CLAIMS

1. A binding molecule capable of specifically binding to hemagglutinin (HA) of influenza B virus strains of the B/Yamagata and B/Victoria lineage, and capable of neutralizing said influenza B virus strains of the B/Yamagata and/or B/Victoria lineage, wherein the binding molecule does not bind to HA of influenza A viruses.

2. A binding molecule according to claim 1, wherein the binding molecule binds to the head region of the HA protein of influenza B viruses, in particular to the head region of HA1 of influenza B viruses.

3. A binding molecule according to claim 1 or 2, wherein the binding molecule comprises a heavy chain variable region comprising the amino acid sequence set forth in SEQ ID NO: 71 or a sequence of amino acids having at least or at least about 80 %, 90 %, 91 %, 92 %, 93 %, 94 %, 95 %, 96 %, 97 %, 98 %, 99 % or more sequence identity thereto.

4. A binding molecule according to claim 3, wherein the binding molecule comprises a light chain variable region comprising the amino acid sequence set forth in SEQ ID NO: 73, or a sequence of amino acids having at least or at least about 80 %, 90 %, 91 %, 92 %, 93 %, 94 %, 95 %, 96 %, 97 %, 98 %, 99 % or more sequence identity thereto.

5. A binding molecule according to claim 3 or 4, wherein the binding molecule comprises a heavy chain variable region comprising the amino acid sequence of SEQ ID NO: 71 and a light chain variable region comprising the amino acid sequence of SEQ ID NO: 73.

6. A binding molecule according to claim 1 or 2, wherein the binding molecule comprises a heavy chain variable region comprising the amino acid sequence set forth in SEQ ID NO: 75, or a sequence of amino acids having at least or at least about 80 %, 90

%, 91 %, 92 %, 93 %, 94 %, 95 %, 96 %, 97 %, 98 %, 99 % or more sequence identity thereto.

7. A binding molecule according to claim 6, wherein the binding molecule comprises a light chain variable region comprising the amino acid sequence set forth in SEQ ID NO: 77, or a sequence of amino acids having at least or at least about 80 %, 90 %, 91 %, 92 %, 93 %, 94 %, 95 %, 96 %, 97 %, 98 %, 99 % or more sequence identity thereto.

8. A binding molecule according to claim 6 or 7, wherein the binding molecule comprises a heavy chain variable region comprising the amino acid sequence of SEQ ID NO: 75 and a light chain variable region comprising the amino acid sequence of SEQ ID NO: 77.

9. A binding molecule according to claim 6 or 7, wherein the binding molecule comprises a heavy chain variable region consisting of the amino acid sequence of SEQ ID NO: 78 and a light chain variable region consisting of the amino acid sequence of SEQ ID NO: 79.

10. A binding molecule according to claim 1 or 2, wherein the binding molecule comprises a heavy chain variable region comprising the amino acid sequence set forth in SEQ ID NO: 113 or a sequence of amino acids having at least or at least about 80 %, 90 %, 91 %, 92 %, 93 %, 94 %, 95 %, 96 %, 97 %, 98 %, 99 % or more sequence identity thereto.

11. A binding molecule according to claim 10, wherein the binding molecule comprises a light chain variable region comprising the amino acid sequence set forth in SEQ ID NO: 115, or a sequence of amino acids having at least or at least about 80 %, 90 %, 91 %, 92 %, 93 %, 94 %, 95 %, 96 %, 97 %, 98 %, 99 % or more sequence identity thereto.

12. A binding molecule according to claim 10 or 11, wherein the binding molecule comprises a heavy chain variable region comprising the amino acid sequence of SEQ ID NO: 113 and a light chain variable region comprising the amino acid sequence of SEQ ID NO: 115.

13. A binding molecule that immunospecifically competes for binding to an epitope on an influenza B virus HA protein with a binding molecule according to any one of the claims 1-12.

14. A binding molecule according to any one of the claims 1-13, wherein the binding molecule inhibits egress of influenza B virus from infected cells.

15. A binding molecule according to any one of the preceding claims, wherein the binding molecule is a human monoclonal antibody, or an antigen-binding fragment thereof.

