Claims

1. A composition comprising

- 2, 3, 4, 5, 6 or 7 peptides, or one or more expression vector(s) that induce(s) expression of said 2, 3, 4, 5, 6 or 7 peptides *in vivo*, the peptides having from 9 to 100 amino acid residues, each one comprising at least one of the epitopes of sequences SEQ ID NO: 1-7, and each peptide comprising at least one different epitope with respect to the others; or

- at least one peptide, or an expression vector that induces expression of said at least one peptide *in vivo*, said peptide having from 9 to 100 amino acids residues and comprising 2, 3, 4, 5, 6 or 7 of the epitopes of sequences SEQ ID NO: 1-7;

and a pharmaceutically acceptable vehicle or excipient.

2. The composition of claim 1, comprising or expressing one or more peptides comprising the epitopes of sequence SEQ ID NO: 1 and/or 6.

3. The composition of claim 1 or 2, comprising or expressing 3, 4, 5, 6, or the 7 peptides comprising the epitopes of sequences SEQ ID NO: 1 to 7.

4. The composition of claim 1, comprising or expressing 2 or 3 of the gag epitopes of sequences SEQ ID NO: 1, 2 and 4.

5. The composition of claim 4, further comprising or expressing the epitope of sequence SEQ ID NO: 6.

6~~4~~. The composition of claim 1 wherein the peptides comprise 9 to 100, 70, 50, 40, 30, 25, or 20 amino acid residues and at least one of said epitopes of sequence SEQ ID NO: 1 to 7.

7~~5~~. The composition of claim 6~~4~~, wherein each peptide of 9 to 100, 70, 50, 40, 30, 25, or 20 amino acid residues comprises one specific epitope of SEQ ID NO: 1, 2, 3, 4, 5, 6 or 7.

8~~6~~. The composition of ~~any one of~~ claim~~s~~ 6 or 7~~1 to 5~~, wherein the peptide(s) comprise(s) 9 to 100, 70, 50, 40, 30, 25, or 20 consecutive amino acid residues of an HERV gag or pol including at least one of said epitopes of sequence SEQ ID NO: 1 to 7.

9~~7~~. The composition of any one of claims 1 to 3 or 6 to 7~~5~~, wherein the peptide(s) comprise(s) 13, 14, 15, 16, 17, or 18, consecutive amino acid residues of an HERV gag or pol including at least one of said epitopes of sequence SEQ ID NO: 1 to 7.

10~~8~~. The composition of claim 1, wherein the peptides are selected from the group consisting of SEQ ID NO: 8-14 and the composition comprises or expresses 2, 3, 4, 5, 6 or 7 of them.

11~~9~~. The composition of claim 1, wherein the peptides consist of 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28 consecutive amino acid residues of sequences SEQ ID NO: 8-14, including the 9-mer epitope, and the composition comprises or expresses 2, 3, 4, 5, 6 or 7 of them.

12. The composition of claim 1, comprising or expressing 2 or 3 of the gag peptides of sequences SEQ ID NO: 8, 9 and 10, or a fragment of 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28 consecutive amino acid residues of sequences SEQ ID NO: 8-10, including the 9-mer epitope.

13. The composition of claim 12, further comprising or expressing the peptide of sequence SEQ ID NO: 13, or a fragment of 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28 consecutive amino acid residues of sequence SEQ ID NO: 13, including the 9-mer epitope.

14. The composition of claim 1, comprising or expressing 2 or 3 of the pol peptides of sequences SEQ ID NO: 11, 12 and 13, or a fragment of 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28 consecutive amino acid residues of sequences SEQ ID NO: 11-13, including the 9-mer epitope.

~~10~~15. Vaccine or immunogenic composition comprising the composition of any one of claim 1 to 9 and a pharmaceutically acceptable vehicle or excipient and preferably an adjuvant.

~~11~~16. Composition comprising Cytotoxic T Lymphocytes (CTLs) of a patient treated with a peptide as described in any one of claims 1-9, or comprising T-cell Receptor (TCR) engineered T cells recognizing a peptide as described in any one of claims 1-7, and a pharmaceutical vehicle.

~~12~~17. Composition according to any one of claims 1 to ~~11~~16, for use in treating cancer, in particular breast cancer, including triple negative breast cancer, ovarian cancer, melanoma, sarcoma, teratocarcinoma, bladder cancer, lung cancer (non small cell lung carcinoma and small cell lung carcinoma), head and neck cancer, colo-rectal cancer, glioblastoma and leukemias.

~~13~~18. Isolated peptide selected from the group consisting of the peptides of sequence SEQ ID NO: 2-~~14~~16, and the peptides having 10 to 100, 70, 50, 40, 30, 25, or to 20 amino acids and comprising at least one of said peptides of SEQ ID NO: 2-7.

19. Isolated peptide selected from the group consisting of the peptides having 10 to 100, 70, 50, 40, 30, 25, or to 20 amino acids and comprising at least one of said peptides of SEQ ID NO: 2-7, wherein the amino acids are the native ones present in the corresponding HERV-K gag or pol, and extending 5', 3', or 5' and 3' of said peptide of SEQ ID NO: 2-7.