

CLAIMS

1. An antibody which binds to an oncogenic mutant form of KRAS, said
oncogenic mutant form of KRAS comprising an amino acid substitution at
5 the position corresponding to position G13 or G12 of wild-type KRAS (SEQ
ID NO:7), wherein said antibody binds to an epitope that is in the region of
said oncogenic mutant form of KRAS that is defined by the amino acid
residues that correspond to amino acid residues 10-21 of wild-type KRAS
(SEQ ID NO:7), and wherein said antibody inhibits activity of said oncogenic
10 mutant form of KRAS.
2. The antibody of claim 1, wherein said oncogenic mutant form of
KRAS has the amino acid sequence of SEQ ID NO:14, 16, 13 or 15 and
wherein said antibody binds to an epitope that is in the region of said
15 oncogenic mutant form of KRAS that is defined by amino acid residues 10-
21 of SEQ ID NO:14, 16, 13 or 15.
3. The antibody of claim 1 or claim 2, wherein said amino acid
substitution at the position corresponding to position G13 or G12 of wild-type
20 KRAS is a G13D or a G12D substitution.
4. The antibody of any one of claims 1 to 3, wherein said oncogenic
mutant form of KRAS comprises an amino acid substitution at the position
corresponding to position G13 of wild-type KRAS (SEQ ID NO:7) and said
25 amino acid substitution is a G13D substitution.
5. The antibody of any one of claims 1 to 4, wherein said oncogenic
mutant form of KRAS has the amino acid sequence of SEQ ID NO: 9, 12, 8
or 11 and wherein said antibody binds to an epitope that is in the region of
30 said oncogenic mutant form of KRAS that is defined by amino acid residues
10-21 of SEQ ID NO: 9, 12, 8 or 11.

6. The antibody of any one of claims 1 to 5, wherein said oncogenic mutant form of KRAS has the amino acid sequence of SEQ ID NO:9 or SEQ ID NO: 12 and wherein said antibody binds to an epitope that is in the region of said oncogenic mutant form of KRAS that is defined by amino acid residues 10-21 of SEQ ID NO:9 or SEQ ID NO:12.
7. The antibody of any one of claims 1 to 6, wherein said oncogenic mutant form of KRAS has the amino acid sequence of SEQ ID NO:8 or SEQ ID NO:11 and wherein said antibody binds to an epitope that is in the region of said oncogenic mutant form of KRAS that is defined by amino acid residues 10-21 of SEQ ID NO:8 or SEQ ID NO:11.
8. The antibody of any one of claims 1 to 7, wherein said antibody binds to and inhibits at least one oncogenic mutant form of KRAS having an amino acid sequence of SEQ ID NO:8 or 11 and to at least one oncogenic mutant form of KRAS having an amino acid sequence of SEQ ID NO:9 or 12.
9. The antibody of any one of claims 1 to 8, wherein said antibody binds to an isolated peptide, said isolated peptide comprising
- (i) an amino acid sequence of SEQ ID NO:18 or SEQ ID NO:17; or
- (ii) an amino acid sequence substantially homologous to an amino acid sequence of (i), wherein said substantially homologous sequence has 1 or 2 amino acid substitutions or additions or deletions compared with said amino acid sequence and wherein in a sequence substantially homologous to SEQ ID NO:17 the X residue corresponding to position 3 of SEQ ID NO:17 is not altered and wherein in a sequence substantially homologous to SEQ ID NO:18 the X residue corresponding to position 4 of SEQ ID NO:18 is not altered.
10. The antibody of any one of claims 1 to 9, wherein said antibody binds to an isolated peptide, said isolated peptide comprising an amino acid sequence of SEQ ID NO:18 or SEQ ID NO:17.

