CLAIMS

1. A monoclonal antibody, or a divalent functional fragment or derivative thereof, capable to inhibit the c-Met dimerization, said antibody comprising a heavy chain comprising CDR-H1, CDR-H2 and CDR-H3 with respectively the amino acid sequences SEQ ID Nos. 1, 2 and 3; and a light chain comprising CDR-L1, CDR-L2 and CDR-L3 with respectively the amino acid sequences SEQ ID Nos. 5, 6 and 7, said antibody being further characterized in that it also comprises a hinge region comprising the amino acid sequence SEQ ID No. 56.

2. The antibody of claim 1, or a divalent functional fragment or derivative thereof, characterized in that said hinge region comprises the amino acid sequence SEQ ID No. 57.

3. The antibody of claim 1, or a divalent functional fragment or derivative thereof, characterized in that said hinge region comprises the amino acid sequence SEQ ID No. 21.

4. The antibody of claim 1, or a divalent functional fragment or derivative thereof, characterized in that said hinge region comprises an amino acid sequence selected from the group consisting of SEQ ID Nos. 22 to 28 and SEQ ID Nos. 72 to 86.

5. The antibody of claim 1, or a divalent functional fragment or derivative thereof, characterized in that it consists of a chimeric antibody.

6. The antibody of claim 1, or a divalent functional fragment or derivative thereof, characterized in that it consists of a human antibody.

7. The antibody of claim 1, or a divalent functional fragment or derivative thereof, characterized in that it consists of a humanized antibody.

8. The antibody of claim 7, or a divalent functional fragment or derivative

thereof, characterized in that it comprises a heavy chain variable domain of sequence comprising the amino acid sequence SEQ ID No. 4; and a light chain variable domain of sequence comprising the amino acid sequence SEQ ID No. 8, 9 or 10.

9. The antibody of claim 8, or a divalent functional fragment or derivative thereof, characterized in that it comprises a heavy chain variable domain of sequence comprising the amino acid sequence SEQ ID No. 4; a light chain variable domain of sequence comprising the amino acid sequence SEQ ID No. 8; and a hinge region comprising the amino acid sequence SEQ ID No. 22.

10. The antibody of claim 8, or a divalent functional fragment or derivative thereof, characterized in that it comprises a heavy chain variable domain of sequence comprising the amino acid sequence SEQ ID No. 4; a light chain variable domain of sequence comprising the amino acid sequence SEQ ID No. 9; and a hinge region comprising the amino acid sequence SEQ ID No. 22.

11. The antibody of claim 8, or a divalent functional fragment or derivative thereof, characterized in that it comprises a heavy chain variable domain of sequence comprising the amino acid sequence SEQ ID No. 4; a light chain variable domain of sequence comprising the amino acid sequence SEQ ID No. 10; and a hinge region comprising the amino acid sequence SEQ ID No. 22.

12. The antibody of claim 8, or a divalent functional fragment or derivative thereof, characterized in that it comprises a heavy chain variable domain of sequence comprising the amino acid sequence SEQ ID No. 4; a light chain variable domain of sequence comprising the amino acid sequence SEQ ID No. 8; and a hinge region comprising the amino acid sequence SEQ ID No. 28.

13. The antibody of claim 8, or a divalent functional fragment or derivative thereof, characterized in that it comprises a heavy chain variable domain of sequence comprising the amino acid sequence SEQ ID No. 4; a light chain variable domain of sequence comprising the amino acid sequence SEQ ID No. 9; and a hinge region

comprising the amino acid sequence SEQ ID No. 28.

14. The antibody of claim 8, or a divalent functional fragment or derivative thereof, characterized in that it comprises a heavy chain variable domain of sequence comprising the amino acid sequence SEQ ID No. 4; a light chain variable domain of sequence comprising the amino acid sequence SEQ ID No. 10; and a hinge region comprising the amino acid sequence SEQ ID No. 28.

