CLAIMS

1. An isolated anti-CCR8 antibody or antigen-binding fragment thereof, specifically binding with a KD value of < 5E-8 M, < 4E-8 M, < 3E-8 M, < 2E-8 M, < 1E-8 M, < 9E-9 M, < 8E-9 M, < 7E-9 M, < 6E-9 M, < 5E-9 M, < 4E-9 M, < 3E-9 M, < 2.5E-9 M, < 2E-9 M, < 1.5E-9 M, < 1E-9 M, < 9E-10 M, < 8E-10 M, < 7E-10 M, < 6E-10 M, < 5E-10 M, < 4E-10 M, < 3E-10 M, < 2.5E-10 M, < 2E-10 M, < 1.5E-10 M, < 1E-10 M, or < 9E-11 M
    a. to an isolated polypeptide according to **SEQ ID NO:43** and/or **SEQ ID NO:46,** wherein at least two or all of Y3, Y15 and Y17 have been sulfated, and/or
    b. to an isolated polypeptide according to **SEQ ID NO:44** and/or **SEQ ID NO:47,** wherein at least two or all of Y3, Y15 and Y17 have been sulfated, and/or
    c. to an isolated polypeptide according to **SEQ ID NO:45** and/or **SEQ ID NO:48,** wherein at least two or all of Y3, Y14 and Y15 have been sulfated.

2. The isolated antibody or antigen-binding fragment according to claim 1, wherein the antibody or antigen-binding fragment is characterized by a HCDR3 region comprising between 10 and 34 % of tyrosine and/or between 2 and 20 % of histidine.

3. The isolated antibody or antigen-binding fragment according to claim 1 or 2, wherein the antibody or antigen-binding fragment comprises human derived CDRs.

4. The isolated antibody or antigen-binding fragment according to any of claims 1 to 3, wherein the antibody or antigen-binding fragment is cross reactive for human and cynomolgus CCR8.

5. The isolated antibody or antigen-binding fragment according to any of claims 1 to 4, wherein the antibody or antigen-binding fragment
    a. does not block CCL1 induced β-arrestin signaling, and/or
    b. does not induce ERK1/2 phosphorylation, and/or
    c. does not induce AKT phosphorylation.

6. The isolated antibody or antigen-binding fragment according to any of claims 1 to 5, wherein the antibody or antigen-binding fragment is non-internalizing or is characterized by an internalization into a cell with endogenous target expression which is lower than the 1.5, 2, 3, 4, 5, 6, 7, or 10-fold of the internalization of the isotype control.

7. The isolated antibody or antigen-binding fragment thereof according to any of claims 1 to 6,
    a. wherein the antibody or antigen-binding fragment binds to human Fc gamma receptor IIIA variant V176 (CD16a) with a dissociation constant (KD) lower than 530 nM, 500 nM, 450 nM, 400 nM, 300 nM or 200 nM, and/or
    b. wherein the antibody or antigen-binding fragment binds to human Fc gamma RIIA (CD32a) with a dissociation constant (KD) lower than 30 µM, 20 µM, 10 µM, 5 µM or 1 µM.

8. The isolated anti-CCR8 antibody or antigen-binding fragment thereof of claim 1, comprising a HCDR3 sequence having at least 90 %, 95 %, 98 % or 100 % sequence identity with any of SEQ ID NO:260 (TPP-16966), SEQ ID NO:278 (TPP-17575), SEQ ID NO:296 (TPP-17576), SEQ ID NO:314 (TPP-17577), SEQ ID NO:332 (TPP-17578), SEQ ID NO:350 (TPP-17579), SEQ ID NO:368 (TPP-17580), SEQ ID NO:386 (TPP-17581), SEQ ID NO:404 (TPP-18205), SEQ ID NO:422 (TPP-18206), SEQ ID NO:440 (TPP-18207), SEQ ID NO:458 (TPP-19546), SEQ ID NO:476 (TPP-20950), SEQ ID NO:494 (TPP-20955), SEQ ID NO:512 (TPP-20965), SEQ ID NO:530 (TPP-21045), SEQ ID NO:548 (TPP-21047), SEQ ID NO:566 (TPP-21181), SEQ ID NO:584 (TPP-21183), SEQ ID NO:602 (21360), or SEQ ID NO:620 (TPP-23411), SEQ ID NO:663 (TPP-29596), SEQ ID NO:683 (TPP-29597), SEQ ID NO:705 (TPP-18429), SEQ ID NO:725 (TPP-18430), SEQ ID NO:745 (TPP-18432), SEQ ID NO:765 (TPP-18433), SEQ ID NO:785 (TPP-18436), SEQ ID NO:805 (TPP-19571), SEQ ID NO:829 (TPP-27477), SEQ ID NO:849 (TPP-27478), SEQ ID NO:869 (TPP-27479), SEQ ID NO:889 (TPP-27480), SEQ ID NO:909 (TPP-29367), SEQ ID NO:929 (TPP-29368), or SEQ ID NO:949 (TPP-29369).