11. The antibody of any one of claims 1 to 10, wherein said antibody binds to an isolated peptide, said isolated peptide comprising
- (i) an amino acid sequence of SEQ ID NO:2 or SEQ ID NO:1; or
- 5 (ii) an amino acid sequence substantially homologous to an amino acid sequence of (i), wherein said substantially homologous sequence has 1 or 2 amino acid substitutions or additions or deletions compared with said amino acid sequence and wherein in a sequence substantially homologous to SEQ ID NO:1 the D residue
- 10 corresponding to position 3 of SEQ ID NO:1 is not altered and wherein in a sequence substantially homologous to SEQ ID NO:2 the D residue corresponding to position 4 of SEQ ID NO:2 is not altered.
12. The antibody of any one of claims 1 to 11, wherein said antibody
- 15 binds to an isolated peptide, said isolated peptide comprising an amino acid sequence of SEQ ID NO:2 or SEQ ID NO:1.
13. The antibody of any one of claims 1 to 12, wherein said antibody binds to an isolated peptide, said isolated peptide comprising
- 20 (i) an amino acid sequence of SEQ ID NO:5, SEQ ID NO:3, SEQ ID NO:4 or SEQ ID NO:6; or
- (ii) an amino acid sequence substantially homologous to an amino acid sequence of (i), wherein said substantially homologous
- 25 sequence has 1 or 2 amino acid substitutions or additions or deletions compared with said amino acid sequence and wherein in a sequence substantially homologous to SEQ ID NO:3 the D residue corresponding to position 3 of SEQ ID NO:3 is not altered and wherein in a sequence substantially homologous to SEQ ID NO:4 the D residue corresponding to position 4 of SEQ ID NO:4 is not altered
- 30 and wherein in a sequence substantially homologous to SEQ ID NO:5 the D residue corresponding to position 5 of SEQ ID NO:5 is not altered and wherein in a sequence substantially homologous to SEQ ID NO:6 the D residue corresponding to position 4 of SEQ ID NO:6 is not altered.

14. The antibody of any one of claims 1 to 13, wherein said antibody binds to an isolated peptide, said isolated peptide comprising an amino acid sequence of SEQ ID NO:5, SEQ ID NO:3, SEQ ID NO:4 or SEQ ID NO:6.

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15. The antibody of any one of claims 1 to 14, wherein said antibody binds to an isolated peptide, said isolated peptide consisting of an amino acid sequence selected from the group consisting of: SEQ ID NO:5, SEQ ID NO:3, SEQ ID NO:4 and SEQ ID NO:6.

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16. The antibody of any one of claims 1 to 15, wherein said antibody binds to an isolated peptide, said isolated peptide consisting of an amino acid sequence selected from the group consisting of SEQ ID NO:5 and SEQ ID NO:3.

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17. The antibody of any one of claims 1 to 16, wherein said antibody binds to an isolated peptide, said isolated peptide consisting of an amino acid sequence of SEQ ID NO:5.

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18. The antibody of any one of claims 1 to 17, wherein said antibody binds to a conjugate, said conjugate comprising an isolated peptide as defined in any one of claims 9 to 17 and a peptide carrier, preferably said peptide carrier is keyhole limpet hemocyanin (KLH).

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19. The antibody of any one of claims 1 to 18, wherein said antibody comprises at least one heavy chain variable region that comprises three CDRs and at least one light chain variable region that comprises three CDRs, wherein said heavy chain variable region comprises a variable heavy (VH) CDR1 that has the amino acid sequence of SEQ ID NO:148 preferably SEQ ID NO: 149, and/or a VH CDR2 that has the amino acid sequence of SEQ ID NO:150 preferably SEQ ID NO: 151, and/or said light chain variable region comprises a VL CDR1 that has the amino acid sequence of SEQ ID

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NO:152 preferably SEQ ID NO: 153, and/or a VL CDR2 that has the amino acid sequence of SEQ ID NO:154 preferably SEQ ID NO:155.

