

CLAIMS

1. A humanized antibody specifically recognizing human carbonic anhydrase IX (CA IX), comprising:

a) a heavy chain variable region amino acid sequence comprising or having the sequence

5 EVQLVESGGGLVQPGGSLRLSCAASGFTFTDYYMHVWRQAPGRGLEWVAFIRNKASGYTPQ
YSASVKGRFTISRDNAENSLYLQMNSLRAEDTAVYYCVRGGHAGSNYWFFDVWGKGTTVT
 VSS (SEQ ID NO. 7);

b) a light chain variable region amino acid sequence comprising or having the sequences selected from the group consisting of

10 DIQMTQSPSSLSASVGDRVTITCHVSQNINVWLSWYQQKPGKAPNLLIYQASNLHTGVPSRFS
 GSGSGTHFTLTISLQPEDATYYCQQGQSYPFTFGGQTKVEIK (SEQ ID NO. 12),
 DIQMTQSPSTLSASVGDRVTITCHVSQNINVWLSWYQQKPGNAPKLLIYQASNLHTGVPSRFS
 GSGSGTEFTLTIGSLQPDDEFVYYCQQGQSYPFTFGQGTKVEIK (SEQ ID NO. 13),
 DIQMTQSPSSLSASVGDRVTITCHVSQNINVWLSWYQQKPGEAPKLLIYQASNLHTGVPSRFS
 15 GSGSGTDFTLTISLQPEDFATYYCQQGQSYPFTFGQGTKLEIK (SEQ ID NO. 14),
 DIQMTQSPSSLSASVGDRVTINCHVSQNINVWLSWYQQKPGEAPKLLIYQASNLHTGVPSRFS
 GSGSGTGFTLTIRSLQPEDYATYYCQQGQSYPFTFGQGTKLEIK (SEQ ID NO. 15), and
 DIQMTQSPSSLSASVGDRVTITCHVSQNINVWLSWYQQKPGKAPKLLIYQASNLHTGVPSRFS
 GSGSGTDFTFTISLQPEDATYYCQQGQSYPFTFGQGTKLEIK (SEQ ID NO. 16).

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2. The humanized antibody according to claim 1, wherein the said humanized antibody contains:

- a heavy chain variable region amino acid sequence comprising or having the sequence of SEQ ID NO. 7 and a light chain variable region amino acid sequence comprising or having the sequence of SEQ ID NO. 15.

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3. The humanized antibody according to any one of the preceding claims which has human IgG constant regions of allotype G1m17,1 of the heavy chains and human kappa constant regions of allotype Km3 of the light chains.

30 4. A pharmaceutical composition comprising a therapeutically effective amount of a humanized antibody of any one of claims 1-3, which specifically recognizes human CA IX, and a pharmaceutically acceptable carrier, diluent or excipient.

5. The humanized antibody according to any one of claims 1-3 or the pharmaceutical composition of claim 4, for use in the treatment of a disease or disorder selected from the group consisting of squamous cell carcinoma, myeloma, small-cell lung cancer, non-small cell lung cancer, glioma, hodgkin's

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lymphoma, non-hodgkin's lymphoma, acute myeloid leukemia, multiple myeloma, gastrointestinal cancer, renal cancer, ovarian cancer, liver cancer, lymphoblastic leukemia, lymphocytic leukemia, colorectal cancer, endometrial cancer, kidney cancer, prostate cancer, thyroid cancer, melanoma, chondrosarcoma, neuroblastoma, pancreatic cancer, glioblastoma multiforme, cervical cancer, brain cancer, stomach cancer, bladder cancer, hepatoma, breast cancer, colon carcinoma, mesothelioma, and head and neck cancer.

6. The humanized antibody or the pharmaceutical composition for use according to claim 5 in the treatment of breast cancer, mesothelioma, or glioblastoma expressing CA IX.

7. A diagnostic composition comprising at least one humanized antibody of any one of claims 1-3, and at least one carrier, diluent, or excipient.

8. A method for diagnosing a cancer in a subject in need thereof, the method comprising contacting a biological sample derived or obtained from said subject with the diagnostic composition of claim 7, wherein a complex formation beyond a predetermined threshold is indicative of the cancer in said subject.

9. The method for diagnosing a cancer in a subject according to claim 8, wherein the humanized antibody, according to any one of the claims 1-3, is linked, bound or conjugated to a paramagnetic, radioactive or fluorogenic moiety that is detectable upon imaging.