Claims

1. An antibody or antigen-binding portion thereof that specifically binds to BST1, said antibody or portion comprising:

a) a heavy chain variable region comprising:

i) a first vhCDR comprising SEQ ID NO: 10;

ii) a second vhCDR comprising a sequence selected from the group consisting of SEQ ID NO: 12 and SEQ ID NO: 51; and

iii) a third vhCDR comprising SEQ ID NO: 14; and

b) a light chain variable region comprising:

i) a first vlCDR comprising SEQ ID NO: 16;

ii) a second vlCDR comprising SEQ ID NO: 18; and

iii) a third vlCDR comprising SEQ ID NO: 20,

for use in therapy or for use as a medicament

2. An antibody or antigen-binding portion thereof for use in therapy according to claim 1, wherein:
(a) the antibody or antigen-binding portion thereof is internalized by a cell expressing BST1, said antibody comprising a covalently-attached drug conjugate; or
(b) the antibody induces antibody-dependent cell-mediated cytotoxicity (ADCC), complement dependent cytotoxicity (CDC) and/or T-cell cytotoxicity.

3. An antibody or antigen-binding portion thereof for use according to claim 2, wherein the use is the treatment of cancer, including acute myeloid leukemia (AML), B-cell chronic lymphocytic leukemia, breast cancer, colorectal cancer, kidney cancer, head and neck cancer, lung cancer, ovarian cancer or pancreatic cancer.

4. An antibody or antigen-binding portion thereof for use according to any one of claims 1 to 3 comprising:
(a) a heavy chain variable region at least 95% identical to SEQ ID NO: 2, and a light chain variable region at least 95% identical to SEQ ID NO: 4; or
(b) a heavy chain variable region at least 95% identical to SEQ ID NO: 46, and a light chain variable region at least 95% identical to SEQ ID NO: 49.

5. An antibody for use as claimed in any one of claims 1 to 4, wherein the antibody is a full-length antibody of an IgG1, IgG2, IgG3 or IgG4 isotype.

6. An antibody or an antigen-binding portion thereof for use according to any previous claim, further comprising a covalently-attached moiety.

7. An antibody or an antigen-binding portion thereof for use according to claim 6, wherein said moiety is a drug.

8. An antibody or an antigen-binding portion thereof for use according to claim 7, wherein said drug is selected from the group consisting of a maytansinoid, a dolastatin, an auristatin, a trichothecene, a calicheamicin, CC1065 and derivatives thereof.

9. An antibody or an antigen-binding portion thereof for use according to any one of claims 1 to 8, wherein said antibody or antigen-binding portion thereof induces T-cell cytotoxicity and/or is a bispecific antibody.

10. An antibody for use according to any one of claims 1-8, wherein said antibody induces antibody-dependent cell-mediated cytotoxicity (ADCC) or complement dependent cytotoxicity (CDC), optionally wherein the antibody is an engineered antibody having increased binding to Fc receptors and/or increased potency for ADCC.

11. An antibody or an antigen-binding portion thereof for use according to any previous claim, wherein the antibody is a bispecific or multi-specific antibody which specifically binds to a first antigen comprising BST1 and a second antigen selected from the group consisting of CD3 antigen and CD5 antigen.

12. Use of an antibody or antigen-binding portion thereof that specifically binds to BST1, said antibody or portion comprising:

a) a heavy chain variable region comprising:
    i) a first vhCDR comprising SEQ ID NO: 10;
    ii) a second vhCDR comprising a sequence selected from the group consisting of SEQ ID NO: 12 and SEQ ID NO: 51; and
    iii) a third vhCDR comprising SEQ ID NO: 14; and
b) a light chain variable region comprising:
    i) a first vlCDR comprising SEQ ID NO: 16;
    ii) a second vlCDR comprising SEQ ID NO: 18; and
    iii) a third vlCDR comprising SEQ ID NO: 20,

in the manufacture of a medicament for treating cancer, including acute myeloid leukemia (AML), B-cell chronic lymphocytic leukemia, breast cancer, colorectal cancer, kidney cancer, head and neck cancer, lung cancer, ovarian cancer or pancreatic cancer.

13. Use as claimed in claim 12, wherein the antibody or antigen-binding portion thereof comprises:
(a) a heavy chain variable region at least 95% identical to SEQ ID NO: 2, and a light chain variable region at least 95% identical to SEQ ID NO: 4; or
(b) a heavy chain variable region at least 95% identical to SEQ ID NO: 46, and a light chain variable region at least 95% identical to SEQ ID NO: 49.

14. Use as claimed in claim 12 or claim 13, wherein the antibody is a full-length antibody of an IgG1, IgG2, IgG3 or IgG4 isotype.

15. Use as claimed in any one of claims 12 to 14, wherein the antibody or an antigen-binding portion thereof further comprises a covalently-attached moiety.

16. Use as claimed in claim 15, wherein said moiety is a drug.

17. Use as claimed in claim 16, wherein said drug is selected from the group consisting of a maytansinoid, a dolastatin, an auristatin, a trichothecene, a calicheamicin, CC1065 and derivatives thereof.

18. Use as claimed in any one of claims 12 to 17, wherein said antibody or antigen-binding portion thereof induces T-cell cytotoxicity and/or is a bispecific antibody.

19. Use as claimed in any one of claims 12 to 17, wherein said antibody induces antibody-dependent cell-mediated cytotoxicity (ADCC) or complement dependent cytotoxicity (CDC), optionally wherein the antibody is an engineered antibody having increased binding to Fc receptors and/or increased potency for ADCC.

20. Use as claimed in any one of claims 12 to 19, wherein the antibody is a bispecific or multi-specific antibody which specifically binds to a first antigen comprising BST1 and a second antigen selected from the group consisting of CD3 antigen and CD5 antigen.