What is claimed is:

1. A genetically modified mouse comprising a B cell that expresses a human light chain variable (V_L) domain derived from a rearranged human Vκ1-39/J_K5 sequence that is present in the germline of the mouse, wherein the mouse lacks an unrearranged endogenous immunoglobulin Vκ gene segment and an unrearranged endogenous immunoglobulin Jκ gene segment; and wherein the human V_L domain(s) is associated with a human heavy chain variable (V_H) domain derived from a rearranged human $V_H/D_H/J_H$ region selected from 2-5/3-22/1, 3-13/6-6/5, 3-23/2-8/4, 3-23/6-6/4, 3-23/7-27/4, 3-30/1-1/4, 3-30/3-3/4, 3-30/5-5/2, 3-30/7-27/6, 1-69/6-6/5 or 1-69/6-13/4.

2. The mouse of claim 1, wherein:

(a) the human Vκ1-39/J_K5 sequence is operably linked to a mouse Cκ region sequence;

(b) a sequence encoding the human V_H domain is operably linked to a sequence encoding a mouse heavy chain constant (C_H) region sequence selected from a C_H1, a hinge, a C_H2, a C_H3, or a combination thereof; or

(c) the human V_H domain is expressed from an endogenous immunoglobulin heavy chain locus.

3. The mouse of claim 1, wherein all or substantially all of the mouse V_K and J_K gene segments are replaced by the rearranged human V_K1-39/J_K5 sequence.

4. The mouse of claim 1, wherein the rearranged human V_K1-39/J_K5 is operably linked to an immunoglobulin light chain constant region sequence selected from a mouse, rat or human sequence.

5. A genetically modified mouse comprising a B cell that expresses a human light chain variable (V_L) domain derived from a rearranged human Vκ3-20/J_K1 sequence that is present in the germline of the mouse, wherein the mouse lacks an unrearranged endogenous immunoglobulin Vκ gene segment and an unrearranged endogenous

immunoglobulin Jκ gene segment; and wherein the human V_L domain(s) is associated with a human heavy chain variable (V_H) domain derived from a rearranged human $V_H/D_H/J_H$ region selected from 3-30/3-3/3, 3-33/1-7/4, 3-33/2-15/4 or 3-53/1-1/4.

6. The mouse of claim 5, wherein:

(a) the human Vκ3-20/J_K1 sequence is operably linked to a mouse Cκ region sequence;

(b) a sequence encoding the human V_H domain is operably linked to a sequence encoding a mouse C_H region sequence selected from a C_H1, a hinge, a C_H2, a C_H3, or a combination thereof; or

(c) the human V_H domain is expressed from an endogenous immunoglobulin heavy chain locus.

7. The mouse of claim 5, wherein all or substantially all of the mouse V_K and J_K gene segments are replaced by the rearranged human Vκ3-20/J_K1 sequence.

8. The mouse of claim 5, wherein the rearranged human Vκ3-20/J_K1 sequence is operably linked to an immunoglobulin light chain constant region sequence selected form a mouse, rat or human sequence.

9. The mouse of any of the preceding claims, wherein the mouse comprises a non-functional immunoglobulin lambda (λ) light chain locus.

10. Use of the mouse of any one of claims 1-4 or 9 in making an antibody comprising a human heavy chain variable (V_H) domain derived from a rearranged human $V_H/D_H/J_H$ region selected from 2-5/3-22/1, 3-13/6-6/5, 3-23/2-8/4, 3-23/6-6/4, 3-23/7-27/4, 3-30/1-1/4, 3-30/3-3/4, 3-30/5-5/2, 3-30/7-27/6, 1-69/6-6/5 or 1-69/6-13/4.

11. The use of claim 10, wherein the antibody is a bispecific antibody.

12. Use of the mouse of any one of claims 5-9 in making an antibody comprising a human heavy chain variable (V_H) domain derived from a rearranged $V_H/D_H/J_H$ region selected from 3-30/3-3/3, 3-33/1-7/4, 3-33/2-15/4 or 3-53/1-1/4.

13. The use of claim 12, wherein the antibody is a bispecific antibody.

14. The use of either one of claims 11 and 13, wherein the production is by a method comprising steps of expressing the human heavy chain variable domains in a single cell.

15. The use of any one of claims 10-14, wherein the heavy chains of the antibody are fully human.

16. The use of any one of claims 10, 11, 14, or 15, wherein heavy chains comprising the human heavy chain variable domains pair with a light chain comprising the human V_L domain derived from a rearranged V_K1-39/J_K sequence.

