WHAT IS CLAIMED IS:

Claim 1. A polypeptide that comprises a portion of a deimmunized serum-binding protein capable of binding to said serum protein; wherein said deimmunized serum-binding protein portion is a variant of a wild-type albumin-binding domain (ABD) of a Streptococcal Protein G, said wild-type ABD having the amino acid sequence of SEQ ID NO:304; wherein said variant ABD has an amino acid sequence that differs from that of SEQ ID NO:304 in comprising:

(A) a valine to alanine variation at ABD position 71, wherein said variant ABD position is position 31 of SEQ ID NO:304;

(B) a leucine to alanine variation at ABD position 64, an isoleucine to alanine variation at ABD position 65, and a valine to alanine variation at ABD position 71; wherein said variant ABD positions are respectively positions 24, 25, and 31 of SEQ ID NO:304; or

(C) an asparagine to aspartic acid variation at ABD position 66, a threonine to serine substitution at ABD position 70, and a valine to alanine variation at ABD position 71; wherein said variant ABD positions are respectively positions 26, 30, and 31 of SEQ ID NO:304;

wherein said deimmunized serum-binding protein portion extends the serum half-life of said polypeptide, relative to the serum half-life of said polypeptide if lacking said portion of said deimmunized serum-binding protein.

Claim 2. The polypeptide of claim 1, wherein said polypeptide comprises an additional portion of a deimmunized serum-binding protein, wherein said portions of said deimmunized serum-binding protein are both capable of binding to said serum protein.

Claim 3. The polypeptide of any one of claims 1-2, wherein said variant ABD comprises said valine to alanine variation at ABD position 71, wherein said variant ABD position is position 31 of SEQ ID NO:304.

Claim 4. The polypeptide of any one of claims 1-2, wherein said variant ABD comprises said leucine to alanine variation at ABD position 64, said isoleucine to alanine variation at ABD position 65, and said valine to alanine variation at ABD position 71; wherein said variant ABD positions are respectively positions 24, 25, and 31 of SEQ ID NO:304.

Claim 5. The polypeptide of any one of claims 1-2, wherein said variant ABD comprises said asparagine to aspartic acid variation at ABD position 66, said threonine to serine substitution at ABD position 70, and said valine to alanine variation at

ABD position 71 of SEQ ID NO:304; wherein said variant ABD positions are respectively positions 26, 30, and 31 of SEQ ID NO:304.

Claim 6. The polypeptide of claim 1 or 2, wherein said variant ABD has the sequence of SEQ ID NO:323, SEQ ID NO:324, SEQ ID NO:326, SEQ ID NO:327, SEQ ID NO:328, or SEQ ID NO:329.

Claim 7. The polypeptide of any one of claims 1-6, wherein said polypeptide comprises an antigen-binding molecule.

Claim 8. The polypeptide of claim 7, wherein said antigen-binding molecule is a diabody composed of at least a first and a second polypeptide chain which interact with one another to form two antigen-binding sites, wherein at least one of said polypeptide chains comprises said second polypeptide portion that comprises said portion of said deimmunized serum-binding protein that is capable of binding to said serum protein.

Claim 9. The polypeptide of claim 8, wherein both said first and said second polypeptide chains comprise a second polypeptide portion that comprises said portion of said deimmunized serum-binding protein capable of binding to said serum protein.

Claim 10. The polypeptide of any one of claims 8-9, wherein said first and said second polypeptide chains are covalently linked to one another.

Claim 11. The polypeptide of any one of claims 8-10, wherein said diabody binds to:
(A) the Natural Killer Group 2D (NKG2D) receptor or the T-cell receptor (TCR); and
(B) a tumor-associated antigen.

Claim 12. The polypeptide claim 7, wherein said antigen is a breast cancer antigen, an ovarian cancer antigen, a prostate cancer antigen, a cervical cancer antigen, a pancreatic carcinoma antigen, a lung cancer antigen, a bladder cancer antigen, a colon cancer antigen, a testicular cancer antigen, a glioblastoma cancer antigen, an antigen associated with a B cell malignancy, an antigen associated with multiple myeloma, an antigen associated with non-Hodgkin's lymphoma, or an antigen associated with chronic lymphocytic leukemia.

