~~WHAT IS CLAIMED:~~

Claims

1. ____A method for delivering a single domain antibody or a therapeutic molecule from an apical surface of a polymeric immunoglobulin receptor (pIgR)-expressing cell to a basolateral surface of the pIgR-expressing cell comprising contacting the pIgR-expressing cell with the single domain antibody or the therapeutic molecule, wherein the single domain antibody binds to pIgR and the therapeutic molecule comprises an agent and the single domain antibody.

2.~~-~~____A method for transporting a therapeutic molecule to a basolateral surface of the pIgR-expressing cell of a subject, ~~comprising administering to the subject~~ the therapeutic molecule comprising an agent and a single domain antibody that binds to pIgR~~.~~

~~3. The method of claim 2,~~; wherein optionally, the therapeutic molecule is to be administered to the subject via oral delivery, buccal delivery, nasal delivery or inhalation delivery.

~~4.~~

3. _____A method for transporting a therapeutic molecule to systemic circulation of a subject, ~~comprising administering to the subject a~~the therapeutic molecule comprising an agent and a single domain antibody that binds to pIgR, wherein the therapeutic molecule is to be administered to the subject via oral delivery, buccal delivery, nasal delivery or inhalation delivery.

~~5.~~

4. _____A method for transporting a therapeutic molecule to lamina propria or gastrointestinal tract of a subject, ~~comprising administering to the subject a~~the therapeutic molecule comprising an agent and a single domain antibody that binds to pIgR, wherein the therapeutic molecule is to be administered to the subject via oral delivery, buccal delivery, nasal delivery or inhalation delivery.

~~6.~~

5. _____The method of any one of claims 2 to ~~5~~4, wherein~~-~~:

a) the therapeutic agent is transported from an apical surface of a pIgR-expressing cell to a basolateral surface of the pIgR-expressing cell in the subject~~.~~;

7. The method of claim 1 or claim 6, wherein b) the single domain antibody or the therapeutic molecule comprising the agent and the single domain antibody is capable of being transported from the basolateral surface of the pIgR-expressing cell to the apical surface of the pIgR-expressing cell.; or

8. The method of any one of claims 1 to 7, wherein c) the pIgR-expressing cell is an epithelial cell.

9. The method of claim 8,; wherein the epitheliaoptionally, epithelial cell is an intestinal lumen cell or an airway epithelial cell.

10.

6. The method of any one of claims 1 to 95, wherein the agent is a:

a) diabetes medication.; optionally

11. The method of claim 10, wherein the diabetes medication is selected from a group consisting of insulin, glucagon-like-peptide-1, insulin-mimic peptides, and glucagon-like-peptide-1-mimic peptides.;

12. The method of any one of claims 1 to 9, wherein the agent is a b) peptide or an antibody or a fragment thereof.; optionally

13. The method of claim 12, wherein the antibody or fragment thereof is selected from a group consisting of an anti-TNF-alpha antibody or a fragment thereof, an anti-IL23 antibody or a fragment thereof, an antibody or a fragment thereof that binds to a receptor of IL23, or an inhibitor of the receptor of IL23.; or

14. The method of any one of claims 1 to 9, wherein the agent is a vaccine.c) vaccine; optionally

15. The method of claim 14, wherein the vaccine is for preventing an infection selected from a group consisting of Vibrio, Cholera, Typhoid, Rotavirus, Tuberculosis, HIV, Flu, Ebola, and Sendai.

16.

7. The method of any one of claims 1 to 156, wherein the single domain antibody

a) binds to an:

i) extracellular domain 1, an extracellular domain 2, an extracellular domain 1-2, an extracellular domain 3, an extracellular domain 2-3, an extracellular domain 4-5, or an extracellular domain 5 of pIgR.;

17. The method of any one of claims 1 to 15, wherein the single domain antibody binds to an

ii) extracellular domain 1 of pIgR.;

18. The method of any one of claims 1 to 15, wherein the single domain antibody binds to an iii) extracellular domain 2 of pIgR;

19. The method of any one of claims 1 to 15, wherein the single domain antibody binds to an iv) extracellular domain 1-2 of pIgR;

20. The method of any one of claims 1 to 15, wherein the single domain antibody binds to an v) extracellular domain 3 of pIgR;

21. The method of any one of claims 1 to 15, wherein the single domain antibody binds to an vi) extracellular domain 2-3 of pIgR;

22. The method of any one of claims 1 to 15, wherein the single domain antibody binds to an vii) extracellular domain 4-5 of pIgR; or

23. The method of any one of claims 1 to 15, wherein the single domain antibody binds to an viii) extracellular domain 5 of pIgR;

24. The method of any one of claims 1 to 23, wherein the single domain antibody b) competes with IgA binding to the pIgR; or

25. The method of any one of claims 1 to 23, wherein the single domain antibody c) promotes IgA binding to the pIgR.

26.

8. The method of any one of claims 1 to 257, wherein:

a) the K_D of the binding of the single domain antibody to pIgR:

i) is from about 4 to about 525 nM;

27. The method of any one of claims 1 to 25, wherein the KD of the binding of the single domain antibody to pIgR ii) is less than about 50 nM; or

28. The method of any one of claims 1 to 25, wherein the KD of the binding of the single domain antibody to pIgR iii) is from about 4 to about 34 nM;

29. The method of any one of claims 1 to 28, wherein b) the T_m of the single domain antibody:

i) is from about 53 to about 77 °C; or

30. The method of any one of claims 1 to 28, wherein the T_m of the single domain antibody ii) is from 53.9 to 76.4 °C;

31. The method of any one of claims 1 to 30, wherein c) pIgR is

i) human pIgR; or

32. The method of any one of claims 1 to 30, wherein pIgR is ii) mouse pIgR;

~~33. The method of any one of claims 1 to 30, wherein~~ or

d) the single domain antibody does not bind to a stalk sequence of human pIgR and/or a stalk sequence of mouse pIgR.

~~34.~~

9. The method of any one of claims 1 to ~~33~~8, wherein the single domain antibody comprises~~:~~:

a) a CDR3 sequence of GSIDLNWYGGMDY (SEQ ID NO: 60), TTVLTDPRVLNEYAT (SEQ ID NO: 61), DVFGSSGYVETY (SEQ ID NO: 62), PLTAR (SEQ ID NO: 63), DPFNQGY (SEQ ID NO: 64), PLTSR (SEQ ID NO: 65), MVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 66), DQRGY (SEQ ID NO: 67), QRGY (SEQ ID NO: 271), DPFNQGY (SEQ ID NO: 68), DLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 69), ARYYVSGTYFPANY (SEQ ID NO: 70), GSIDLNWYGGMDY (SEQ ID NO: 71), SIDLNWYGGMD (SEQ ID NO: 272), TTVLTDPRVLNEYAT (SEQ ID NO: 72), TVLTDPRVLNEYA (SEQ ID NO: 273), DVFGSSGYVETY (SEQ ID NO: 73), VFGSSGYVET (SEQ ID NO: 274), PLTAR (SEQ ID NO: 74), LTA (SEQ ID NO: 275), DPFNQGY (SEQ ID NO: 75), PFNQG (SEQ ID NO: 276), PLTSR (SEQ ID NO: 76), LTS (SEQ ID NO: 277), MVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 77), VNPIITAWGTIGVREIPDYD (SEQ ID NO: 278), DQRGY (SEQ ID NO: 78), RG (SEQ ID NO: 279), DPFNQGY (SEQ ID NO: 79), PFNQG (SEQ ID NO: 280), DLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 80), LAEYSGTYSSPADSPAGYD (SEQ ID NO: 281), ARYYVSGTYFPANY (SEQ ID NO: 81), RYYVSGTYFPAN (SEQ ID NO: 282), CAAGSIDLNWYGGMDY (SEQ ID NO: 82), AAGSIDLNWYGGMDY (SEQ ID NO: 283), CAATTVLTDPRVLNEYAT (SEQ ID NO: 83), AATTVLTDPRVLNEYAT (SEQ ID NO: 284), KADVFGSSGYVETY (SEQ ID NO: 84), NHPLTAR (SEQ ID NO: 85), AADPFNQGY (SEQ ID NO: 86), NHPLTSR (SEQ ID NO: 87), ASMVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 88), NDQRGY (SEQ ID NO: 89), AADPFNQGY (SEQ ID NO: 90), AADLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 91), AAARYYVSGTYFPANY (SEQ ID NO: 92), GSIDLNWYGGMDY (SEQ ID NO: 214), TTVLTDPRVLNEYAT (SEQ ID NO: 215), DVFGSSGYVETY (SEQ ID NO: 216), PLTAR (SEQ ID NO: 217), DPFNQGY (SEQ ID NO: 218), PLTSR (SEQ ID NO: 219), MVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 220), QRGY (SEQ ID NO: 221), DPFNQGY (SEQ ID NO: 222), DLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 223),

