Claims

1. An antibody which binds to AXL, wherein the antibody does not compete for AXL binding with the ligand Growth Arrest-Specific 6 (Gas6).

2. The antibody according to claim 1, wherein maximal antibody binding to AXL in the presence of Gas6 is at least 90%, such as at least 95%, such as at least 97%, such as at least 99%, such as 100%, of binding in the absence of Gas6 as determined by the method disclosed inExample 2.

3. The antibody according to claim 1 to 2, wherein maximal antibody binding to AXL in the presence of Gas6 is at least 90%, such as at least 95%, such as at least 97%, such as at least 99%, such as 100%, of binding in the absence of Gas6 as determined by a competition assay, wherein competition between said antibody binding to AXL and said Gas6 is determined on A431 cells preincubated with Gas6 and without Gas6.

4. The antibody according to any one of claims 1 to 3, wherein said antibody has a binding affinity (K_D) in the range of $0.3x10^{-9}$ to $63x10^{-9}$ M to human AXL, and wherein said binding affinity is measured using a Bio-layer Interferometry using soluble AXL extracellular domain.

5. The antibody according to any one of the preceding claims, wherein said antibody has a dissociation rate of $9.7x10^{-5}$ to $4.4x10^{-3}$ s^{-1} to AXL, and wherein the dissociation rate is measured by Bio-layer Interferometry using soluble recombinant AXL extracellular domain.

6. The antibody according to any one of the preceding claims, wherein AXL is human AXL as specified in SEQ ID NO:130.

7. The antibody according to any one of claims 1 to 5, wherein AXL is cynomolgus monkey AXL as specified in SEQ ID NO:147.

8. The antibody according to any one of the preceding claims, wherein AXL is human AXL as specified in SEQ ID NO:130 and cynomologus monkey AXL as specied in SEQ ID NO:147.

9. The antibody according to any one of the preceding claims, wherein the antibody comprises at least one binding region comprising variable heavy chain (VH) CDR1, CDR2, and CDR3 sequences are selected from the group consisting of:

a) SEQ ID Nos.: 36, 37, and 38, respectively [**107**];

b) SEQ ID Nos.: 93, 94, and 95, respectively [**613**];

c) SEQ ID Nos.: 93, 126, and 127, respectively [**613 / 608-01 / 610-01 / 620-06**];

d) SEQ ID Nos.: 46, 47, and 48, respectively [**148**];

e) SEQ ID Nos.: 57, 58, and 59, respectively [**171**];

f) SEQ ID Nos.: 78, 79, and 80, respectively [**187**];

g) SEQ ID Nos.: 46, 119, and 120, respectively [**148 / 140**];

h) SEQ ID Nos.: 51, 52, and 53, respectively [**154**];

i) SEQ ID Nos.: 72, 73, and 75, respectively [**183**];

j) SEQ ID Nos.: 72, 74, and 75, respectively [**183-N52Q**];

k) SEQ ID Nos.: 114, 115, and 116, respectively [**733**];

l) SEQ ID Nos.: 123, 124, and 125, respectively [**171 / 172 / 181**];

m) SEQ ID Nos.: 108, 109, and 110, respectively [**726**];

n) SEQ ID Nos.: 108, 121, and 122, respectively [**726 / 187**];

o) SEQ ID Nos.: 41, 42, and 43, respectively [**140**];

p) SEQ ID Nos.: 62, 63, and 64, respectively [**172**];

q) SEQ ID Nos.: 67, 68, and 69, respectively [**181**];

r) SEQ ID Nos.: 51, 52, and 54, respectively [**154-M103L**];

s) SEQ ID Nos.:78, 79, and 80, respectively [**187**];

t) SEQ ID Nos.: 83, 84, and 85, respectively [**608-01**];

u) SEQ ID Nos.: 88, 89, and 90, respectively [**610-01**];

v) SEQ ID Nos.: 98, 99, and 100, respectively, [**613-08**];

w) SEQ ID Nos.: 103, 104, and 105, respectively [**620-06**]; and

x) SEQ ID Nos.: 108, 109, and 111, respectively [**726-M101L**].

