

Claims

1. An anti-cancer peptide able to elicit anti-cancer T-cells having a sequence which (i) has at least ~~80~~90% sequence identity to a sequence selected from the group consisting of:

MTSAIGILPV (SEQ ID NO: 80)

ITSAIGILPV (SEQ ID NO: 77)

ITSAIGVLPV (SEQ ID NO: 76)

MTSAIGVLPV (SEQ ID NO: 78)

~~QTSAIGVLPV (SEQ ID NO: 79)~~

LTSAIGVLPV (SEQ ID NO: 81)

ITSGIGVLPV (SEQ ID NO: 82)

~~ITSAIGVLPI (SEQ ID NO: 83)~~

QTSAIGILPV (SEQ ID NO: 84) and

ITSAIGVLFV (SEQ ID NO: 85); or

(ii) comprises a sequence which has at least 90% sequence identity to a sequence selected from the group consisting of:

MTSAIGILPV (SEQ ID NO: 80)

ITSAIGILPV (SEQ ID NO: 77)

ITSAIGVLPV (SEQ ID NO: 76)

MTSAIGVLPV (SEQ ID NO: 78)

~~QTSAIGVLPV (SEQ ID NO: 79)~~

LTSAIGVLPV (SEQ ID NO: 81)

ITSGIGVLPV (SEQ ID NO: 82)

~~ITSAIGVLPI (SEQ ID NO: 83)~~

QTSAIGILPV (SEQ ID NO: 84) and

ITSAIGVLFV (SEQ ID NO: 85).

2. The anti-cancer peptide according to claim 1 wherein said peptide has a sequence which has at least 90% sequence identity to a sequence selected from the group consisting of:

MTSAIGILPV (SEQ ID NO: 80)

ITSAIGILPV (SEQ ID NO: 77)

ITSAIGVLPV (SEQ ID NO: 76)

MTSAIGVLPV (SEQ ID NO: 78)

~~QTSAIGVLPV (SEQ ID NO: 79)~~

LTSAIGVLPV (SEQ ID NO: 81)

ITSGIGVLPV (SEQ ID NO: 82)

~~ITSAIGVLPI (SEQ ID NO: 83)~~

QTSAIGILPV (SEQ ID NO: 84) and

ITSAIGVLFV (SEQ ID NO: 85).

3. An anti-cancer peptide according to claim 1 wherein said peptide has a sequence which comprises a sequence selected from the group consisting of:

MTSAIGILPV (SEQ ID NO: 80)

ITSAIGILPV (SEQ ID NO: 77)

ITSAIGVLPV (SEQ ID NO: 76)

MTSAIGVLPV (SEQ ID NO: 78)

~~Q TSAIGVLPV (SEQ ID NO: 79)~~

LTSAIGVLPV (SEQ ID NO: 81)

ITSGIGVLPV (SEQ ID NO: 82)

~~ITSAIGVLPI (SEQ ID NO: 83)~~

Q TSAIGILPV (SEQ ID NO: 84) and

ITSAIGVLFV (SEQ ID NO: 85).

4. An anti-cancer peptide according to claim 1 wherein said peptide has a sequence which consists of a sequence selected from the group consisting of:

MTSAIGILPV (SEQ ID NO: 80)

ITSAIGILPV (SEQ ID NO: 77)

ITSAIGVLPV (SEQ ID NO: 76)

MTSAIGVLPV (SEQ ID NO: 78)

~~Q TSAIGVLPV (SEQ ID NO: 79)~~

LTSAIGVLPV (SEQ ID NO: 81)

ITSGIGVLPV (SEQ ID NO: 82)

~~ITSAIGVLPI (SEQ ID NO: 83)~~

Q TSAIGILPV (SEQ ID NO: 84) and

ITSAIGVLFV (SEQ ID NO: 85).

5. The anti-cancer peptide according to claim 1 wherein said anti-cancer peptide has a sequence which consists of MTSAIGILPV (SEQ ID NO: 80) or ITSAIGILPV (SEQ ID NO: 77).

