CLAIMS

1. An antibody or antigen-binding fragment thereof that specifically binds to IgM μ-chain antigen, wherein the antibody or antigen-binding fragment thereof comprises a canine constant region, wherein the antibody or antigen-binding fragment thereof comprises:
   a) a heavy chain variable (VH) region comprising the VHCDR1 amino acid sequence K A S G Y S F T D Y N I Y (SEQ ID NO: 1), the VHCDR2 amino acid sequence F F D P H N G N T T Y N Q K F K (SEQ ID NO: 2) and the VHCDR3 amino acid sequence E G Y L Y A M D Y (SEQ ID NO: 3); and
   b) a light chain variable (VL) region comprising the VLCDR1 amino acid sequence R S S Q S I E H S N G N T Y L E (SEQ ID: 4), the VLCDR2 amino acid sequence F K V S N R F S (SEQ ID NO: 5) and the VLCDR3 amino acid sequence F Q G S H V P P T (SEQ ID NO: 6)..

2. The antibody or antigen-binding fragment thereof of claim 1, wherein the IgM μ-chain antigen is a canine IgM μ-chain antigen.
3. The antibody or antigen-binding fragment thereof of claim 1 or 2, wherein the antibody or antigen-binding fragment thereof comprises:
   a) a VH region comprising an amino acid sequenceof:
   Q I Q L Q Q S G P E L V K P G A S V K V S C K A S G Y S F T D Y N I Y W V K Q S H G K S L E W I G F F D P H N G N T T Y N Q K F K G K A T L T V D K S S S T A F M H L N S LT S E D S A V Y Y C A R E G Y L Y A M D Y W G Q G T S V T V S S (SEQ ID NO: 7); and
   b) a VL region comprising an amino acid sequence of:
   D V L M T Q T P L S L P V S L G D Q A S I S C R S S Q S I E H S N G N T Y L E W Y L QK P G Q A P K L L I F K V S N R F S G V P D R F S G S G S G T D F T L K I S R M E A ED L G V Y Y C F Q G S H V P P T F G G G T K L E I K R A D A A P T V S (SEQ ID NO: 8).

4. The antibody or antigen-binding fragment thereof of any one of claims 1 to 3, wherein the antibody or antigen-binding fragment therefore is caninized or chimerized.

5. The antibody or antigen-binding fragment thereof of any one of claims 1 to 4, wherein the antibody or antigen-binding fragment thereof is a full-length antibody or a one-armed antibody.

6. The antibody or antigen-binding fragment thereof of any one of claims 1 to 5, wherein the antibody or antigen-binding fragment thereof is a full-length antibody and comprises a canine constant region.

7. A chimeric molecule comprising an antibody or antigen-binding fragment thereof according to any one of the preceding claims and a heterologous moiety.

8. The chimeric molecule of claim 7, wherein the heterologous moiety is a detectable moiety, a half-life extending moiety or a therapeutic moiety.

9. The chimeric molecule of claim 8, wherein the therapeutic moiety is a toxin.

10. The chimeric molecule of claim 9, wherein the toxin is auristatin, saporin, Mertansine (DM1).

11. The chimeric molecule of claim 10, wherein the auristatin is Monomethyl auristatin E (MMAE).

12. An isolated polynucleotide comprising a nucleic acid sequence encoding the antibody or antigen-binding fragment thereof according to any one of claims 1 to 6.

13. A construct comprising a polynucleotide of claim 12 in operable connection with one or more control sequences.

14. A host cell that contains the construct of claim 13.

15. A pharmaceutical composition comprising an antibody or antigen-binding fragment thereof according to any one of claims 1 to 6 or a chimeric molecule according to any one of claims 7 to 11.

16. An antibody or antigen-binding fragment thereof according to any one of claims 1 to 6, a chimeric molecule according to any one of claims 7 to 11 or a pharmaceutical composition according to claim 15 for use as a medicament.

17. Use of an antibody or antigen-binding fragment thereof according to any one of claims 1 to 6, a chimeric molecule according to any one of claims 7 to 11 or a pharmaceutical composition according to claim 15 in the manufacture of a medicament for reducing or inhibiting proliferation, survival and/or viability of a lymphoma cell associated with an undesired expression of IgM μ-chain antigen in a canine subject.

18. The use of claim 17, wherein the lymphoma cell is a B lymphoma cell.

19. Use of an antibody or antigen-binding fragment thereof according to any one of claims 1 to 6, a chimeric molecule according to any one of claims 7 to 11 or a pharmaceutical composition according to claim 15 in the manufacture of a medicament for treating lymphoma associated with an undesired expression of IgM μ-chain antigen in a canine subject.

20. Use of an antibody or antigen-binding fragment thereof according to any one of claims 1 to 6, a chimeric molecule according to any one of claims 7 to 11or a pharmaceutical composition according to claim 15 in the manufacture of a medicament for treating a disease or condition associated with an undesired expression of IgM μ-chain antigen in a canine subject, wherein the disease or condition associated with an undesired expression of IgM μ-chain antigen is cancer.

21. A method of detecting the likelihood of the presence of a cancer associated with an undesired expression of IgM μ-chain antigen in a canine subject, the method comprising determining the level of IgM μ-chain antigen in a sample obtained from the subject, wherein an increased level of IgM μ-chain antigen

as compared to a normal canine cell or tissue indicates the likelihood of the presence of a cancer associated with an undesired expression of IgM μ-chain antigen in the subject, wherein the method comprises contacting the sample with an antibody or antigen-binding fragment thereof according to any one of claims 1 to 7 or a chimeric molecule according to any one of claims 8 to 12 to determine the level of IgM μ-chain antigen in the sample.

22. The method of claim 21, wherein the sample is a cell, tissue or blood sample.