CLAIMS

We claim:

1. An antigen-binding protein comprising:
   (i) a first polypeptide comprising a first light chain variable domain (V_L1) fused with a first immunoglobulin heavy chain constant region (C_H); and
   (ii) a second polypeptide comprising a second light chain variable domain (V_L2) fused with a light chain constant region (C_L);
   wherein V_L1 and V_L2 associate to specifically bind an antigen of interest.

2. The antigen-binding protein of claim 1, wherein V_L1 and V_L2 are not identical.

3. The antigen-binding protein of claim 1 or claim 2, wherein V_L1 and V_L2 are human.

4. The antigen-binding protein of any one of claims 1-3, wherein V_L1 and V_L2 are independently selected from Vκ and Vλ domains.

5. The antigen-binding protein of any one of claims 1-4, wherein V_L1 is a human Vκ domain.

6. The antigen-binding protein of any one of claims 1-5, wherein the C_H is a mouse C_H domain and the C_L is a mouse C_L domain.

7. The antigen-binding protein of any one of claims 1-5, wherein the C_H is a human C_H domain and the C_L is a human C_L domain.

8. The antigen-binding protein of any one of claims 1-5 and 7, wherein the C_L is a human Cκ.

9. The antigen-binding protein of any one of claims 1-8, wherein the C_H is selected from C_H1, hinge, C_H2, C_H3, and a combination thereof.

10. The antigen-binding protein of any one of claims 1-9, wherein the C_H is an isotype selected from the group consisting of IgM, IgD, IgG, IgA and IgE.

11. The antigen-binding protein of claim 10, wherein the isotype is an IgG selected from the group consisting of IgG1, IgG2A, IgG2b, IgG2C, IgG3, and IgG4.

12. The antigen-binding protein of claim 11, wherein the isotype is selected from IgG1, IgG2 and IgG4.

13. The antigen-binding protein of claim 12, wherein the IgG C_H3 domain comprises a modification that reduces or eliminates binding of the IgG C_H3 to protein A.

14. The antigen-binding protein of any one of claims 1-13, wherein neither V_L1 nor V_L2 contain an amino acid sequence derived from a D_H gene segment.

15. The antigen-binding protein of any one of claims 1-14, wherein V_L1 is encoded by a sequence that comprises:

(a) a number of somatic hypermutations that is about 1.5- to about 5-fold higher or more than the number of somatic hypermutations present in V_L2 and/or

(b) 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10 or more N additions.

16. The antigen-binding protein of any one of claims 1-15, further comprising

(i) a third polypeptide comprising a third light chain variable domain (V_L3) fused with a second immunoglobulin heavy chain constant region (C_H2); and

(ii) a fourth polypeptide comprising a fourth light chain variable domain (V_L4) fused with a second immunoglobulin light chain constant region (C_L2);

wherein V_L3 and V_L4 are not identical.

17. The antigen-binding protein of claim 16, wherein (a) V_L1 and V_L3 are identical and/or (b) V_L2 and V_L4 are identical.

18. The antigen-binding protein of claim 16 or 17, wherein the antigen-binding protein is bispecific.

19. The antigen binding protein of any one of claims 16-18, wherein the first and second immunoglobulin heavy chain constant regions are the same isotype but differ in that one of the first or second immunoglobulin heavy chain constant regions is unable to bind protein A compared to the other immunoglobulin heavy chain, wherein the isotype is IgG1, IgG2, IgG3 or IgG4.

20. The antigen-binding protein of claims 1-6 and 9-19, wherein the CH is a mouse CH1 domain and the CL is a mouse Cκ domain.