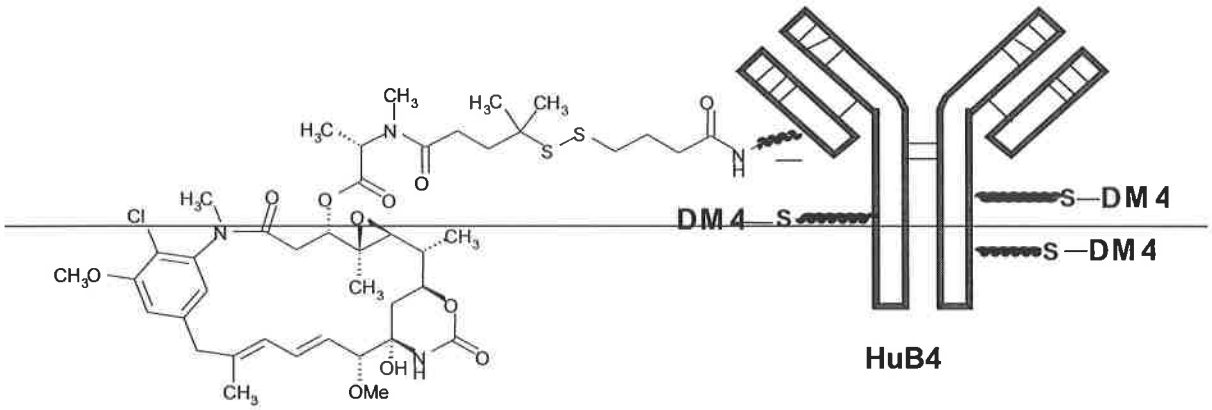
CLAIMS

1. Use of an anti-CD19 maytansinoid immunoconjugate in the manufacture of a medicament for the treatment of leukemia or lymphoma in a human patient, wherein said anti-CD19 maytansinoid immunoconjugate is to be administered at an initial dose of 55 mg/m^2 and a plurality of subsequent doses of 55 mg/m^2, wherein the subsequent doses are separated in time from each other by about one week, and wherein said anti-CD19 maytansinoid immunoconjugate comprises an antibody that specifically binds to a CD19 antigen comprising:

i. a heavy chain CDR1 comprising SNWMH (SEQ ID NO. 4); a heavy chain CDR2 comprising EIDPSDSYTN (SEQ ID NO. 5); and a heavy chain CDR3 comprising GSNPYYYAMDY (SEQ ID NO. 6); and~~has the following formula:~~



~~and~~

ii. a light chain CDR1 comprising SASSGVNYMH (SEQ ID NO. 1); a light chain CDR2 comprising DTSKLAS (SEQ ID NO. 2); and a light chain CDR3 comprising HQRGSYT (SEQ ID NO. 3)~~comprises an antibody comprising a light chain and a heavy chain, said light chain having the sequence of SEQ ID NO: 7, and said heavy chain having the sequence of SEQ ID NO: 8~~.

2. The use according to claim 1, wherein the immunoconjugate is to be administered to minimize eye related adverse events~~with a dose regimen reducing the toxicity resulting from the treatment~~.

~~3. The use according to claim 2, wherein the toxicity is an ocular toxicity resulting in eye related adverse events.~~

43. The use according to claim ~~3~~2, wherein the occurrence of all grades of eye related adverse events is below 40 %.

~~5~~4. The use according to claim ~~3~~2, wherein the occurrence of ~~eye related adverse events~~ grade 3 or 4 eye related adverse events is below 13 %.

~~6. The use according to any one of claims 1 to 5, wherein said anti-CD19 maytansinoid immunoconjugate is to be administered at a dose of about 55 mg/m^2.~~

5. The use according to any one of claims 1 to 4, wherein the administration of the initial dose is followed by the administration of at least 6 doses separated in time from each other by about one week.

6. The use according to any one of claims 1 to 4, wherein the administration of the initial dose is followed by the administration of between 6 and 14 doses separated in time from each other by about one week.

7. The use according to any one of claims 1 to 4, wherein further subsequent doses of about 55 mg/m^2 of anti-CD19 maytansinoid immunoconjugate is to be administered, wherein the further subsequent doses are separated in time from each other by about two weeks.

~~7~~8. The use according to any one of claims 1 to 4 ~~Use of an anti-CD19 maytansinoid immunoconjugate in the manufacture of a medicament for the treatment of leukemia or lymphoma in a patient~~, wherein said anti-CD19 maytansinoid immunoconjugate is to be administered with the following dosage regimen:

(a) administration of an initial dose of ~~about~~ 55 mg/m^2,

(b) administration of at least 3 subsequent doses of ~~about~~ 55 mg/m^2 of the anti-CD19 maytansinoid immunoconjugate separated in time from each other by about one week, and

(c) administration of at least 3 subsequent doses of ~~about~~ 55 mg/m^2 of the anti-CD19 maytansinoid immunoconjugate~~,~~ separated in time from each other by about two weeks.