ARYYVSGTYFPANY (SEQ ID NO: 224), AAGSIDLNWYGGMD (SEQ ID NO: 225), AATTVLTDPRVLNEYA (SEQ ID NO: 226), KADVFGSSGYVET (SEQ ID NO: 227), NHPLTA (SEQ ID NO: 228), AADPFNQG (SEQ ID NO: 229), NHPLTS (SEQ ID NO: 230), ASMVNPIITAWGTIGVREIPDYD (SEQ ID NO: 231), NDQRG (SEQ ID NO: 232), AADPFNQG (SEQ ID NO: 233), AADLAEYSGTYSSPADSPAGYD (SEQ ID NO: 234), AAARYYVSGTYFPAN (SEQ ID NO: 235), GSIDLNWYGGMDY (SEQ ID NO: 236), TTVLTDPRVLNEYAT (SEQ ID NO: 237), DVFGSSGYVETY (SEQ ID NO: 238), PLTAR (SEQ ID NO: 239), DPFNQGY (SEQ ID NO: 240), PLTSR (SEQ ID NO: 241), MVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 242), QRGY (SEQ ID NO: 243), DPFNQGY (SEQ ID NO: 244), DLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 245), or ARYYVSGTYFPANY (SEQ ID NO: 246~~).~~);

~~35. The method of any one of claims 1 to 34, wherein the single domain antibody comprises~~ b)

a CDR2 sequence of AIDWNGRGTYYRYYADSVKG (SEQ ID NO: 30), RINGGGITHYAESVKG (SEQ ID NO: 31), FIDRIATTTIATSVKG (SEQ ID NO: 32), AITWNGGTTYYADSVKG (SEQ ID NO: 33), FISGGGTTTYADSVKG (SEQ ID NO: 34), RITGGGSTHYAESVKG (SEQ ID NO: 35), AISWSGGSTTYADPVKG (SEQ ID NO: 36), AISWSGSSAGYGDSVKG (SEQ ID NO: 37), AIRWSGGRTLYADSVKG (SEQ ID NO: 38), SITWNGGSTSYADSVKG (SEQ ID NO: 39), DWNGRGTYY (SEQ ID NO: 40), WNGRGTY (SEQ ID NO: 260), NGGGI (SEQ ID NO: 41), GGG (SEQ ID NO: 261), DRIAT (SEQ ID NO: 42), RIA (SEQ ID NO: 262), TWNGGT (SEQ ID NO: 43), WNGG (SEQ ID NO: 263), SGGGT (SEQ ID NO: 44), GGG (SEQ ID NO: 264), TGGGS (SEQ ID NO: 45), GGG (SEQ ID NO: 265), SWSGGS (SEQ ID NO: 46), WSGG (SEQ ID NO: 266), SWSGSS (SEQ ID NO: 47), WSGS (SEQ ID NO: 267), RWSGGR (SEQ ID NO: 48), WSGG (SEQ ID NO: 268), TWNGGS (SEQ ID NO: 49), WNGG (SEQ ID NO: 269), IDWNGRGTYY (SEQ ID NO: 50), IDWNGRGTYYR (SEQ ID NO: 270), INGGGIT (SEQ ID NO: 51), IDRIATT (SEQ ID NO: 52), ITWNGGTT (SEQ ID NO: 53), ISGGGTT (SEQ ID NO: 54), ITGGGST (SEQ ID NO: 55), ISWSGGST (SEQ ID NO: 56), ISWSGSSA (SEQ ID NO: 57), IRWSGGRT (SEQ ID NO: 58), ITWNGGST (SEQ ID NO: 59), AIDWNGRGTYYRYYADSVKG (SEQ ID NO: 184), RINGGGITHYAESVKG (SEQ ID NO: 185), FIDRIATTTIATSVKG (SEQ ID NO: 186), AITWNGGTTYYADSVKG (SEQ ID NO: 187), FISGGGTTTYADSVKG (SEQ ID NO:

188), RITGGGSTHYAESVKG (SEQ ID NO: 189), AISWSGGSTTYADPVKG (SEQ ID NO: 190), AISWSGSSAGYGDSVKG (SEQ ID NO: 191), AIRWSGGRTLYADSVKG (SEQ ID NO: 192), SITWNGGSTSYADSVKG (SEQ ID NO: 193), FVAAIDWNGRGTYYRY (SEQ ID NO: 194), LVARINGGGITH (SEQ ID NO: 195), WVGFIDRIATTT (SEQ ID NO: 196), FVAAITWNGGTTY (SEQ ID NO: 197), WVAFISGGGTTT (SEQ ID NO: 198), LVARITGGGSTH (SEQ ID NO: 199), FVAAISWSGGSTT (SEQ ID NO: 200), FVAAISWSGSSAG (SEQ ID NO: 201), FVAAIRWSGGRTL (SEQ ID NO: 202), FVASITWNGGSTS (SEQ ID NO: 203), AIDWNGRGTYYRY (SEQ ID NO: 204), RINGGGITH (SEQ ID NO: 205), FIDRIATTT (SEQ ID NO: 206), AITWNGGTTY (SEQ ID NO: 207), FISGGGTTT (SEQ ID NO: 208), RITGGGSTH (SEQ ID NO: 209), AISWSGGSTT (SEQ ID NO: 210), AISWSGSSAG (SEQ ID NO: 211), AIRWSGGRTL (SEQ ID NO: 212), or SITWNGGSTS (SEQ ID NO: 213~~).~~);

~~36. The method of any one of claims 1 to 35, wherein the single domain antibody comprises~~ c)

a CDR1 sequence of SYRMG (SEQ ID NO: 1), INVMG (SEQ ID NO: 2), SNAMG (SEQ ID NO:

3), SYAMG (SEQ ID NO: 4), SDAMG (SEQ ID NO: 5), INVMG (SEQ ID NO: 6), TYRMG (SEQ ID NO: 7), RYAMG (SEQ ID NO: 8), FTTYRMG (SEQ ID NO: 258), TYRMG (SEQ ID NO: 259), FNTYAMG (SEQ ID NO: 9), GLTFSSY (SEQ ID NO: 10), GSIFSIN (SEQ ID NO: 11), GTSVSSN (SEQ ID NO: 12), GRTFSSY (SEQ ID NO: 13), GSSVSSD (SEQ ID NO: 14), RSIGSIN (SEQ ID NO: 15), GRTFSTY (SEQ ID NO: 16), GFTFTRY (SEQ ID NO: 17), GRTFTTY (SEQ ID NO: 18), GRTLSFNTY (SEQ ID NO: 19), GLTFSSYR (SEQ ID NO: 20), GSIFSINV (SEQ ID NO: 21), GTSVSSNA (SEQ ID NO: 22), GRTFSSYA (SEQ ID NO: 23), GSSVSSDA (SEQ ID NO: 24), RSIGSINV (SEQ ID NO: 25), GRTFSTYR (SEQ ID NO: 26), GFTFTRYA (SEQ ID NO: 27), GRTFTTYR (SEQ ID NO: 28), GRTLSFNTYA (SEQ ID NO: 29), GLTFSSYRMG (SEQ ID NO: 154), GSIFSINVMG (SEQ ID NO: 155), GTSVSSNAMG (SEQ ID NO: 156), GRTFSSYAMG (SEQ ID NO: 157), GSSVSSDAMG (SEQ ID NO: 158), RSIGSINVMG (SEQ ID NO: 159), GRTFSTYRMG (SEQ ID NO: 160), GFTFTRYAMG (SEQ ID NO: 161), GRTFTTYRMG (SEQ ID NO: 162), GRTLSFNTYAMG (SEQ ID NO: 163), SSYRMG (SEQ ID NO: 164), SINVMG (SEQ ID NO: 165), SSNAMG (SEQ ID NO: 166),

SSYAMG (SEQ ID NO: 167), SSDAMG (SEQ ID NO: 168), SINVMG (SEQ ID NO: 169), STYRMG (SEQ ID NO: 170), TRYAMG (SEQ ID NO: 171), TTYRMG (SEQ ID NO: 172), SFNTYAMG (SEQ ID NO: 173), GLTFSSYRMG (SEQ ID NO: 174), GSIFSINVMG (SEQ ID NO: 175), GTSVSSNAMG (SEQ ID NO: 176), GRTFSSYAMG (SEQ ID NO: 177), GSSVSSDAMG (SEQ ID NO: 178), RSIGSINVMG (SEQ ID NO: 179), GRTFSTYRMG (SEQ ID NO: 180), GFTFTRYAMG (SEQ ID NO: 181), GRTFTTYRMG (SEQ ID NO: 182), or GRTLSFNTYAMG (SEQ ID NO: 183).);

