

CLAIMS

1. An antigen-binding protein, or an antigen-binding fragment thereof, comprising (i) a heavy chain variable domain comprising a VHCDR1 having the amino acid sequence
GYTFTSYWIH; a VHCDR2 having the amino acid sequence EINPSNGRTNFNEKFKN
5 and a VHCDR3 having the amino acid sequence VDYDEAY; and (ii) a light chain variable domain comprising a VLCDR1 having the amino acid sequence RSSKSLLHSNGITYLY, a VLCDR2 having the amino acid sequence QMSNLAS, and a VLCDR3 having the amino acid sequence AQNLELWT.
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2. The antigen-binding protein, or antigen-binding fragment thereof, as claimed in claim 1, wherein the heavy chain variable region comprises the amino acid sequence
QVKLQQSGAELAKPGASVKLSCKASGYTFTSYWIHWVKQRPGQGLEWIGEINPS
NGRTNFNEKFKNKATLTVDKSSSTAYMQLNSLTSEDSAVYYCARVDYDEAYWG
15 QGTTVTVSS as set forth in SEQ ID NO:1.
3. The antigen-binding protein, or antigen-binding fragment thereof, as claimed in claim 1, wherein the light chain variable region comprises the amino acid sequence
20 DIVMTQAAFSNPVTLGTSASISCRSSKSLLHSNGITYLYWYLQKPGQSPQLLIYQM
SNLASGVPDRFSSSGSGTDFTLRISRVEAEDVGVYYCAQNLELWTFGGGKLEIK
as set forth in SEQ ID NO:2.
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4. The antigen-binding protein, or antigen-binding fragment thereof, as claimed in any one of claims 1 to 3, wherein the antigen binding protein is selected from the group consisting of monoclonal, recombinant, polyclonal, chimeric, humanised, bispecific and heteroconjugate antibodies; a single variable domain, a domain antibody, antigen binding fragments, immunologically effective fragments, single chain Fv, a single chain antibody, a univalent antibody lacking a hinge region, a minibody, diabodies, and tandem diabodies.
5. The antigen-binding protein, or antigen-binding fragment thereof, as claimed in claim 4, wherein the binding protein is a monoclonal antibody.
6. The antigen-binding protein, or antigen-binding fragment thereof, as claimed in claim 5, wherein the monoclonal antibody is humanised.
7. The antigen-binding protein, or antigen-binding fragment thereof, as claimed in claim 5, wherein the monoclonal antibody is chimeric.
8. The antigen-binding protein, or antigen-binding fragment thereof, as claimed in any one of claims 1 to 7, wherein the antigen-binding protein, or antigen-binding fragment thereof binds to an N-linked glycan.
9. The antigen-binding protein, or antigen-binding fragment thereof, as claimed in claim 8, wherein the antigen-binding protein, or antigen-binding fragment thereof binds to an N-linked glycan on SLAMF7.

10. The antigen-binding protein, or antigen-binding fragment thereof, as claimed in claim 8 or 9, wherein the N-linked glycan is an oligosaccharide of the Lewis X type.
- 5 11. The antigen-binding protein, or antigen-binding fragment thereof, as claimed in any one of claims 1 to 10, wherein the antigen-binding protein, or antigen-binding fragment thereof does not bind to an oligosaccharide of the sialylated Lewis X type.
12. The antigen-binding protein, or antigen-binding fragment thereof, as claimed in any one of claims 1 to 11, comprising a radioisotope or a cytotoxin conjugated thereto.
- 10 13. The antigen-binding protein, or antigen-binding fragment thereof, as claimed in claim 12, wherein the antibody is conjugated with a cytotoxin selected from the group consisting of monomethyl auristatin E (MMAE-1), mertansine (DM-1), saporin, gemcitabine, irinotecan, etoposide, vinblastine, pemetrexed, docetaxel, paclitaxel, platinum agents (for example, 15 cisplatin, oxaliplatin and carboplatin), vinorelbine, capecitabine, mitoxantrone, ixabepilone, eribulin, 5-fluorouracil, trifluridine and tipiracil.
14. The antigen-binding protein, or antigen-binding fragment thereof as claimed in any one of the preceding claims, wherein the antigen-binding protein, or an antigen-binding fragment 20 is internalized into a cell upon binding to the N-linked glycan on SLAMF7.
15. The antigen-binding protein, or antigen-binding fragment thereof as claimed in any one of the preceding claims, wherein the antigen-binding protein, or an antigen-binding fragment selectively binds to a non-small cell lung cancer cell, an ovarian cancer cell, a breast cancer 25 cell, an acute myeloid leukaemia cell and a colorectal cancer cell.
16. A composition comprising a physiologically acceptable carrier and a therapeutically effective amount of the antigen-binding protein, or an antigen-binding fragment thereof, as claimed in any one of claims 1 to 15.
- 30 17. The composition as claimed in claim 16, comprising one or more further therapeutic compounds.