15. An isolated nucleic acid, characterized in that it is chosen from the following nucleic acids:

a) a nucleic acid, DNA or RNA, coding for an antibody, or a divalent functional fragment or derivative thereof, as claimed in one of claims 1 to 14;

b) a nucleic acid comprising a DNA sequence comprising the sequences SEQ ID No. 11, SEQ ID No. 12, SEQ ID No. 13 and the sequences SEQ ID No. 15, SEQ ID No. 16 and SEQ ID No. 17;

c) a nucleic acid comprising a DNA sequence comprising the sequences SEQ ID No. 14 and SEQ ID No. 18, 19 or 20;

d) the corresponding RNA nucleic acids of the nucleic acids as defined in b) or c);

e) the complementary nucleic acids of the nucleic acids as defined in a), b) and c);

f) a nucleic acid of at least 18 nucleotides capable of hybridizing under conditions of high stringency with at least one of the CDRs of sequence SEQ ID Nos. 11 to 13 and 15 to 17.

16. An isolated nucleic acid, characterized in that it is chosen from the following nucleic acids:

- a nucleic acid, DNA or RNA, coding for an antibody, or one of its functional fragments or derivatives, according to the present invention and wherein the nucleic sequence coding for the hinge region of said antibody comprises or has a sequence selected from the group consisting of the sequences SEQ ID Nos. 29 to 35 and SEQ ID Nos. 73 to 87.

17. A vector comprising a nucleic acid as claimed in claim 15 or 16.

18. A host cell comprising a vector as claimed in claim 17.

19. A transgenic animal with the exception of man comprising at least one cell transformed by a vector as claimed in claim 17.

20. A process for production of an antibody, or a divalent functional fragment or derivative thereof, as claimed in one of claims 1 to 14, characterized in that it comprises the following stages:

a) culture in a medium and appropriate culture conditions of a cell as claimed in claim 18; and

b) the recovery of said antibody, or a divalent functional fragment or derivative thereof, thus produced starting from the culture medium or said cultured cells.

21. An antibody, or a divalent functional fragment or derivative thereof, capable of being obtained by a process as claimed in claim 20.

22. The antibody of claims 1 to 14 and 21 as a medicament.

23. A composition comprising by way of active principle a compound consisting of an antibody, or a divalent functional fragment or derivative thereof, as claimed in one of claims 1 to 14, 21 or 22.

24. The composition of claim 23, characterized in that it comprises, moreover, as a combination product for simultaneous, separate or sequential use, an anti-tumoral antibody.

25. The composition of claim 23, characterized in that it comprises, moreover, as a combination product for simultaneous, separate or sequential use, a cytotoxic/cytostatic agent.

26. The composition of claim 23, characterized in that one, at least, of said antibodies, or a divalent functional fragment or derivative thereof, is conjugated with a cell toxin and/or a radioelement.

27. The composition of claim 25 or 26, characterized in that said cytotoxic/cytostatic agent or said toxin and/or a radioelement is coupled chemically to at least one of the elements of said composition for simultaneous use.

28. The composition as claimed in one of claims 23 to 27 as a medicament.

29. The use of an antibody, or a divalent functional fragment or derivative thereof, of claims 1 to 14, 21 or 22 or of a composition of claims 23 to 28 for the preparation of a medicament intended to inhibit the growth and/or the proliferation of tumor cells.

30. The use of an antibody, or a divalent functional fragment or derivative thereof, of claims 1 to 14, 21 or 22 or of a composition of claims 23 to 28, or the use of claim 29, for the preparation of a medicament intended for the prevention or for the treatment of cancer.

31. The use of claim 30, characterized in that said cancer is a cancer chosen from prostate cancer, osteosarcomas, lung cancer, breast cancer, endometrial cancer, glyoblastoma or colon cancer.

32. The use of claim 30 or 31, characterized in that said cancer is a HGF dependant and independent Met-activation related cancer.