10. The antibody according to claim 9, wherein the VH CDR1, CDR2, and CDR3 are selected from either a), d), g), or k).

11. The antibody according to any one of the preceding claims, wherein said at least one binding region comprises a variable heavy chain (VH) region, wherein said VH region comprises CDR1, CDR2 and CDR3 sequences and a variable light chain (VL) region, wherein said VH region comprises CDR1, CDR2 and CDR3 sequences, having at least 95 %, such as at least 97%, such as at least 99%, such as 100%, sequence identity with the sequences selected from the group consisting of;

a) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 36, 37, and 38, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 39, GAS, and 40, respectively, [**107**];

b) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 46, 47, and 48, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 49, AAS, and 50, respectively, [**148**];

c) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 114, 115, and 116, respectively, and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 117, DAS, and 118, respectively [**733**];

d) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 51, 52, and 53, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 55, GAS, and 56, respectively [**154**];

e) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 51, 52, and 54, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 55, GAS, and 56, respectively [**154-M103L**];

f) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 57, 58, and 59, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 60, GAS, and 61, respectively, [**171**];

g) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 62, 63, and 64, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 65, GAS, and 66, respectively, [**172**];

h) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 67, 68, and 69, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 70, GAS, and 71, respectively, [**181**];

i) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 72, 73, and 75, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 76, ATS, and 77, respectively, [**183**];

j) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 72, 74, and 75, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 76, ATS, and 77, respectively, [**183-N52Q**];

k) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 78, 79, and 80, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 81, AAS, and 82, respectively, [**187**];

l) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 83, 84, and 85, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 86, GAS, and 87, respectively, [**608-01**];

m) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 88, 89, and 90, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 91, GAS, and 92, respectively, [**610-01**];

n) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 93, 94, and 95, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 96, GAS, and 97, respectively, [**613**];

o) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 98, 99, and 100, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 101, DAS, and 102, respectively, [**613-08**];

p) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 103, 104, and 105, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 106, GAS, and 107, respectively, [**620-06**];

q) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 108, 109, and 110, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 112, AAS, and 113, respectively, [**726**];

r) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 108, 109, and 111, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 112, AAS, and 113, respectively, [**726-M101L**];

s) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 41, 42, and 43, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 44, AAS, and 45, respectively, [**140**];

t) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 93, 94, and 95, respectively, and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 128, XAS, wherein X is D or G, and 129, respectively, [**613 / 613-08**];

u) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 46, 119, and 120, respectively; and a VL region comprising CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 49, AAS, and 50, respectively, [**148 / 140**];

v) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 123, 124, and 125, respectively; and a VL region comprising CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 60, GAS, and 61, respectively [**171 / 172 / 181**]; and

w) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 121, 109, and 122, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 112, AAS, and 113, respectively [**726 / 187**]; and

x) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.:93, 126, and 127, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 96, GAS, and 97, respectively [**613 / 608-01 / 610-01 / 620-06**].

12. The antibody according to any one of the preceding claims, wherein said at least one binding region comprises a VH region and a variable light chain (VL) region selected from the group consisting of;

a) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 36, 37, and 38, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 39, GAS, and 40, respectively, [**107**];

b) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 46, 47, and 48, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 49, AAS, and 50, respectively, [**148**];

c) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 114, 115, and 116, respectively, and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 117, DAS, and 118, respectively [**733**];

d) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 51, 52, and 53, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 55, GAS, and 56, respectively [**154**];

e) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 51, 52, and 54, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 55, GAS, and 56, respectively [**154-M103L**];

f) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 57, 58, and 59, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 60, GAS, and 61, respectively, [**171**];

g) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 62, 63, and 64, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 65, GAS, and 66, respectively, [**172**];

h) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 67, 68, and 69, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 70, GAS, and 71, respectively, [**181**];

i) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 72, 73, and 75, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 76, ATS, and 77, respectively, [**183**];

j) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 72, 74, and 75, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 76, ATS, and 77, respectively, [**183-N52Q**];

k) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 78, 79, and 80, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 81, AAS, and 82, respectively, [**187**];

l) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 83, 84, and 85, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 86, GAS, and 87, respectively, [**608-01**];

m) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 88, 89, and 90, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 91, GAS, and 92, respectively, [**610-01**];

n) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 93, 94, and 95, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 96, GAS, and 97, respectively, [**613**];

o) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 98, 99, and 100, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 101, DAS, and 102, respectively, [**613-08**];

p) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 103, 104, and 105, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 106, GAS, and 107, respectively, [**620-06**];

q) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 108, 109, and 110, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 112, AAS, and 113, respectively, [**726**];

r) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 108, 109, and 111, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 112, AAS, and 113, respectively, [**726-M101L**];

s) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 41, 42, and 43, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 44, AAS, and 45, respectively, [**140**];

t) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 93, 94, and 95, respectively, and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 128, XAS, wherein X is D or G, and 129, respectively, [**613 / 613-08**];

u) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 46, 119, and 120, respectively; and a VL region comprising CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 49, AAS, and 50, respectively, [**148 / 140**];

v) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 123, 124, and 125, respectively; and a VL region comprising CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 60, GAS, and 61, respectively [**171 / 172 / 181**]; and

w) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 121, 109, and 122, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 112, AAS, and 113, respectively [**726 / 187**]; and

x) a VH region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.:93, 126, and 127, respectively; and a VL region comprising the CDR1, CDR2, and CDR3 sequences of SEQ ID Nos.: 96, GAS, and 97, respectively [**613 / 608-01 / 610-01 / 620-06**].

13. The antibody according to any one of the preceding claims, wherein said at least one binding region comprises a VH region and a VL region selected from the group consisting of;

a) a VH region comprising SEQ ID No: 1 and a VL region comprising SEQ ID No: 2 [**107**];

b) a VH region comprising SEQ ID No: 5 and a VL region comprising SEQ ID No: 6 [**148**];

c) a VH region comprising SEQ ID No: 34 and a VL region comprising SEQ ID No: 35 [**733**]

d) a VH region comprising SEQ ID No: 7 and a VL region comprising SEQ ID No: 9 [**154**];

e) a VH region comprising SEQ ID No: 10 and a VL region comprising SEQ ID No: 11 [**171**];

f) a VH region comprising SEQ ID No: 16 and a VL region comprising SEQ ID No: 18 [**183**];

g) a VH region comprising SEQ ID No: 25 and a VL region comprising SEQ ID No: 26 [**613**];

h) a VH region comprising SEQ ID No: 31 and a VL region comprising SEQ ID No: 33 [**726**];

i) a VH region comprising SEQ ID No: 3 and a VL region comprising SEQ ID No: 4 [**140**];

j) a VH region comprising SEQ ID No:8 and a VL region comprising SEQ ID No:9 [**154-M103L**];

k) a VH region comprising SEQ ID No:12 and a VL region comprising SEQ ID No:13 [**172**];

l) a VH region comprising SEQ ID No:14 and a VL region comprising SEQ ID No:15 [**181**];

m) a VH region comprising SEQ ID No:17 and a VL region comprising SEQ ID No:18 [**183-N52Q**];

n) a VH region comprising SEQ ID No:19 and a VL region comprising SEQ ID No:20 [**187**];

o) a VH region comprising SEQ ID No:21 and a VL region comprising SEQ ID No:22 [**608-01**];

p) a VH region comprising SEQ ID No:23 and a VL region comprising SEQ ID No:24 [**610-01**];

q) a VH region comprising SEQ ID No:27 and a VL region comprising SEQ ID No:28 [**613-08**];

r) a VH region comprising SEQ ID No:29 and a VL region comprising SEQ ID No:30 [**620-06**]; and

s) a VH region comprising SEQ ID No:32 and a VL region comprising SEQ ID No:33 [**726-M101L**].

14. The antibody according to any one of claims 1 to 8, wherein said antibody binds to an epitope on AXL wherein said epitope is recognized by any of the antibodies defined in claims 9 to 13.

15. The antibody according to any one of claims 1 to 8, wherein said antibody binds to an epitope on AXL wherein said epitope is recognized by any of the antibodies defined in claim to 13

16. The antibody according to any one of claims 1 to 8, wherein said antibody binds to an epitope within the Ig1-like domain of AXL, said epitope comprises or requires one or more amino acids corresponding to positions L121 to Q129 or T112 to Q124 of human AXL.