18. Use of an antigen-binding protein, or an antigen-binding fragment thereof, as claimed in any one of claims 1 to 15 or composition as claimed in claims 16 or 17, in the manufacture of a medicament for treating or preventing cancer.
- 5 19. The use of claim 18, wherein the cancer is selected from the group consisting of non-small cell lung cancer, ovarian cancer, breast cancer, acute myeloid leukaemia and colorectal cancer.
- 10 20. The use of claims 18 or 19, wherein the medicament is to be administered with a further active pharmaceutical ingredient.
21. The use of claims 18 or 19, wherein the medicament is to be administered with chemotherapy.
- 15 22. The use of claims 20 or 21, wherein the further pharmaceutical agent or chemotherapy is to be administered separately, simultaneously or sequentially with said medicament.
- 20 23. A method for detecting cancer in a subject, the method comprising: contacting a sample obtained from the subject with an antigen-binding protein, or an antigen-binding fragment thereof as claimed in any one of claims 1 to 15 *in vitro*; detecting the binding of the antigen-binding protein, or an antigen-binding fragment thereof in the sample; correlating the binding with a level of binding in a control sample to determine the level of binding in the sample, wherein an increase in the level of binding in the sample relative to the control sample is indicative of cancer.
- 25 24. A method for identifying a subject susceptible to cancer the method comprising: contacting a sample obtained from the subject with an antigen-binding protein, or an antigen-binding fragment thereof as claimed in any one of claims 1 to 15 *in vitro*; detecting the binding of the antigen-binding protein, or an antigen-binding fragment thereof in the sample; correlating the binding with a level of binding in a control sample to determine the level of binding in the sample, wherein an increase in the level of
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binding in the sample relative to the control sample indicates that the subject is susceptible to cancer.

- 5 25. The method according to claims 23 or 24, wherein the control sample is from the same subject.
26. The method according to claims 23 or 24, wherein the control sample is from a different subject.
- 10 27. The method according to any one of claims 23 to 26, wherein the antigen-binding protein, or antigen-binding fragment thereof, binds SLAMF7.
28. The method according to any one of claims 23 to 27, wherein the antigen-binding protein, or antigen-binding fragment thereof, comprises a detectable label.
- 15 29. The method according to claim 28, wherein the detectable label is selected from the group consisting of a fluorescent label, a chemiluminescent label, an enzymatic label and a radionuclide label.
- 20 30. The method according to claim 28 or claim 29, wherein the detectable label is selected from the group consisting of biotin, alkaline phosphatase, horseradish peroxidase, FITC, PE and Cy Dyes.
- 25 31. The method according to claims any one of claims 28 to 30, wherein the detectable label is detected in an assay selected from flow cytometry, tissue section, immunofluorescence, immunocytochemistry or immunohistochemistry.
- 30 32. The method as claimed in any one of claims 23 to 31, wherein the cancer is selected from the group consisting of non-small cell lung cancer, ovarian cancer, breast cancer, acute myeloid leukaemia and colorectal cancer.

33. A kit when used in the method of any one of claims 23 to 32, comprising an antigen-binding protein, or antigen-binding fragment thereof as claimed in any one of claims 1 to 15, together with instructions for use.