(a) HVR-L1 comprising sequence A1-A15, wherein A1-A15 is KASQSVDYDGDSFLN (SEQ ID NO: 131) or KASQSVDYEGDSFLN (SEQ ID NO: 137);

(b) HVR-L2 comprising sequence B1-B7, wherein B1-B7 is AASNLES (SEQ ID NO: 132)

(c) HVR-L3 comprising sequence C1-C9, wherein C1-C9 is QQSNEDPLT (SEQ ID NO: 133)

(d) HVR-H1 comprising sequence D1-D10, wherein D1-D10 is GYTFSSYWIE (SEQ ID NO: 134)

(e) HVR-H2 comprising sequence E1-E18, wherein E1-E18 is GEILPGGGDTNYNEIFKG (SEQ ID NO: 135) and

(f) HVR-H3 comprising sequence F1-F10, wherein F1-F10 is TRRVPVYFDY (SEQ ID NO: 136) or TRRVPIRLDY (SEQ ID NO: 138).

[0035] The cysteine engineered anti-CD79b antibody may be a monoclonal antibody, antibody fragment, chimeric antibody, humanized antibody, single-chain antibody or antibody that competitively inhibits the binding of an anti-CD79b polypeptide antibody to its respective antigenic epitope. Antibodies of the present disclosure may optionally be conjugated to a growth inhibitory agent or cytotoxic agent such as a toxin, including, for example, an auristatin or maytansinoid. The antibodies of the present disclosure may optionally be produced in CHO cells or bacterial cells and preferably inhibit the growth or proliferation of or induce the death of a cell to which they bind. For diagnostic purposes, the antibodies of the present disclosure may be detectably labeled, attached to a solid support, or the like.

[0035a] In a second aspect, there is provided a polynucleotide encoding the antibody of the first aspect.

[0035b] In a third aspect, there is provided a vector comprising the polynucleotide of the second aspect.

[0035c] In a fourth aspect, there is provided a host cell comprising the vector of the third aspect.

[0035d] In a fifth aspect, there is provided an immunoconjugate comprising the antibody of the first aspect covalently attached to a cytotoxic agent.

[0035e] In a sixth aspect, there is provided an immunoconjugate comprising the formula: Ab-$(L\text{-}D)_p$, wherein:

a) Ab is the anti-CD79b antibody of the first aspect;

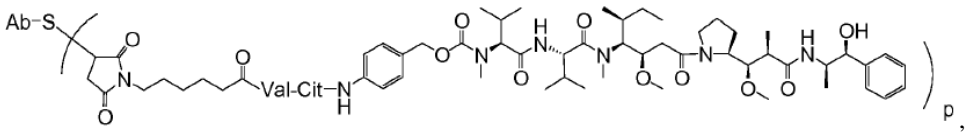
b) L is a linker moiety;

c) D is a drug moiety; and

d) p ranges from 1 to 8.

[0035f] In a seventh aspect, there is provided a composition comprising an antibody of the first aspect or the immunoconjugate of the fifth or sixth aspect.

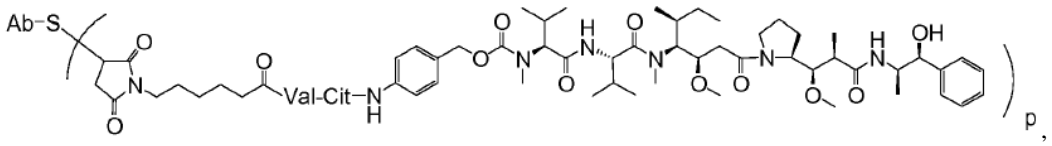
[0035g] In an eighth aspect, there is provided an immunoconjugate comprising the formula:



wherein Val is valine; Cit is citrulline; p is from 2 to 5; and

Ab is an anti-CD79b antibody comprising a light chain variable domain sequence of SEQ ID NO: 207 and a heavy chain variable domain sequence of SEQ ID NO: 208.

[0035h] In a ninth aspect, there is provided an immunoconjugate comprising the formula:



wherein Val is valine; Cit is citrulline; p is from 2 to 5; and

Ab is an anti-CD79b antibody comprising a light chain sequence of SEQ ID NO: 307 and a heavy chain sequence of SEQ ID NO: 308.

