

CLAIMS

1. A nucleic acid comprising a nucleotide sequence encoding a chimeric human/nonhuman MHC I polypeptide, wherein the nucleotide sequence comprises a first nucleic acid sequence that encodes $\alpha 1$, $\alpha 2$ and $\alpha 3$ domains of a human HLA class I polypeptide operably linked to a second nucleic acid sequence that encodes transmembrane and cytoplasmic domains of the non-human MHC I polypeptide.
2. The nucleic acid of claim 1, wherein the non-human MHC I polypeptide is a rodent MHC I polypeptide, and wherein the second nucleic acid sequence encodes transmembrane and cytoplasmic domains of the rodent MHC I polypeptide.
3. The nucleic acid of claim 1 or claim 2, wherein the second nucleic acid sequence encodes transmembrane and cytoplasmic domains of the mouse MHC I polypeptide.
4. The nucleic acid of claim 3, wherein the mouse MHC I polypeptide is selected from the group consisting of H-2K, H-2D and H-2L.
5. The nucleic acid of any of the preceding claims, wherein the human HLA class I polypeptide is selected from the group consisting of HLA-A, HLA-B, and HLA-C.
6. The nucleic acid of any of the preceding claims, wherein the first nucleic acid sequence encodes $\alpha 1$, $\alpha 2$ and $\alpha 3$ domains of a human HLA-A polypeptide and the second nucleic acid sequence encodes transmembrane and cytoplasmic domains of mouse H-2K polypeptide.
7. The nucleic acid of claim 6, wherein the HLA-A polypeptide is a HLA-A2 polypeptide.
8. The nucleic acid of claim 7, wherein the HLA-A2 polypeptide is a HLA-A2.1 polypeptide.
9. The nucleic acid of any one of claims 6 to 8, wherein the H-2K polypeptide is a H-2Kb polypeptide.
10. The nucleic acid of any one of the preceding claims, further comprising a regulatory element and a leader sequence operably linked to the nucleotide sequence.

11. The nucleic acid of claim 10, wherein the regulatory element is a non-human regulatory element and the leader sequence is selected from a human HLA class I polypeptide leader sequence, a non-human MHC I polypeptide leader sequence, and a combination thereof.
12. The nucleic acid of claim 11, wherein the regulatory element is a rodent regulatory element.
13. The nucleic acid of claim 12, wherein the regulatory element is a mouse regulatory element.
14. An isolated cell comprising the nucleotide sequence of any of the preceding claims.
15. The isolated cell of claim 14, wherein the cell expresses the chimeric human/nonhuman MHC I polypeptide on its surface.
16. The isolated cell of claim 14 or claim 15, further comprising a nucleotide sequence encoding a human or humanized $\beta 2$ microglobulin polypeptide operably linked to endogenous non-human $\beta 2$ microglobulin regulatory elements.
17. The isolated cell of any one of claims 14 to 16, wherein the cell is an embryonic stem cell.
18. A chimeric human/non-human animal MHC I polypeptide, wherein a human portion of the chimeric polypeptide comprises $\alpha 1$, $\alpha 2$, and $\alpha 3$ domains of a human HLA class I polypeptide and a non-human portion of the chimeric polypeptide comprises transmembrane and cytoplasmic domains of a non-human animal MHC I polypeptide.
19. The chimeric human/mouse MHC I polypeptide of claim 18, wherein the MHC I polypeptide is non-covalently bound to a human or humanized $\beta 2$ microglobulin.
20. The chimeric human/mouse MHC I polypeptide of claim 18 or 19, wherein the nonhuman portion of the chimeric polypeptide comprises transmembrane and cytoplasmic domains of a rodent MHC I polypeptide.
21. The chimeric human/mouse MHC I polypeptide of any of claims 18 - 20, wherein the

non-human portion of the chimeric polypeptide comprises transmembrane and cytoplasmic domains of a mouse MHC I polypeptide.

22. The chimeric human/mouse MHC I polypeptide of claim 21, wherein the mouse MHC I polypeptide is selected from the group consisting of H-2K, H-2D and H-2L.

23. The chimeric human/mouse MHC I polypeptide of any one of claims 18 to 22, wherein the human HLA class I polypeptide is selected from the group consisting of HLA-A, HLA-B, and HLA-C.

24. The chimeric human/mouse MHC I polypeptide of any one of claims 18 to 23, wherein the human HLA class I polypeptide is a human HLA-A polypeptide and the non-human animal MHC I polypeptide is a mouse H-2K polypeptide.

25. The chimeric human/mouse MHC I polypeptide of claim 24, wherein the HLA-A polypeptide is a HLA-A2 polypeptide.

26. The chimeric human/mouse MHC I polypeptide of claim 25, wherein the HLA-A2 polypeptide is a HLA-A2.1 polypeptide.

27. The chimeric human/mouse MHC I polypeptide of any one of claims 24 – 26, wherein the H-2K polypeptide is a H-2Kb polypeptide.