

I claim:

1. A genetically modified non-human animal comprising in its germline a replacement of at least one non-human IL-7 exon with at least one human IL-7 exon to form a human or humanized IL-7-encoding gene, wherein the replacement is at an endogenous non-human IL-7 locus, wherein the human or humanized IL-7-encoding gene is under control of endogenous non-human regulatory elements.
2. The genetically modified non-human animal of claim 1, which is a rodent.
3. The genetically modified rodent of claim 2, wherein the rodent is selected from a rat and a mouse.
4. The genetically modified rodent of claim 2, wherein the human or humanized IL-7-encoding gene comprises human exons selected from the group consisting of human exon 1, human exon 2, human exon 3, human exon 4, human exon 5, human exon 6, and a combination thereof.
5. The genetically modified rodent of claim 4, wherein the human or humanized IL-7-encoding gene comprises no more than five human exons.
6. The genetically modified rodent of claim 3, wherein the rodent is a mouse and the modified locus comprises a replacement of mouse exons 2, 3, 4, and 5 with a human genomic segment comprising human IL-7 exons 2, 3, 4, 5, and 6.
7. The genetically modified non-human animal of claim 1, wherein the human or humanized IL-7-encoding gene comprises a cDNA encoding a human or humanized IL-7 protein.
8. A genetically modified non-human animal comprising in its germline a transgene comprising a nucleic acid sequence encoding a human or humanized IL-7 gene, wherein the human or humanized IL-7 gene is flanked upstream and downstream with endogenous non-human regulatory sequences.
9. The genetically modified non-human animal of claim 8, which is a rodent.
10. The rodent of claim 9, selected from the group consisting of a mouse, a rat, and a hamster.

11. The genetically modified non-human animal of claim 8, wherein the human or humanized IL-7 gene comprises a human exon selected from the group consisting of human exon 1, human exon 2, human exon 3, human exon 4, human exon 5, human exon 6, and a combination thereof.
12. The genetically modified non-human animal of claim 11, wherein the human or humanized IL-7 gene comprises at least five human exons.
13. A method for making a non-human animal with a human or humanized IL-7-encoding gene, comprising modifying the germline of the non-human animal to comprise a human or humanized IL-7-encoding gene flanked upstream and downstream with endogenous non-human IL-7 regulatory sequences.
14. The method of claim 13, wherein the modification is at an endogenous non-human IL-7 locus.
15. The method of claim 13, wherein the non-human animal is a rodent.
16. The method of claim 15, wherein the rodent is selected from the group consisting of a mouse, a rat, and a hamster.
17. A genetically modified non-human animal that is genetically modified to express human IL-7 in an expression pattern that is the same expression pattern as observed for a wild-type non-human animal of the same genus and species.
18. The genetically modified non-human animal of claim 17, wherein the level of human IL-7 expressed in the non-human animal is about the same as the level of non-human IL-7 in a corresponding wild-type mouse.
19. The genetically modified non-human animal of claim 17, which is a rodent.
20. The genetically modified non-human animal of claim 18, which is a rodent.
21. A humanized IL-7 locus comprising a non-human IL-7 exon 1, a human IL-7 exon 2, a human IL-7 exon 3, a human IL-7 exon 4, a human IL-7 exon 5 and a human IL-7 exon 6.
22. The humanized IL-7 locus of claim 21, wherein the humanized IL-7 locus further comprises 5' and 3' non-human IL-7 untranslated regions flanking the non-human IL-7 exon 1 and human IL-7 exon 6.

23. The humanized IL-7 locus of claim 21 or 22, wherein the humanized IL-7 locus comprises a 3' human untranslated region, or portion thereof, that is contiguous with a non-human 3' untranslated region.
24. The humanized IL-7 locus of any one of claims 21-23, wherein the humanized IL-7 locus comprises a 5' non-human IL-7 untranslated region, or portion thereof, and non-human IL-7 exon 1 that is contiguous with a human IL-7 exon 2.
25. The humanized IL-7 locus of any one of claims 21-24, wherein the humanized IL-7 locus comprises the structure set forth in Figure 1.
26. A cell comprising a humanized IL-7 locus of any one of claims 21-25.
27. The cell of claim 26, wherein the cell is an embryonic stem cell.
28. A cell or tissue isolated from a non-human animal of any one of claims 1-12 and 17-20.
29. The cell or tissue of claim 28, wherein the tissue is selected from the group consisting of thymic, splenic, epidermal, and intestinal.
30. The cell or tissue of claim 29, wherein the tissue is thymic tissue.