[0036] In one embodiment, there is provided methods for making an antibody of the disclosure. For example, the disclosure provides a method of making a CD79b antibody (which, as defined herein includes full length and fragments thereof), said method comprising expressing in a suitable host cell a recombinant vector of the disclosure encoding said antibody (or fragment thereof), and recovering said antibody.

[0036a] In a tenth aspect, there is provided a method for making an immunoconjugate comprising the anti-CD79b antibody (Ab) of the first aspect, and an auristatin or a maytansinoid drug moiety (D) wherein the antibody is attached through one or more cysteine amino acids by a linker moiety (L) to D; the immunoconjugate comprising Formula I:

$$Ab–(L–D)p \qquad I$$

wherein p ranges from 1 to8; the method comprising the steps of:

(a) reacting one or more cysteine amino acids of the antibody with a linker reagent to form antibody-linker intermediate Ab-L; and

(b) reacting Ab-L with an activated drug moiety D; whereby the immunoconjugate is formed;

or comprising the steps of:

(c) reacting a nucleophilic group of a drug moiety with a linker reagent to form drug-linker intermediate D-L; and

(d) reacting D-L with one or more cysteine amino acids of the antibody; whereby the immunoconjugate is formed.

[0037] In one embodiment, there is provided a pharmaceutical formulation comprising an antibody of the disclosure or an antibody-drug conjugate of the disclosure, and a pharmaceutically acceptable diluent, carrier or excipient.

[0038] In one embodiment, there is provided an article of manufacture comprising a container; and a composition contained within the container, wherein the composition comprises one or more CD79b antibodies of the disclosure.

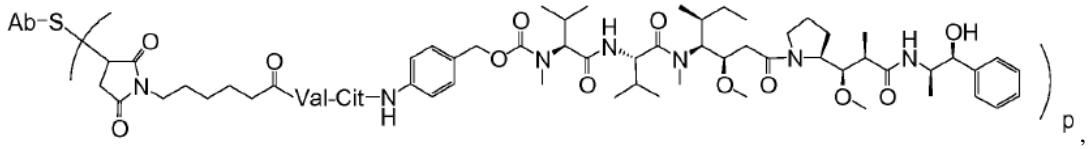
[0039] In one embodiment, there is provided a kit comprising a first container comprising a composition comprising one or more CD79b antibodies of the disclosure; and a second container comprising a buffer.

[0040] In one embodiment, there is provided use of a CD79b antibody of the disclosure in the preparation of a medicament for the therapeutic and/or prophylactic treatment of a disease, such as a cancer, a tumor and/or a cell proliferative disorder.

[0040a] In an eleventh aspect, there is provided use of an effective amount of an antibody of the first aspect, or an immunoconjugate of the fifth or sixth aspect, in the preparation of a medicament for treating a subject having a proliferative disorder.

[0040b] In a twelfth aspect, there is provided use of an effective amount of an immunoconjugate in the preparation of a medicament for treating a subject having diffuse large B-cell lymphoma (DLBCL),

wherein the immunoconjugate comprises the formula:

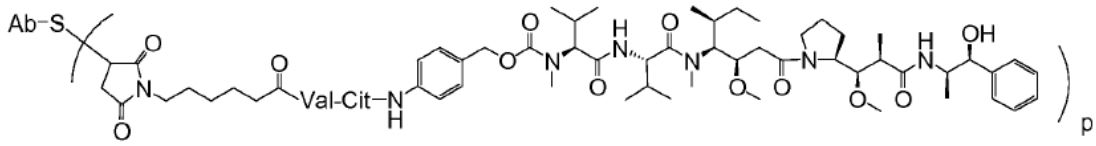


wherein Val is valine; Cit is citrulline; p is from 2 to 5; and Ab is an anti-CD79b antibody comprising a light chain variable domain sequence of SEQ ID NO: 207 and a heavy chain variable domain sequence of SEQ ID NO: 208; and

wherein the medicament is to be used in combination with an effective amount of each of rituximab, cyclophosphamide, doxorubicin, and prednisone or prednisolone.

