

We claim:

1. An anti-CD19 antibody or antibody fragment thereof for use in the treatment of hematological cancer wherein said anti-CD19 antibody or antibody fragment thereof is administered in combination with $\gamma\delta$ T-cells.

2. The anti-CD19 antibody or antibody fragment thereof according to claim 1 for the use according to claim 1 wherein said anti-CD19 antibody or antibody fragment thereof is administered in combination with $\gamma\delta$ T-cells and wherein said $\gamma\delta$ T-cells comprise an enriched $\gamma\delta$ T-cell population.

3. The anti-CD19 antibody or antibody fragment thereof according to any of the preceding claims for the use according to any of the preceding claims, wherein said anti-CD19 antibody or antibody fragment thereof is administered in combination with $\gamma\delta$ T-cells and wherein said $\gamma\delta$ T-cells comprise non-engineered or engineered $\gamma\delta$ T-cells and/or admixtures thereof.

4. The anti-CD19 antibody or antibody fragment thereof according to any of the preceding claims for the use according to any of the preceding claims, wherein said anti-CD19 antibody or antibody fragment thereof is administered in combination with $\gamma\delta$ T-cells and wherein said $\gamma\delta$ T-cells are isolated from peripheral blood, tumor tissue or non-hematopoietic tissue for use in the treatment of cancer.

5. The anti-CD19 antibody or antibody fragment thereof according to any of the preceding claims for the use according to any of the preceding claims, wherein said anti-CD19 antibody or antibody fragment thereof is administered in combination with $\gamma\delta$ T-cells and wherein said $\gamma\delta$ T-cells are isolated from peripheral blood and were cultivated in the presence of IL-2 and ZOL.

6. The anti-CD19 antibody or antibody fragment thereof according to any of the preceding claims for the use according to any of the preceding claims, wherein said anti-CD19

antibody or antibody fragment thereof is administered in combination with $\gamma\delta$ T-cells and wherein said $\gamma\delta$ T-cells are blood-derived V γ 9V δ 2 T-cells.

7. The anti-CD19 antibody or antibody fragment thereof according to any of the preceding claims, for use in the treatment of hematological cancer wherein the hematological cancer is chronic lymphocytic leukemia (CLL), non-Hodgkin's lymphoma (NHL), small lymphocytic lymphoma (SLL) or acute lymphoblastic leukemia (ALL) and wherein said anti-CD19 antibody or antibody fragment thereof is administered in combination with $\gamma\delta$ T-cells according to any one of the preceding claims.

8. The anti-CD19 antibody or antibody fragment thereof according to any of the preceding claims for the use according to any of the preceding claims, wherein said anti-CD19 antibody or antibody fragment thereof is administered in combination with $\gamma\delta$ T-cells according to any one of the preceding claims and wherein said antibody or antibody fragment specific for CD19 and the $\gamma\delta$ T-cells are administered in a separate manner.

9. The anti-CD19 antibody or antibody fragment thereof according to any of the preceding claims for the use according to any of the preceding claims, wherein said anti-CD19 antibody or antibody fragment thereof is administered in combination with $\gamma\delta$ T-cells according to any one of the preceding claims and wherein said antibody or antibody fragment specific for CD19 and the $\gamma\delta$ T-cells are administered in a simultaneous manner.

10. The anti-CD19 antibody or antibody fragment thereof according to any of the preceding claims for the use according to any of the preceding claims, wherein said anti-CD19 antibody or antibody fragment thereof is administered in combination with $\gamma\delta$ T-cells according to any one of the preceding claims and wherein the anti-CD19 antibody or antibody fragment comprises a heavy chain variable region comprising an HCDR1 region comprising the sequence SYVMH (SEQ ID NO: 1), an HCDR2 region comprising the sequence NPYN DG (SEQ ID NO: 2), and an HCDR3 region comprising the sequence GTYYYGTRVFDY (SEQ ID NO: 3) and a light chain variable region comprising an LCDR1 region comprising the sequence RSSKSLQNVNGNTYLY (SEQ ID NO: 4), an LCDR2 region comprising the sequence RMSNLNS (SEQ ID NO: 5), and an LCDR3 region comprising the sequence MQHLEY PIT (SEQ ID NO: 6).

11. The anti-CD19 antibody or antibody fragment thereof according claim 10 for the use according to any of the preceding claims, wherein said anti-CD19 antibody or antibody fragment thereof is administered in combination with $\gamma\delta$ T-cells according to any one of the preceding claims and wherein the anti-CD19 antibody or antibody fragment comprises a heavy chain variable region of

EVQLVESGGGLVKPGGSLKLSCAASGYFTSYVMHWVRQAPGKGLEWIGYINPYNDGTKY
NEKFQGRVTISSDKSISTAYMELSSLRSEDAMYYCARGTYYYGTRVFDYWGGGTLTVTVSS
(SEQ ID NO: 7)

and a light chain variable region of

DIVMTQSPATLSLSPGERATLSCRSSKSLQNVNGNTYLYWFQQKPGQSPQLLIYRMSNLNS
GVPDRFSGSGSGTEFTLTSSLEPEDFAVYYCMQHLEYPITFGAGTKLEIK (SEQ ID NO: 8).

12. The anti-CD19 antibody according claim 11 for the use according to any of the preceding claims, wherein said anti-CD19 antibody or antibody fragment thereof is administered in combination with $\gamma\delta$ T-cells according to any one of the preceding claims and wherein the anti-CD19 antibody comprises a heavy chain of

EVQLVESGGGLVKPGGSLKLSCAASGYFTSYVMHWVRQAPGKGLEWIGYINPYNDGTKY
NEKFQGRVTISSDKSISTAYMELSSLRSEDAMYYCARGTYYYGTRVFDYWGGGTLTVTVSS
ASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSG
LYSLSSVTVPSSSLGTQTYICNVNHKPSNTKVDKKVEPKSCDKTHTCPPCPAPELLGGPDV
FLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVQFNWYVDGVEVHNAKTKPREEQFNSTFR
VVSVELTVVHQDWLNGKEYKCKVSNKALPAPEEKTISKTKGQPREPQVYTLPPSREEMTKNQ
VSLTCLVKGFYPSDIAVEWESNGQPENNYKTTTPMLDSDGSFFLYSKLTVDKSRWQQGNV
FSCSVMHEALHNHYTQKSLSLSPGK (SEQ ID NO: 11)

13. The anti-CD19 antibody or antibody fragment thereof according claim 11 for the use according to any of the preceding claims, wherein said anti-CD19 antibody or antibody fragment thereof is administered in combination with $\gamma\delta$ T-cells according to any one of the preceding claims and wherein the anti-CD19 antibody comprises a light chain of
DIVMTQSPATLSLSPGERATLSCRSSKSLQNVNGNTYLYWFQQKPGQSPQLLIYRMSNLNS
GVPDRFSGSGSGTEFTLTSSLEPEDFAVYYCMQHLEYPITFGAGTKLEIKRTVAAPSVFIFP
PSDEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKDSTYLSSTL
TLISKADYEKHKVYACEVTHQGLSSPVTKSFNRGEC (SEQ ID NO: 12).

14. A kit for treatment according to any one of the preceding claims, comprising an anti-CD19 antibody or antibody fragment thereof according to any of the preceding claims and instructions to administer said anti-CD19 antibody or antibody fragment thereof in combination with $\gamma\delta$ T-cells according to any one of the preceding claims.