~~8~~9. The use according to claim ~~7~~8, wherein step (b) consists in the administration of 3 subsequent doses.

~~9~~10. The use according to claim ~~7~~8, wherein step (c) consists in the administration of 3 subsequent doses.

~~10~~11. The use according to any one of claims ~~7~~ 1 to ~~9~~10, wherein said lymphoma is a Non-Hodgkin's lymphoma (NHL).

~~11~~12. The use according to claim ~~10~~11~~;~~, wherein said Non-Hodgkin's lymphoma is selected from the group consisting of a Diffuse Large B-cell lymphoma (DLBCL), a folicullar lymphoma (FL), a Mantle cell lymphoma (MCL), a Marginal zone lymphoma

(MZL), a Small lymphocytic lymphoma (SLL) and a Waldenström macroglobulinemia (WM).

~~12~~13. The use according to claim ~~11~~12, wherein said Non-Hodgkin's lymphoma is a Diffuse Large B-cell lymphoma (DLBCL).

~~13~~14. The use according to claim ~~10~~11, wherein said Non-Hodgkin's lymphoma is a relapsed or refractory ~~B-cell~~ non-Hodgkin's lymphoma.

~~14~~15. The use according to claim ~~10~~11, wherein said Non-Hodgkin's lymphoma is a ~~B-cell~~ non-Hodgkin's lymphoma expressing CD19.

16. The use according to any one of claims 1 to 10, wherein said leukemia is Acute lymphoblastic leukemia (ALL).

17. The use according to claim 11, wherein the patient has failed rituximab therapy.

18. The use according to claim 11, wherein non-Hodgkin's lymphoma is rituximab resistant.

19. The use according to claim 11, wherein the patient has received an autologous or allogenic stem cell transplant.

20. The use according to any one of claims 1 to 19, wherein the anti-CD19 maytansinoid immunoconjugate is to be administered intravenously.

~~15. The use according to any one of claims 7 to 14, which further comprises simultaneous or sequential administration of an effective amount of a chemotherapeutic agent.~~

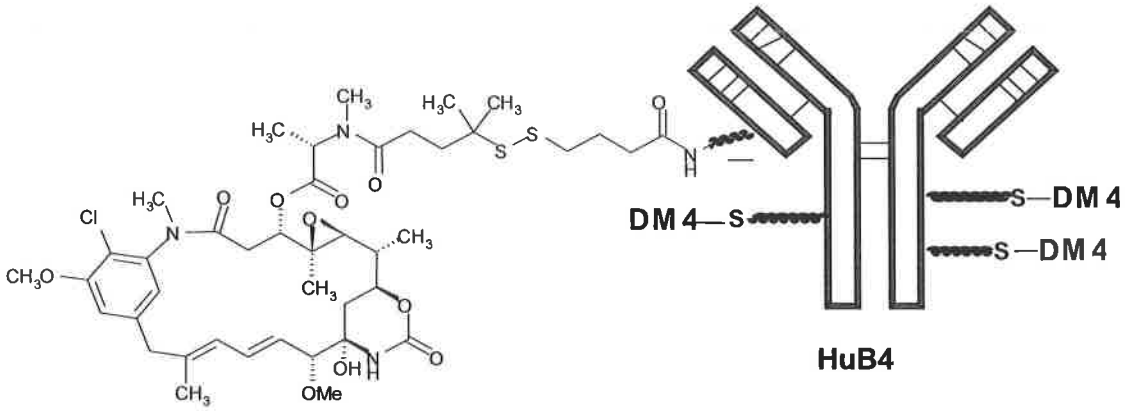
~~16~~21. The use according to any one of claims ~~7~~ 1 to ~~15~~20, wherein the ~~anti-CD19~~ maytansinoid is~~immunoconjugate comprises an antibody which binds specifically to the CD19 antigen conjugated to~~ DM4.

~~17~~22. The use according to claim 21 ~~any one of claims 7 to 16~~, wherein the ~~anti-CD19 maytansinoid immunoconjugate comprises an~~ antibody ~~which binds specifically to the CD19 antigen~~is conjugated to DM4 through a cleavable linker.

~~18~~23. The use according to ~~any one of claims 7 to 17~~claim 22, wherein the cleavable linker is N-succinimidyl 4-(2-pyridyldithio)butanoate (SPDB)~~anti-CD19 maytansinoid immunoconjugate comprises an antibody which binds specifically to the CD19 antigen conjugated to DM4 through a N-succinimidyl 4-(2-pyridyldithio)butanoate (SPDB) linker~~.