[0040c] In a thirteenth aspect, there is provided use of an effective amount of an immunoconjugate in the preparation of a medicament for treating a subject having diffuse large B-cell lymphoma (DLBCL),

wherein the immunoconjugate comprises the formula:



wherein Val is valine; Cit is citrulline; p is from 2 to 5; and Ab is an anti-CD79b antibody comprising a light chain sequence of SEQ ID NO: 307 and a heavy chain sequence of SEQ ID NO: 308; and

wherein the medicament is to be used in combination with an effective amount of each of rituximab, cyclophosphamide, doxorubicin, and prednisone or prednisolone.

[0041] In one embodiment, there is provided use of an article of manufacture of the disclosure in the preparation of a medicament for the therapeutic and/or prophylactic treatment of a disease, such as a cancer, a tumor and/or a cell proliferative disorder.

[0042] In one embodiment, there is provided use of a kit of the disclosure in the preparation of a medicament for the therapeutic and/or prophylactic treatment of a disease, such as a cancer, a tumor and/or a cell proliferative disorder.

[0043] In one embodiment, there is provided a method of inhibiting the growth of a cell that expresses CD79b, said method comprising contacting said cell with an antibody of the disclosure thereby causing an

inhibition of growth of said cell. In one embodiment, the antibody is conjugated to a cytotoxic agent. In one embodiment, the antibody is conjugated to a growth inhibitory agent.

[0044] In one embodiment, there is provided a method of therapeutically treating a mammal having a cancerous tumor comprising a cell that expresses CD79b, said method comprising administering to said mammal a therapeutically effective amount of an antibody of the disclosure, thereby effectively treating said mammal. In one embodiment, the antibody is conjugated to a cytotoxic agent. In one embodiment, the antibody is conjugated to a growth inhibitory agent.

[0045] In one embodiment, there is provided a method for treating or preventing a cell proliferative disorder associated with increased expression of CD79b, said method comprising administering to a subject in need of such treatment an effective amount of an antibody of the disclosure, thereby effectively treating or preventing said cell proliferative disorder. In one embodiment, said proliferative disorder is cancer. In one embodiment, the antibody is conjugated to a cytotoxic agent. In one embodiment, the antibody is conjugated to a growth inhibitory agent.

[0046] In one embodiment, there is provided a method for inhibiting the growth of a cell, wherein growth of said cell is at least in part dependent upon a growth potentiating effect of CD79b, said method comprising contacting said cell with an effective amount of an antibody of the disclosure, thereby inhibiting the growth of said cell. In one embodiment, the antibody is conjugated to a cytotoxic agent. In one embodiment, the antibody is conjugated to a growth inhibitory agent.

[0047] In one embodiment, there is provided a method of therapeutically treating a tumor in a mammal, wherein the growth of said tumor is at least in part dependent upon a growth potentiating effect of CD79b, said method comprising contacting said cell with an effective amount of an antibody of the disclosure, thereby effectively treating said tumor. In one embodiment, the antibody is conjugated to a cytotoxic agent. In one embodiment, the antibody is conjugated to a growth inhibitory agent.

[0048] In one embodiment, there is provided a method of treating cancer comprising administering to a patient the pharmaceutical formulation comprising an immunoconjugate described herein, acceptable diluent, carrier or excipient.

[0049] In one embodiment, there is provided a method of inhibiting B cell proliferation comprising exposing a cell to an immunoconjugate comprising an antibody of the disclosure under conditions permissive for binding of the immunoconjugate to CD79b.

[0050] In one embodiment, there is provided a method of determining the presence of CD79b in a sample suspected of containing CD79b, said method comprising exposing said sample to an antibody of the disclosure, and determining binding of said antibody to CD79b in said sample wherein binding of said antibody to CD79b in said sample is indicative of the presence of said protein in said sample. In a fourteenth aspect, there is provided an *in vitro* method of determining the presence of CD79b in a biological sample suspected of containing CD79b, the method comprising *in vitro* exposing the biological sample to the antibody of the first aspect, and determining binding of the antibody to CD79b in the biological sample, wherein binding of the antibody to CD79b in the biological sample is indicative of the presence of CD79b in the biological sample.

[0051] In one embodiment, there is provided a method of diagnosing a cell proliferative disorder associated with an increase in cells, such as B cells, expressing CD79b is provided, the method comprising contacting a test cells in a biological sample with any of the above antibodies; determining the level of antibody bound to test cells in the sample by detecting binding of the antibody to CD79b; and comparing the level of antibody bound to cells in a control sample, wherein the level of antibody bound is normalized to the number of CD79b-expressing cells in the test and control samples, and wherein a higher level of antibody bound in the test sample as compared to the control sample indicates the presence of a cell proliferative disorder associated with cells expressing CD79b.