20. The antibody of any one of claims 1 to 19, wherein said antibody
5 comprises at least one heavy chain variable region that comprises three CDRs and at least one light chain variable region that comprises three CDRs, wherein said light chain variable region comprises a variable light (VL) CDR3 that has the amino acid sequence of SEQ ID NO:37 or a sequence substantially homologous thereto,

10 wherein said substantially homologous sequence is a sequence containing 1, 2 or 3 amino acid substitutions compared to the given CDR sequence, or said substantially homologous sequence is a sequence containing conservative amino acid substitutions of the given CDR sequence.

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21. The antibody of any one of claims 1 to 20, wherein said antibody
comprises at least one heavy chain variable region that comprises three CDRs and at least one light chain variable region that comprises three CDRs, wherein said heavy chain variable region comprises a variable heavy
20 (VH) CDR3 that has the amino acid sequence of SEQ ID NO:34 or SEQ ID NO:74, or a sequence substantially homologous thereto,

wherein said substantially homologous sequence is a sequence
containing 1, 2 or 3 amino acid substitutions compared to the given CDR
sequences, or said substantially homologous sequence is a sequence
25 containing conservative amino acid substitutions of the given CDR sequences.

22. The antibody of any one of claims 1 to 21, wherein said antibody
comprises at least one heavy chain variable region that comprises three
30 CDRs and at least one light chain variable region that comprises three CDRs, wherein said heavy chain variable region comprises a variable heavy (VH) CDR1 that has the amino acid sequence of SEQ ID NO:32, a VH CDR2 that has the amino acid sequence of SEQ ID NO:33 and a VH CDR3 that has the amino acid sequence of SEQ ID NO:34, or sequences

substantially homologous thereto, and/or wherein said light chain variable region comprises a variable light (VL) CDR1 that has the amino acid sequence of SEQ ID NO:35, a VL CDR2 that has the amino acid sequence of SEQ ID NO:36 and a VL CDR3 that has the amino acid sequence of SEQ ID NO:37, or sequences substantially homologous thereto,

wherein said substantially homologous sequences are sequences containing 1, 2 or 3 amino acid substitutions compared to the given CDR sequences, or said substantially homologous sequence is a sequence containing conservative amino acid substitutions of the given CDR sequences.

23. The antibody of any one of claims 1 to 22, wherein said antibody comprises at least one heavy chain variable region that comprises three CDRs and at least one light chain variable region that comprises three CDRs, wherein said heavy chain variable region comprises a variable heavy (VH) CDR1 that has the amino acid sequence of SEQ ID NO:32, a VH CDR2 that has the amino acid sequence of SEQ ID NO:33 and a VH CDR3 that has the amino acid sequence of SEQ ID NO:34 and wherein said light chain variable region comprises a variable light (VL) CDR1 that has the amino acid sequence of SEQ ID NO:35, a VL CDR2 that has the amino acid sequence of SEQ ID NO:36 and a VL CDR3 that has the amino acid sequence of SEQ ID NO:37.

24. The antibody of any one of claims 1 to 21, wherein said antibody comprises at least one heavy chain variable region that comprises three CDRs and at least one light chain variable region that comprises three CDRs, wherein said heavy chain variable region comprises a variable heavy (VH) CDR1 that has the amino acid sequence of SEQ ID NO:52, a VH CDR2 that has the amino acid sequence of SEQ ID NO:53 and a VH CDR3 that has the amino acid sequence of SEQ ID NO:54, or sequences substantially homologous thereto, and/or wherein said light chain variable region comprises a variable light (VL) CDR1 that has the amino acid sequence of SEQ ID NO:55, a VL CDR2 that has the amino acid sequence of SEQ ID NO:56 and a VL CDR3 that has the amino acid sequence of SEQ ID NO:57, or sequences substantially homologous thereto,

wherein said substantially homologous sequences are sequences containing 1, 2 or 3 amino acid substitutions compared to the given CDR sequences, or said substantially homologous sequence is a sequence containing conservative amino acid substitutions of the given CDR sequences.