9. The isolated anti-CCR8 antibody or antigen-binding fragment thereof of claim 8, further comprising at least one, two, three, four, five or six CDR sequence(s), having at least 90 %, 95 %, 98 % or 100 % sequence identity with any of
   a. SEQ ID NO:258, SEQ ID NO:259, SEQ ID NO:260, SEQ ID NO:262, SEQ ID NO:263 or SEQ ID NO:264 (TPP-16966),
   b. SEQ ID NO:276, SEQ ID NO:277, SEQ ID NO:278, SEQ ID NO:280, SEQ ID NO:281 or SEQ ID NO:282 (TPP-17575),
   c. SEQ ID NO:294, SEQ ID NO:295, SEQ ID NO:296, SEQ ID NO:298, SEQ ID NO:299 or SEQ ID NO:300 (TPP-17576),
   d. SEQ ID NO:312, SEQ ID NO:313, SEQ ID NO:314, SEQ ID NO:316, SEQ ID NO:317 or SEQ ID NO:318 (TPP-17577),
   e. SEQ ID NO:330, SEQ ID NO:331, SEQ ID NO:332, SEQ ID NO:334, SEQ ID NO:335 or SEQ ID NO:336 (TPP-17578),
   f. SEQ ID NO:348, SEQ ID NO:349, SEQ ID NO:350, SEQ ID NO:352, SEQ ID NO:353 or SEQ ID NO:354 (TPP-17579),
   g. SEQ ID NO:366, SEQ ID NO:367, SEQ ID NO:368, SEQ ID NO:370, SEQ ID NO:371 or SEQ ID NO:372 (TPP-17580),
   h. SEQ ID NO:384, SEQ ID NO:385, SEQ ID NO:386, SEQ ID NO:388, SEQ ID NO:389 or SEQ ID NO:390 (TPP-17581),
   i. SEQ ID NO:402, SEQ ID NO:403, SEQ ID NO:404, SEQ ID NO:406, SEQ ID NO:407 or SEQ ID NO:408 (TPP-18205),