16. An immunoconjugate, comprising at least one binding molecule according to any one of the preceding claims and further comprising at least one tag.

17. A nucleic acid molecule encoding a binding molecule according to any one of claims 1-15.

18. A binding molecule according to any one of claims 1-15, an immunoconjugate according to claim 16 and/or a nucleic acid molecule according to claim 17 for use as a medicament, preferably for use in the diagnosis, prophylaxis and/or treatment of an influenza infection caused by an influenza B virus.

19. A functional variant of a binding molecule according to any one of the claims 1-15.

20. A pharmaceutical composition comprising a binding molecule according to any of the claims 1-15, and/or an immunoconjugate according to claim 16, and a pharmaceutically acceptable carrier or excipient.

21. A method of detecting an influenza B virus infection comprising:

(a) assaying the level of influenza B virus antigen in a biological sample using a binding molecule according to claim 1-15, and/or an immunoconjugate according to claim 16; and

(b) comparing the assayed level of influenza B virus antigen with a control level whereby an increase in the assayed level of influenza B virus antigen compared to the control level of the influenza B virus antigen is indicative of an influenza B virus infection.

CLAIMS

1. A binding molecule capable of specifically binding to hemagglutinin (HA) of influenza B virus strains of the B/Yamagata and B/Victoria lineage, and capable of neutralizing said influenza B virus strains of the B/Yamagata and/or B/Victoria lineage, wherein the binding molecule does not bind to HA of influenza A viruses, and wherein the binding molecule comprises a heavy chain CDR1 comprising the amino acid sequence of SEQ ID NO: 7, a heavy chain CDR2 comprising the amino acid sequence of SEQ ID NO: 8, and a heavy chain CDR3 comprising the amino acid sequence of SEQ ID NO: 9, and a light chain CDR1 comprising the amino acid sequence of SEQ ID NO: 10, a light chain CDR2 comprising the amino acid sequence of SEQ ID NO: 11, and a light chain CDR3 comprising the amino acid sequence of SEQ ID NO:12 or SEQ ID NO: 13.

2. A binding molecule according to claim 1, wherein the binding molecule binds to the head region of the HA protein of influenza B viruses, in particular to the head region of HA1of influenza B viruses.

3. A binding molecule according to claim 1 or 2, wherein the binding molecule comprises a heavy chain variable region comprising the amino acid sequence of SEQ ID NO: 75 and a light chain variable region comprising the amino acid sequence of SEQ ID NO: 77.

4. A binding molecule according to claim 1 or 2, wherein the binding molecule comprises a heavy chain variable region consisting of the amino acid sequence of SEQ ID NO: 78 and a light chain variable region consisting of the amino acid sequence of SEQ ID NO: 79.

5. A binding molecule according to any one of the claims 1-4, wherein the binding molecule inhibits egress of influenza B virus from infected cells.

6. A binding molecule according to any one of the preceding claims, wherein the binding molecule is a human monoclonal antibody, or an antigen-binding fragment thereof.

7. An immunoconjugate, comprising at least one binding molecule according to any one of the preceding claims and further comprising at least one tag.

8. A nucleic acid molecule encoding a binding molecule according to any one of claims 1-6.

9. A binding molecule according to any one of claims 1-6, an immunoconjugate according to claim 7 and/or a nucleic acid molecule according to claim 8 for use as a medicament, preferably for use in the diagnosis, prophylaxis and/or treatment of an influenza infection caused by an influenza B virus.

10. A functional variant of a binding molecule according to any one of the claims 1-6.

11.A pharmaceutical composition comprising a binding molecule according to any of the claims 1-6, and/or an immunoconjugate according to claim 7, and a pharmaceutically acceptable carrier or excipient.

12. A method of detecting an influenza B virus infection comprising:

(a) assaying the level of influenza B virus antigen in a biological sample using a binding molecule according to claim 1-6, and/or an immunoconjugate according to claim 7; and

(b) comparing the assayed level of influenza B virus antigen with a control level whereby an increase in the assayed level of influenza B virus antigen compared to the control level of the influenza B virus antigen is indicative of an influenza B virus infection.