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25. The antibody of any one of claims 1 to 21 or claim 24, wherein said antibody comprises at least one heavy chain variable region that comprises three CDRs and at least one light chain variable region that comprises three CDRs, wherein said heavy chain variable region comprises a variable heavy (VH) CDR1 that has the amino acid sequence of SEQ ID NO:52, a VH CDR2 that has the amino acid sequence of SEQ ID NO:53 and a VH CDR3 that has the amino acid sequence of SEQ ID NO:54 and wherein said light chain variable region comprises a variable light (VL) CDR1 that has the amino acid sequence of SEQ ID NO:55, a VL CDR2 that has the amino acid sequence of SEQ ID NO:56 and a VL CDR3 that has the amino acid sequence of SEQ ID NO:57.

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26. The antibody of any one of claims 1 to 21, wherein said antibody comprises at least one heavy chain variable region that comprises three CDRs and at least one light chain variable region that comprises three CDRs, wherein said heavy chain variable region comprises a variable heavy (VH) CDR1 that has the amino acid sequence of SEQ ID NO:72, a VH CDR2 that has the amino acid sequence of SEQ ID NO:73 and a VH CDR3 that has the amino acid sequence of SEQ ID NO:74, or sequences substantially homologous thereto, and/or wherein said light chain variable region comprises a variable light (VL) CDR1 that has the amino acid sequence of SEQ ID NO:75, a VL CDR2 that has the amino acid sequence of SEQ ID NO:76 and a VL CDR3 that has the amino acid sequence of SEQ ID NO:77, or sequences substantially homologous thereto,

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wherein said substantially homologous sequences are sequences containing 1, 2 or 3 amino acid substitutions compared to the given CDR sequences, or said substantially homologous sequence is a sequence containing conservative amino acid substitutions of the given CDR sequences.

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27. The antibody of any one of claims 1 to 21 or claim 26, wherein said antibody comprises at least one heavy chain variable region that comprises three CDRs and at least one light chain variable region that comprises three CDRs, wherein said heavy chain variable region comprises a variable heavy (VH) CDR1 that has the amino acid sequence of SEQ ID NO:72, a VH CDR2 that has the amino acid sequence of SEQ ID NO:73 and a VH CDR3 that has the amino acid sequence of SEQ ID NO:74 and wherein said light chain variable region comprises a variable light (VL) CDR1 that has the amino acid sequence of SEQ ID NO:75, a VL CDR2 that has the amino acid sequence of SEQ ID NO:76 and a VL CDR3 that has the amino acid sequence of SEQ ID NO:77.
28. The antibody of any one of claims 1 to 27, wherein said antibody comprises at least one heavy chain variable region that comprises three CDRs and at least one light chain variable region that comprises three CDRs, wherein
- (i) the light chain variable region has the amino acid sequence of SEQ ID NO:31, or a sequence having at least 80% sequence identity thereto and/or wherein the heavy chain variable region has the amino acid sequence of SEQ ID NO:30, or a sequence having at least 80% sequence identity thereto;
 - (ii) the light chain variable region has the amino acid sequence of SEQ ID NO:51, or a sequence having at least 80% sequence identity thereto and/or wherein the heavy chain variable region has the amino acid sequence of SEQ ID NO:50, or a sequence having at least 80% sequence identity thereto; or
 - (iii) the light chain variable region has the amino acid sequence of SEQ ID NO:71, or a sequence having at least 80% sequence identity thereto and/or wherein the heavy chain variable region has the amino acid sequence of SEQ ID NO:70, or a sequence having at least 80% sequence identity thereto.