17. The antibody according to any one of claims 1 to 8, wherein said antibody binds to an epitope within the Ig2-like domain of AXL, said epitope comprises or requires the amino acids corresponding to position D170 or the combination of D179 and one or more aminco acids corresponding to positions T182 to R190 of human AXL.

18. The antibody according to any one of claims 1 to 8, wherein said antibody binds to an epitope within the FN1-like domain of human AXL, said epitope comprises or requires one or more amino acids corresponding to positions Q272 to A287 and G297 to P301 of human AXL.

19. The antibody according to any one of the preceding claims 1 to 8, wherein said antibody binds to an epitope within the FN2-like domain of human AXL, said epitope comprises or requires the amino acids corresponding to positions A359, R386, and one or more amino acides corresponding to positions Q436 to K439 of human AXL.

20. The antibody according to any of the preceding claims, wherein said antibody comprises a heavy chain of an isotype selected from the group consisting of IgG1, IgG2, IgG3, and IgG4.

21. The antibody according to claim 20, wherein the isotype is IgG1, optionally allotype IgG1m(f).

22. The antibody of any one of the preceding claims, which is a full-length monoclonal antibody, such as a full-length monoclonal IgG1,κ antibody.

23. The antibody according to any one of claims 1 to 22, wherein said antibody is an effector-function-deficient antibody, a stabilized IgG4 antibody or a monovalent antibody.

24. The antibody according to claim 23, wherein said heavy chain has been modified such that the entire hinge region has been deleted.

25. The antibody according to any one of claims 23 and 24, wherein the sequence of said antibody has been modified so that it does not comprise any acceptor sites for N-linked glycosylation.

26. The antibody according to any one of claims 1 to 25, wherein said antibody is a single-chain antibody.

27. A bispecific antibody comprising a first binding region of an antibody according to any one of the preceding claims, and a second binding region which binds a different target or epitope than said first binding region.

28. The bispecific antibody according to claim 27, wherein said bispecific antibody comprises a first and a second heavy chain, each of said first and second heavy chain comprises at least a hinge region, a CH2 and CH3 region, wherein in said first heavy chain at least one of the amino acids in the positions corresponding to positions selected from the group consisting of K409, T366, L368, K370, D399, F405, and Y407 in a human IgG1 heavy chain has been substituted, and in said second heavy chain at least one of the amino acids in the positions corresponding to a position selected from the group consisting of F405, T366, L368, K370, D399, Y407, and K409 in a human IgG1 heavy chain has been substituted, and wherein said substitutions of said first and said second heavy chains are not in the same positions.

29. The bispecific antibody according to any one of claims 27 to 28, wherein the amino acid in the position corresponding to K409 in a human IgG1 heavy chain is R in said first heavy chain, and the amino acid in the position corresponding to F405 in a human IgG1 heavy chain is L in said second heavy chain, or vice versa.

30. An immunoconjugate comprising the antibody according to any one of claims 1 to 26, or bispecific antibody according to any one of claims 27 to 29, and a therapeutic moiety, such as a cytotoxic agent, a chemotherapeutic drug, a cytokine, an immunosuppressant, antibiotic, or a radioisotope.

31. The immunoconjugate according to claim 30, wherein the therapeutic moiety is a cytotoxic agent.

32. The immunoconjugate according to any one of claims 30 to 31, wherein said cytotoxic agent is linked to said antibody with a cleavable linker, such as *N*-succinimydyl 4-(2-pyridyldithio)-pentanoate (SSP), maleimidocaproyl-valine-citrulline-*p*-aminobenzyloxycarbonyl (mc-vc-PAB) or AV-1 K-lock valine-citrulline.

33. The immunoconjugate according to any one of claims 30 to 31, wherein said cytotoxic agent is linked to said antibody, or fragment thereof, with a non-cleavable linker, such as succinimidyl-4(*N*-maleimidomethyl)cyclohexane-1-carboxylate (MCC) or maleimidocaproyl (MC).

