

WHAT IS CLAIMED IS:

1. An antibody that binds to tumor tissue, wherein the antibody binds to an extracellular RNA-protein complex and wherein the antibody comprises:

a heavy chain variable (V_H) region comprising:

an HCDR1 comprising a sequence GFTFSKAWMS (SEQ ID NO:1);

an HCDR2 comprising a sequence RIKSVTDGETTDYAAPVKG
(SEQ ID NO:9); and

an HCDR3 comprising a sequence
TSSFCCRGGSCPSHDTSYCGGQYKSYYYMDV (SEQ ID NO:21); and

a light chain variable (V_L) region comprising:

an LCDR1 comprising a sequence SGSSSNIGSSSVS (SEQ ID
NO:48);

an LCDR2 comprising a sequence KNNQRPS (SEQ ID NO:59); and

an LCDR3 comprising a sequence STWDDSLSVRV (SEQ ID
NO:68).

2. The antibody of claim 1, wherein the V_H comprises an amino acid sequence having at least 95% identity to

EVQLVESGGALVKPGGSLRLSCAASGFTFSKAWMSWVRQAPGKGLEWVGRI
KSVTDGETTDYAAPVKGRFTISRDDSKSTLYLQMNSLKTEDTAVYYCTSSFC
CRGGSCPSHDTSYCGGQYKSYYYMDVWGKGTITVTVSS (SEQ ID NO:94); and

the V_L comprises an amino sequence having at 95% identity to

QSVLTQPPSASGTPGQRVTISCSGSSSNIGSSSVSWYQQLPGTAPKLLIYKNNQ
RPSGVPRDFSGSKSGTSASLAISGLRSEDEADYYCSTWDDSLSVRVFGGGTKL
TVL (SEQ ID NO:140).

3. The antibody of claim 1, wherein the V_H comprises a sequence

EVQLVESGGALVKPGGSLRLSCAASGFTFSKAWMSWVRQAPGKGLEWVGRI
KSVTDGETTDYAAPVKGRFTISRDDSKSTLYLQMNSLKTEDTAVYYCTSSFC
CRGGSCPSHDTSYCGGQYKSYYYMDVWGKGTITVTVSS (SEQ ID NO:94); and

the V_L comprises a sequence

QSVLTQPPSASGTPGQRVTISCSGSSSNIGSSSVSWYQQLPGTAPKLLIYKNNQ

RPSGVPDRFSGSKSGTSASLAISGLRSEDEADYYCSTWDDSLSVRVFGGGTKL
TVL (SEQ ID NO:140).

4. The antibody of any one of claims 1 to 3, wherein the antibody comprises a heavy chain constant region sequence of SEQ ID NO:1721 and a light chain constant region sequence of SEQ ID NO:1722.

5. The antibody of claim 4, wherein the heavy chain comprises a sequence of SEQ ID NO:1723 and the light chain comprises a sequence of SEQ ID NO:1724.

6. An expression vector comprising a polynucleotide encoding the V_H region and/or the V_L region of the antibody of any one of claims 1 to 5.

7. A host cell comprising a polynucleotide that encodes the V_H region and the V_L region of the antibody of any one of claims 1 to 5.

8. A method of producing an antibody, the method comprising culturing a host cell of claim 7 under conditions in which the polynucleotide encoding the heavy chain and the polynucleotide encoding the light chain are expressed.

9. An antibody that binds to tumor tissue, wherein the antibody binds to an extracellular RNA-protein complex and wherein:

(a)

the HCDR1 has a sequence GFTFSKAWMS (SEQ ID NO:1);

the HCDR2 has a sequence RIKSVTDGETTDYAAPVKG (SEQ ID NO:9);

the HCDR3 has a sequence TSSFCCRGGSCPSSDTSYCGGQYKSYYFMDV (SEQ ID NO:32);

the LCDR1 has a sequence SGSSSNIGSSSVY (SEQ ID NO:56);

the LCDR2 has a sequence KNNQRPS (SEQ ID NO:59); and

the LCDR3 has a sequence STWDDALSVRV (SEQ ID NO:72); or

(b)

the HCDR1 has a sequence GFTFSKAWMS (SEQ ID NO:1);

the HCDR2 has a sequence RIKSVTDGETTDYAAPVKG (SEQ ID NO:9);

the HCDR3 has a sequence of TSSFCCRSGSCPSSDTSYCNGQYKSYYYMDV (SEQ ID NO:20);

the LCDR1 has a sequence SGSSSNIGSSSVS (SEQ ID NO:48);
the LCDR2 has a sequence KNNQRPS (SEQ ID NO:59); and
the LCDR3 has a sequence STWDDSLSVRV (SEQ ID NO:68);or