What is claimed is:

1. An anti-CD79b antibody comprising a light chain variable domain sequence of SEQ ID NO: 207 and a heavy chain variable domain sequence of SEQ ID NO: 208.

2. The antibody of claim 1, wherein the light chain comprises the sequence of SEQ ID NO: 307 and the heavy chain comprises the sequence of SEQ ID NO: 308.

3. The antibody of claim 1 or 2, wherein the antibody is selected from the group consisting of a monoclonal antibody, a bispecific antibody, a chimeric antibody, a humanized antibody, and any antibody fragments thereof.

4. The antibody of any one of claims 1-3, wherein the antibody is an antibody fragment.

5. A polynucleotide encoding the antibody of any one of claims 1-4.

6. A vector comprising the polynucleotide of claim 5.

7. A host cell comprising the vector of claim 6.

8. The host cell of claim 7, wherein the host cell is an eukaryotic host cell.

9. An immunoconjugate comprising the antibody of any one of claims 1-4 covalently attached to a cytotoxic agent.

10. The immunoconjugate of claim 9, wherein the cytotoxic agent is selected from the group consisting of a toxin, a therapeutic agent, a drug moiety, an antibiotic, a radioactive isotope, and a nucleolytic enzyme.

11. An immunoconjugate comprising the formula: Ab-(L-D)$_p$, wherein:

a) Ab is the anti-CD79b antibody of any one of claims 1-4;

b) L is a linker moiety;

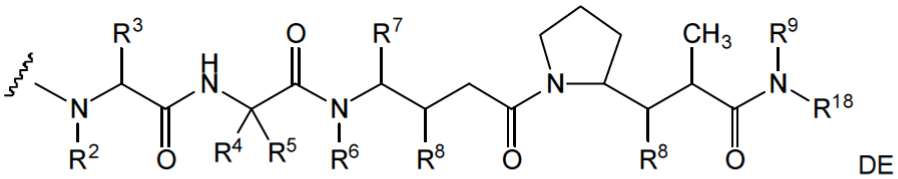
c) D is a drug moiety; and

d) p ranges from 1 to 8.

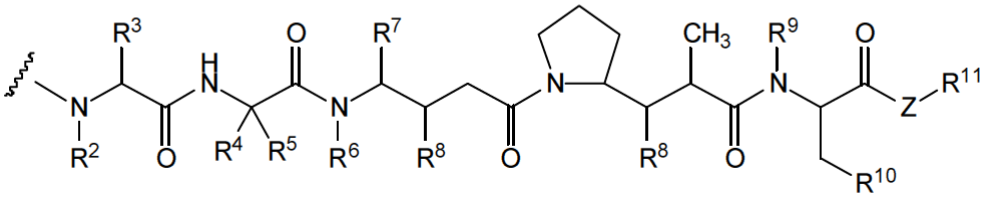
12. The immunoconjugate of claim 11, wherein L comprises a linker selected from one or more of 6-maleimidocaproyl (MC), maleimidopropanoyl (MP), valine-citrulline (val-cit), alanine-phenylalanine (ala-phe), p-aminobenzyloxycarbonyl (PAB), N-Succinimidyl 4-(2-pyridylthio) pentanoate (SPP), N-succinimidyl 4-(N-maleimidomethyl) cyclohexane-1 carboxylate (SMCC), 4-(2-Pyridyldithio)butyric acid-N-hydroxysuccinimide ester (SPDB), bis-maleimido-trioxyethylene glycol (BMPEO), and N-Succinimidyl (4-iodo-acetyl) aminobenzoate (SIAB).

13. The immunoconjugate of claim 11 or 12, wherein D is selected from the group consisting of a maytansinoid, an auristatin and a dolastatin.