33. A method of *in vitro* diagnosis of illnesses induced by an overexpression or an underexpression of the c-Met receptor starting from a biological sample in which the abnormal presence of c-Met receptor is suspected, characterized in that said method comprises a step wherein said biological sample is contacted with an antibody of claims 1 to 14, 21 or 22, it being possible for said antibody to be, if necessary, labelled.

CLAIMS

1. A monoclonal antibody, or a functional fragment or derivative thereof, capable to inhibit the c-Met dimerization, said antibody comprising a heavy chain comprising CDR-H1, CDR-H2 and CDR-H3 with respectively the amino acid sequences SEQ ID Nos. 1, 2 and 3; and a light chain comprising CDR-L1, CDR-L2 and CDR-L3 with respectively the amino acid sequences SEQ ID Nos. 5, 6 and 7, wherein said antibody consists of a chimeric, human or humanized antibody and in that it also comprises a hinge region comprising the amino acid sequence SEQ ID No. 21.

2. The antibody of claim 1, or a functional fragment or derivative thereof, wherein said hinge region comprises the amino acid sequence SEQ ID No. 22.

3. The antibody of claim 1, or a functional fragment or derivative thereof, wherein said hinge region comprises the amino acid sequence SEQ ID No. 23.

4. The antibody of claim 1, or a functional fragment or derivative thereof, wherein said antibody comprises a heavy chain variable domain of sequence comprising the amino acid sequence SEQ ID No. 4; and a light chain variable domain of sequence comprising the amino acid sequence SEQ ID No. 8, 9 or 10.

5. The antibody of claim 1, or a functional fragment or derivative thereof, wherein said antibody comprises a heavy chain variable domain of sequence comprising the amino acid sequence SEQ ID No. 4; a light chain variable domain of sequence comprising the amino acid sequence SEQ ID No. 8; and a hinge region comprising the amino acid sequence SEQ ID No. 22.

6. The antibody of claim 1, or a functional fragment or derivative thereof, wherein said antibody comprises a heavy chain variable domain of sequence comprising the amino acid sequence SEQ ID No. 4; a light chain variable domain of sequence comprising the amino acid sequence SEQ ID No. 9; and a hinge region comprising the amino acid sequence SEQ ID No. 22.

7. The antibody of claim 1, or a functional fragment or derivative thereof, wherein said antibody comprises a heavy chain variable domain of sequence comprising the amino acid sequence SEQ ID No. 4; a light chain variable domain of sequence comprising the amino acid sequence SEQ ID No. 10; and a hinge region comprising the amino acid sequence SEQ ID No. 22.

8. The antibody of claim 1, or a functional fragment or derivative thereof, wherein said antibody comprises a heavy chain variable domain of sequence comprising the amino acid sequence SEQ ID No. 4; a light chain variable domain of sequence comprising the amino acid sequence SEQ ID No. 8; and a hinge region comprising the amino acid sequence SEQ ID No. 23.

9. The antibody of claim 1, or a functional fragment or derivative thereof, wherein said antibody comprises a heavy chain variable domain of sequence comprising the amino acid sequence SEQ ID No. 4; a light chain variable domain of sequence comprising the amino acid sequence SEQ ID No. 9; and a hinge region comprising the amino acid sequence SEQ ID No. 23.

10. The antibody of claim 1, or a functional fragment or derivative thereof, wherein said antibody comprises a heavy chain variable domain of sequence comprising the amino acid sequence SEQ ID No. 4; a light chain variable domain of sequence comprising the amino acid sequence SEQ ID No. 10; and a hinge region comprising the amino acid sequence SEQ ID No. 23.

11. An isolated nucleic acid, wherein it is chosen from the following nucleic acids:

a) a nucleic acid, DNA or RNA, coding for an antibody, or a functional fragment or derivative thereof, as claimed in one of claims 1 to 10;

b) the complementary nucleic acids of the nucleic acids as defined in b).