(c)

the HCDR1 has a sequence GFTFSKAWMS (SEQ ID NO:1);
the HCDR2 has a sequence RIKSVTDGETTDYAAPVKG (SEQ ID NO:9);
the HCDR3 has a sequence TSSFCCRGNQCPSSDTSYCGGQYPSYYYMDP (SEQ ID NO:23);

the LCDR1 has a sequence SGSSSNIGSSSVS (SEQ ID NO:48);
the LCDR2 has a sequence KNNQRPS (SEQ ID NO:59); and
the LCDR3 has a sequence STWDDSLSVRV (SEQ ID NO:68); or

(d)

the HCDR1 has a sequence GFTFSAAWMS (SEQ ID NO:4);
the HCDR2 has a sequence RIKSTSDGETTDYAAPVKG (SEQ ID NO:15);
the HCDR3 has a sequence ISSFCCRGGSCPSRDTSYCGGQYKSYYFMDV (SEQ ID NO:30);

the LCDR1 has a sequence SGSSTNIGSSSVS (SEQ ID NO:54);
the LCDR2 has a sequence KDNQRPS (SEQ ID NO:62); and
the LCDR3 has a sequence SSWDDSNSVRI (SEQ ID NO:71) or

(e)

the HCDR1 has a sequence GFTFSAAWMS (SEQ ID NO:4);
the HCDR2 has a sequence RIKSVTDGETTDYAAPVKG (SEQ ID NO:9);
the HCDR3 has a sequence ISSFCCRGNNSCPSSDTSYCNGQYKSYYYMDV (SEQ ID NO:27);

the LCDR1 has a sequence SGSKSNIGSSSVS (SEQ ID NO:51);
the LCDR2 has a sequence KDNQRPS (SEQ ID NO:62); and
the LCDR3 has a sequence ATWDNSLSIRV (SEQ ID NO:70); or

(f)

the HCDR1 has a sequence GFTFSKAWMT (SEQ ID NO:8);
the HCDR2 has a sequence RIKSVTDGETTDYAAPVKG (SEQ ID NO:9);
the HCDR3 has a sequence TSSFCCRGGSCPSHDTSCGQDKRYYYMDV (SEQ ID NO:34);

the LCDR1 has a sequence SGSSSNIGSSSVS (SEQ ID NO:48);
the LCDR2 has a sequence KNNQRPS (SEQ ID NO:59); and

the LCDR3 has a sequence STWDDSLSVRV (SEQ ID NO:68).

10. The antibody of claim 9, wherein:

(a) the heavy chain variable region comprises a sequence

EVQLVESGGALVKPGGSLRLSCAASGFTFSKAWMSWVRQAPGKGLEWVGRI
KSVTDGETTDYAAPVKGRFTISRDDSKSTLYLQMNSLKTEDTAVYYCTSSFC
CRGGSCPSSDTSYCGGQYKSYYFMDVWGKGTTVTVSS (SEQ ID NO:92) and

the light chain variable region comprises a sequence

QSVLTQPPSASGTPGQRVTISCSGSSSNIGSSSVYQQLPGTAPKLLIYKNNQ
RPSGVPDRFSGSKSGTSASLAISGLRSEDEADYYCSTWDDALSVRVFGGGTKL
TVL (SEQ ID NO:138);

(b) the heavy chain variable region comprises a sequence

EVQLVESGGALVKPGGSLRLSCAASGFTFSKAWMSWVRQAPGKGLEWVGRI
KSVTDGETTDYAAPVKGRFTISRDDSKSTLYLQMNSLKTEDTAVYYCTSSFC
CRSGSCPSSDTSYCNGQYKSYYYMDVWGKGTTVTVSS (SEQ ID NO:77) and

the light chain variable region comprises a sequence

QSVLTQPPSASGTPGQRVTISCSGSSSNIGSSSVSWYQQLPGTAPKLLIYKNNQ
RPSGVPDRFSGSKSGTSASLAISGLRSEDEADYYCSTWDDSLSVRVFGGGTKL
TVL (SEQ ID NO:140);