j. SEQ ID NO:420, SEQ ID NO:421, SEQ ID NO:422, SEQ ID NO:424, SEQ ID NO:425 or SEQ ID NO:426 (TPP-18206),

k. SEQ ID NO:438, SEQ ID NO:439, SEQ ID NO:440, SEQ ID NO:442, SEQ ID NO:443 or SEQ ID NO:444 (TPP-18207),

l. SEQ ID NO:456, SEQ ID NO:457, SEQ ID NO:458, SEQ ID NO:460, SEQ ID NO:461 or SEQ ID NO:462 (TPP-19546),

m. SEQ ID NO:474, SEQ ID NO:475, SEQ ID NO:476, SEQ ID NO:478, SEQ ID NO:479 or SEQ ID NO:480 (TPP-20950),

n. SEQ ID NO:492, SEQ ID NO:493, SEQ ID NO:494, SEQ ID NO:496, SEQ ID NO:497 or SEQ ID NO:498 (TPP-20955),

o. SEQ ID NO:510, SEQ ID NO:511, SEQ ID NO:512, SEQ ID NO:514, SEQ ID NO:515, or SEQ ID NO:516 (TPP-20965),

p. SEQ ID NO:528, SEQ ID NO:529, SEQ ID NO:530, SEQ ID NO:532, SEQ ID NO:533 or SEQ ID NO:534 (TPP-21045),

q. SEQ ID NO:546, SEQ ID NO:547, SEQ ID NO:548, SEQ ID NO:550, SEQ ID NO:551 or SEQ ID NO:552 (TPP-21047),

r. SEQ ID NO:564, SEQ ID NO:565, SEQ ID NO:566, SEQ ID NO:568, SEQ ID NO:569 or SEQ ID NO:570 (TPP-21181),

s. SEQ ID NO:582, SEQ ID NO:583, SEQ ID NO:584, SEQ ID NO:586, SEQ ID NO:587 or SEQ ID NO:588 (TPP-21183),

t. SEQ ID NO:600, SEQ ID NO:601, SEQ ID NO:602, SEQ ID NO:604, SEQ ID NO:605 SEQ ID NO:606 (TPP-21360),

u. SEQ ID NO:618, SEQ ID NO:619, SEQ ID NO:620, SEQ ID NO:622, SEQ ID NO:623 SEQ ID NO:624 (TPP-23411),

v. SEQ ID NO:661, SEQ ID NO:662, SEQ ID NO:663, SEQ ID NO:665, SEQ ID NO:666 SEQ ID NO:667 (TPP-29596),

w. SEQ ID NO:681, SEQ ID NO:682, SEQ ID NO:683, SEQ ID NO:685, SEQ ID NO:686 SEQ ID NO:687 (TPP-29597),

x. SEQ ID NO:703, SEQ ID NO:704, SEQ ID NO:705, SEQ ID NO:707, SEQ ID NO:708 SEQ ID NO:709 (TPP-18429),

y. SEQ ID NO:723, SEQ ID NO:724, SEQ ID NO:725, SEQ ID NO:727, SEQ ID NO:728 SEQ ID NO:729 (TPP-18430),

z. SEQ ID NO:743, SEQ ID NO:744, SEQ ID NO:745, SEQ ID NO:747, SEQ ID NO:748 SEQ ID NO:749 (TPP-18432),

aa. SEQ ID NO:763, SEQ ID NO:764, SEQ ID NO:765, SEQ ID NO:767, SEQ ID NO:768 SEQ ID NO:769 (TPP-18433),

bb. SEQ ID NO:783, SEQ ID NO:784, SEQ ID NO:785, SEQ ID NO:787, SEQ ID NO:788 SEQ ID NO:789 (TPP-18436),

cc. SEQ ID NO:803, SEQ ID NO:804, SEQ ID NO:805, SEQ ID NO:807, SEQ ID NO:808 SEQ ID NO:809 (TPP-19571),

dd. SEQ ID NO:827, SEQ ID NO: 828, SEQ ID NO: 829, SEQ ID NO: 831, SEQ ID NO:832 SEQ ID NO:833 (TPP-27477),

ee. SEQ ID NO:847, SEQ ID NO: 848, SEQ ID NO: 849, SEQ ID NO: 851, SEQ ID NO:852 SEQ ID NO:853 (TPP-27478),

ff. SEQ ID NO:867, SEQ ID NO: 868, SEQ ID NO: 869, SEQ ID NO: 871, SEQ ID NO:872 SEQ ID NO:873 (TPP-27479),

gg. SEQ ID NO:887, SEQ ID NO: 888, SEQ ID NO: 889, SEQ ID NO: 891, SEQ ID NO:892 SEQ ID NO:893 (TPP-27480),

hh. SEQ ID NO:907, SEQ ID NO: 908, SEQ ID NO: 909, SEQ ID NO: 911, SEQ ID NO:912 SEQ ID NO:913 (TPP-29367),

ii. SEQ ID NO:927, SEQ ID NO: 928, SEQ ID NO: 929, SEQ ID NO: 931, SEQ ID NO:932 or SEQ ID NO:933 (TPP-29368), or

jj. SEQ ID NO:947, SEQ ID NO: 948, SEQ ID NO: 949, SEQ ID NO: 951, SEQ ID NO:952 or SEQ ID NO:953 (TPP-29369),

kk. SEQ ID NO:202, SEQ ID NO:203, SEQ ID NO:204, SEQ ID NO:206, SEQ ID NO:207 and SEQ ID NO:208 (TPP-14095),

ll. SEQ ID NO:216, SEQ ID NO:217, SEQ ID NO:218, SEQ ID NO:220, SEQ ID NO:221 or SEQ ID NO:222 (TPP-14099),

mm. SEQ ID NO:230, SEQ ID NO:231, SEQ ID NO:232, SEQ ID NO:234, SEQ ID NO:235 and SEQ ID NO:236 (TPP-15285), or

nn. SEQ ID NO:244, SEQ ID NO:245, SEQ ID NO:246, SEQ ID NO:248, SEQ ID NO:249 and SEQ ID NO:250 (TPP-15286).