37. The method of any one of claims 1 to 36, wherein the single domain antibody comprises d)

a CDR1 sequence, a CDR2 sequence, and a CDR3 sequence of the single domain antibody selected from the group consisting of:

a) i) VHH1:

i) 1) the CDR1 sequence of SYRMG (SEQ ID NO: 1), the CDR2 sequence of AIDWNGRGTYYRYYADSVKG (SEQ ID NO: 30), and the CDR3 sequence of GSIDLNWYGGMDY (SEQ ID NO: 60);

ii) 2) the CDR1 sequence of GLTFSSY (SEQ ID NO: 10), the CDR2 sequence of DWNGRGTYY (SEQ ID NO: 40) or WNGRGTY (SEQ ID NO: 260), and the CDR3 sequence of GSIDLNWYGGMDY (SEQ ID NO: 71) or SIDLNWYGGMD (SEQ ID NO: 272);

sequence of GSIDLNWYGGMDY (SEQ ID NO: 71) or SIDLNWYGGMD (SEQ ID NO: 272);

iii) 3) the CDR1 sequence of GLTFSSYR (SEQ ID NO: 20), the CDR2 sequence of IDWNGRGTYY (SEQ ID NO: 50) or IDWNGRGTYYR (SEQ ID NO: 270), and the CDR3 sequence of CAAGSIDLNWYGGMDY (SEQ ID NO: 82) or AAGSIDLNWYGGMDY (SEQ ID NO: 283);

iv) 4) the CDR1 sequence of GLTFSSYRMG (SEQ ID NO: 154), the CDR 2 sequence of AIDWNGRGTYYRYYADSVKG (SEQ ID NO: 184), and the CDR3 sequence of GSIDLNWYGGMDY (SEQ ID NO: 214);

v) 5) the CDR1 sequence of SSYRMG (SEQ ID NO: 164), the CDR2 sequence of FVAAIDWNGRGTYYRY (SEQ ID NO: 194), and the CDR3 sequence of AAGSIDLNWYGGMD (SEQ ID NO: 225); or

vi) 6) the CDR1 sequence of GLTFSSYRMG (SEQ ID NO: 174), the CDR2 sequence of AIDWNGRGTYYRY (SEQ ID NO: 204), and the CDR3 sequence of GSIDLNWYGGMDY (SEQ ID NO: 236);

b) ii) VHH2:

i) 1) the CDR1 sequence of SYRMG (SEQ ID NO: 1), the CDR2 sequence of AIDWNGRGTYYRYYADSVKG (SEQ ID NO: 30), and the CDR3 sequence of TTVLTDPRVLNEYAT (SEQ ID NO: 61);

ii) 2) the CDR1 sequence of GLTFSSY (SEQ ID NO: 10), the CDR2 sequence of DWNGRGTYY (SEQ ID NO: 40) or WNGRGTY (SEQ ID NO: 260), and the CDR3 sequence of TTVLTDPRVLNEYAT (SEQ ID NO: 72) or TVLTDPRVLNEYA (SEQ ID NO: 273);

iii) 3) the CDR1 sequence of GLTFSSYR (SEQ ID NO: 20), the CDR2 sequence of IDWNGRGTYY (SEQ ID NO: 50) or IDWNGRGTYYR (SEQ ID NO: 270), and the CDR3 sequence of CAATTVLTDPRVLNEYAT (SEQ ID NO: 83) or AATTVLTDPRVLNEYAT (SEQ ID NO: 284);

iv) 4) the CDR1 sequence of GLTFSSYRMG (SEQ ID NO: 154), the CDR2 sequence of AIDWNGRGTYYRYYADSVKG (SEQ ID NO: 184), and the CDR3 sequence of TTVLTDPRVLNEYAT (SEQ ID NO: 215);

v) 5) the CDR1 sequence of SSYRMG (SEQ ID NO: 164), the CDR2 sequence of FVAAIDWNGRGTYYRY (SEQ ID NO: 194), and the CDR3 sequence of AATTVLTDPRVLNEYA (SEQ ID NO: 226); or

vi) 6) the CDR1 sequence of GLTFSSYRMG (SEQ ID NO: 174), the CDR2 sequence of AIDWNGRGTYYRY (SEQ ID NO: 204), and the CDR3 sequence of TTVLTDPRVLNEYAT (SEQ ID NO: 237);

c) iii) VHH3:

i) 1) the CDR1 sequence of INVMG (SEQ ID NO: 2), the CDR2 sequence of RINGGGITHYAESVKG (SEQ ID NO: 31), and the CDR3 sequence of DVFGSSGYVETY (SEQ ID NO: 62);

ii) 2) the CDR1 sequence of GSIFSIN (SEQ ID NO: 11), the CDR2 sequence of NGGGI (SEQ ID NO: 41) or GGG (SEQ ID NO: 261), and the CDR3 sequence of DVFGSSGYVETY (SEQ ID NO: 73) or VFGSSGYVET (SEQ ID NO: 274); iii)

3) the CDR1 sequence of GSIFSINV (SEQ ID NO: 21), the CDR2 sequence of INGGGIT (SEQ ID NO: 51), and the CDR3 sequence of KADVFGSSGYVETY (SEQ ID NO: 84);

~~iv)~~ 4) the CDR1 sequence of GSIFSINVMG (SEQ ID NO: 155), the CDR2 sequence of RINGGGITHYAESVKG (SEQ ID NO: 185), and the CDR3 sequence of DVFGSSGYVETY (SEQ ID NO: 216);

~~v)~~ 5) the CDR1 sequence of SINVMG (SEQ ID NO: 165), the CDR2 sequence of LVARINGGGITH (SEQ ID NO: 195), and the CDR3 sequence of KADVFGSSGYVET (SEQ ID NO: 227); or

~~vi)~~ 6) the CDR1 sequence of GSIFSINVMG (SEQ ID NO: 175), the CDR2 sequence of RINGGGITH (SEQ ID NO: 205), and the CDR3 sequence of DVFGSSGYVETY (SEQ ID NO: 238);

~~d)~~ iv) VHH4:

~~i)~~ 1) the CDR1 sequence of SNAMG (SEQ ID NO: 3), the CDR2 sequence of FIDRIATTTIATSVKG (SEQ ID NO: 32), and the CDR3 sequence of PLTAR (SEQ ID NO: 63);

~~ii)~~ 2) the CDR1 sequence of GTSVSSN (SEQ ID NO: 12), the CDR2 sequence of DRIAT (SEQ ID NO: 42) or RIA (SEQ ID NO: 262), and the CDR3 sequence of PLTAR (SEQ ID NO: 74) or LTA (SEQ ID NO: 275);

~~iii)~~ 3) the CDR1 sequence of GTSVSSNA (SEQ ID NO: 22), the CDR2 sequence of IDRIATT (SEQ ID NO: 52), and the CDR3 sequence of NHPLTAR (SEQ ID NO: 85);

~~iv)~~ 4) the CDR1 sequence of GTSVSSNAMG (SEQ ID NO: 156), the CDR2 sequence of FIDRIATTTIATSVKG (SEQ ID NO: 186), and the CDR3 sequence of PLTAR (SEQ ID NO: 217);

~~v)~~ 5) the CDR1 sequence of SSNAMG (SEQ ID NO: 166), the CDR2 sequence of WVGFIDRIATTT (SEQ ID NO: 196), and the CDR3 sequence of NHPLTA (SEQ ID NO: 228); or

~~vi)~~ 6) the CDR1 sequence of GTSVSSNAMG (SEQ ID NO: 176), the CDR2 sequence of FIDRIATTT (SEQ ID NO: 206), and the CDR3 sequence of PLTAR (SEQ ID NO: 239);

~~e)~~ v) VHH5:

~~i)~~ 1) the CDR1 sequence of SYAMG (SEQ ID NO: 4), the CDR2 sequence of AITWNGGTTYYADSVKG (SEQ ID NO: 33), and the CDR3 sequence of DPFNQGY (SEQ ID NO: 64);

~~ii)~~ 2) the CDR1 sequence of GRTFSSY (SEQ ID NO: 13), the CDR2 sequence of TWNGGT (SEQ ID NO: 43) or WNGG (SEQ ID NO: 263), and the CDR3 sequence of DPFNQGY (SEQ ID NO: 75) or PFNQG (SEQ ID NO: 276);

~~iii)~~ 3) the CDR1 sequence of GRTFSSYA (SEQ ID NO: 23), the CDR2 sequence of ITWNGGTT (SEQ ID NO: 53), and the CDR3 sequence of AADPFNQGY (SEQ ID NO: 86);

~~iv)~~ 4) the CDR1 sequence of GRTFSSYAMG (SEQ ID NO: 157), the CDR2 sequence of AITWNGGTTYYADSVKG (SEQ ID NO: 187), and the CDR3 sequence of DPFNQGY (SEQ ID NO: 218);

~~v)~~ 5) the CDR1 sequence of SSYAMG (SEQ ID NO: 167), the CDR2 sequence of FVAAITWNGGTTY (SEQ ID NO: 197), and the CDR3 sequence of AADPFNQG (SEQ ID NO: 229); or

~~vi)~~ 6) the CDR1 sequence of GRTFSSYAMG (SEQ ID NO: 177), the CDR2 sequence of AITWNGGTTY (SEQ ID NO: 207), and the CDR3 sequence of DPFNQGY (SEQ ID NO: 240);

~~f)~~ vi) VHH6:

~~i)~~ 1) the CDR1 sequence of SDAMG (SEQ ID NO: 5), the CDR2 sequence of FISGGGTTTYADSVKG (SEQ ID NO: 34), and the CDR3 sequence of PLTSR (SEQ ID NO: 65);

~~ii)~~ 2) the CDR1 sequence of GSSVSSD (SEQ ID NO: 14), the CDR2 sequence of SGGGT (SEQ ID NO: 44) or GGG (SEQ ID NO: 264), and the CDR3 sequence of PLTSR (SEQ ID NO: 76) or LTS (SEQ ID NO: 277);

~~iii)~~ 3) the CDR1 sequence of GSSVSSDA (SEQ ID NO: 24), the CDR2 sequence of ISGGGTT (SEQ ID NO: 54), and the CDR3 sequence of NHPLTSR (SEQ ID NO: 87);

