Claims

1. A composition comprising least two HLA-binding peptides, wherein:
(a) at least one of the at least two HLA-binding peptides is a peptide comprising an epitope according to SEQ ID NO: 23 or a fusion protein of SEQ ID NO: 23 which comprises the 80 N-terminal amino acids of the HLA-DR antigen-associated invariant chain,
and
(b) at least one of the at least two peptides is a peptide comprising an epitope selected from the group consisting of: SEQ ID NO:1 to SEQ ID NO: 11, SEQ ID NO: 13 to SEQ ID NO: 22, and SEQ ID NO: 24 to SEQ ID NO: 42.

2. The composition of claim 1, wherein said composition comprises at least two peptides consisting of amino acid sequences according to group b).

3. The composition of claim 1, wherein said composition comprises at least two peptides, preferably at least four peptides and more preferably ten peptides, consisting of amino acid sequences according to SEQ ID NO: 23, and a peptide selected from the group of SEQ ID NO: 1, SEQ ID NO: 2; SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 9 to SEQ ID NO: 11, SEQ ID NO: 13, and SEQ ID NO: 14, and at least one peptide selected from the group consisting of SEQ ID NO: 15 to SEQ ID NO: 22, and SEQ ID NO: 24 to SEQ ID NO: 42.

4. The composition of claim 3, wherein the additional peptide is selected according to the HLA set of the subject to be treated.

5. The composition of claim 1, wherein said composition comprises at least four peptides consisting of the amino acid sequences according to SEQ ID NO: 23, and a peptide selected from the group of SEQ ID NO: 1, SEQ ID NO: 2; SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 9 to SEQ ID NO: 11, SEQ ID NO: 13, and SEQ ID NO: 14, and at least

one peptide selected from the group consisting of SEQ ID NO: 15 to SEQ ID NO: 22, and SEQ ID NO: 24 to SEQ ID NO: 42.

6. The composition of claim 5, wherein at least one of the peptides is a class II peptide.

7. The composition of any of claims 1 to 6, further comprising an immunological adjuvant or a mixture of two or three immunological adjuvants, such as, for example, GMCSF and Imiquimod.

8. The composition of claim 7, wherein said immunological adjuvant comprises a Toll-like receptor agonist, for example a Toll-like receptor-7 agonist.

9. The composition according to any of claims 1 to 6, containing at least one antigen presenting cell, for example a dendritic cell, such as an autologous dendritic cell which is pulsed or loaded with a peptide.

10. The composition of any of claims 1 to 9 for use in the treatment of prostate cancer.

11. The composition of claim 10, wherein said prostate cancer is androgen sensitive and the patient has not received androgen deprivation therapy.

12. The composition of claim 10, wherein said prostate cancer is androgen-insensitive.

13. A method for treating prostate cancer, comprising administering to a patient an effective amount of the composition according to any of claims 1 to 9.

14. The method of claim 13, wherein said prostate cancer is androgen sensitive and the patient has not received androgen deprivation therapy.

15. The method of claim 14, wherein said prostate cancer is androgen-insensitive.

Claims

1. A composition comprising at least two HLA-binding peptides, wherein:

(a) at least one of said at least two HLA-binding peptides is a peptide consisting of an epitope according to SEQ ID NO: 23 or a fusion protein of SEQ ID NO: 23 and the 80 N-terminal amino acids of the HLA-DR antigen-associated invariant chain, and

(b) at least one of said at least two peptides is a peptide consisting of an epitope selected from the group consisting of: SEQ ID NO:1 to SEQ ID NO: 11, SEQ ID NO: 13 to SEQ ID NO: 22, and SEQ ID NO: 24 to SEQ ID NO: 42.

2. The composition of claim 1, wherein said composition comprises at least two peptides according to b).

3. The composition of claim 1, wherein said composition comprises a peptide consisting of an epitope according to SEQ ID NO: 23, and at least one peptide consisting of an epitope selected from the group consisting of SEQ ID NO: 1, SEQ ID NO: 2; SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 9 to SEQ ID NO: 11, SEQ ID NO: 13, and SEQ ID NO: 14, SEQ ID NO: 15 to SEQ ID NO: 22, and SEQ ID NO: 24 to SEQ ID NO: 42.

4. The composition of claim 3, comprising an additional peptide which is selected according to the HLA set of a subject to be treated.

5. The composition of claim 1, wherein said composition comprises at least four peptides, wherein at least one of the peptides consists of an amino acid sequence according to SEQ ID NO: 23, and at least one peptide consists of an amino acid sequence selected from the group consisting of SEQ ID NO: 1, SEQ ID NO: 2; SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 9 to SEQ ID NO: 11, SEQ ID NO: 13, and SEQ ID NO: 14, and at least one peptide consisting of an amino acid sequence selected from the group consisting of SEQ ID NO: 15 to SEQ ID NO: 22, and SEQ ID NO: 24 to SEQ ID NO: 42.

6. The composition of claim 5, wherein at least one of said peptides is a class II peptide.

7. The composition of claim 1, further comprising an immunological adjuvant or a mixture of two or three immunological adjuvants.

8. The composition of claim 7, wherein said immunological adjuvant comprises a Toll-like receptor agonist.

9. The composition according to claim 1, comprising at least one antigen presenting cell.

10. The composition of claim 2, wherein said composition comprises at least 4 peptides.

11. The composition of claim 2, wherein said composition comprises not more than 10 peptides.

12. The composition of claim 7, wherein the adjuvant comprises GM-CSF and/or Imiquimod.

13. The composition of claim 8, wherein said Toll-like receptor agonist is a Toll-like receptor-7 agonist.

14. The composition according to claim 9, wherein said at least one antigen presenting cell is a dendritic cell.

15. The composition according to claim 9, wherein said at least one antigen presenting cell is an autologous dendritic cell which is pulsed or loaded with a peptide.