10. The isolated anti-CCR8 antibody or antigen-binding fragment thereof of claim 8, further comprising a variable heavy chain sequence and/or a variable light chain sequence having at least 90 %, 95 %, 98 % or 100 % sequence identity with

a. a variable heavy chain sequence according to SEQ ID NO:257 and/or a variable light chain sequence according to SEQ ID NO:261 (TPP-16966),

b. a variable heavy chain sequence according to SEQ ID NO:275 and/or a variable light chain sequence according to SEQ ID NO:279 (TPP-17575),

c. a variable heavy chain sequence according to SEQ ID NO:293 and/or a variable light chain sequence according to SEQ ID NO:297 (TPP-17576),

d. a variable heavy chain sequence according to SEQ ID NO:311 and/or a variable light chain sequence according to SEQ ID NO:315 (TPP-17577),

e. a variable heavy chain sequence according to SEQ ID NO:329 and/or a variable light chain sequence according to SEQ ID NO:333 (TPP-17578),

f. a variable heavy chain sequence according to SEQ ID NO:347 and/or a variable light chain sequence according to SEQ ID NO:351 (TPP-17579),

g. a variable heavy chain sequence according to SEQ ID NO:365 and/or a variable light chain sequence according to SEQ ID NO:369 (TPP-17580),

h. a variable heavy chain sequence according to SEQ ID NO:383 and/or a variable light chain sequence according to SEQ ID NO:387 (TPP-17581),

i. a variable heavy chain sequence according to SEQ ID NO:401 and/or a variable light chain sequence according to SEQ ID NO:405 (TPP-18205),

j. a variable heavy chain sequence according to SEQ ID NO:419 and/or a variable light chain sequence according to SEQ ID NO:423 (TPP-18206),

k. a variable heavy chain sequence according to SEQ ID NO:437 and/or a variable light chain sequence according to SEQ ID NO:441 (TPP-18207),

l. a variable heavy chain sequence according to SEQ ID NO:455 and/or a variable light chain sequence according to SEQ ID NO:459 (TPP-19546),

m. a variable heavy chain sequence according to SEQ ID NO:473 and/or a variable light chain sequence according to SEQ ID NO:477 (TPP-20950),

n. a variable heavy chain sequence according to SEQ ID NO:491 and/or a variable light chain sequence according to SEQ ID NO:495 (TPP-20955),

o. a variable heavy chain sequence according to SEQ ID NO:509 and/or a variable light chain sequence according to SEQ ID NO:513 (TPP-20965),

p. a variable heavy chain sequence according to SEQ ID NO:527 and/or a variable light chain sequence according to SEQ ID NO:531 (TPP-21045),

q. a variable heavy chain sequence according to SEQ ID NO:545 and/or a variable light chain sequence according to SEQ ID NO:549 (TPP-21047),

r. a variable heavy chain sequence according to SEQ ID NO:563 and/or a variable light chain sequence according to SEQ ID NO:567 (TPP-21181),

s. a variable heavy chain sequence according to SEQ ID NO:581 and/or a variable light chain sequence according to SEQ ID NO:585 (TPP-21183),

t. a variable heavy chain sequence according to SEQ ID NO:599 and/or a variable light chain sequence according to SEQ ID NO:603 (TPP-21360),

u. a variable heavy chain sequence according to SEQ ID NO:617 and/or a variable light chain sequence according to SEQ ID NO:621 (TPP-23411),

v. a variable heavy chain sequence according to SEQ ID NO:660 and/or a variable light chain sequence according to SEQ ID NO:664 (TPP-29596),

w. a variable heavy chain sequence according to SEQ ID NO:680 and/or a variable light chain sequence according to SEQ ID NO:684 (TPP-29597),