~~iv)~~ 4) the CDR1 sequence of GSSVSSDAMG (SEQ ID NO: 158), the CDR2 sequence of FISGGGTTTYADSVKG (SEQ ID NO: 188), and the CDR3 sequence of PLTSR (SEQ ID NO: 219);

~~v)~~ 5) the CDR1 sequence of SSDAMG (SEQ ID NO: 168), the CDR2 sequence of WVAFISGGGTTT (SEQ ID NO: 198), and the CDR3 sequence of NHPLTS (SEQ ID NO: 230); or

~~vi)~~ 6) the CDR1 sequence of GSSVSSDAMG (SEQ ID NO: 178), the CDR2 sequence of FISGGGTTT (SEQ ID NO: 208), and the CDR3 sequence of PLTSR (SEQ ID NO: 241);

~~g)~~ vii) VHH7:

~~i)~~ 1) the CDR1 sequence of INVMG (SEQ ID NO: 6), the CDR2 sequence of RITGGGSTHYAESVKG (SEQ ID NO: 35), and the CDR3 sequence of MVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 66);

~~ii)~~ 2) the CDR1 sequence of RSIGSIN (SEQ ID NO: 15), the CDR2 sequence of TGGGS (SEQ ID NO: 45) or GGG (SEQ ID NO: 265), and the CDR3 sequence of MVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 77) or VNPIITAWGTIGVREIPDYD (SEQ ID NO: 278);

~~iii)~~ 3) the CDR1 sequence of RSIGSINV (SEQ ID NO: 25), the CDR2 sequence of ITGGGST (SEQ ID NO: 55), and the CDR3 sequence of ASMVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 88);

~~iv)~~ 4) the CDR1 sequence of RSIGSINVMG (SEQ ID NO: 159), the CDR2 sequence of RITGGGSTHYAESVKG (SEQ ID NO: 189), and the CDR3 sequence of MVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 220);

~~v)~~ 5) the CDR1 sequence of SINVMG (SEQ ID NO: 169), the CDR2 sequence of LVARITGGGSTH (SEQ ID NO: 199), and the CDR3 sequence of ASMVNPIITAWGTIGVREIPDYD (SEQ ID NO: 231); or

~~vi)~~ 6) the CDR1 sequence of RSIGSINVMG (SEQ ID NO: 179), the CDR2 sequence of RITGGGSTH (SEQ ID NO: 209), and the CDR3 sequence of MVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 242);

~~h) VHH9:~~

~~i)~~ viii) VHH8:

1) the CDR1 sequence of TYRMG (SEQ ID NO: 7), the CDR2 sequence of AISWSGGSTTYADPVKG (SEQ ID NO: 36), and the CDR3 sequence of DQRGY (SEQ ID NO: 67) or QRGY (SEQ ID NO: 271);

~~ii)~~ 2) the CDR1 sequence of GRTFSTY (SEQ ID NO: 16), the CDR2 sequence of SWSGGS (SEQ ID NO: 46) or WSGG (SEQ ID NO: 266), and the CDR3 sequence of DQRGY (SEQ ID NO: 78) or RG (SEQ ID NO: 279);

~~iii)~~ 3) the CDR1 sequence of GRTFSTYR (SEQ ID NO: 26), the CDR2 sequence of ISWSGGST (SEQ ID NO: 56), and the CDR3 sequence of NDQRGY (SEQ ID NO: 89);

~~iv)~~ 4) the CDR1 sequence of GRTFSTYRMG (SEQ ID NO: 160), the CDR2 sequence of AISWSGGSTTYADPVKG (SEQ ID NO: 190), and the CDR3 sequence of QRGY (SEQ ID NO: 221);

~~v)~~ 5) the CDR1 sequence of STYRMG (SEQ ID NO: 170), the CDR2 sequence of FVAAISWSGGSTT (SEQ ID NO: 200), and the CDR3 sequence of NDQRG (SEQ ID NO: 232); or

~~vi)~~ 6) the CDR1 sequence of GRTFSTYRMG (SEQ ID NO: 180), the CDR2 sequence of AISWSGGSTT (SEQ ID NO: 210), and the CDR3 sequence of QRGY (SEQ ID NO: 243);

~~i) VHH10:~~

~~i)~~ ix) VHH9:

1) the CDR1 sequence of RYAMG (SEQ ID NO: 8), the CDR2 sequence of AISWSGSSAGYGDSVKG (SEQ ID NO: 37), and the CDR3 sequence of DPFNQGY (SEQ ID NO: 68);

~~ii)~~ 2) the CDR1 sequence of GFTFTRY (SEQ ID NO: 17), the CDR2 sequence of SWSGSS (SEQ ID NO: 47) or WSGS (SEQ ID NO: 267), and the CDR3 sequence of DPFNQGY (SEQ ID NO: 79) or PFNQG (SEQ ID NO: 280);

~~iii)~~ 3) the CDR1 sequence of GFTFTRYA (SEQ ID NO: 27), the CDR2 sequence of ISWSGSSA (SEQ ID NO: 57), and the CDR3 sequence of AADPFNQGY (SEQ ID NO: 90);

~~iv)~~ 4) the CDR1 sequence of GFTFTRYAMG (SEQ ID NO: 161), the CDR2 sequence of AISWSGSSAGYGDSVKG (SEQ ID NO: 191), and the CDR3 sequence of DPFNQGY (SEQ ID NO: 222);

~~v)~~ 5) the CDR1 sequence of TRYAMG (SEQ ID NO: 171), the CDR2 sequence of FVAAISWSGSSAG (SEQ ID NO: 201), and the CDR3 sequence of AADPFNQG (SEQ ID NO: 233); or

~~vi)~~ 6) the CDR1 sequence of GFTFTRYAMG (SEQ ID NO: 181), the CDR2 sequence of AISWSGSSAG (SEQ ID NO: 211), and the CDR3 sequence of DPFNQGY (SEQ ID NO: 244);

~~j) VHH11:~~

~~i)~~ x) VHH10:

1) the CDR1 sequence of FTTYRMG (SEQ ID NO: 258) or TYRMG (SEQ ID NO: 259), the CDR2 sequence of AIRWSGGRTLYADSVKG (SEQ ID NO: 38), and the CDR3 sequence of DLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 69);

~~ii)~~ 2) the CDR1 sequence of GRTFTTY (SEQ ID NO: 18), the CDR2 sequence of RWSGGR (SEQ ID NO: 48) or WSGG (SEQ ID NO: 268), and the CDR3 sequence of DLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 80) or LAEYSGTYSSPADSPAGYD (SEQ ID NO: 281);

~~iii)~~ 3) the CDR1 sequence of GRTFTTYR (SEQ ID NO: 28), the CDR2 sequence of IRWSGGRT (SEQ ID NO: 58), and the CDR3 sequence of AADLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 91);

~~iv)~~ 4) the CDR1 sequence of GRTFTTYRMG (SEQ ID NO: 162), the CDR2 sequence of AIRWSGGRTLYADSVKG (SEQ ID NO: 192), and the CDR3 sequence of DLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 223);

~~v)~~ 5) the CDR1 sequence of TTYRMG (SEQ ID NO: 172), the CDR2 sequence of FVAAIRWSGGRTL (SEQ ID NO: 202), and the CDR3 sequence of AADLAEYSGTYSSPADSPAGYD (SEQ ID NO: 234); or

~~vi)~~ 6) the CDR1 sequence of GRTFTTYRMG (SEQ ID NO: 182), the CDR2 sequence of AIRWSGGRTL (SEQ ID NO: 212), and the CDR3 sequence of DLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 245); and

~~k) VHH12:~~

~~i)~~ xi) VHH11:

1) the CDR1 sequence of FNTYAMG (SEQ ID NO: 9), the CDR2 sequence of SITWNGGSTSYADSVKG (SEQ ID NO: 39), and the CDR3 sequence of ARYYVSGTYFPANY (SEQ ID NO: 70);

~~ii)~~ 2) the CDR1 sequence of GRTLSFNTY (SEQ ID NO: 19), the CDR2 sequence of TWNGGS (SEQ ID NO: 49) or WNGG (SEQ ID NO: 269), and the CDR3 sequence of ARYYVSGTYFPANY (SEQ ID NO: 81) or RYYVSGTYFPAN (SEQ ID NO: 282);

~~iii)~~ 3) the CDR1 sequence of GRTLSFNTYA (SEQ ID NO: 29), the CDR2 sequence of ITWNGGST (SEQ ID NO: 59), and the CDR3 sequence of AAARYYVSGTYFPANY (SEQ ID NO: 92);

~~iv)~~ 4) the CDR1 sequence of GRTLSFNTYAMG (SEQ ID NO: 163), the CDR2 sequence of SITWNGGSTSYADSVKG (SEQ ID NO: 193), and the CDR3 sequence of ARYYVSGTYFPANY (SEQ ID NO: 224);

~~v)~~ 5) the CDR1 sequence of SFNTYAMG (SEQ ID NO: 173), the CDR2 sequence of FVASITWNGGSTS (SEQ ID NO: 203), and the CDR3 sequence of AAARYYVSGTYFPAN (SEQ ID NO: 235); or