Claim 13. The polypeptide of any one of claims 8-11, wherein said diabody has an antigen-binding site that binds to a breast cancer antigen, an ovarian cancer antigen, a prostate cancer antigen, a cervical cancer antigen, a pancreatic carcinoma antigen, a lung cancer antigen, a bladder cancer antigen, a colon cancer antigen, a testicular cancer antigen, a glioblastoma cancer antigen, an antigen associated

with a B cell malignancy, an antigen associated with multiple myeloma, an antigen associated with non-Hodgkin's lymphoma, or an antigen associated with chronic lymphocytic leukemia.

Claim 14. Use of a portion of a deimmunized serum-binding protein capable of binding to said serum protein to extend the serum half-life of a covalently linked polypeptide, wherein said deimmunized serum-binding protein portion is a variant of a wild-type albumin-binding domain (ABD) of a Streptococcal Protein G, said wild-type ABD having the amino acid sequence of SEQ ID NO:304, and wherein said variant ABD has an amino acid sequence that differs from that of SEQ ID NO:304 in comprising:

(A) a valine to alanine variation at ABD position 71, wherein said variant ABD position is position 31 of SEQ ID NO:304;

(B) a leucine to alanine variation at ABD position 64, an isoleucine to alanine variation at ABD position 65, and a valine to alanine variation at ABD position 71; wherein said variant ABD positions are respectively positions 24, 25, and 31 of SEQ ID NO:304; or

(C) an asparagine to aspartic acid variation at ABD position 66, a threonine to serine substitution at ABD position 70, and a valine to alanine variation at ABD position 71; wherein said variant ABD positions are respectively positions 26, 30, and 31 of SEQ ID NO:304;

wherein said extension of serum half-life is relative to the serum half-life of said antigen-binding molecule if lacking said deimmunized serum-binding protein portion.

Claim 15. The use of claim 14, wherein said polypeptide comprises an additional portion of a deimmunized serum-binding protein, wherein said portions of said deimmunized serum-binding protein are both capable of binding to said serum protein.

Claim 16. The use of any one of claims 14-15, wherein said variant ABD comprises said valine to alanine variation at ABD position 71, wherein said variant ABD position is position 31 of SEQ ID NO:304.

Claim 17. The use of any one of claims 14-15, wherein said variant ABD comprises said leucine to alanine variation at ABD position 64, said isoleucine to alanine variation at ABD position 65, and said valine to alanine variation at ABD position 71; wherein said variant ABD positions are respectively positions 24, 25, and 31 of SEQ ID NO:304.

Claim 18. The use of any one of claims 14-15, wherein said variant ABD comprises said asparagine to aspartic acid variation at ABD position 66, said threonine to serine

substitution at ABD position 70, and said valine to alanine variation at ABD position 71 of SEQ ID NO:304; wherein said variant ABD positions are respectively positions 26, 30, and 31 of SEQ ID NO:304.

Claim 19. The use of claim 14, wherein said variant ABD has the sequence of SEQ ID NO:323, SEQ ID NO:324, SEQ ID NO:326, SEQ ID NO:327, SEQ ID NO:328, or SEQ ID NO:329.

Claim 20. The use of any one of claims 14-19, wherein said polypeptide comprises an antigen-binding molecule.

Claim 21. The use of claim 20, wherein said antigen-binding molecule is a diabody composed of at least a first and a second polypeptide chain which interact with one another to form two antigen-binding sites, wherein at least one of said polypeptide chains comprises said second polypeptide portion that comprises said portion of said deimmunized serum-binding protein that is capable of binding to said serum protein.

Claim 22. The use claim 21, wherein both said first and said second polypeptide chains comprise second polypeptide portions that comprise said portion of said deimmunized serum-binding protein capable of binding to said serum protein.