34. The immunoconjugate according to any one of claims 30 to 33, wherein said cytotoxic agent is selected from the group: DNA-targeting agents, e.g. DNA alkylators and cross-linkers, such as calicheamicin, duocarmycin, rachelmycin (CC-1065), pyrrolo[2,1-c][1,4] benzodiazepines (PBDs), and indolinobenzodiazepine (IGN); microtubule-targeting agents, such as duostatin, such as duostatin-3, auristatin, such as monomethylauristatin E (MMAE) and monomethylauristatin F (MMAF), dolastatin, maytansine, *N*(2')-deacetyl-*N*(2')-(3-marcapto-1-oxopropyl)-maytansine (DM1), and tubulysin; and nucleoside analogs; or an analogs, derivatives, or prodrugs thereof.

35. The immunoconjugate according to any one of the claims 30 to 34, wherein said immunoconjugate comprises a combination of;

i) said cytotoxic agent and said cleavable linker having bystander kill capacity;

ii) said cytotoxic agent and said cleavable linker not having bystander kill capacity;

iii) said cytotoxic agent and said non-cleavable linker having bystander kill capacity; or

iv) said cytotoxic agent and said non-cleavable linker not having bystander kill capacity.

36. The immunoconjugate according to any one of claims 30 to 32, and 34 to 35, wherein said linker is mc-vc-PAB and the cytotoxic agent is MMAE; or the linker is SSP and the cytotoxic agent is DM1.

37. The immunoconjugate according to any one of the preceding claims, wherein said immunoconjugate comprises said linker mc-vc-PAB, said cytotoxic agent MMAE and said antibody wherein said at least one binding region comprises a VH region and a VL region selected from the group consisting of;

a) a VH region comprising SEQ ID No: 1 and a VL region comprising SEQ ID No: 2 [**107**];

b) a VH region comprising SEQ ID No: 5 and a VL region comprising SEQ ID No: 6 [**148];**

c) a VH region comprising SEQ ID No: 34 and a VL region comprising SEQ ID No: 35 [**733**]

d) a VH region comprising SEQ ID No: 7 and a VL region comprising SEQ ID No: 9 [**154**];

e) a VH region comprising SEQ ID No: 10 and a VL region comprising SEQ ID No: 11 [**171**];

f) a VH region comprising SEQ ID No: 16 and a VL region comprising SEQ ID No: 18 [**183**];

g) a VH region comprising SEQ ID No: 25 and a VL region comprising SEQ ID No: 26 [**613**];

h) a VH region comprising SEQ ID No: 31 and a VL region comprising SEQ ID No: 33 [**726**];

i) a VH region comprising SEQ ID No: 3 and a VL region comprising SEQ ID No: 4 [**140**];

j) a VH region comprising SEQ ID No:8 and a VL region comprising SEQ ID No:9 [**154-M103L**];

k) a VH region comprising SEQ ID No:12 and a VL region comprising SEQ ID No:13 [**172**];

l) a VH region comprising SEQ ID No:14 and a VL region comprising SEQ ID No:15 [**181**];

m) a VH region comprising SEQ ID No:17 and a VL region comprising SEQ ID No:18 [**183-N52Q**];

n) a VH region comprising SEQ ID No:19 and a VL region comprising SEQ ID No:20 [**187**];

o) a VH region comprising SEQ ID No:21 and a VL region comprising SEQ ID No:22 [**608-01**];

p) a VH region comprising SEQ ID No:23 and a VL region comprising SEQ ID No:24 [**610-01**];

q) a VH region comprising SEQ ID No:27 and a VL region comprising SEQ ID No:28 [**613-08**];

r) a VH region comprising SEQ ID No:29 and a VL region comprising SEQ ID No:30 [**620-06**]; and

s) a VH region comprising SEQ ID No:32 and a VL region comprising SEQ ID No:33 [**726-M101L**].

38. The immunoconjugate according to any one of claims 30, and 32 to 33, wherein said linker is MMC and the cytotoxic agent is DM1; or the linker is MC and the cytotoxic agent is MMAF.

39. The immunoconjugate according to any one of claims 30 to 38, wherein the number of cytotoxic agents per antibody is from 1 to 8, such as 2 to 7, such as 2 to 6, such as 2 to 5, such as 2 to 4, and such as 2 to 3.

40. A composition comprising the antibody according to any one of claims 1 to 26, a bispecific antibody according to any one of claims 27 to 29, or an immunoconjugate according to any one of claims 30 to 39.