~~vi)~~ 6) the CDR1 sequence of GRTLSFNTYAMG (SEQ ID NO: 183), the CDR2 sequence of SITWNGGSTS (SEQ ID NO: 213), and the CDR3 sequence of ARYYVSGTYFPANY (SEQ ID NO: 246~~).~~);

~~38. The method of any one of claims 1 to 37, wherein the single domain antibody comprises~~ e)

a framework derived from the framework of any of the single domain antibodies comprising the sequences of

~~QVQLVESGGGLVQAGGSLKLACAAPGLTFSSYRMGWFRQAPGQEREFVAAIDWNGRG TYYRYYADSVKGRSTISRDNAKNTMYLQMNSLKPEDTAVYYCAAGSIDLNWYGGMD YWGQGTQVTVSS~~QVQLVESGGGLVQAGGSLKLACAAPGLTFSSYRMGWFRQAPGQER EFVAAIDWNGRGTYYRYYADSVKGRSTISRDNAKNTMYLQMNSLKPEDTAVYYCAAG SIDLNWYGGMDYWGQGTQVTVSS (SEQ ID NO: 93),

~~EVQVVESGGGLVQAGGSLKLACAAPGLTFSSYRMGWFRQAPGQEREFVAAIDWNGRG TYYRYYADSVKGRSTISRDNAKNTVYLQMNSLKPEDTAVYYCAATTVLTDPRVLNEYA~~

~~TWGQGTQVTVSS~~EVQVVESGGGLVQAGGSLKLACAAPGLTFSSYRMGWFRQAPGQERE FVAAIDWNGRGTYYRYYADSVKGRSTISRDNAKNTVYLQMNSLKPEDTAVYYCAATT VLTDPRVLNEYATWGQGTQVTVSS (SEQ ID NO: 94),
~~QLQLVESGGGLVQPGGSLRLSCAASGSIFSINVMGWYRQAPGKQRELVARINGGGITHY AESVKGRFTISRDNAKNTVYLQMNSLKPEDTAAYYCKADVFGSSGYVETYWGQGTQV TVSS~~QLQLVESGGGLVQPGGSLRLSCAASGSIFSINVMGWYRQAPGKQRELVARINGGGI THYAESVKGRFTISRDNAKNTVYLQMNSLKPEDTAAYYCKADVFGSSGYVETYWGQG TQVTVSS (SEQ ID NO: 95),
~~EVQVVESGGGLVQAGGSLRLSCAVSGTSVSSNAMGWYRQAPGKQREWVGFIDRIATTT IATSVKGRFAITRDNAKNTVYLQMSGLKPEDTAVYYCNHPLTARWGQGTQVTVSS~~

EVQVVESGGGLVQAGGSLRLSCAVSGTSVSSNAMGWYRQAPGKQREWVGFIDRIATTT IATSVKGRFAITRDNAKNTVYLQMSGLKPEDTAVYYCNHPLTARWGQGTQVTVSS (SEQ ID NO: 96),
~~QVQLVESGGGLVQAGGSLRLSCAASGRTFSSYAMGWFRQAPGKEREFVAAITWNGGTT YYADSVKGRFTISRDNAKNTVYLQMNSLKPEDTAVYYCAADPFNQGYWGQGTQVTVS~~

~~S~~QVQLVESGGGLVQAGGSLRLSCAASGRTFSSYAMGWFRQAPGKEREFVAAITWNGGT TYYADSVKGRFTISRDNAKNTVYLQMNSLKPEDTAVYYCAADPFNQGYWGQGTQVTV SS (SEQ ID NO: 97),
~~EVQLVESGGGLVQAGGSLRLSCAVSGSSVSSDAMGWYRQAPGNQRAWVAFISGGGTT TYADSVKGRFTISRDNTKNTVYLHMNSLKPEDTAVYYCNHPLTSRWGQGTQVTVSS~~

EVQLVESGGGLVQAGGSLRLSCAVSGSSVSSDAMGWYRQAPGNQRAWVAFISGGGTT TYADSVKGRFTISRDNTKNTVYLHMNSLKPEDTAVYYCNHPLTSRWGQGTQVTVSS (SEQ ID NO: 98),
~~EVQVVESGGGLVQAGGSLRLACVASRSIGSINVMGWYRQAPGKQRDLVARITGGGSTH YAESVKGRFTISRDNAKNTVYLQMNSLEPEDTAVYYCASMVNPIITAWGTIGVREIPDY DYWGQGTQVTVSS~~EVQVVESGGGLVQAGGSLRLACVASRSIGSINVMGWYRQAPGKQR DLVARITGGGSTHYAESVKGRFTISRDNAKNTVYLQMNSLEPEDTAVYYCASMVNPIIT AWGTIGVREIPDYDYWGQGTQVTVSS (SEQ ID NO: 99),
~~QVQLVESGGGLVQAGGSLRLSCAVSGRTFSTYRMGWFRQAPGKERSFVAAISWSGGST TYADPVKGRFTISRDNAKNTVYLRMNSLKPEDTAVYYCNDQRGYWGQGTLVTVSS~~

QVQLVESGGGLVQAGGSLRLSCAVSGRTFSTYRMGWFRQAPGKERSFVAAISWSGGST TYADPVKGRFTISRDNAKNTVYLRMNSLKPEDTAVYYCNDQRGYWGQGTLVTVSS (SEQ ID NO: 100),

~~EVQVVESGGGLVQAGGSLRLSCAASGFTFTRYAMGWFRQAPGKERSFVAAISWSGSSA GYGDSVKGRFTISRDNAKNTLYLQMNSLKPEDTAVYYCAADPFNQGYWGQGTQVTVS~~

~~S~~EVQVVESGGGLVQAGGSLRLSCAASGFTFTRYAMGWFRQAPGKERSFVAAISWSGSS AGYGDSVKGRFTISRDNAKNTLYLQMNSLKPEDTAVYYCAADPFNQGYWGQGTQVTV SS (SEQ ID NO: 101),

~~EVQVVESGGGLVQAGGSLRLSCAASGRTFTTYRMGWFRQAPGKEREFVAAIRWSGGRT LYADSVKGRFTISRDNAKNTAYLQMNNLRPEDTAVYYCAADLAEYSGTYSSPADSPAG YDYWGQGTQVTVSS~~

EVQVVESGGGLVQAGGSLRLSCAASGRTFTTYRMGWFRQAPGKEREFVAAIRW SGGRTLYADSVKGRFTISRDNAKNTAYLQMNNLRPEDTAVYYCAADLAEYSGT YSSPADSPAGYDYWGQGTQVTVSS (SEQ ID NO: 102), or

~~QVQLVETGGGLVQAGDSLRLSCAASGRTLSFNTYAMGWFRQAPGKEREFVASITWN G GSTSYADSVKGRFTITRDNAKNTATLRMNSLQPDDTAVYYCAAARYYVSGTYFPAN Y WGQGTQVTVSS~~QVQLVETGGGLVQAGDSLRLSCAASGRTLSFNTYAMGWFRQA PGKEREFVASITWNGGSTSYADSVKGRFTITRDNAKNTATLRMNSLQPDDTAVY YCAAARYYVSGTYFPANYWGQGTQVTVSS (SEQ ID NO: 103~~).~~);

~~39. The method of any one of claims 1 to 37, wherein the single domain antibody comprises~~ f) _____a framework comprising sequence having at least 75%, 80%, 85%, 90%, 95%, 96%, 97%, 98%, 99%, or 100% sequence identity with the sequence of

~~QVQLVESGGGLVQAGGSLKLACAAPGLTFSSYRMGWFRQAPGQEREFVAAIDWNG RG TYYRYYADSVKGRSTISRDNAKNTMYLQMNSLKPEDTAVYYCAAGSIDLNWYGGM D YWGQGTQVTVSS (SEQ ID NO: 93),~~

~~EVQVVESGGGLVQAGGSLKLACAAPGLTFSSYRMGWFRQAPGQEREFVAAIDWNG RG TYYRYYADSVKGRSTISRDNAKNTVYLQMNSLKPEDTAVYYCAATTVLTDPRVLNE~~

~~YA TWGQGTQVTVSS (SEQ ID NO: 94),~~
~~QLQLVESGGGLVQPGGSLRLSCAASGSIFSINVMGWYRQAPGKQRELVARINGGGIT~~
~~HY~~
~~AESVKGRFTISRDNAKNTVYLQMNSLKPEDTAAYYCKADVFGSSGYVETYWGQGT~~
~~QV TVSS (SEQ ID NO: 95),~~
~~EVQVVESGGGLVQAGGSLRLSCAVSGTSVSSNAMGWYRQAPGKQREWVGFIDRIA~~
~~TTT~~
~~IATSVKGRFAITRDNAKNTVYLQMSGLKPEDTAVYYCNHPLTARWGQGTQVTVSS~~S
EQ ID NOS: 93-103; or

~~(SEQ ID NO: 96),~~
~~QVQLVESGGGLVQAGGSLRLSCAASGRTFSSYAMGWFRQAPGKEREFVAAITWNGGTT~~
~~YYADSVKGRFTISRDNAKNTVYLQMNSLKPEDTAVYYCAADPFNQGYWGQGTQVTVS~~