Claim 23. The use of any one of claims 21-22, wherein said first and said second polypeptide chains are covalently linked to one another.

Claim 24. The use of the diabody as defined in any one of claims 21-23 in the manufacture of a medicament for the treatment of a cancer expressing a tumor-associated antigen, wherein said diabody binds to:

(A) the Natural Killer Group 2D (NKG2D) receptor or the T-cell receptor (TCR); and

(B) said tumor-associated antigen.

Claim 25. The use of claim 20, wherein said antigen is a breast cancer antigen, an ovarian cancer antigen, a prostate cancer antigen, a cervical cancer antigen, a pancreatic carcinoma antigen, a lung cancer antigen, a bladder cancer antigen, a colon cancer antigen, a testicular cancer antigen, a glioblastoma cancer antigen, an antigen associated with a B cell malignancy, an antigen associated with multiple myeloma, an antigen associated with non-Hodgkin's lymphoma, or an antigen associated with chronic lymphocytic leukemia.

Claim 26. The use of any one of claims 21-24, wherein said diabody has an antigen-binding site that binds to a breast cancer antigen, an ovarian cancer antigen, a prostate cancer antigen, a cervical cancer antigen, a pancreatic carcinoma antigen, a lung cancer antigen, a bladder cancer antigen, a colon cancer antigen, a testicular cancer antigen, a glioblastoma cancer antigen, an antigen associated with a B cell malignancy, an antigen associated with multiple myeloma, an antigen associated with non-Hodgkin's lymphoma, or an antigen associated with chronic lymphocytic leukemia.

Claim 27. A composition comprising the polypeptide of any one of claims 1 to 13 and a pharmaceutically acceptable carrier.

WHAT IS CLAIMED IS:

Claim 1. A polypeptide that comprises a portion of a deimmunized serum-binding protein capable of binding to said serum protein; wherein said deimmunized serum-binding protein portion is a variant of a wild-type albumin-binding domain (ABD) of a Streptococcal Protein G, said wild-type ABD having the amino acid sequence of SEQ ID NO:304; wherein said variant ABD has an amino acid sequence that differs from that of SEQ ID NO:304 in comprising:

(A) a valine to alanine variation at ABD position 71, a valine to alanine variation at ABD position 74, or an aspartate to alanine variation at ABD position 79; wherein said variant ABD positions are respectively positions 31, 34, and 39 of SEQ ID NO:304;

(B) a leucine to alanine variation at ABD position 64, an isoleucine to alanine variation at ABD position 65, and a valine to alanine variation at ABD position 71; wherein said variant ABD positions are respectively positions 24, 25, and 31 of SEQ ID NO:304; or

(C) an asparagine to aspartic acid variation at ABD position 66, a threonine to serine substitution at ABD position 70, and a valine to alanine variation at ABD position 71 of SEQ ID NO:304; wherein said variant ABD positions are respectively positions26, 30, and 31 of SEQ ID NO:304;

wherein said deimmunized serum-binding protein portion extends the serum half-life of said polypeptide, relative to the serum half-life of said polypeptide if lacking said portion of said deimmunized serum-binding protein.

Claim 2. The polypeptide of claim 1, wherein said polypeptide comprises an additional portion of a deimmunized serum-binding protein, wherein said portions of said deimmunized serum-binding protein are both capable of binding to said serum protein.

Claim 3. The polypeptide of any one of claims 1-2, wherein said variant ABD comprises said valine to alanine variation at ABD position 71, said valine to alanine variation at ABD position 74, or said aspartate to alanine variation at ABD position 79; wherein said variant ABD positions are respectively positions 31, 34, and 39 of SEQ ID NO:304.

Claim 4. The polypeptide of any one of claims 1-2, wherein said variant ABD comprises said leucine to alanine variation at ABD position 64, said isoleucine to alanine variation at ABD position 65, and said valine to alanine variation at ABD position 71; wherein said variant ABD positions are respectively positions 24, 25, and 31 of SEQ ID NO:304.