29. The antibody of any one of claims 1 to 18, wherein said antibody comprises at least one heavy chain variable region that comprises three CDRs and at least one light chain variable region that comprises three CDRs, wherein heavy chain variable region comprises a variable heavy (VH) CDR1 that has the amino acid sequence of SEQ ID NO:156 preferably SEQ ID NO: 157, and/or a VH CDR2 that has the amino acid sequence of SEQ ID NO:158 preferably SEQ ID NO: 159.
30. The antibody of any one of claims 1 to 18 or claim 29, wherein said antibody comprises at least one heavy chain variable region that comprises three CDRs and at least one light chain variable region that comprises three CDRs, wherein said heavy chain variable region comprises:
- (a) a variable heavy (VH) CDR1 that has the amino acid sequence of SEQ ID NO:156 or preferably SEQ ID NO:157, or a sequence substantially homologous thereto,
 - (b) a VH CDR2 that has the amino acid sequence of SEQ ID NO:158 or preferably SEQ ID NO:159, or a sequence substantially homologous thereto, and
 - (c) a VH CDR3 that has the amino acid sequence of SEQ ID NO:94 or SEQ ID NO:114 or SEQ ID NO:134, or a sequence substantially homologous thereto; and/or
- wherein said light chain variable region comprises:
- (d) a variable light (VL) CDR1 that has the amino acid sequence of SEQ ID NO:95 or SEQ ID NO:115 or SEQ ID NO:135, or a sequence substantially homologous thereto,
 - (e) a VL CDR2 that has the amino acid sequence of SEQ ID NO:96 or SEQ ID NO:116 or SEQ ID NO:136, or a sequence substantially homologous thereto, and
 - (f) a VL CDR3 that has the amino acid sequence of SEQ ID NO:97, SEQ ID NO:117 or SEQ ID NO:137, or a sequence substantially homologous thereto,
- wherein said substantially homologous sequence is a sequence containing 1, 2 or 3 amino acid substitutions compared to the given CDR

sequence, or said substantially homologous sequence is a sequence containing conservative amino acid substitutions of the given CDR sequence.

5 31. The antibody of any one of claims 1 to 18, 29 or 30, wherein said antibody comprises at least one heavy chain variable region that comprises three CDRs and at least one light chain variable region that comprises three CDRs, wherein light chain variable region comprises a variable light (VL) CDR2 that has the amino acid sequence of SEQ ID NO:96, or a sequence
10 substantially homologous thereto,

 wherein said substantially homologous sequence is a sequence containing 1, 2 or 3 amino acid substitutions compared to the given CDR sequence, or said substantially homologous sequence is a sequence containing conservative amino acid substitutions of the given CDR
15 sequence.

 32. The antibody of any one of claims 1 to 18, 29, 30 or 31, wherein said antibody comprises at least one heavy chain variable region that comprises three CDRs and at least one light chain variable region that comprises three
20 CDRs, wherein said heavy chain variable region comprises a variable heavy (VH) CDR1 that has the amino acid sequence of SEQ ID NO:92, a VH CDR2 that has the amino acid sequence of SEQ ID NO:93 and a VH CDR3 that has the amino acid sequence of SEQ ID NO:94, or sequences substantially homologous thereto, and/or wherein said light chain variable
25 region comprises a variable light (VL) CDR1 that has the amino acid sequence of SEQ ID NO:95, a VL CDR2 that has the amino acid sequence of SEQ ID NO:96 and a VL CDR3 that has the amino acid sequence of SEQ ID NO:97, or sequences substantially homologous thereto,

 wherein said substantially homologous sequences are sequences
30 containing 1, 2 or 3 amino acid substitutions compared to the given CDR sequences, or said substantially homologous sequence is a sequence containing conservative amino acid substitutions of the given CDR sequences.

