

CLAIMS

1. An antibody or antigen-binding fragment thereof that specifically binds to MHC Class I DLA-12 antigen, 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 T F T D Y N M H (SEQ ID NO: 1), the VHCDR2 amino acid sequence Y I Y P Y N G G T D Y N Q K F K (SEQ ID NO: 2) and the VHCDR3 amino acid sequence G G L V G A M D Y (SEQ ID NO: 3); and
 - b) a light chain variable (VL) region comprising the VLCDR1 amino acid sequence R A S G N I H N S L A (SEQ ID NO: 4), the VLCDR2 amino acid sequence N A K T L P D (SEQ ID NO: 5) and the VLCDR3 amino acid sequence Q H F W S I P W T (SEQ ID NO: 6).
2. The antibody or antigen-binding fragment thereof of claim 1, wherein the MHC Class I DLA-12 antigen is a canine MHC Class I DLA-12 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 sequence of:
 E V Q L Q Q S G P E L V K P G A S V K I S C K A S G Y T F T D Y N M H
 W V K Q S H G K S L E W I G Y I Y P Y N G G T D Y N Q K F K S K A T L
 T V D N S S S T A Y M E L R S L T S D D S T V Y Y C A R G G L V G 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 I Q M T Q S P A S L S A S V G E T V T I T C R A S G N I H N S L A W
 Y Q Q K Q G K S P Q L L V Y N A K T L P D G V P S R F S G S G S G T Q
 Y S L K I N S L Q P E D F G S Y Y C Q H F W S I P W T F G G G T K L
 E I K (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 thereof is caninized or chimerized.

5. The antibody or antigen-binding fragment thereof of claim 4, wherein the antibody or antigen-binding fragment thereof is a full-length antibody, a Fab fragment, a scFab, a Fab', a single chain variable fragment (scFv) or a one-armed antibody.
6. The antibody or antigen-binding fragment thereof of claim 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 a chimeric molecule according to any one of claims 7 to 11.

16. 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 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 and/or viability of a cancer cell from a canine subject, wherein the cancer cell is a lymphoma cell associated with an undesired expression of the MHC Class I DLA-12 antigen.
18. The use of claim 17, wherein the lymphoma cell is a B lymphoma cell.
19. Use of 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 cancer cell in a canine subject, wherein the cancer cell is a lymphoma cell associated with an undesired expression of the MHC Class I DLA-12 antigen.
20. Use of 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 a lymphoma in a canine subject, wherein the lymphoma is associated with an undesired expression of the MHC Class I DLA-12 antigen.
21. Use of 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 a disease or condition associated with an undesired expression of the MHC Class I DLA-12 antigen in a canine subject, wherein the disease or condition is a cancer.
22. A method of detecting the likelihood of the presence of a lymphoma associated with an undesired expression of the MHC Class I DLA-12 antigen in a canine subject, the method comprising contacting the sample with 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 to determine the level of MHC Class I DLA-12 antigen in a sample obtained from the subject, wherein an increased level of MHC Class I DLA-12 antigen as compared to a normal canine cell or tissue indicates the likelihood of the presence of a lymphoma associated with an undesired expression of the MHC Class I DLA-12 antigen in the subject.

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