

Claims

1. A chimeric antigen receptor consisting of, ~~comprising~~ an amino acid sequence shown in SEQ ID NO. 1.

2. An isolated nucleic acid molecule, encoding the chimeric antigen receptor according to claim 1.

3. An isolated nucleic acid molecule, encoding a chimeric antigen receptor, wherein the nucleic acid molecule comprises the nucleic acid sequence shown in SEQ ID NO. 2.

4. A vector, comprising the nucleic acid molecule according to either of claims 2-3.

5. An immune effector cell, comprising the chimeric antigen receptor according to claim 1, the nucleic acid molecule according to either of claims 2-3 and/or the vector according to claim 4.

6. The immune effector cell according to claim 5, wherein the immune effector cell is selected from the group consisting of a T lymphocyte and a natural killer cell.

7. The immune effector cell according to either of claims 5-6, wherein the chimeric antigen receptor according to claim 1 is expressed on the surface of the immune effector cell.

8. A method for preparing an immune effector cell, comprising the step of transducing the vector according to claim 4 into an immune effector cell.

9. The method according to claim 8, wherein the immune effector cell is selected from the group consisting of a T lymphocyte and a natural killer cell.

10. A composition, comprising the immune effector cell according to any of claims 5-7.

11. Use of the chimeric antigen receptor according to claim 1, the nucleic acid molecule according to either of claims 2-3, the vector according to claim 4 and/or the immune effector cell according to any of claims 5-7 in the manufacture of a medicament, ~~wherein the medicament is useful~~ for the treatment of a disease or disorder associated with CD19 expression; wherein the disease or disorder associated with CD19 expression comprises non-solid tumors; and the non-solid tumor comprises leukemia and/or lymphoma.

~~12. Use according to claim 11, wherein the disease or disorder associated with CD19 expression comprises non-solid tumors.~~

~~13. Use according to claim 12, wherein the non-solid tumor comprises leukemia and/or lymphoma.~~

~~14~~12. Use according to claim 11, wherein the ~~leukemia~~disease or disorder associated with CD19 expression comprises acute lymphoblastic leukemia, and ~~the lymphoma~~ /or comprises B-cell lymphoma.

~~15~~13. Use according to claim ~~14~~12, wherein the acute lymphoblastic leukemia comprises acute lymphoblastic leukemia in adults and/or acute lymphoblastic leukemia in children.

~~16~~14. Use according to claim ~~15~~13, wherein the medicament is to be administered at a dose of 0.25×10^8 to 0.5×10^8 CAR-positive T cells.

~~17~~15. Use according to claim ~~14~~12, wherein the B-cell lymphoma comprises non-Hodgkin's lymphoma.

~~18~~16. Use according to claim ~~17~~15, wherein the medicament is to be administered at a dose of 1×10^8 to 2×10^8 CAR-positive T cells.

~~19~~17. The chimeric antigen receptor according to claim 1, the nucleic acid molecule according to either of claims 2-3, the vector according to claim 4 and/or the immune effector cell according to any of claims 5-7, for use in the treatment of a disease or disorder associated with CD19 expression; wherein the disease or disorder associated with CD19 expression comprises non-solid tumors; and the non-solid tumor comprises leukemia and/or lymphoma.

~~20. The chimeric antigen receptor, the nucleic acid molecule, the vector and/or the immune effector cell according to claim 19, wherein the disease or disorder associated with CD19 expression comprises non-solid tumors.~~

~~21. The chimeric antigen receptor, the nucleic acid molecule, the vector and/or the immune effector cell according to claim 20, wherein the non-solid tumor comprises leukemia and/or lymphoma.~~

~~22~~18. The chimeric antigen receptor, the nucleic acid molecule, the vector and/or the immune effector cell according to claim ~~19~~17, wherein the ~~leukemia~~disease or disorder associated with CD19 expression comprises acute lymphoblastic leukemia, and ~~the lymphoma~~ /or comprises B-cell lymphoma.

~~23~~19. The chimeric antigen receptor, the nucleic acid molecule, the vector and/or the immune effector cell according to claim ~~22~~18, wherein the acute lymphoblastic leukemia comprises acute lymphoblastic leukemia in adults and/or acute lymphoblastic leukemia in children.

~~24~~20. The chimeric antigen receptor, the nucleic acid molecule, the vector and/or the immune effector cell according to claim ~~23~~19, wherein the administration is performed at a dose of 0.25×10^8 to 0.5×10^8 CAR-positive T cells.

~~25~~21. The chimeric antigen receptor, the nucleic acid molecule, the vector and/or the immune effector cell according to claim ~~22~~18, wherein the B-cell lymphoma comprises non-Hodgkin's lymphoma.

- 5 | ~~26~~22. The chimeric antigen receptor, the nucleic acid molecule, the vector and/or the immune effector cell according to claim ~~25~~21, wherein the administration is performed at a dose of 1×10^8 to 2×10^8 CAR-positive T cells.