x. a variable heavy chain sequence according to SEQ ID NO:702 and/or a variable light chain sequence according to SEQ ID NO:706 (TPP-18429),

y. a variable heavy chain sequence according to SEQ ID NO:722 and/or a variable light chain sequence according to SEQ ID NO:726 (TPP-18430),

z. a variable heavy chain sequence according to SEQ ID NO:742 and/or a variable light chain sequence according to SEQ ID NO:746 (TPP-18432),

aa. a variable heavy chain sequence according to SEQ ID NO:762 and/or a variable light chain sequence according to SEQ ID NO:766 (TPP-18433),

bb. a variable heavy chain sequence according to SEQ ID NO:782 and/or a variable light chain sequence according to SEQ ID NO:786 (TPP-18436),

cc. a variable heavy chain sequence according to SEQ ID NO:802 and/or a variable light chain sequence according to SEQ ID NO:806 (TPP-19571),

dd. a variable heavy chain sequence according to SEQ ID NO:826 and/or a variable light chain sequence according to SEQ ID NO:830 (TPP-27477),

ee. a variable heavy chain sequence according to SEQ ID NO:846 and/or a variable light chain sequence according to SEQ ID NO:850 (TPP-27478),

ff. a variable heavy chain sequence according to SEQ ID NO:866 and/or a variable light chain sequence according to SEQ ID NO:870 (TPP-27479),

gg. a variable heavy chain sequence according to SEQ ID NO:886 and/or a variable light chain sequence according to SEQ ID NO:890 (TPP-27480),

hh. a variable heavy chain sequence according to SEQ ID NO:906 and/or a variable light chain sequence according to SEQ ID NO:910 (TPP-29367),

ii. a variable heavy chain sequence according to SEQ ID NO:926 and/or a variable light chain sequence according to SEQ ID NO:930 (TPP-29368),

jj. a variable heavy chain sequence according to SEQ ID NO:946 and/or a variable light chain sequence according to SEQ ID NO:950 (TPP-29369),

kk. a variable heavy chain sequence according to SEQ ID NO:201 and a variable light chain sequence according to SEQ ID NO:205 (TPP-14095),

ll. a variable heavy chain sequence according to SEQ ID NO:215 and a variable light chain sequence according to SEQ ID NO:219 (TPP-14099),

mm. a variable heavy chain sequence according to SEQ ID NO:229 and a variable light chain sequence according to SEQ ID NO:233 (TPP-15285), or

nn. a variable heavy chain sequence according to SEQ ID NO:243 and a variable light chain sequence according to SEQ ID NO:247 (TPP-15286).

11. The isolated anti-CCR8 antibody or antigen-binding fragment thereof of claim 8, further comprising a heavy chain sequence and/or a light chain sequence having at least 90 %, 95 %, 98 % or 100 % sequence identity with

a. a heavy chain according to SEQ ID NO:273 and a light chain according to SEQ ID NO:274 (TPP-16966),

b. a heavy chain according to SEQ ID NO:291 and a light chain according to SEQ ID NO:292 (TPP-17575),

c. a heavy chain according to SEQ ID NO:309 and a light chain according to SEQ ID NO:310 (TPP-17576),

d. a heavy chain according to SEQ ID NO:327 and a light chain according to SEQ ID NO:328 (TPP-17577),

e. a heavy chain according to SEQ ID NO:345 and a light chain according to SEQ ID NO:346 (TPP-17578),

f. a heavy chain according to SEQ ID NO:363 and a light chain according to SEQ ID NO:364 (TPP-17579),

g. a heavy chain according to SEQ ID NO:381 and a light chain according to SEQ ID NO:382 (TPP-17580),

h. a heavy chain according to SEQ ID NO:399 and a light chain according to SEQ ID NO:400 (TPP-17581),

i. a heavy chain according to SEQ ID NO:417 and a light chain according to SEQ ID NO:418 (TPP-18205),

j. a heavy chain according to SEQ ID NO:435 and a light chain according to SEQ ID NO:436 (TPP-18206),

k. a heavy chain according to SEQ ID NO:453 and a light chain according to SEQ ID NO:454 (TPP-18207),

l. a heavy chain according to SEQ ID NO:471 and a light chain according to SEQ ID NO:472 (TPP-19546),