14. The immunoconjugate of claim 13, wherein D is an auristatin or a dolastatin, and wherein D is a drug moiety of formula DE or DF:



DE



DF

and wherein R^2 and R^6 are each methyl, R^3 and R^4 are each isopropyl, R^5 is H or methyl, R^7 is sec-butyl, each R^8 is independently selected from CH_3, O-CH_3, OH, and H; R^9 is H; R^{10} is aryl; Z is –O– or –NH–; R^{11} is H, C_1-C_8 alkyl, or $–(CH_2)_2–O–(CH_2)_2–O–(CH_2)_2–O–CH_3$; and R^{18} is $–C(R^8)_2–C(R^8)_2–$aryl.

15. The immunoconjugate of any one of claims 11-13, wherein D is MMAE or MMAF.

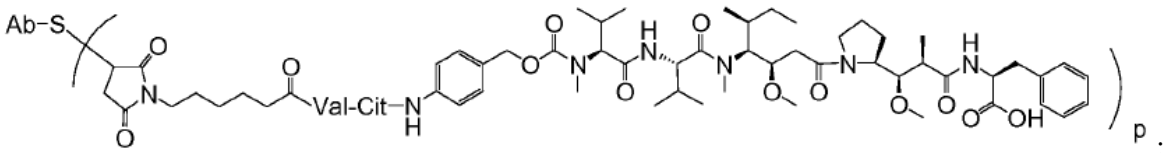
16. The immunoconjugate of any one of claims 11-15, wherein L comprises val-cit, MC, PAB, and/or MC-PAB.

17. The immunoconjugate of any one of claims 11-16, wherein L comprises MC-val-cit-PAB.

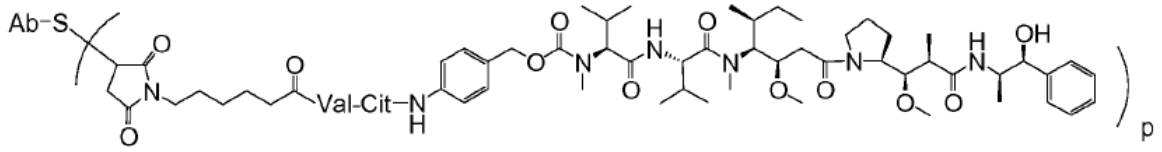
18. The immunoconjugate of any one of claims 11-13, wherein D is a maytansinoid.

19. The immunoconjugate of claim 18, wherein the maytansinoid is selected from DM1, DM3, and DM4.

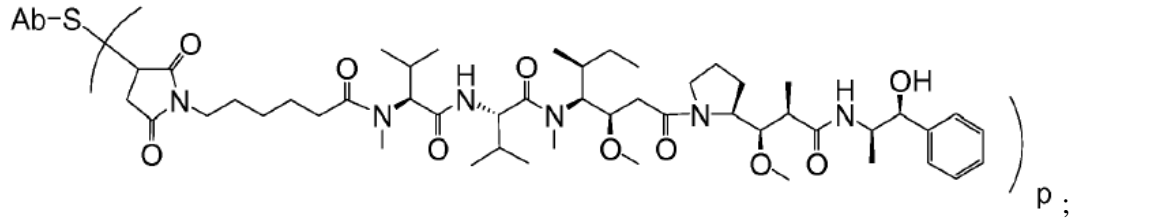
20. The immunoconjugate of any one of claims 11-19, wherein the immunoconjugate comprises a formula selected from the group consisting of:



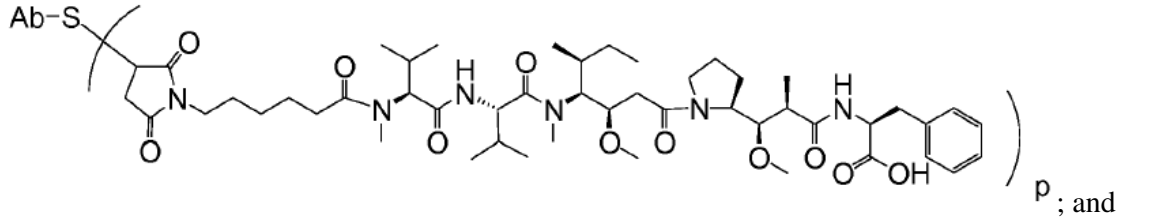
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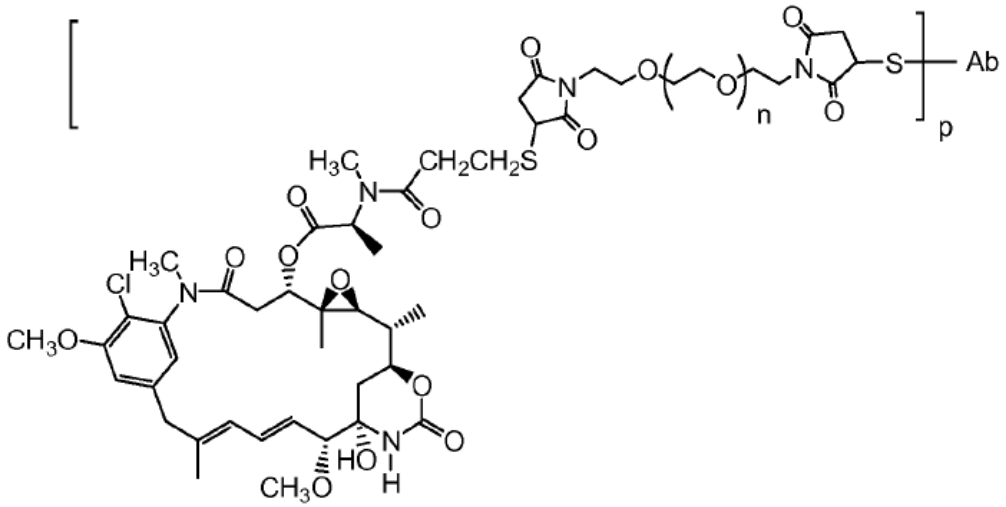
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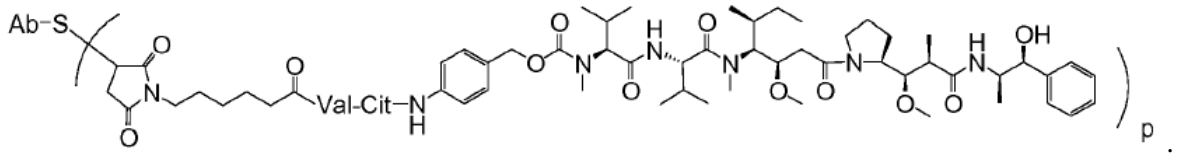
; and



;

wherein Val is valine and Cit is citrulline.

21. The immunoconjugate of claim 20, wherein the immunoconjugate comprises the formula:



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22. The immunoconjugate of any one of claims 11-21, wherein p is from 2 to 5.

23. The immunoconjugate of any one of claims 11-22, wherein p is from 3 to 4.

24. A composition comprising the antibody of any one of claims 1-4 or the immunoconjugate of any one of claims 9-23.

25. Use of an effective amount of an antibody of any one of claims 1-4, or an immunoconjugate of any one of claims 9-23, in the preparation of a medicament for treating a subject having a proliferative disorder.

26. The use of claim 25, wherein the proliferative disorder is cancer.

27. The use of claim 26, wherein the cancer is a B cell proliferative disorder.

28. The use of claim 27, wherein the B cell proliferative disorder is selected from the group consisting of lymphoma, myeloma, non-Hodgkin's lymphoma (NHL), diffuse large B-cell lymphoma (DLBCL), aggressive NHL, indolent lymphoma, follicular lymphoma

(FL), relapsed aggressive NHL, relapsed indolent NHL, relapsed NHL, refractory NHL, refractory indolent NHL, chronic lymphocytic leukemia (CLL), small lymphocytic lymphoma, leukemia, hairy cell leukemia (HCL), acute lymphocytic leukemia (ALL), and mantle cell lymphoma.

29. The use of claim 28, wherein the B cell proliferative disorder is non-Hodgkin's lymphoma (NHL).

30. The use of claim 28, wherein the B cell proliferative disorder is diffuse large B-cell lymphoma (DLBCL).

31. The use of claim 28, wherein the B cell proliferative disorder is relapsed NHL or refractory NHL.

32. The use of claim 28, wherein the B cell proliferative disorder is follicular lymphoma (FL).

33. The use of any one of claims 25-32, wherein the medicament is to be used in combination with an effective amount of another therapeutic agent.

