell according to claim 9 in the manufacture of a medicament for the treatment of cancer.

14. The use according to claim 13, wherein said cancer is selected from the group of glioblastoma, breast cancer, colorectal cancer, renal cell carcinoma, chronic lymphocytic leukemia, hepatocellular carcinoma, non-small cell and small cell lung cancer, Non-Hodgkin lymphoma, acute myeloid leukemia, ovarian cancer, pancreatic cancer, prostate cancer, esophageal cancer including cancer of the gastric-esophageal junction, gallbladder cancer and cholangiocarcinoma, melanoma, gastric cancer, testis cancer, urinary bladder cancer, or uterine cancer, and other tumours that show an overexpression of a protein from which the peptide SEQ ID No. 323 is derived from.

15. A kit comprising:
a) a container comprising a pharmaceutical composition containing the peptide according to any one of claims 1 to 2, the antibody according to claim 3, the TCR according to claims 4 to 6, the nucleic acid according to claim 7, the expression vector according to claim 8, or the host cell according to claim 9 in solution or in lyophilized form;
b) optionally, a second container containing a diluent or reconstituting solution for the lyophilized formulation; and
c) optionally, instructions for (i) use of the solution or (ii) reconstitution and/or use of the lyophilized formulation.

16. The kit according to claim 15, further comprising one or more of (iii) a buffer, (iv) a diluent, (v) a filter, (vi) a needle, or (vii) a syringe.

17. A pharmaceutical composition comprising at least one active ingredient selected from the group consisting of the peptide according to any one of claims 1 to 2, the antibody according to claim 3, the TCR according to claims 4 to 6, the nucleic acid according to claim 7, the expression vector according to claim 8, or the host cell according to claim 9, and a pharmaceutically acceptable carrier, and optionally additional pharmaceutically acceptable excipients and/or stabilizers.