m. a heavy chain according to SEQ ID NO:489 and a light chain according to SEQ ID NO:490 (TPP-20950),

n. a heavy chain according to SEQ ID NO:507 and a light chain according to SEQ ID NO:508 (TPP-20955),

o. a heavy chain according to SEQ ID NO:525 and a light chain according to SEQ ID NO:526 (TPP-20965),

p. a heavy chain according to SEQ ID NO:543 and a light chain according to SEQ ID NO:544 (TPP-21045),

q. a heavy chain according to SEQ ID NO:561 and a light chain according to SEQ ID NO:562 (TPP-21047),

r. a heavy chain according to SEQ ID NO:579 and a light chain according to SEQ ID NO:580 (TPP-21181),

s. a heavy chain according to SEQ ID NO:597 and a light chain according to SEQ ID NO:598 (TPP-21183),

t. a heavy chain according to SEQ ID NO:615 and a light chain according to SEQ ID NO:616 (TPP-21360),

u. a heavy chain according to SEQ ID NO:633 and a light chain according to SEQ ID NO:634 (TPP-23411),

v. a heavy chain according to SEQ ID NO:676 and a light chain according to SEQ ID NO:677 (TPP-29596),

w. a heavy chain according to SEQ ID NO:696 and a light chain according to SEQ ID NO:697 (TPP-29597),

x. a heavy chain according to SEQ ID NO:718 and a light chain according to SEQ ID NO:719 (TPP-18429),

y. a heavy chain according to SEQ ID NO:738 and a light chain according to SEQ ID NO:739 (TPP-18430),

z. a heavy chain according to SEQ ID NO:758 and a light chain according to SEQ ID NO:759 (TPP-18432),

aa. a heavy chain according to SEQ ID NO:778 and a light chain according to SEQ ID NO:779 (TPP-18433),

bb. a heavy chain according to SEQ ID NO:798 and a light chain according to SEQ ID NO:799 (TPP-18436),

cc. a heavy chain according to SEQ ID NO:818 and a light chain according to SEQ ID NO:819 (TPP-19571),

dd. a heavy chain according to SEQ ID NO:842 and a light chain according to SEQ ID NO:843 (TPP-27477),

ee. a heavy chain according to SEQ ID NO:862 and a light chain according to SEQ ID NO:863 (TPP-27478),

ff. a heavy chain according to SEQ ID NO:882 and a light chain according to SEQ ID NO:883 (TPP-27479),

gg. a heavy chain according to SEQ ID NO:902 and a light chain according to SEQ ID NO:903 (TPP-27480),

hh. a heavy chain according to SEQ ID NO:922 and a light chain according to SEQ ID NO:923 (TPP-29367),

ii. a heavy chain according to SEQ ID NO:942 and a light chain according to SEQ ID NO:943 (TPP-29368),

jj. a heavy chain according to SEQ ID NO:962 and a light chain according to SEQ ID NO:963 (TPP-29369),

kk. a heavy chain according to SEQ ID NO:211 and a light chain according to SEQ ID NO:212 (TPP-14095),

ll. a heavy chain according to SEQ ID NO:225 and a light chain according to SEQ ID NO:226 (TPP-14099),

mm. a heavy chain according to SEQ ID NO:239 and a light chain according to SEQ ID NO:240 (TPP-15285), or

nn. a heavy chain according to SEQ ID NO:253 and a light chain according to SEQ ID NO:254 (TPP-15286).

12. The isolated anti-CCR8 antibody or antigen-binding fragment thereof according to any one of claims 1-11, wherein the anti-CCR8 antibody or antigen-binding fragment is afucosylated.

13. The isolated anti-CCR8 antibody or antigen-binding fragment thereof according to any one of claims 1-12, wherein the anti-CCR8 antibody induces ADCC and/or ADCP.

14. The isolated anti-CCR8 antibody or antigen-binding fragment thereof according to claim 9, wherein the heavy chain variable region (VH) comprises CDRs 1, 2 and 3 with the amino acid sequences set forth in SEQ ID NOs: 618, 619, and 620, respectively, and the light chain variable region (VL) comprises CDRs 1, 2, 3 with the amino acid sequences set forth in SEQ ID NOs: 622, 623, and 624, respectively.