34. The use of claim 33, wherein the therapeutic agent is selected from the group consisting of an antibody, a chemotherapeutic agent, a cytotoxic agent, an anti-angiogenic agent, an immunosuppressive agent, a prodrug, a cytokine, a cytokine antagonist, cytotoxic radiotherapy, a corticosteroid, a cancer vaccine, and a growth-inhibitory agent.

35. The use of claim 33, wherein the therapeutic agent is selected from one or more of tamoxifen, letrozole, exemestane, anastrozole, irinotecan, cetuximab, fulvestrant, vinorelbine, erlotinib, bevacizumab, vincristine, imatinib mesylate, sorafenib, lapatinib, trastuzumab, cisplatin, gemcitabine, methotrexate, vinblastine, carboplatin, paclitaxel, 5-fluorouracil, doxorubicin, bortezomib, melphalan, prednisone, prednisolone, and docetaxel.

36. The use of claim 33, wherein the therapeutic agent is an anti-CD20 antibody.

37. The use of claim 33, wherein the therapeutic agent is an anti-CD20 antibody and wherein the proliferative disorder is a B cell proliferative disorder.

38. The use of claim 33, wherein the therapeutic agent is an anti-CD20 antibody and wherein the proliferative disorder is diffuse large B-cell lymphoma (DLBCL).

39. The use of claim 33, wherein the therapeutic agent is an anti-CD20 antibody and wherein the proliferative disorder is follicular lymphoma (FL).

40. The use of any one of claims 36-39, wherein the anti-CD20 antibody is rituximab.

41. The use of claim 33 or 34, wherein the therapeutic agent is a chemotherapeutic agent.

42. The use of claim 41, wherein the chemotherapeutic agent comprises one or more of cyclophosphamide, hydroxydaunorubicin, vincristine, and prednisone or prednisolone.

43. The use of claim 41 or 42, wherein the chemotherapeutic agent comprises cyclophosphamide, doxorubicin, and prednisone or prednisolone.

44. The use of claim 36, wherein the medicament is to be used in further combination with an effective amount of a chemotherapeutic agent.

45. The use of claim 44, wherein the chemotherapeutic agent comprises cyclophosphamide, doxorubicin, and prednisone or prednisolone.

46. The use of claim 45, wherein the proliferative disorder is non-Hodgkin's lymphoma (NHL).

47. The use of claim 46, wherein the anti-CD20 antibody is rituximab.

48. The use of claim 45, wherein the proliferative disorder is diffuse large B-cell lymphoma (DLBCL).

49. The use of claim 48, wherein the anti-CD20 antibody is rituximab.

50. An *in vitro* method of determining the presence of CD79b in a biological sample suspected of containing CD79b, the method comprising *in vitro* exposing the biological sample to the antibody of any one of claims 1-4, and determining binding of the antibody to CD79b in the biological sample, wherein binding of the antibody to CD79b in the biological sample is indicative of the presence of CD79b in the biological sample.

51. A method for making an immunoconjugate comprising the anti-CD79b antibody (Ab) of any one of claims 1-4, and an auristatin or a maytansinoid drug moiety (D) wherein the antibody is attached through one or more cysteine amino acids by a linker moiety (L) to D; the immunoconjugate comprising Formula I:

$$Ab–(L–D)_p \qquad \mathbf{I}$$

wherein p ranges from 1 to 8; the method comprising the steps of:

(a) reacting one or more cysteine amino acids of the antibody with a linker reagent to form antibody-linker intermediate Ab-L; and

(b) reacting Ab-L with an activated drug moiety D; whereby the immunoconjugate is formed;

or comprising the steps of:

(c) reacting a nucleophilic group of a drug moiety with a linker reagent to form drug-linker intermediate D-L; and

(d) reacting D-L with one or more cysteine amino acids of the antibody; whereby the immunoconjugate is formed.

52. The method of claim 51, further comprising the step of expressing the antibody in Chinese hamster ovary (CHO) cells before step (a) or step (d).

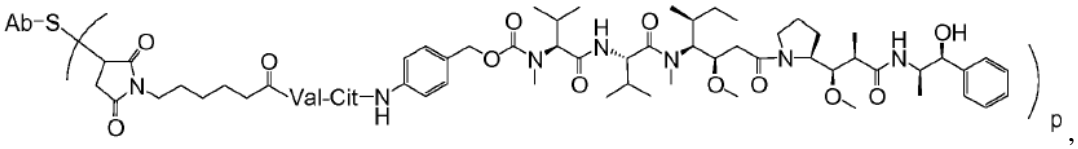
53. The method of claim 52, further comprising the step of treating the expressed antibody with a reducing agent before step (a) or step (d).