17. The use of any one of claims 12-15, wherein heavy chains comprising the human heavy chain variable domains pair with a light chain comprising the human V_L domain derived from a rearranged human V_K3-20/J_K sequence.

18. The use of any one of claims 10-17, wherein the human heavy chain variable domain(s) are selected by immunizing the mouse with an antigen of interest, determining the sequences of human heavy chain variable domains expressed by the mouse, and expressing the sequences in the cell.

19. A method of producing an antibody to an antigen of interest comprising a human heavy chain variable domain derived from a rearranged human $V_H/D_H/J_H$ region selected from 2-5/3-22/1, 3-13/6-6/5, 3-23/2-8/4, 3-23/6-6/4, 3-23/7-27/4, 3-30/1-1/4, 3-30/3-3/4, 3-30/5-5/2, 3-30/7-27/6, 1-69/6-6/5 or 1-69/6-13/4 comprising:

(a) immunizing the mouse of any one of claims 1-4 with an antigen of interest;

(b) obtaining from the mouse a human heavy chain variable domain derived from a rearranged human $V_H/D_H/J_H$ region selected from 2-5/3-22/1, 3-13/6-6/5, 3-23/2-8/4, 3-23/6-6/4, 3-23/7-27/4, 3-30/1-1/4, 3-30/3-3/4, 3-30/5-5/2, 3-30/7-27/6, 1-69/6-6/5 or 1-69/6-13/4; and

(c) employing the immunoglobulin variable region sequence obtained in (b) in an antibody that specifically binds the antigen of interest.

20. A method of producing an antibody to an antigen of interest comprising a human heavy chain variable domain derived from a rearranged human $V_H/D_H/J_H$ region selected from 3-30/3-3/3, 3-33/1-7/4, 3-33/2-15/4 or 3-53/1-1/4 comprising:

(a) immunizing the mouse of any one of claims 5-8 with an antigen of interest;

(b) obtaining from the mouse a human heavy chain variable domain derived from a rearranged human $V_H/D_H/J_H$ region selected from 3-30/3-3/3, 3-33/1-7/4, 3-33/2-15/4 or 3-53/1-1/4; and

(c) employing the immunoglobulin variable region sequence obtained in (b) in an antibody that specifically binds the antigen of interest.

What is claimed is:

1. A genetically modified mouse comprising a B cell that expresses a human light chain variable ($V_{L)}$ domain derived from a rearranged human Vκ1-39/J_K5 sequence that is present in the germline of the mouse, wherein the mouse lacks an unrearranged endogenous immunoglobulin Vκ gene segment and an unrearranged endogenous immunoglobulin Jκ gene segment; and wherein the human V_L domain(s) is associated with a human heavy chain variable (V_H) domain derived from a rearranged human $V_H/D_H/J_H$ region selected from 2-5/3-22/1, 3-13/6-6/5, 3-23/2-8/4, 3-23/6-6/4, 3-23/7-27/4, 3-30/1-1/4, 3-30/3-3/4, 3-30/5-5/2, 3-30/7-27/6, 1-69/6-6/5 or 1-69/6-13/4.

2. The mouse of claim 1, wherein:

(a) the human Vκ1-39/J_K5 sequence is operably linked to a mouse Cκ region sequence;

(b) a sequence encoding the human V_H domain is operably linked to a sequence encoding a mouse heavy chain constant (C_H) region sequence selected from a C_H1, a hinge, a C_H2, a C_H3, or a combination thereof; or

(c) the human V_H domain is expressed from an endogenous immunoglobulin heavy chain locus.

3. The mouse of claim 1, wherein all or substantially all of the mouse V_K and J_K gene segments are replaced by the rearranged human V_K1-39/J_K5 sequence.

4. The mouse of claim 1, wherein the rearranged human V_K1-39/J_K5 is operably linked to an immunoglobulin light chain constant region sequence selected from a mouse, rat or human sequence.

5. A genetically modified mouse comprising a B cell that expresses a human light chain variable ($V_{L)}$ domain derived from a rearranged human Vκ3-20/J_K1 sequence that is present in the germline of the mouse, wherein the mouse lacks an unrearranged endogenous immunoglobulin Vκ gene segment and an unrearranged endogenous

immunoglobulin Jκ gene segment; and wherein the human V_L domain(s) is associated with a human heavy chain variable (V_H) domain derived from a rearranged human $V_H/D_H/J_H$ region selected from 3-30/3-3/3, 3-33/1-7/4, 3-33/2-15/4 or 3-53/1-1/4.