~~S (SEQ ID NO: 97),~~
~~EVQLVESGGGLVQAGGSLRLSCAVSGSSVSSDAMGWYRQAPGNQRAWVAFISGGGTT~~
~~TYADSVKGRFTISRDNTKNTVYLHMNSLKPEDTAVYYCNHPLTSRWGQGTQVTVSS~~

~~(SEQ ID NO: 98),~~
~~EVQVVESGGGLVQAGGSLRLACVASRSIGSINVMGWYRQAPGKQRDLVARITGGGSTH~~
~~YAESVKGRFTISRDNAKNTVYLQMNSLEPEDTAVYYCASMVNPIITAWGTIGVREIPDY~~
~~DYWGQGTQVTVSS (SEQ ID NO: 99),~~

~~QVQLVESGGGLVQAGGSLRLSCAVSGRTFSTYRMGWFRQAPGKERSFVAAISWSGGST~~

~~TYADPVKGRFTISRDNAKNTVYLRMNSLKPEDTAVYYCNDQRGYWGQGTLVTVSS (SEQ~~
~~ID NO: 100),~~
~~EVQVVESGGGLVQAGGSLRLSCAASGFTFTRYAMGWFRQAPGKERSFVAAISWSGSSA~~
~~GYGDSVKGRFTISRDNAKNTLYLQMNSLKPEDTAVYYCAADPFNQGYWGQGTQVTVS~~

~~S (SEQ ID NO: 101),~~
~~EVQVVESGGGLVQAGGSLRLSCAASGRTFTTYRMGWFRQAPGKEREFVAAIRWSGGRT~~
~~LYADSVKGRFTISRDNAKNTAYLQMNNLRPEDTAVYYCAADLAEYSGTYSSPADSPAG~~
~~YDYWGQGTQVTVSS (SEQ ID NO: 102), or~~
~~QVQLVETGGGLVQAGDSLRLSCAASGRTLSFNTYAMGWFRQAPGKEREFVASITWNG~~

~~GSTSYADSVKGRFTITRDNAKNTATLRMNSLQPDDTAVYYCAAARYYVSGTYFPANY WGQGTQVTVSS (SEQ ID NO: 103).~~

~~40. The method of any one of claims 1 to 39, wherein the single domain antibody is comprised of~~

g) a sequence having at least 75%, 80%, 85%, 90%, 95%, 96%, 97%, 98%, 99%, or 100% sequence identity with the sequence of ~~QVQLVESGGGLVQAGGSLKLACAAPGLTFSSYRMGWFRQAPGQEREFVAAIDWNG RG TYYRYYADSVKGRSTISRDNAKNTMYLQMNSLKPEDTAVYYCAAGSIDLNWYGGM D YWGQGTQVTVSS (SEQ ID NO: 93), EVQVVESGGGLVQAGGSLKLACAAPGLTFSSYRMGWFRQAPGQEREFVAAIDWNG RG TYYRYYADSVKGRSTISRDNAKNTVYLQMNSLKPEDTAVYYCAATTVLTDPRVLNE YA TWGQGTQVTVSS (SEQ ID NO: 94), QLQLVESGGGLVQPGGSLRLSCAASGSIFSINVMGWYRQAPGKQRELVARINGGGIT HY AESVKGRFTISRDNAKNTVYLQMNSLKPEDTAAYYCKADVFGSSGYVETYWGQGT QV TVSS (SEQ ID NO: 95), EVQVVESGGGLVQAGGSLRLSCAVSGTSVSSNAMGWYRQAPGKQREWVGFIDRIA TTT IATSVKGRFAITRDNAKNTVYLQMSGLKPEDTAVYYCNHPLTARWGQGTQVTVSS~~SEQ ID NOS: 93-103.

~~(SEQ ID NO: 96), QVQLVESGGGLVQAGGSLRLSCAASGRTFSSYAMGWFRQAPGKEREFVAAITWNGGTT YYADSVKGRFTISRDNAKNTVYLQMNSLKPEDTAVYYCAADPFNQGYWGQGTQVTVS~~

~~S (SEQ ID NO: 97),~~

~~EVQLVESGGGLVQAGGSLRLSCAVSGSSVSSDAMGWYRQAPGNQRAWVAFISGGGTT~~

~~TYADSVKGRFTISRDNTKNTVYLHMNSLKPEDTAVYYCNHPLTSRWGQGTQVTVSS (SEQ ID NO: 98), EVQVVESGGGLVQAGGSLRLACVASRSIGSINVMGWYRQAPGKQRDLVARITGGGSTH YAESVKGRFTISRDNAKNTVYLQMNSLEPEDTAVYYCASMVNPIITAWGTIGVREIPDY~~

~~DYWGQGTQVTVSS (SEQ ID NO: 99),~~
~~QVQLVESGGGLVQAGGSLRLSCAVSGRTFSTYRMGWFRQAPGKERSFVAAISWSGGST~~
~~TYADPVKGRFTISRDNAKNTVYLRMNSLKPEDTAVYYCNDQRGYWGQGTLVTVSS~~

~~(SEQ ID NO: 100),~~
~~EVQVVESGGGLVQAGGSLRLSCAASGFTFTRYAMGWFRQAPGKERSFVAAISWSGSSA~~
~~GYGDSVKGRFTISRDNAKNTLYLQMNSLKPEDTAVYYCAADPFNQGYWGQGTQVTVS~~

~~S (SEQ ID NO: 101),~~
~~EVQVVESGGGLVQAGGSLRLSCAASGRTFTTYRMGWFRQAPGKEREFVAAIRWSGGRT~~
~~LYADSVKGRFTISRDNAKNTAYLQMNNLRPEDTAVYYCAADLAEYSGTYSSPADSPAG~~
~~YDYWGQGTQVTVSS (SEQ ID NO: 102), or~~
~~QVQLVETGGGLVQAGDSLRLSCAASGRTLSFNTYAMGWFRQAPGKEREFVASITWNG~~
~~GSTSYADSVKGRFTITRDNAKNTATLRMNSLQPDDTAVYYCAAARYYVSGTYFPANY~~
~~WGQGTQVTVSS (SEQ ID NO: 103).~~
~~41.~~

10. The method of any one of claims 1 to ~~40~~9, wherein the single domain antibody is

a) genetically fused ~~or~~ to the agent;

b) chemically conjugated to the agent~~.~~; or

c) non-covalently bound to the agent.

11.~~42.~~ The method of claim ~~41~~10, further comprising a linker between the single domain antibody and the agent~~.~~

~~43. The method of claim 42,~~; wherein optionally, the linker~~:~~

a) is a polypeptide~~.~~; or

~~44. The method of claim 43, wherein the linker~~ b) is a flexible linker comprising a sequence selected from the group consisting of EPKTPKPQPQPQLQPQPNPTTESKSPK (SEQ ID NO: 130), (EAAAK)n (SEQ ID NO: 147), (GGGGS)n (SEQ ID NO: 148) and (GGGS)n (SEQ ID NO: 149), wherein n is an integer from 1 to 20.

~~45. The method of any one of claims 41 to 44, wherein the single domain antibody is chemically conjugated to the agent.~~

~~46. The method of any one of claims 41 to 44, wherein the single domain antibody is non-covalently bound to the agent.~~

~~47.~~

12. The method of any one of claims 1 to ~~46~~11, wherein the method does not inhibit pIgR-mediated transcytosis of IgA.

13.~~48.~~ The method of claim ~~47~~12, wherein the single domain antibody comprises~~:~~:

a) a CDR1 sequence of SNAMG (SEQ ID NO: 3), INVMG (SEQ ID NO: 6), TYRMG (SEQ ID NO: 7), RYAMG (SEQ ID NO: 8), FTTYRMG (SEQ ID NO: 258), TYRMG (SEQ ID NO: 259), FNTYAMG (SEQ ID NO: 9), GTSVSSN (SEQ ID NO: 12), GRTFSSY (SEQ ID NO: 13), RSIGSIN (SEQ ID NO: 15), GRTFSTY (SEQ ID NO: 16), GFTFTRY (SEQ ID NO: 17), GRTFTTY (SEQ ID NO: 18), GRTLSFNTY (SEQ ID NO: 19), GTSVSSNA (SEQ ID NO: 22), RSIGSINV (SEQ ID NO: 25), GRTFSTYR (SEQ ID NO: 26), GFTFTRYA (SEQ ID NO: 27), GRTFTTYR (SEQ ID NO: 28), GRTLSFNTYA (SEQ ID NO: 29), GTSVSSNAMG (SEQ ID NO: 156), RSIGSINVMG (SEQ ID NO: 159), GRTFSTYRMG (SEQ ID NO: 160), GFTFTRYAMG (SEQ ID NO: 161), GRTFTTYRMG (SEQ ID NO: 162), GRTLSFNTYAMG (SEQ ID NO: 163), SSNAMG (SEQ ID NO: 166), SINVMG (SEQ ID NO: 169), STYRMG (SEQ ID NO: 170), TRYAMG (SEQ ID NO: 171), TTYRMG (SEQ ID NO: 172), SFNTYAMG (SEQ ID NO: 173), GTSVSSNAMG (SEQ ID NO: 176), RSIGSINVMG (SEQ ID NO: 179), GRTFSTYRMG (SEQ ID NO: 180), GFTFTRYAMG (SEQ ID NO: 181), GRTFTTYRMG (SEQ ID NO: 182), or GRTLSFNTYAMG (SEQ ID NO: 183~~).~~);