33. The antibody of any one of claims 1 to 18, 29, 30, 31 or 32, wherein said antibody comprises at least one heavy chain variable region that comprises three CDRs and at least one light chain variable region that comprises three CDRs, wherein said heavy chain variable region comprises
5 a variable heavy (VH) CDR1 that has the amino acid sequence of SEQ ID NO:92, a VH CDR2 that has the amino acid sequence of SEQ ID NO:93 and a VH CDR3 that has the amino acid sequence of SEQ ID NO:94 and wherein said light chain variable region comprises a variable light (VL) CDR1 that has the amino acid sequence of SEQ ID NO:95, a VL CDR2 that has
10 the amino acid sequence of SEQ ID NO:96 and a VL CDR3 that has the amino acid sequence of SEQ ID NO:97.
34. The antibody of any one of claims 1 to 18, 29, 30 or 31, wherein said antibody comprises at least one heavy chain variable region that comprises
15 three CDRs and at least one light chain variable region that comprises three CDRs, wherein said heavy chain variable region comprises a variable heavy (VH) CDR1 that has the amino acid sequence of SEQ ID NO:112, a VH CDR2 that has the amino acid sequence of SEQ ID NO:113 and a VH CDR3 that has the amino acid sequence of SEQ ID NO:114, or sequences
20 substantially homologous thereto, and/or wherein said light chain variable region comprises a variable light (VL) CDR1 that has the amino acid sequence of SEQ ID NO:115, a VL CDR2 that has the amino acid sequence of SEQ ID NO:116 and a VL CDR3 that has the amino acid sequence of SEQ ID NO:117, or sequences substantially homologous thereto,
25 wherein said substantially homologous sequences are sequences containing 1, 2 or 3 amino acid substitutions compared to the given CDR sequences, or said substantially homologous sequence is a sequence containing conservative amino acid substitutions of the given CDR sequences.
35. The antibody of any one of claims 1 to 18, 29, 30, 31 or 34, wherein said antibody comprises at least one heavy chain variable region that comprises three CDRs and at least one light chain variable region that comprises three CDRs, wherein said heavy chain variable region comprises
35 a variable heavy (VH) CDR1 that has the amino acid sequence of SEQ ID

5 NO:112, a VH CDR2 that has the amino acid sequence of SEQ ID NO:113 and a VH CDR3 that has the amino acid sequence of SEQ ID NO:114 and wherein said light chain variable region comprises a variable light (VL) CDR1 that has the amino acid sequence of SEQ ID NO:115, a VL CDR2 that has the amino acid sequence of SEQ ID NO:116 and a VL CDR3 that has the amino acid sequence of SEQ ID NO:117.

10 36. The antibody of any one of claims 1 to 18, 29 or 30, wherein said antibody comprises at least one heavy chain variable region that comprises three CDRs and at least one light chain variable region that comprises three CDRs, wherein said heavy chain variable region comprises a variable heavy (VH) CDR1 that has the amino acid sequence of SEQ ID NO:132, a VH CDR2 that has the amino acid sequence of SEQ ID NO:133 and a VH CDR3 that has the amino acid sequence of SEQ ID NO:134, or sequences
15 substantially homologous thereto, and/or wherein said light chain variable region comprises a variable light (VL) CDR1 that has the amino acid sequence of SEQ ID NO:135, a VL CDR2 that has the amino acid sequence of SEQ ID NO:136 and a VL CDR3 that has the amino acid sequence of SEQ ID NO:137, or sequences substantially homologous thereto,
20 wherein said substantially homologous sequences are sequences containing 1, 2 or 3 amino acid substitutions compared to the given CDR sequences, or said substantially homologous sequence is a sequence containing conservative amino acid substitutions of the given CDR sequences.

25 37. The antibody of any one of claims 1 to 18, 29, 30 or 36, wherein said antibody comprises at least one heavy chain variable region that comprises three CDRs and at least one light chain variable region that comprises three CDRs, wherein said heavy chain variable region comprises a variable heavy (VH) CDR1 that has the amino acid sequence of SEQ ID NO:132, a VH CDR2 that has the amino acid sequence of SEQ ID NO:133 and a VH CDR3 that has the amino acid sequence of SEQ ID NO:134 and wherein said light chain variable region comprises a variable light (VL) CDR1 that has the amino acid sequence of SEQ ID NO:135, a VL CDR2 that has the amino
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acid sequence of SEQ ID NO:136 and a VL CDR3 that has the amino acid sequence of SEQ ID NO:137.