6. The mouse of claim 5, wherein:

(a) the human Vκ3-20/J_K1 sequence is operably linked to a mouse Cκ region sequence;

(b) a sequence encoding the human V_H domain is operably linked to a sequence encoding a mouse C_H region sequence selected from a C_H1, a hinge, a C_H2, a C_H3, or a combination thereof; or

(c) the human V_H domain is expressed from an endogenous immunoglobulin heavy chain locus.

7. The mouse of claim 5, wherein all or substantially all of the mouse V_K and J_K gene segments are replaced by the rearranged human Vκ3-20/J_K1 sequence.

8. The mouse of claim 5, wherein the rearranged human Vκ3-20/J_K1 sequence is operably linked to an immunoglobulin light chain constant region sequence selected form a mouse, rat or human sequence.

9. The mouse of any of the preceding claims, wherein the mouse comprises a non-functional immunoglobulin lambda (λ) light chain locus.

10. Use of the mouse of any one of claims 1-4 or 9 in making an antibody comprising a human heavy chain variable (V_H) domain derived from a rearranged human $V_H/D_H/J_H$ region selected from 2-5/3-22/1, 3-13/6-6/5, 3-23/2-8/4, 3-23/6-6/4, 3-23/7-27/4, 3-30/1-1/4, 3-30/3-3/4, 3-30/5-5/2, 3-30/7-27/6, 1-69/6-6/5 or 1-69/6-13/4.

11. The use of claim 10, wherein the antibody is a bispecific antibody.

12. Use of the mouse of any one of claims 5-9 in making an antibody comprising a human heavy chain variable (V_H) domain derived from a rearranged $V_H/D_H/J_H$ region selected from 3-30/3-3/3, 3-33/1-7/4, 3-33/2-15/4 or 3-53/1-1/4.

13. The use of claim 12, wherein the antibody is a bispecific antibody.

14. The use of either one of claims 11 and 13, wherein the production is by a method comprising steps of expressing the human heavy chain variable domains in a single cell.

15. The use of any one of claims 10-14, wherein the heavy chains of the antibody are fully human.

16. The use of any one of claims 10, 11, 14, or 15, wherein heavy chains comprising the human heavy chain variable domains pair with a light chain comprising the human V_L domain derived from a rearranged V_K1-39/J_K sequence.

17. The use of any one of claims 12-15, wherein heavy chains comprising the human heavy chain variable domains pair with a light chain comprising the human V_L domain derived from a rearranged human V_K3-20/J_K sequence.

18. The use of any one of claims 10-17, wherein the human heavy chain variable domain(s) are selected by immunizing the mouse with an antigen of interest, determining the sequences of human heavy chain variable domains expressed by the mouse, and expressing the sequences in the cell.

19. A method of producing an antibody to an antigen of interest comprising a human heavy chain variable domain derived from a rearranged human $V_H/D_H/J_H$ region selected from 2-5/3-22/1, 3-13/6-6/5, 3-23/2-8/4, 3-23/6-6/4, 3-23/7-27/4, 3-30/1-1/4, 3-30/3-3/4, 3-30/5-5/2, 3-30/7-27/6, 1-69/6-6/5 or 1-69/6-13/4 comprising:

(a) immunizing the mouse of any one of claims 1-4 with an antigen of interest;

(b) obtaining from the mouse a human heavy chain variable domain derived from a rearranged human $V_H/D_H/J_H$ region selected from 2-5/3-22/1, 3-13/6-6/5, 3-23/2-8/4, 3-23/6-6/4, 3-23/7-27/4, 3-30/1-1/4, 3-30/3-3/4, 3-30/5-5/2, 3-30/7-27/6, 1-69/6-6/5 or 1-69/6-13/4; and

(c) employing the immunoglobulin variable region sequence obtained in (b) in an antibody that specifically binds the antigen of interest.

20. A method of producing an antibody to an antigen of interest comprising a human heavy chain variable domain derived from a rearranged human $V_H/D_H/J_H$ region selected from 3-30/3-3/3, 3-33/1-7/4, 3-33/2-15/4 or 3-53/1-1/4 comprising:

(a) immunizing the mouse of any one of claims 5-8 with an antigen of interest;

(b) obtaining from the mouse a human heavy chain variable domain derived from a rearranged human $V_H/D_H/J_H$ region selected from 3-30/3-3/3, 3-33/1-7/4, 3-33/2-15/4 or 3-53/1-1/4; and

(c) employing the immunoglobulin variable region sequence obtained in (b) in an antibody that specifically binds the antigen of interest.