(c) the heavy chain variable region comprises a sequence

EVQLVESGGALVKPGGSLRLSCAASGFTFSKAWMSWVRQAPGKGLEWVGRI
KSVTDGETTDYAAPVKGRFTISRDDSKSTLYLQMNSLKTEDTAVYYCTSSFC
CRGNQCPSSDTSYCGGQYPSYYYMDPWGKGTTVTVSS (SEQ ID NO:80) and

the light chain variable region comprises a sequence

QSVLTQPPSASGTPGQRVTISCSGSSSNIGSSSVSWYQQLPGTAPKLLIYKNNQ
RPSGVPDRFSGSKSGTSASLAISGLRSEDEADYYCSTWDDSLSVRVFGGGTKL
TVL (SEQ ID NO:140);

(d) the heavy chain variable region comprises a sequence

EVQLVESGGALVKPGGSLRLSCAASGFTFSAWMSWVRQAPGKGLEWVGRI
KSTSDGETTDYAAPVKGRFTISRDDSKSTLYLQMNSLKTEDTAVYYCISFFCC
RGGSCPSRDTSYCGGQYKSYYFMDVWGKGTTVTVSS (SEQ ID NO:90) and

the light chain variable region comprises a sequence

QSVLTQPPSASGTPGQRVTISCSGSSTNIGSSSVSWYQQLPGTAPKLLIYKDNQ

RPSGVPDRFSGSKSGTSASLAISGLRSEDEADYYCSSWDDSNSVRIFGGGTKL
TVL (SEQ ID NO:136);

(e) the heavy chain variable region comprises a sequence

EVQLVESGGALVKPGGSLRLSCAASGFTFSAAWMSWVRQAPGKGLEWVGRI
KSVTDGETTDYAAPVKGRFTISRDDSKSTLYLQMNSLKTEDTAVYYCISSFCC
RGNSCPSSDTSYCNGQYKSYYYMDVWGKGTTVTVSS (SEQ ID NO:86) and

the light chain variable region comprises a sequence

QSVLTQPPSASGTPGQRVTISCSGSKSNIGSSSVSWYQQLPGTAPKLLIYKDNQ
RPSGVPDRFSGSKSGTSASLAISGLRSEDEADYYCATWDNSLSIRVFGGGTKL
TVL (SEQ ID NO:132); or

(f) the heavy chain variable region comprises a sequence

EVQLVESGGALVKPGGSLRLSCAASGFTFSKAWMTWVRQAPGKGLEWVGRI
KSVTDGETTDYAAPVKGRFTISRDDSKSVLYLQMSSLKTEDTAVYFCTSSFCC
RGGSCPSHDTSFCGGQDKRYYYMDVWGKGTTVTVSS (SEQ ID NO:95) and

the light chain variable region comprises a sequence

QSVLTQAPSASETPGQRVIISCSGSSSNIGSSSVSWYQQLPGTAPKLLIYKNNQ
RPSGVPDRFSGSKSGTSASLAISGLRSEDEADYYCSTWDDSLSVRVFGGGTKL
TVL (SEQ ID NO:141).

11. An expression vector comprising a polynucleotide encoding the V_H region andw/or the V_L region of the antibody of claim 9 or 10.

12. A host cell comprising a polynucleotide that encodes the V_H region and the V_L region of the anti-tumor antibody of claim 9 or 10.

13. A method of producing an antibody, the method comprising culturing a host cell of claim 12 under conditions in which the polynucleotide encoding the heavy chain and the polynucleotide encoding the light chain are expressed.

14. A polypeptide comprising a V_H sequence

EVQLVESGGALVKPGGSLRLSCAASGFTFSKAWMSWVRQAPGKGLEWVGRI
KSVTDGETTDYAAPVKGRFTISRDDSKSTLYLQMNSLKTEDTAVYYCTSSFC
CRGGSCPSHDTSYCGGQYKSYYYMDVWGKGTTVTVSS (SEQ ID NO:94); and
a V_L sequence
QSVLTQPPSASGTPGQRVTISCSGSSSNIGSSSVSWYQQLPGTAPKLLIYKNNQ

RPSGVPDRFSGSKSGTSASLAISGLRSEDEADYYCSTWDDSLSVRVFGGGTKL
TVL (SEQ ID NO:140).