I claim:

1. A genetically modified non-human animal comprising in its germline a replacement of non-human animal IL-7 exons with a nucleic acid comprising at least human IL-7 exons 2, 3, 4, 5 and 6 to form a humanized IL-7 gene, wherein the replacement is at an endogenous non-human animal IL-7 locus and the resulting modified non-human animal IL-7 locus lacks non-human animal IL-7 exons 2, 3, 4 and 5, wherein the humanized IL-7 gene is under control of endogenous non-human animal IL-7 5' regulatory elements, and the IL-7 protein encoded by the humanized IL-7 gene is expressed in the serum of the non-human animal, and wherein the non-human animal is a rodent selected from a rat and a mouse.
2. The genetically modified non-human animal of claim 1, wherein the rodent is a rat.
3. The genetically modified non-human animal of claim 1, wherein the rodent is a mouse.
4. The genetically modified non-human animal of claim 1, wherein the rodent does not express an endogenous rodent IL-7.
5. The genetically modified non-human animal of claim 1, wherein the humanized IL-7 gene comprises a cDNA encoding a human or humanized IL-7 protein.
6. A genetically modified non-human animal comprising in its germline a humanized IL-7 gene, wherein the humanized IL-7 gene comprises at least human IL-7 exons 2, 3, 4, 5, and 6, and is operably linked to endogenous non-human animal IL-7 5' regulatory sequences, wherein the IL-7 protein encoded by the humanized IL-7 gene is expressed in the serum of the non-human animal, and wherein the non-human animal is a rodent selected from a rat and a mouse.
7. The genetically modified non-human animal of claim 6, wherein the rodent is a rat.
8. The genetically modified non-human animal of claim 6, wherein the rodent is a mouse.
9. The genetically modified non-human animal of claim 8, wherein the humanized IL-7 gene comprises mouse IL-7 exon 1, and human IL-7 exons 2, 3, 4, 5, and 6.
10. The genetically modified non-human animal of claim 6, wherein the rodent does not express an endogenous rodent IL-7.
11. A method for making a genetically modified non-human animal, comprising modifying the germline of a non-human animal to comprise a humanized IL-7 gene, wherein the humanized IL-7 gene comprises at least human IL-7 exons 2, 3, 4, 5, and 6, and is operably linked to endogenous non-human animal IL-7 5' regulatory sequences, wherein the IL-7 protein encoded by the humanized IL-7 gene is expressed in the serum of the non-human animal, and wherein the non-human animal is a rodent selected from a rat and a mouse.
12. The method of claim 11, wherein the modification is at an endogenous non-human animal IL-7 locus, and the modified non-human animal IL-7 locus lacks non-human animal IL-7 exons 2, 3, 4 and

5, and comprises human IL-7 exons 2, 3, 4, 5 and 6.

13. The method of claim 11, wherein the rodent is a rat.

14. The method of claim 11, wherein the rodent is a mouse.

15. The genetically modified non-human animal of claim 1, which expresses the IL-7 protein encoded by the humanized IL-7 gene in an expression pattern that is the same expression pattern as observed for non-human animal IL-7 in a wild-type non-human animal of the same genus and species.

16. The genetically modified non-human animal of claim 15, wherein the level of the IL-7 protein encoded by the humanized IL-7 gene expressed in the non-human animal is about the same as the level of non-human animal IL-7 in a corresponding wild-type non-human animal.

17. The genetically modified non-human animal of claim 3, wherein said mouse is heterozygous with respect to said replacement.

18. The genetically modified non-human animal of claim 3, wherein said mouse is homozygous with respect to said replacement.

19. The genetically modified non-human animal of claim 3, wherein the humanized IL-7 gene comprises mouse IL-7 exon 1 and human IL-7 exons 2, 3, 4, 5 and 6.

20. The genetically modified non-human animal of claim 8, wherein said mouse is heterozygous with respect to said humanized IL-7 gene.

21. The genetically modified non-human animal of claim 8, wherein said mouse is homozygous with respect to said humanized IL-7 gene.

22. The method of claim 14, wherein said mouse is heterozygous with respect to said humanized IL-7 gene.

23. The method of claim 14, wherein said mouse is homozygous with respect to said humanized IL-7 gene.

24. The method of claim 14, wherein the modified mouse IL-7 locus lacks mouse IL-7 exons 2, 3, 4 and 5, and wherein the humanized IL-7 gene comprises mouse IL-7 exon 1 and human IL-7 exons 2, 3, 4, 5 and 6.

25. The genetically modified non-human animal of claim 19, wherein the mouse nucleic acid downstream to said humanized IL-7 gene at the modified IL-7 locus comprises nucleotides 57-153 of SEQ ID NO: 6.

26. The method of claim 24, wherein the mouse nucleic acid downstream to said humanized IL-7 gene at the modified IL-7 locus comprises nucleotides 57-153 of SEQ ID NO: 6.