Claim 5. The polypeptide of any one of claims 1-2, wherein said variant ABD comprises said asparagine to aspartic acid variation at ABD position 66, said

threonine to serine substitution at ABD position 70, and said valine to alanine variation at ABD position 71 of SEQ ID NO:304; wherein said variant ABD positions are respectively positions 26, 30, and 31 of SEQ ID NO:304.

Claim 6. The polypeptide of claim 1 or 2, wherein said variant ABD has the sequence of SEQ ID NO:323, SEQ ID NO:324, SEQ ID NO:325, SEQ ID NO:326, SEQ ID NO:327, SEQ ID NO:328, or SEQ ID NO:329.

Claim 7. The polypeptide of any one of claims 1-6, wherein said polypeptide comprises an antigen-binding molecule.

Claim 8. The polypeptide of claim 7, wherein said antigen-binding molecule is a diabody composed of at least a first and a second polypeptide chain which interact with one another to form two antigen-binding sites, wherein at least one of said polypeptide chains comprises said second polypeptide portion that comprises said portion of said deimmunized serum-binding protein that is capable of binding to said serum protein.

Claim 9. The polypeptide of claim 8, wherein both said first and said second polypeptide chains comprise a second polypeptide portion that comprises said portion of said deimmunized serum-binding protein capable of binding to said serum protein.

Claim 10. The polypeptide of any one of claims 8-9, wherein said first and said second polypeptide chains are covalently linked to one another.

Claim 11. The polypeptide of any one of claims 8-10, wherein said diabody binds to:
(A) the Natural Killer Group 2D (NKG2D) receptor or the T-cell receptor (TCR); and
(B) a tumor-associated antigen.

Claim 12. The polypeptide claim 7, wherein said antigen is a breast cancer antigen, an ovarian cancer antigen, a prostate cancer antigen, a cervical cancer antigen, a pancreatic carcinoma antigen, a lung cancer antigen, a bladder cancer antigen, a colon cancer antigen, a testicular cancer antigen, a glioblastoma cancer antigen, an antigen associated with a B cell malignancy, an antigen associated with multiple myeloma, an antigen associated with non-Hodgkin's lymphoma, or an antigen associated with chronic lymphocytic leukemia.

Claim 13. The polypeptide of any one of claims 8-11, wherein said diabody has an antigen-binding site that binds to a breast cancer antigen, an ovarian cancer antigen, a prostate cancer antigen, a cervical cancer antigen, a pancreatic carcinoma antigen, a lung cancer antigen, a bladder cancer antigen, a colon cancer antigen, a testicular cancer antigen, a glioblastoma cancer antigen, an antigen associated with a B cell malignancy, an antigen associated with

multiple myeloma, an antigen associated with non-Hodgkin's lymphoma, or an antigen associated with chronic lymphocytic leukemia.

Claim 14. Use of a portion of a deimmunized serum-binding protein capable of binding to said serum protein to extend the serum half-life of a covalently linked polypeptide, wherein said deimmunized serum-binding protein portion is a variant of a wild-type albumin-binding domain (ABD) of a Streptococcal Protein G, said wild-type ABD having the amino acid sequence of SEQ ID NO:304, and wherein said variant ABD has an amino acid sequence that differs from that of SEQ ID NO:304 in comprising:

(A) a valine to alanine variation at ABD position 71, a valine to alanine variation at ABD position 74, or an aspartate to alanine variation at ABD position 79; wherein said variant ABD positions are respectively positions 31, 34, and 39 of SEQ ID NO:304;

(B) a leucine to alanine variation at ABD position 64, an isoleucine to alanine variation at ABD position 65, and a valine to alanine variation at ABD position 71; wherein said variant ABD positions are respectively positions 24, 25, and 31 of SEQ ID NO:304; or

(C) an asparagine to aspartic acid variation at ABD position 66, a threonine to serine substitution at ABD position 70, and a valine to alanine variation at ABD position 71 of SEQ ID NO:304; wherein said variant ABD positions are respectively positions 26, 30, and 31 of SEQ ID NO:304,

wherein said extension of serum half-life is relative to the serum half-life of said antigen-binding molecule if lacking said deimmunized serum-binding protein portion.