15. The isolated anti-CCR8 antibody or antigen-binding fragment thereof according to claim 10, wherein the heavy chain variable region (VH) comprises an amino acid sequence at least 98% identical to the amino acid sequence set forth in SEQ ID NO: 617 and the light chain variable region (VL) comprises an amino acid sequence at least 98% identical to the amino acid sequence set forth in SEQ ID NO: 621.

16.The isolated anti-CCR8 antibody or antigen-binding fragment thereof according to claim 15, wherein the VH comprises an amino acid sequence set forth in SEQ ID NO: 617 and the VL comprises an amino acid sequence set forth in SEQ ID NO: 621.

17.The isolated anti-CCR8 antibody or antigen-binding fragment thereof according to claim 11, wherein the heavy chain comprises an amino acid sequence at least 98% identical to the amino acid sequence set forth in SEQ ID NO: 633 and the light chain comprises an amino acid sequence at least 98% identical to the amino acid sequence set forth in SEQ ID NO: 634.

18.The isolated anti-CCR8 antibody or antigen-binding fragment thereof according to claim 17, wherein the heavy chain comprises an amino acid sequence set forth in SEQ ID NO: 633 and the light chain comprises an amino acid sequence set forth in SEQ ID NO: 634.

19. A conjugate comprising an anti-CCR8 antibody or antigen-binding fragment according to any of claims 1 to 18, preferably wherein the conjugate comprises

a. a radioactive element,
b. a cytotoxic agent, such as an auristatin, a maytansinoid, a kinesin-spindle protein inhibitor, a nicotinamide phosphoribosyltransferase inhibitor or a pyrrolobenzodiazepine derivative,
c. a further antibody or antigen-binding fragment, or

d. a chimeric antigen receptor.

20. A pharmaceutical composition comprising an anti-CCR8 antibody or antigen-binding fragment according to any of claims 1 to 18 or a conjugate according to claim 19 and optionally comprising one or more further therapeutically active compounds, preferably selected from

a. an antibody or a small molecule targeting a checkpoint protein, such as PD1, PD-L1 or CTLA-4,
b. an antibody targeting a further chemokine receptor, such as CCR1, CCR2, CCR3, CCR4, CCR5, CCR6, CCR7, CCR8, CCR9, CCR10, CXCR1, CXCR2, CXCR3, CXCR4, CXCR5, CXCR6, CX3CR1 or CXCR1,
c. an antibody targeting a protein which is specifically expressed by tumor cells,
d. an antibody or a small molecule targeting HER2 and/or EGFR,
e. the standard of care for any of head and neck cancer, breast cancer, gastric cancer, lung cancer, squamous cell carcinoma, esophageal tumor, melanoma, bladder cancer, liver cancer, and/or prostate cancer,
f. a chemotherapeutic agent, preferably a taxane, paclitaxel, doxorubicin, cis-platin, carboplatin, oxaliplatin, or gemcitabine, and/or
g. a targeted kinase inhibitor, such as Sorafenib, Regorafenib, or MEKi-1.

21.An anti-CCR8 antibody or antigen-binding fragment according to any of claims 1 to 18 or a conjugate according to claim 19 or a pharmaceutical composition according to claim 20 for use as a medicament.

22.Use of an anti-CCR8 antibody or antigen-binding fragment according to any of claims 1 to 18 or a conjugate according to claim 19 or a pharmaceutical composition according to claim 20 in the manufacture of a medicament for the treatment of a tumor or a disease characterized by CCR8 positive cells, such as CCR8 positive tumor cells or CCR8 positive regulatory T cells.

23.The use according to claim 22, wherein the medicament is to be administered in simultaneous, separate, or sequential combination

(i) with one or more further therapeutically active compounds, preferably selected from

a. an antibody or a small molecule targeting a checkpoint protein, such as PD1, PD-L1 or CTLA-4,
b. an antibody targeting a further chemokine receptor, such as CCR1, CCR2, CCR3, CCR4, CCR5, CCR6, CCR7, CCR8, CCR9, CCR10, CXCR1, CXCR2, CXCR3, CXCR4, CXCR5, CXCR6, CX3CR1 or CXCR1,
c. an antibody targeting a protein which is specifically expressed by the tumor cells,
d. an antibody or a small molecule targeting HER2 and/or EGFR,

e. the standard of care for any of head and neck cancer, breast cancer, gastric cancer, lung cancer, squamous cell carcinoma, esophageal tumor, melanoma, bladder cancer, liver cancer, and/or prostate cancer,

f. a chemotherapeutic agent, preferably a taxane, paclitaxel, doxorubicin, cis-platin, carboplatin, oxaliplatin, or gemcitabine and/or

g. a targeted kinase inhibitor, such as Sorafenib, Regorafenib, or MEKi-1,
and/or

(ii) with radiation therapy, and/or

(iii) with depletion of intra-tumoral B cells

.

