

CLAIMS

1. A human antigen-binding protein that specifically binds to human TMPRSS2 and which is an antibody or antigen-binding fragment thereof, and wherein the antigen-binding protein comprises:

a heavy chain immunoglobulin variable region that comprises

(a) a CDR-H1 comprising the amino acid sequence: G F T F S S Y G (SEQ ID NO: 6),

(b) a CDR-H2 comprising the amino acid sequence: I W N D G S Y V (SEQ ID NO: 8),
and

(c) a CDR-H3 comprising the amino acid sequence: A R E G E W V L Y Y F D Y (SEQ ID NO: 10); and

a light chain immunoglobulin variable region that comprises

(a) a CDR-L1 comprising the amino acid sequence: Q S I S S W (SEQ ID NO: 12),

(b) a CDR-L2 comprising the amino acid sequence: K A S (SEQ ID NO: 14), and

(c) a CDR-L3 comprising the amino acid sequence: Q Q Y N S Y S Y T (SEQ ID NO: 16).

2. The antigen-binding protein of claim 1 comprising:

(a) a heavy chain immunoglobulin that comprises the amino acid sequence set forth in SEQ ID NO: 17 or 19, or an immunoglobulin heavy chain variable region that comprises the amino acid sequence set forth in SEQ ID NO: 2;

and

(b) a light chain immunoglobulin that comprises the amino acid sequence set forth in SEQ ID NO: 18, or an immunoglobulin light chain variable region that comprises the amino acid sequence set forth in SEQ ID NO: 4.

3. The antigen-binding protein of claim 1 or 2 which is multispecific.

4. A complex comprising an antigen-binding protein of any one of claims 1-3 bound to a TMPRSS2 polypeptide.

5. A method for making an antigen-binding protein of any one of claims 1-3 comprising:

(a) introducing into a host cell: (i) a polynucleotide encoding a heavy immunoglobulin chain and a light immunoglobulin chain of said antigen-binding protein; or (ii) a polynucleotide encoding a heavy immunoglobulin chain of said antigen-binding protein, and a polynucleotide encoding a light immunoglobulin chain of said antigen-binding protein;
(b) culturing the host cell under conditions favorable to expression of the polynucleotide(s);
and
(c) optionally, isolating the antigen-binding protein from the host cell and/or medium in which the host cell is grown.

6. The method of claim 5 wherein the host cell is a Chinese hamster ovary cell.

7. A polynucleotide encoding:

a heavy immunoglobulin chain comprising:

(a) a CDR-H1 comprising the amino acid sequence: G F T F S S Y G (SEQ ID NO: 6),

(b) a CDR-H2 comprising the amino acid sequence: I W N D G S Y V (SEQ ID NO: 8),

and

(c) a CDR-H3 comprising the amino acid sequence: A R E G E W V L Y Y F D Y (SEQ ID NO: 10); and

a light immunoglobulin chain comprising:

(a) a CDR-L1 comprising the amino acid sequence: Q S I S S W (SEQ ID NO: 12),

(b) a CDR-L2 comprising the amino acid sequence: K A S (SEQ ID NO: 14), and

(c) a CDR-L3 comprising the amino acid sequence: Q Q Y N S Y S Y T (SEQ ID NO: 16).

8. A vector comprising the polynucleotide of claim 7.

9. A host cell comprising the antigen-binding protein of any one of claims 1 to 3, the polynucleotide of claim 7, or the vector of claim 8.

10. A composition or kit comprising the antigen-binding protein of any one of claims 1-3 and a further therapeutic agent, wherein the kit comprises the antigen-binding protein and the

further therapeutic agent formulated as a single composition or separately in two or more compositions.

11. A pharmaceutical composition comprising the antigen-binding protein of any one of claims 1-3 and a pharmaceutically acceptable carrier and, optionally, a further therapeutic agent.

12. The composition or kit of claim 10 or 11, wherein: (i) the further therapeutic agent is an anti-viral drug or a vaccine; or (ii) the further therapeutic agent is a member selected from the group consisting of: oseltamivir, zanamivir, ribavirin and interferon-alpha2b, interferon-alpha2a, and an antibody or antigen-binding fragment thereof that specifically binds to influenza HA.

13. A vessel or injection device comprising the antigen-binding protein of any one of claims 1-3 or the composition of any one of claims 10-12.

14. An antigen-binding protein of any one of claims 1-3 for use in a method for treating or preventing infection with an influenza virus in a subject in need thereof, comprising administering a therapeutically effective amount of said antigen-binding protein.

15. An antigen-binding protein for use according to claim 14, wherein:

(i) the subject is administered one or more further therapeutic agents;

(ii) the subject is administered one or more further therapeutic agents which is an anti-viral drug or a vaccine;

(iii) the subject is administered one or more further therapeutic agents which is a member selected from the group consisting of: oseltamivir, zanamivir, ribavirin and interferon-alpha2b, interferon-alpha2a and an antibody or antigen-binding fragment thereof that specifically binds to influenza HA; or

(iv) the antigen-binding protein is injected into the body of the subject, optionally subcutaneously, intravenously or intramuscularly.