Claim 15. The use of claim 14, wherein said polypeptide comprises an additional portion of a deimmunized serum-binding protein, wherein said portions of said deimmunized serum-binding protein are both capable of binding to said serum protein.

Claim 16. The use of any one of claims 14-15, wherein said variant ABD comprises said valine to alanine variation at ABD position 71, said valine to alanine variation at ABD position 74, or said aspartate to alanine variation at ABD position 79; wherein said variant ABD positions are respectively positions 31, 34, and 39 of SEQ ID NO:304.

Claim 17. The use of any one of claims 14-15, wherein said variant ABD comprises said leucine to alanine variation at ABD position 64, said isoleucine to alanine variation at ABD position 65, and said valine to alanine variation at ABD position 71; wherein said variant ABD positions are respectively positions 24, 25, and 31 of SEQ ID NO:304.

Claim 18. The use of any one of claims 14-15, wherein said variant ABD comprises said asparagine to aspartic acid variation at ABD position 66, said threonine to serine substitution at ABD position 70, and said valine to alanine variation at ABD position 71 of SEQ ID NO:304; wherein said variant ABD positions are respectively positions 26, 30, and 31 of SEQ ID NO:304.

Claim 19. The use of claim 14, wherein said variant ABD has the sequence of SEQ ID NO:323, SEQ ID NO:324, SEQ ID NO:325, SEQ ID NO:326, SEQ ID NO:327, SEQ ID NO:328, or SEQ ID NO:329.

Claim 20. The use of any one of claims 14-19, wherein said polypeptide comprises an antigen-binding molecule.

Claim 21. The use of claim 20, wherein said antigen-binding molecule is a diabody composed of at least a first and a second polypeptide chain which interact with one another to form two antigen-binding sites, wherein at least one of said polypeptide chains comprises said second polypeptide portion that comprises said portion of said deimmunized serum-binding protein that is capable of binding to said serum protein.

Claim 22. The use claim 21, wherein both said first and said second polypeptide chains comprise second polypeptide portions that comprise said portion of said deimmunized serum-binding protein capable of binding to said serum protein.

Claim 23. The use of any one of claims 21-22, wherein said first and said second polypeptide chains are covalently linked to one another.

Claim 24. The use of the diabody as defined in any one of claims 21-23 in the manufacture of a medicament for the treatment of a cancer expressing a tumor-associated antigen, wherein said diabody binds to:

(A) the Natural Killer Group 2D (NKG2D) receptor or the T-cell receptor (TCR); and

(B) said tumor-associated antigen.

Claim 25. The use of claim 20, wherein said antigen is a breast cancer antigen, an ovarian cancer antigen, a prostate cancer antigen, a cervical cancer antigen, a pancreatic carcinoma antigen, a lung cancer antigen, a bladder cancer antigen, a colon cancer antigen, a testicular cancer antigen, a glioblastoma cancer antigen, an antigen associated with a B cell malignancy, an antigen associated with multiple myeloma, an antigen associated with non-Hodgkin's lymphoma, or an antigen associated with chronic lymphocytic leukemia.

Claim 26. The use of any one of claims 21-24, wherein said diabody has an antigen-binding site that binds to a breast cancer antigen, an ovarian cancer antigen, a

prostate cancer antigen, a cervical cancer antigen, a pancreatic carcinoma antigen, a lung cancer antigen, a bladder cancer antigen, a colon cancer antigen, a testicular cancer antigen, a glioblastoma cancer antigen, an antigen associated with a B cell malignancy, an antigen associated with multiple myeloma, an antigen associated with non-Hodgkin's lymphoma, or an antigen associated with chronic lymphocytic leukemia.

Claim 27. A composition comprising the polypeptide of any one of claims 1 to 13 and a pharmaceutically acceptable carrier.