~~49. The method of claim 47 or claim 48, wherein the single domain antibody comprises~~ b) a CDR2 sequence of FIDRIATTTIATSVKG (SEQ ID NO: 32), RITGGGSTHYAESVKG (SEQ ID NO: 35), AISWSGGSTTYADPVKG (SEQ ID NO: 36), AISWSGSSAGYGDSVKG (SEQ ID NO: 37), AIRWSGGRTLYADSVKG (SEQ ID NO: 38), SITWNGGSTSYADSVKG (SEQ ID NO: 39), DRIAT (SEQ ID NO: 42), RIA (SEQ ID NO: 262), TGGGS (SEQ ID NO: 45), GGG (SEQ ID NO: 265), SWSGGS (SEQ ID NO: 46), WSGG (SEQ ID NO: 266), SWSGSS (SEQ ID NO: 47), WSGS (SEQ ID NO: 267), RWSGGR (SEQ ID NO: 48), WSGG (SEQ ID NO: 268), TWNGGS (SEQ ID NO: 49), WNGG (SEQ ID NO: 269), IDRIATT (SEQ ID NO: 52),

ITGGGST (SEQ ID NO: 55), ISWSGGST (SEQ ID NO: 56), ISWSGSSA (SEQ ID NO: 57), IRWSGGRT (SEQ ID NO: 58), ITWNGGST (SEQ ID NO: 59), FIDRIATTTIATSVKG (SEQ ID NO: 186), RITGGGSTHYAESVKG (SEQ ID NO: 189), AISWSGGSTTYADPVKG (SEQ ID NO: 190), AISWSGSSAGYGDSVKG (SEQ ID NO: 191), AIRWSGGRTLYADSVKG (SEQ ID NO: 192), SITWNGGSTSYADSVKG (SEQ ID NO: 193), WVGFIDRIATTT (SEQ ID NO: 196), LVARITGGGSTH (SEQ ID NO: 199), FVAAISWSGGSTT (SEQ ID NO: 200), FVAAISWSGSSAG (SEQ ID NO: 201), FVAAIRWSGGRTL (SEQ ID NO: 202), FVASITWNGGSTS (SEQ ID NO: 203), FIDRIATTT (SEQ ID NO: 206), RITGGGSTH (SEQ ID NO: 209), AISWSGGSTT (SEQ ID NO: 210), AISWSGSSAG (SEQ ID NO: 211), AIRWSGGRTL (SEQ ID NO: 212), or SITWNGGSTS (SEQ ID NO: 213~~)~~); or

~~50. The method of any one of claims 47 to 49, wherein the single domain antibody comprises~~ c)

_____a CDR3 sequence of PLTAR (SEQ ID NO: 63), MVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 66), DQRGY (SEQ ID NO: 67), QRGY (SEQ ID NO: 271), DPFNQGY (SEQ ID NO: 68), DLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 69), ARYYVSGTYFPANY (SEQ ID NO: 70), PLTAR (SEQ ID NO: 74), LTA (SEQ ID NO: 275), MVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 77), VNPIITAWGTIGVREIPDYD (SEQ ID NO: 278), DQRGY (SEQ ID NO: 78), RG (SEQ ID NO: 279), DPFNQGY (SEQ ID NO: 79), PFNQG (SEQ ID NO: 280), DLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 80), LAEYSGTYSSPADSPAGYD (SEQ ID NO: 281), ARYYVSGTYFPANY (SEQ ID NO: 81), RYYVSGTYFPAN (SEQ ID NO: 282), NHPLTAR (SEQ ID NO: 85), ASMVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 88), NDQRGY (SEQ ID NO: 89), AADPFNQGY (SEQ ID NO: 90), AADLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 91), AAARYYVSGTYFPANY (SEQ ID NO: 92), PLTAR (SEQ ID NO: 217), MVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 220), QRGY (SEQ ID NO: 221), DPFNQGY (SEQ ID NO: 222), DLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 223), ARYYVSGTYFPANY (SEQ ID NO: 224), NHPLTA (SEQ ID NO: 228), ASMVNPIITAWGTIGVREIPDYD (SEQ ID NO: 231), NDQRG (SEQ ID NO: 232), AADPFNQG (SEQ ID NO: 233), AADLAEYSGTYSSPADSPAGYD (SEQ ID NO: 234), AAARYYVSGTYFPAN (SEQ ID NO: 235), PLTAR (SEQ ID NO: 239),

MVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 242), QRGY (SEQ ID NO: 243), DPFNQGY (SEQ ID NO: 244), DLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 245), or ARYYVSGTYFPANY (SEQ ID NO: 246).).

51.

14. A process for providing a molecule to a subject, comprising administering to the subject the molecule comprising an agent and a single domain antibody that binds to polymeric immunoglobulin receptor (pIgR),) to be administered to the subject, wherein the molecule is to be administered to the subject via oral delivery, buccal delivery, nasal delivery or inhalation delivery.

15.52. The process of claim 5114, wherein:

a) the molecule:

i) is capable of being provided to a basolateral surface of an a pIgR-expressing cell from an apical surface of the pIgR-expressing cell in the subject.; or

53. The process of claim 51 or claim 52, wherein the molecule ii) is capable of being provided to an apical surface of the pIgR-expressing cell from a basolateral surface of an pIgR-expressing cell in the subject.;

54. The process of any one of claims 51 to 53, wherein b) the pIgR-expressing cell is an epithelial cell.

55. The process of claim 54,; wherein optionally, the epitheliaepithelial cell is an intestinal lumen cell or an airway epithelial cell.; or

56. The process of any one of claims 51 to 55, wherein c) the agent is a:

i) diabetes medication.

57. The process of claim 56, wherein the diabetes medication is selected from a group consisting of insulin, glucagon-like-peptide-1, insulin-mimic peptides, and glucagon-like-peptide-1-mimic peptides.;

58. The process of any one of claims 51 to 55, wherein the agent is a ii) peptide or an antibody or a fragment thereof.

59. The process of claim 58, wherein the antibody or fragment thereof is selected from a group consisting of an anti-TNF-alpha antibody or a fragment thereof, an anti-IL23 antibody or a fragment thereof, and an antibody that binds to a receptor of IL23 or a fragment thereof.; or

60. The process of any one of claims 51 to 55, wherein the agent is a vaccine.

61. The process of claim 60iii) vaccine, wherein the vaccine is for preventing an infection selected from a group consisting of Vibrio, Cholera, Typhoid, Rotavirus, Tuberculosis, HIV, Flu, Ebola, and Sendai.

62.

16. The process of any one of claims 51 to 61claim 14 or claim 15, wherein the single domain antibody-:

a) binds to-:

i) an extracellular domain 1, an extracellular domain 2, an extracellular domain 1-2, an extracellular domain 3, an extracellular domain 2-3, an extracellular domain 4-5, or an extracellular domain 5 of pIgR-;

63. The process of any one of claims 51 to 61, wherein the single domain antibody binds to

ii) an extracellular domain 1 of pIgR-;

64. The process of any one of claims 51 to 61, wherein the single domain antibody binds to

iii) an extracellular domain 2 of pIgR-;

65. The process of any one of claims 51 to 61, wherein the single domain antibody binds to

iv) an extracellular domain 1-2 of pIgR-;

66. The process of any one of claims 51 to 61, wherein the single domain antibody binds to

v) an extracellular domain 3 of pIgR-;

67. The process of any one of claims 51 to 61, wherein the single domain antibody binds to

vi) an extracellular domain 2-3 of pIgR-;

68. The process of any one of claims 51 to 61, wherein the single domain antibody binds to

vii) an extracellular domain 4-5 of pIgR-; or

69. The process of any one of claims 51 to 61, wherein the single domain antibody binds toviii) an extracellular domain 5 of pIgR-;

70. The process of any one of claims 51 to 69, wherein the single domain antibody b)

competes with IgA binding to the pIgR-; or

71. The process of any one of claims 51 to 69, wherein the single domain antibody c) promotes IgA binding to the pIgR.

72.

17. The process of any one of claims 51 14 to 71 16, wherein:

a) the K_D of the binding of the single domain antibody to pIgR:

i) is from about 4 to about 525 nM;

73. The process of any one of claims 51 to 71, wherein the K_D of the binding of the single domain antibody to pIgR is ii) is less than about 50 nM; or

74. The process of any one of claims 51 to 71, wherein the K_D of the binding of the single domain antibody to pIgR iii) is from about 4 to about 34 nM;

75. The process of any one of claims 51 to 74, wherein b) the T_m of the single domain antibody:

i) is from about 53 to about 77 °C; or

76. The process of any one of claims 51 to 74, wherein the Tm of the single domain antibody ii) is from 53.9 to 76.4 °C;

77. The process of any one of claims 51 to 76, wherein c) the pIgR is

i) human pIgR; or

78. The process of any one of claims 51 to 76, wherein pIgR is mouse pIgR.

79. The process of any one of claims 51 to 76, wherein ii) mouse pIgR;

or

d) the single domain antibody does not bind to a stalk sequence of human pIgR and/or a stalk sequence of mouse pIgR.

80.