24.The use according to claim 22 or 23, wherein the tumor is selected from the group of T-cell acute lymphoblastic leukemia, breast cancer, triple-negative breast cancer, triple positive breast cancer, non-small cell lung cancer (NSCLC), small cell lung cancer (SCLC), testicular cancer, gastric cancer, head and neck squamous cell carcinoma, thymoma, esophageal adenocarcinoma, colorectal cancer, pancreatic adenocarcinoma, ovarian cancer or cervical cancer, acute myeloid leukemia, kidney cancer, bladder cancer, skin cancer, melanoma, thyroid cancer, mesothelioma, sarcoma and prostate cancer, B cell lymphoma, T cell lymphoma or any other cancer involving CCR8 expressing cells, preferably wherein the tumor is selected from head and neck cancer, breast cancer, gastric cancer, lung cancer, squamous cell carcinoma, esophageal tumors, B cell lymphoma, melanoma and T cell lymphoma.

25.A polynucleotide encoding an antibody or antigen-binding fragment according to any of claims 1 to 18.

26.A vector comprising a polynucleotide according to claim 25.

27.An isolated cell arranged for production of an anti-CCR8 antibody or antigen-binding fragment according to any of claims 1 to 18.

28.A method of producing an anti-CCR8 antibody or antigen-binding fragment according to any of claims 1 to 18 or a conjugate according to claim 19, comprising culturing a cell according to claim 27 and optionally purification of the antibody or antigen-binding fragment.

29.Use of an anti-CCR8 antibody or antigen-binding fragment according to any of claims 1 to 18 or a conjugate according to claim 19 for the manufacture of a diagnostic agent for use in an in vivo method of diagnosing a tumor or a disease characterized by CCR8 positive cells, such as CCR8 positive tumor cells or CCR8 positive regulatory T cells.

30.A kit comprising an anti-CCR8 antibody or antigen-binding fragment according to any of claims 1 to 18 or a conjugate according to claim 19 or a pharmaceutical composition according to claim 20 with instructions for use.

31. Use of an anti-CCR8 antibody or antigen-binding fragment thereof according to any of claims 1 to 18 in the manufacture of a medicament for inducing antibody-dependent cellular phagocytosis (ADCP) in a target cell expressing CCR8 in a human patient, wherein a therapeutically effective amount of the medicament is to be administered to the human patient, and wherein the human patient has a tumor.

32. The use of claim 31, wherein the anti-CCR8 antibody or antigen-binding fragment thereof comprises six CDR sequences that have the amino acid sequences set forth in SEQ ID NO:618, SEQ ID NO:619, SEQ ID NO:620, SEQ ID NO:622, SEQ ID NO:623 and SEQ ID NO:624.

33. The use of claim 30 or 31, wherein the tumor is selected from the group of T-cell acute lymphoblastic leukemia, breast cancer, triple-negative breast cancer, triple positive breast cancer, non-small cell lung cancer (NSCLC), small cell lung cancer (SCLC), testicular cancer, gastric cancer, head and neck squamous cell carcinoma, thymoma, esophageal adenocarcinoma, colorectal cancer, pancreatic adenocarcinoma, ovarian cancer or cervical cancer, acute myeloid leukemia, kidney cancer, bladder cancer, skin cancer, melanoma, thyroid cancer, mesothelioma, sarcoma and prostate cancer, B cell lymphoma, T cell lymphoma or any other cancer involving CCR8 expressing cells, preferably wherein the tumor is selected from head and neck cancer, breast cancer, gastric cancer, lung cancer, squamous cell carcinoma, esophageal tumors, B cell lymphoma, melanoma and T cell lymphoma.