38. The antibody of claim 29, wherein said antibody comprises a VL CDR1, VL CDR2, a VL CDR3 and a VH CDR3 that have amino acid sequences as defined together in any one claims 30 or 32 to 37.
39. The antibody of any one of claims 1 to 18 or 29 to 38, wherein said antibody comprises at least one heavy chain variable region that comprises three CDRs and at least one light chain variable region that comprises three CDRs, wherein
- (i) the light chain variable region has the amino acid sequence of SEQ ID NO:91, or a sequence having at least 80% sequence identity thereto and/or wherein the heavy chain variable region has the amino acid sequence of SEQ ID NO:90, or a sequence having at least 80% sequence identity thereto;
 - (ii) the light chain variable region has the amino acid sequence of SEQ ID NO:111, or a sequence having at least 80% sequence identity thereto and/or wherein the heavy chain variable region has the amino acid sequence of SEQ ID NO:110, or a sequence having at least 80% sequence identity thereto; or
 - (iii) the light chain variable region has the amino acid sequence of SEQ ID NO:131, or a sequence having at least 80% sequence identity thereto and/or wherein the heavy chain variable region has the amino acid sequence of SEQ ID NO:130, or a sequence having at least 80% sequence identity thereto.
40. The antibody of any one of claims 1 to 39, wherein said antibody is a monoclonal antibody or a polyclonal antibody.
41. The antibody of any one of claims 1 to 40, wherein said antibody is a monoclonal antibody.

42. The antibody of any one of claims 1 to 41, wherein said antibody is a whole antibody comprising an antibody constant region.
43. The antibody of any one of claims 1 to 42, wherein said antibody is an IgG antibody.
44. The antibody of any one of claims 1 to 41, wherein said antibody is an antigen binding fragment of an antibody.
45. The antibody of any one of claims 1 to 44, wherein said inhibition of activity is inhibition of GTPase activity and/or said inhibition of activity is characterised by the inhibition of ERK phosphorylation in cells that express said oncogenic mutant form of KRAS and/or said inhibition of activity is characterised by an increase in apoptosis in cells that express said oncogenic mutant form of KRAS and/or said inhibition of activity is characterised by an increase in necrosis in cells that express said oncogenic mutant form of KRAS.
46. A composition comprising an antibody of any one of claims 1 to 45 and a diluent, carrier or excipient, preferably a pharmaceutically acceptable diluent, carrier or excipient.
47. A nucleic acid molecule comprising a nucleotide sequence that encodes an antibody of any one of claims 1 to 45, or a set of nucleic acid molecules each comprising a nucleotide sequence, wherein said set of nucleic acid molecules together encode an antibody of any one of claims 1 to 45.
48. A method of producing an antibody according to any one of claims 1 to 45, comprising the steps of:
- (i) culturing a host cell comprising (i) one or more nucleic acid molecules encoding an antibody according to any one of claims 1 to 45 or (ii) a set of nucleic acid molecules each comprising a nucleotide sequence,

wherein said set of nucleic acid molecules together encode an antibody of any one of claims 1 to 45, or (iii) one or more recombinant expression vectors comprising one or more of said nucleic acid molecules, under conditions suitable for the expression of the encoded antibody; and

5 (ii) isolating or obtaining the antibody from the host cell or from the growth medium/supernatant.

49. An antibody as defined in any one of claims 1 to 45 for use in therapy.

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50. An antibody as defined in any one of claims 1 to 45 for use in the treatment of cancer.

51. A method of treating cancer, said method comprising administering
15 to a patient in need thereof a therapeutically effective amount of an antibody as defined in any one of claims 1 to 45.

52. Use of an antibody as defined in any one of claims 1 to 45 in the manufacture of a medicament for use in therapy.

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53. The use according to claim 52, wherein said therapy is the treatment of cancer.

54. An isolated peptide, wherein said isolated peptide is as defined in
25 any one of claims 9 to 17.

55. A conjugate comprising an isolated peptide as defined in any one of claims 9 to 17 and a peptide carrier, preferably said peptide carrier is keyhole limpet hemocyanin (KLH).

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