12. An isolated nucleic acid, wherein it is chosen from a nucleic acid, DNA or RNA, coding for an antibody, or a functional fragment or derivative thereof, according to claim 11 and wherein saidnucleic sequence coding for the hinge region of said antibody comprises or has a sequence selected from the group consisting of the sequences SEQ ID Nos. 29 or 30.

13. A vector comprising a nucleic acid as claimed in claim 11 or 12.

14. An isolated host cell comprising a vector as claimed in claim 13.

15. A transgenic animal with the exception of man comprising at least one cell transformed by a vector as claimed in claim 13.

16. A process for production of an antibody, or a functional fragment or derivative thereof, as claimed in one of claims 1 to 10, wherein said process comprises the following stages:

a) culture in a medium and appropriate culture conditions of a cell as claimed in claim 14; and

b) the recovery of said antibody, or functional fragment or derivative thereof, thus produced starting from the culture medium or said cultured cells.

17. The antibody, or a functional fragment or derivative thereof, of claims 1 to 10, wherein said antibody is coupled chemically to a cytotoxic agent.

18. The antibody of claim 17, wherein said cytotoxic agent is selected in the group consisting of alkylating agents, anti-metabolites, anti-tumor antibiotics, mitotic inhibitors, chromatin function inhibitors, anti-angiogenesis agents, anti oestrogenic agents, anti-androgen agents or immunomodulators.

19. The antibody of claim 17 or 18, wherein said cytotoxic agent is a mitotic inhibitor.

20. The antibody, or a functional fragment or derivative thereof, of claims 1 to 10 and 17 to 19 as a medicament.

21. A composition comprising by way of active principle a compound consisting of an antibody, or a functional fragment or derivative thereof, as claimed in one of claims 1 to 10, and 17 to 20.

22. The composition of claim 21, wherein said composition comprises, moreover, as a combination product for simultaneous, separate or sequential use, an anti-tumoral antibody.

23. The composition of claim 21, wherein said composition comprises, moreover, as a combination product for simultaneous, separate or sequential use, a cytotoxic/cytostatic agent.

24. The composition of claim 23, wherein said cytotoxic/cytostatic agent is coupled chemically to at least one of the elements of said composition for simultaneous use.

25. The composition of claim 24, wherein said cytotoxic/cytostatic agent is selected in the group consisting of alkylating agents, anti-metabolites, anti-tumor antibiotics, mitotic inhibitors, chromatin function inhibitors, anti-angiogenesis agents, anti oestrogenic agents, anti-androgen agents or immunomodulators.

26. The composition of claim 24 or 25, wherein said cytotoxic/cytostatic agent is a mitotic inhibitor.

27. The composition of claim 21, wherein one, at least, of said antibodies, or a functional fragment or derivative thereof, is conjugated with a cell toxin and/or a radioelement.

28. The use of an antibody, or a functional fragment or derivative thereof, of claims 1 to 10 and 17 to 20 or of a composition of claims 21 to 27 for the preparation of a medicament intended to inhibit the growth and/or the proliferation of tumor cells.

29. The use of an antibody, or a functional fragment or derivative thereof, of claims 1 to 10 and 17 to 20 or of a composition of claims 21 to 28, for the preparation of a medicament intended for the prevention or for the treatment of cancer.

30. The use of claim 29, wherein said cancer is a cancer chosen from prostate cancer, osteosarcomas, lung cancer, breast cancer, endometrial cancer, glioblastoma or colon cancer.

31. The use of claim 29 or 30, wherein said cancer is a HGF dependant and independent Met-activation related cancer.

32. A method of *in vitro* diagnosis of illnesses induced by an overexpression or an underexpression of the c-Met receptor starting from a biological sample in which the abnormal presence of c-Met receptor is suspected, wherein said method comprises a step wherein said biological sample is contacted with an antibody of claims 1 to 10 and 17 to 20, or a functional fragment or derivative thereof.

33. The method of *in vitro* diagnosis of claim 32, wherein said method comprises a step wherein said antibody is labelled.