6. The anti-cancer peptide according to any one of claims 1 to 5 wherein said anti-cancer peptide is presented by a human leukocyte antigen (HLA) class I molecule is selected from the group comprising: HLA A, HLA A2 or HLA 24 or HLA A1 or HLA A3.

7. The anti-cancer peptide according to claim 6 wherein said molecule is HLA A2.

8. The anti-cancer peptide according to any one of claims 1 to 7 which, ~~when administered to a subject~~ is capable of, primes-priming the production of anti-cancer T-cells that act as effector T-cells and/or T-cells expressing ~~said a~~ TCR that recognises a plurality of cancer antigens when said antigens are presented by the same cancer cell at a cell surface by human leukocyte antigen (HLA) class I molecule and wherein said antigens are distinct from each other and are presented by cells from different types of cancer.

9. A vector encoding the anti-cancer peptide according to any one of claims 1 to 8.

10. A vaccine comprising said anti-cancer peptide according to any one of claims 1 to 8.

11. A pharmaceutical composition or immunogenic agent or bispecific monoclonal antibody comprising said anti-cancer peptide according to any one of any one of claims 1 to 8 or vaccine according to claim 10.

12. A combination therapeutic for use in the treatment of cancer comprising:

the anti-cancer peptide or vaccine or vector or pharmaceutical composition or immunogenic agent or bispecific monoclonal antibody, or vaccine according to any one of claims 1 to 11 in combination with a further cancer therapeutic agent.

13. Use of the anti-cancer peptide according to any one of claims 1 to 8, or the vector of claim 9, the vaccine of claim 10, the pharmaceutical composition or the immunogenic agent or bispecific monoclonal antibody according to claim 11 or the combination therapeutic according to claim 12 in the manufacture of a medicament for treating cancer.

14. The use of claim 13 wherein said cancer(s) is/are selected from the group comprising or consisting of: nasopharyngeal cancer, synovial cancer, hepatocellular cancer, renal cancer, cancer of connective tissues, melanoma, lung cancer, bowel cancer, colon cancer, rectal cancer, colorectal cancer, brain cancer, throat cancer, oral cancer, liver cancer, bone cancer, pancreatic cancer, choriocarcinoma, gastrinoma, pheochromocytoma, prolactinoma, T-cell leukemia/lymphoma, blood, tonsil, spleen, neuroma, von Hippel-Lindau disease, Zollinger-Ellison syndrome, adrenal cancer, anal cancer, bile duct cancer, bladder cancer, ureter cancer, glioma, oligodendroglioma, neuroblastoma, meningioma, spinal cord tumour, bone cancer, osteochondroma, chondrosarcoma, Ewing's sarcoma, cancer of unknown primary site, carcinoid, carcinoid of gastrointestinal tract, fibrosarcoma, breast cancer, muscle cancer, Paget's disease, cervical cancer, rectal cancer, esophagus cancer, gall bladder cancer, cholangioma cancer, head cancer, eye cancer, nasopharynx cancer, neck cancer, kidney cancer, Wilms' tumor, liver cancer, Kaposi's sarcoma, prostate cancer, testicular cancer, Hodgkin's disease, non-Hodgkin's lymphoma, skin cancer, mesothelioma, myeloma, multiple myeloma, ovarian cancer, endocrine cancer, glucagonoma, parathyroid cancer, penis cancer, pituitary cancer, soft tissue sarcoma, retinoblastoma, small intestine cancer, stomach cancer, thymus cancer, thyroid cancer, trophoblastic cancer, hydatidiform mole, uterine cancer, endometrial cancer, vagina cancer, vulva cancer, acoustic neuroma, mycosis fungoides, insulinoma, carcinoid syndrome, somatostatinoma, gum cancer, heart cancer, lip cancer, meninges cancer, mouth cancer, nerve cancer, palate cancer, parotid gland cancer, peritoneum cancer, pharynx cancer, pleural cancer, salivary gland cancer, tongue cancer and tonsil cancer.

15. The ~~anti-cancer peptide, the vaccine, the vector, the pharmaceutical composition, immunogenic agent, bispecific, the use of, or the combination therapeutic according to~~ claim 14 wherein said cancer is skin cancer or melanoma or renal cell carcinoma or leukaemia.