~~19~~24. The use according to ~~any one of claims 7 to 18~~claim 23, wherein the anti-CD19 maytansinoid immunoconjugate comprises an HuB4 antibody ~~which binds specifically to the CD19 antigen~~ conjugated to DM4 through the N-succinimidyl 4-(2-pyridyldithio)butanoate (SPDB) linker~~, wherein about 3.5 molecules of DM4 are bound through the SPDB linker to each huB4 molecule~~.

~~20~~25. The use according to any one of claims ~~7~~ 1 to ~~19~~24, wherein the anti-CD19 maytansinoid immunoconjugate has the following formula:



~~21. The use according to any one of claims 7 to 20, wherein the anti-CD19 maytansinoid immunoconjugate comprises an antibody and the said antibody comprises six complementary determining region (CDR), said CDR having the sequences represented in SEQ ID NOs 1 to 6.~~

~~22. The use according to any one of claims 7 to 20, wherein the anti-CD19 maytansinoid immunoconjugate comprises an antibody and the said antibody comprises a light chain, wherein the sequence of the said light chain has at least 60%, identity with the sequence displayed in SEQ ID NO. 7.~~

~~23. The use according to any one of claims 7 to 20, wherein the anti-CD19 maytansinoid immunoconjugate comprises an antibody and the said antibody comprises a heavy chain, wherein the sequence of the said heavy chain has at least 60%, identity with the sequence displayed in SEQ ID NO. 8.~~

~~24~~26. The use according to any one of claims ~~7~~ 1 to ~~20~~23, wherein the ~~anti-CD19 maytansinoid immunoconjugate comprises an antibody and the said~~ antibody comprises a light chain having the sequence of SEQ ID NO. 7 and a heavy chain having the sequence of SEQ ID NO. 8~~, said light chain having the sequence represented in SEQ ID NO. 7, and said heavy chain having the sequence represented in SEQ ID NO. 8~~.

27. The use according to any one of claims 1 to 23, wherein the anti-CD19 maytansinoid immunoconjugate comprises the HuB4 antibody.

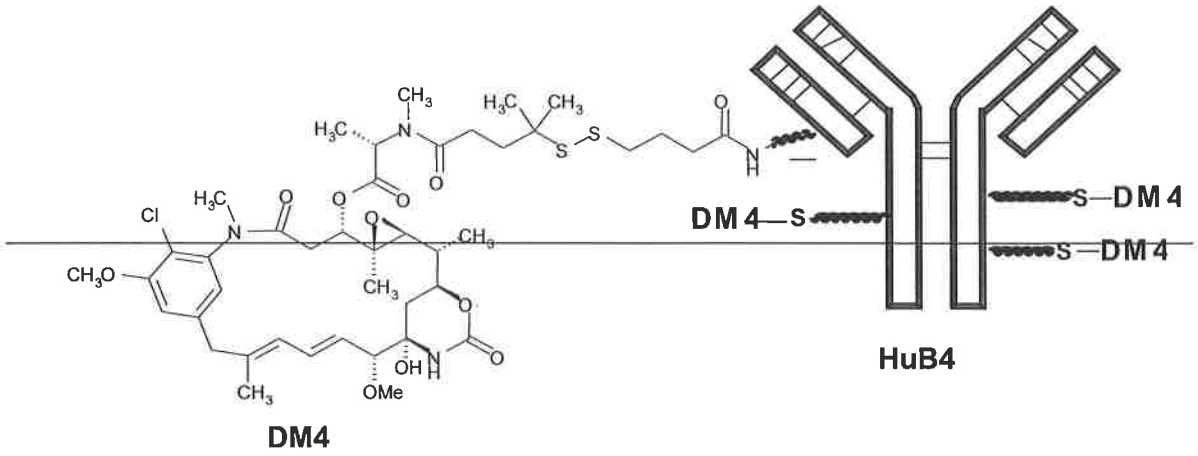
28. The use according to any one of claims 1 to 23, wherein the anti-CD19 maytansinoid immunoconjugate is the HuB4-DM4 conjugate.

29. The use according to claim 24, wherein 3.5 molecules of DM4 are bound through the SPDB linker to each HuB4 antibody molecule.

25. An antibody–drug conjugate composed of a humanized IgG1 monoclonal antibody specifically targeting the CD19 antigen conjugated through a disulfide link to the maytansinoid derivative DM4, wherein:

(a) said antibody antibody–drug conjugate has the structure shown in Formula (I); and

~~Formula (I)~~



~~(b) said humanized IgG1 monoclonal antibody specifically targeting the CD19 antigen comprises a light chain having the sequence represented in SEQ ID NO. 7, and a heavy chain having the sequence represented in SEQ ID NO. 8.~~