54. The method of claim 53, wherein the reducing agent is TCEP or DTT.

55. The method of claim 53 or 54, further comprising the step of treating the expressed antibody with an oxidizing agent after treating with the reducing agent.

56. The method of claim 55, wherein the oxidizing agent is selected from copper sulfate, dehydroascorbic acid, and air.

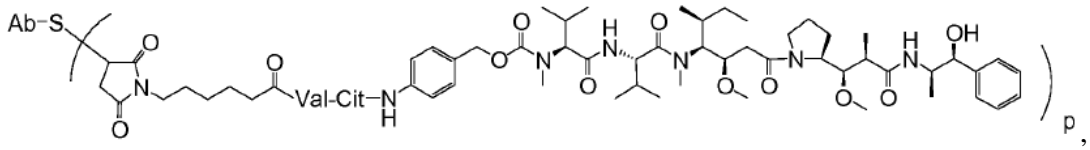
57. An immunoconjugate comprising the formula:



wherein Val is valine; Cit is citrulline; p is from 2 to 5; and

Ab is an anti-CD79b antibody comprising a light chain variable domain sequence of SEQ ID NO: 207 and a heavy chain variable domain sequence of SEQ ID NO: 208.

58. An immunoconjugate comprising the formula:



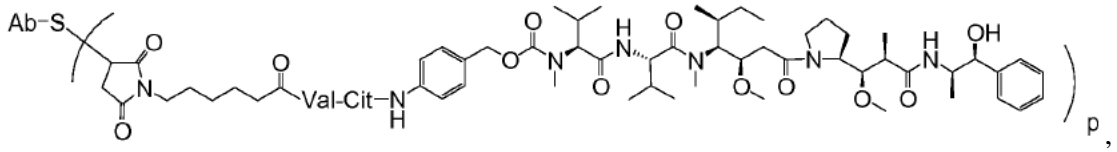
wherein Val is valine; Cit is citrulline; p is from 2 to 5; and

Ab is an anti-CD79b antibody comprising a light chain sequence of SEQ ID NO: 307 and a heavy chain sequence of SEQ ID NO: 308.

59. The immunoconjugate of claim 57 or 58, wherein p is from 3 to 4.

60. Use of an effective amount of an immunoconjugate in the preparation of a medicament for treating a subject having diffuse large B-cell lymphoma (DLBCL),

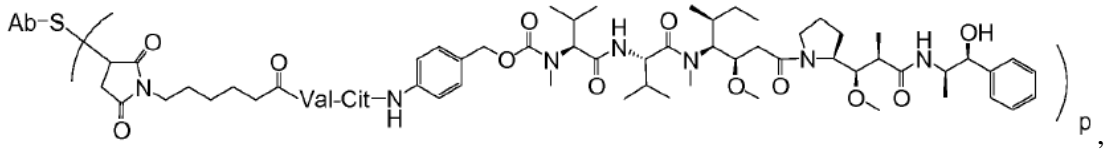
wherein the immunoconjugate comprises the formula:



wherein Val is valine; Cit is citrulline; p is from 2 to 5; and Ab is an anti-CD79b antibody comprising a light chain variable domain sequence of SEQ ID NO: 207 and a heavy chain variable domain sequence of SEQ ID NO: 208; and
wherein the medicament is to be used in combination with an effective amount of each of rituximab, cyclophosphamide, doxorubicin, and prednisone or prednisolone.

61. Use of an effective amount of an immunoconjugate in the preparation of a medicament for treating a subject having diffuse large B-cell lymphoma (DLBCL),

wherein the immunoconjugate comprises the formula:



wherein Val is valine; Cit is citrulline; p is from 2 to 5; and Ab is an anti-CD79b antibody comprising a light chain sequence of SEQ ID NO: 307 and a heavy chain sequence of SEQ ID NO: 308; and

wherein the medicament is to be used in combination with an effective amount of each of rituximab, cyclophosphamide, doxorubicin, and prednisone or prednisolone.

62. The use of claim 60 or 61, wherein p is from 3 to 4.