

CLAIMS

1. A peptide composition characterised in that the peptide composition comprises at least a Four-jointed Box 1 (FJX1) peptide and a Melanoma antigen family D4b (MAGED4b) peptide which binds with major histocompatibility complex (MHC) Class I molecules for inducing an anti-cancer immune response in a subject.
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2. The peptide composition according to claim 1, wherein the MHC class I molecules are human leukocyte antigen A2 (HLA-A2) molecules.
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3. The peptide composition according to claim 1, wherein the FJX1 peptide comprises a peptide sequence of SEQ ID NO.1.
4. The peptide composition according to claim 1, wherein the MAGED4b peptide
15 comprises a peptide sequence of SEQ ID NO. 2.
5. The peptide composition according to claim 1, wherein the peptide composition binds with the MHC Class I molecules to increase cytokine secreting cells in the subject for inducing the anti-cancer response in the subject.
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6. The peptide composition according to claim 5, wherein the cytokine comprise of interferon gamma (IFN γ) and granzyme B.
7. The peptide composition according to any of the preceding claims, wherein the
25 anti-cancer immune response is induced in a subject when FJX1 and/or MAGED4b are expressed by a cancer cell.
8. The peptide composition according to claim 7, wherein the cancer cells are any one or a combination of head and neck squamous cell carcinoma (HNSCC) cells, breast cancer cells, colon cancer cells, rectum cancer cells, lung cancer cells, or prostate cancer
30 cells.
9. A vaccine comprising the peptide composition as set forth in any of the preceding claims.

10. The vaccine according to claim 9, wherein the vaccine may be used in combination with cancer therapeutic treatments.

11. The vaccine according to claim 10 comprising immune checkpoint inhibitors.

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12. The vaccine according to claim 11, wherein the immune checkpoint inhibitors comprise anti-PD-1 antibodies.

13. The vaccine according to claim 10, wherein the anti-cancer immune response is induced when cancer cells from any one or a combination of head and neck squamous cell carcinoma (HNSCC), breast cancer, colon cancer, rectum cancer, lung cancer, or prostate cancer is detected in the subject.

14. Use of an effective amount of a Four-jointed Box 1 (FJX1) peptide and a Melanoma antigen family D4b (MAGED4b) in the manufacture of a medicament for treating any one or a combination of head and neck squamous cell carcinoma (HNSCC), breast cancer, colon cancer, rectum cancer, lung cancer, or prostate cancer in a subject in need thereof, wherein the medicament is capable of binding with major histocompatibility complex (MHC) class I molecules to induce an anti-cancer immune response in the subject.

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