41. A pharmaceutical composition comprising the antibody according to any one of claims 1 to 26, a bispecific antibody according to any one of claims 27 to 29, or an immunoconjugate according to any one of claims 30 to 39, and a pharmaceutical acceptable carrier.

42. A nucleic acid construct encoding one or more corresponding amino acid sequences of any of claims 1 to 13 and 37.

43. A nucleic acid construct encoding an antibody according to any one of claims 1 to 26.

44. An expression vector comprising one or more nucleic acid constructs according to any one of claims 42 and 43.

45. A host cell comprising a vector according to claim 44.

46. The host cell according to claim 45, wherein said host cell is a recombinant host cell, such as a recombinant prokaryotic, recombinant eukaryotic, or recombinant microbial host cell.

47. The host cell according to any one of claims 45 to 46, wherein the host cell produces an antibody according to any one of claims 1 to 26, or a bispecific antibody according to any one of claims 27 to 29.

48. A hybridoma which produces an antibody according to any one of claims 1 to 26.

49. The antibody according to any one of claims 1 to 26, the bispecific antibody according to any one of claims 27 to 29, or the immunoconjugate according to any one of claims 30 to 39, for use as a medicament.

50. The use of an antibody according to any one of claims 1 to 26, the bispecific antibody according to any one of claims 27 to 29, or the immunoconjugate according to any one of claims 30 to 39, in the manufacture of a medicament for the treatment of cancer.

51. A composition according to claim 40, or a pharmaceutical composition according to claim 41, for use in the treatment of cancer.

52. An antibody according to any one of claims 1 to 26, a bispecific antibody according to any one of claims 27 to 29, an immunoconjugate according to any one of claims 30 to 39, a composition according to claim 40, or a pharmaceutical composition according to claim 41, for use in diagnosing a disease

characterized by involvement or accumulation of AXL-expressing cells, optionally wherein the antibody is labeled with a detectable agent, and wherein the amount of AXL-expressing cells correlates with or is indicative of disease.

53. The use according to claim 50, or the composition of claim 51, wherein the cancer is a solid tumor expressing AXL or an AXL-expressing hematological cancer.

54. The use according to claim 53, wherein the hematological cancer is selected from the group consisting of leukemia, such as chronic lymphocytic leukemia, myeloid leukemia, acute myeloid leukemia (AML) and chronic myeloid leukemia, lymphoma such as Non-Hodgkin lymphoma and multiple myeloma.

55. The use according to claim 53, wherein the solid tumor expressing AXL is lung cancer or epidermoid carcinoma.

56. The use according to claim 53, wherein the cancer is selected from the group consisting of colorectal cancer, such as colorectal carcinoma and colorectal adenocarcinoma, bladder cancer, bone cancer such as chondrosarcoma, breast cancer such as triple-negative breast cancer, cancers of the central nervous system such as glioblastoma, astrocytoma, neuroblastoma, cervical cancer, connective tissue cancer, endometrium cancer, fibroblast cancer, gastric cancer such as gastric carcinoma, head and neck cancer, kidney cancer, liver cancer such as hepatocellular carcinoma, lung cancer such as NSCLC and lung squamous cell carcinoma, muscle cancer, neural tissue cancer, ovarian cancer, pancreatic cancer such as pancreatic ductal carcinoma and pancreatic adenocarcinoma, skin cancer such as malignant melanoma and soft tissue sarcoma.

57. A method for producing an antibody of any one of claims 1 to 26, said method comprising the steps

a) culturing a host cell according to any one of claims 44 to 47 or a hybridoma according to claim 48, and

b) purifying the antibody from the culture media.

58. A diagnostic composition comprising an antibody according to any one of claims 1 to 26 or a bispecific antibody according to any one of claims 27 to 29.

59. A method for detecting the presence of AXL antibody, or a cell expressing AXL, in a sample comprising the steps of;

a) contacting the sample with an antibody according to any one of claims 1 to 26, a bispecific antibody according to any one of claims 27 to 29, or an immunoconjugate according to any one of claims 30 to 39, under conditions that allow for formation of a complex between the antibody, bispecific antibody or immunoconjugate and AXL; and

b) analyzing whether a complex has been formed.

60. An anti-idiotypic antibody which binds to an anti-AXL antibody of any one of claims 1 to 26.