18. The process of any one of claims 51 14 to 79 17, wherein the single domain antibody comprises:

a) a CDR3 sequence of GSIDLNWYGGMDY (SEQ ID NO: 60), TTVLTDPRVLNEYAT (SEQ ID NO: 61), DVFGSSGYVETY (SEQ ID NO: 62), PLTAR (SEQ ID NO: 63), DPFNQGY (SEQ ID NO: 64), PLTSR (SEQ ID NO: 65), MVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 66), DQRGY (SEQ ID NO: 67), QRGY (SEQ ID NO: 271), DPFNQGY (SEQ ID NO: 68), DLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 69), ARYYVSGTYFPANY (SEQ ID

NO: 70), GSIDLNWYGGMDY (SEQ ID NO: 71), SIDLNWYGGMD (SEQ ID NO: 272), TTVLTDPRVLNEYAT (SEQ ID NO: 72), TVLTDPRVLNEYA (SEQ ID NO: 273), DVFGSSGYVETY (SEQ ID NO: 73), VFGSSGYVET (SEQ ID NO: 274), PLTAR (SEQ ID NO: 74), LTA (SEQ ID NO: 275), DPFNQGY (SEQ ID NO: 75), PFNQG (SEQ ID NO: 276), PLTSR (SEQ ID NO: 76), LTS (SEQ ID NO: 277), MVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 77), VNPIITAWGTIGVREIPDYD (SEQ ID NO: 278), DQRGY (SEQ ID NO: 78), RG (SEQ ID NO: 279), DPFNQGY (SEQ ID NO: 79), PFNQG (SEQ ID NO: 280), DLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 80), LAEYSGTYSSPADSPAGYD (SEQ ID NO: 281), ARYYVSGTYFPANY (SEQ ID NO: 81), RYYVSGTYFPAN (SEQ ID NO: 282), CAAGSIDLNWYGGMDY (SEQ ID NO: 82), AAGSIDLNWYGGMDY (SEQ ID NO: 283), CAATTVLTDPRVLNEYAT (SEQ ID NO: 83), AATTVLTDPRVLNEYAT (SEQ ID NO: 284), KADVFGSSGYVETY (SEQ ID NO: 84), NHPLTAR (SEQ ID NO: 85), AADPFNQGY (SEQ ID NO: 86), NHPLTSR (SEQ ID NO: 87), ASMVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 88), NDQRGY (SEQ ID NO: 89), AADPFNQGY (SEQ ID NO: 90), AADLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 91), AAARYYVSGTYFPANY (SEQ ID NO: 92), GSIDLNWYGGMDY (SEQ ID NO: 214), TTVLTDPRVLNEYAT (SEQ ID NO: 215), DVFGSSGYVETY (SEQ ID NO: 216), PLTAR (SEQ ID NO: 217), DPFNQGY (SEQ ID NO: 218), PLTSR (SEQ ID NO: 219), MVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 220), QRGY (SEQ ID NO: 221), DPFNQGY (SEQ ID NO: 222), DLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 223), ARYYVSGTYFPANY (SEQ ID NO: 224), AAGSIDLNWYGGMD (SEQ ID NO: 225), AATTVLTDPRVLNEYA (SEQ ID NO: 226), KADVFGSSGYVET (SEQ ID NO: 227), NHPLTA (SEQ ID NO: 228), AADPFNQG (SEQ ID NO: 229), NHPLTS (SEQ ID NO: 230),

ASMVNPIITAWGTIGVREIPDYD (SEQ ID NO: 231), NDQRG (SEQ ID NO: 232), AADPFNQG (SEQ ID NO: 233), AADLAEYSGTYSSPADSPAGYD (SEQ ID NO: 234), AAARYYVSGTYFPAN (SEQ ID NO: 235), GSIDLNWYGGMDY (SEQ ID NO: 236), TTVLTDPRVLNEYAT (SEQ ID NO: 237), DVFGSSGYVETY (SEQ ID NO: 238), PLTAR (SEQ ID NO: 239), DPFNQGY (SEQ ID NO: 240), PLTSR (SEQ ID NO: 241), MVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 242), QRGY (SEQ ID NO: 243), DPFNQGY (SEQ ID NO: 244), DLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 245), or ARYYVSGTYFPANY (SEQ ID NO: 246).);

~~81. The process of any one of claims 51 to 80, wherein the single domain antibody comprises~~ b)

_____a CDR2 sequence of AIDWNGRGTYYRYYADSVKG (SEQ ID NO: 30), RINGGGITHYAESVKG (SEQ ID NO: 31), FIDRIATTTIATSVKG (SEQ ID NO: 32), AITWNGGTTYYADSVKG (SEQ ID NO: 33), FISGGGTTTYADSVKG (SEQ ID NO: 34), RITGGGSTHYAESVKG (SEQ ID NO: 35), AISWSGGSTTYADPVKG (SEQ ID NO: 36), AISWSGSSAGYGDSVKG (SEQ ID NO: 37), AIRWSGGRTLYADSVKG (SEQ ID NO: 38), SITWNGGSTSYADSVKG (SEQ ID NO: 39), DWNGRGTYY (SEQ ID NO: 40), WNGRGTY (SEQ ID NO: 260), NGGGI (SEQ ID NO: 41), GGG (SEQ ID NO: 261), DRIAT (SEQ ID NO: 42), RIA (SEQ ID NO: 262), TWNGGT (SEQ ID NO: 43), WNGG (SEQ ID NO: 263), SGGGT (SEQ ID NO: 44), GGG (SEQ ID NO: 264), TGGGS (SEQ ID NO: 45), GGG (SEQ ID NO: 265), SWSGGS (SEQ ID NO: 46), WSGG (SEQ ID NO: 266), SWSGSS (SEQ ID NO: 47), WSGS (SEQ ID NO: 267), RWSGGR (SEQ ID NO: 48), WSGG (SEQ ID NO: 268), TWNGGS (SEQ ID NO: 49), WNGG (SEQ ID NO: 269), IDWNGRGTYY (SEQ ID NO: 50), IDWNGRGTYYR (SEQ ID NO: 270), INGGGIT (SEQ ID NO: 51), IDRIATT (SEQ ID NO: 52), ITWNGGTT (SEQ ID NO: 53), ISGGGTT (SEQ ID NO: 54), ITGGGST (SEQ ID NO: 55), ISWSGGST (SEQ ID NO: 56), ISWSGSSA (SEQ ID NO: 57), IRWSGGRT (SEQ ID NO: 58), ITWNGGST (SEQ ID NO: 59), AIDWNGRGTYYRYYADSVKG (SEQ ID NO: 184), RINGGGITHYAESVKG (SEQ ID NO: 185), FIDRIATTTIATSVKG (SEQ ID NO: 186), AITWNGGTTYYADSVKG (SEQ ID NO: 187), FISGGGTTTYADSVKG (SEQ ID NO: 188), RITGGGSTHYAESVKG (SEQ ID NO: 189), AISWSGGSTTYADPVKG (SEQ ID NO: 190), AISWSGSSAGYGDSVKG (SEQ ID NO: 191), AIRWSGGRTLYADSVKG (SEQ ID NO: 192), SITWNGGSTSYADSVKG (SEQ ID NO: 193), FVAAIDWNGRGTYYRY (SEQ ID NO: 194), LVARINGGGITH (SEQ ID NO: 195),

_WVGFIDRIATTT (SEQ ID NO: 196), FVAAITWNGGTTY (SEQ ID NO: 197), WVAFISGGGTTT (SEQ ID NO: 198), LVARITGGGSTH (SEQ ID NO: 199), FVAAISWSGGSTT (SEQ ID NO: 200), FVAAISWSGSSAG (SEQ ID NO: 201), FVAAIRWSGGRTL (SEQ ID NO: 202), FVASITWNGGSTS (SEQ ID NO: 203), AIDWNGRGTYYRY (SEQ ID NO: 204), RINGGGITH (SEQ ID NO: 205), FIDRIATTT (SEQ ID NO: 206), AITWNGGTTY (SEQ ID NO: 207), FISGGGTTT (SEQ ID NO: 208), RITGGGSTH (SEQ ID NO: 209), AISWSGGSTT (SEQ ID NO: 210), AISWSGSSAG

(SEQ ID NO: 211), AIRWSGGRTL (SEQ ID NO: 212), or SITWNGGSTS (SEQ ID NO: 213~~).~~);

~~82. The process of any one of claims 51 to 81, wherein the single domain antibody comprises~~ c)

_____a CDR1 sequence of SYRMG (SEQ ID NO: 1), INVMG (SEQ ID NO: 2), SNAMG (SEQ ID NO: 3), SYAMG (SEQ ID NO: 4), SDAMG (SEQ ID NO: 5), INVMG (SEQ ID NO: 6), TYRMG (SEQ ID NO: 7), RYAMG (SEQ ID NO: 8), FTTYRMG (SEQ ID NO: 258), TYRMG (SEQ ID NO: 259), FNTYAMG (SEQ ID NO: 9), GLTFSSY (SEQ ID NO: 10), GSIFSIN (SEQ ID NO: 11), GTSVSSN (SEQ ID NO: 12), GRTFSSY (SEQ ID NO: 13), GSSVSSD (SEQ ID NO: 14), RSIGSIN (SEQ ID NO: 15), GRTFSTY (SEQ ID NO: 16), GFTFTRY (SEQ ID NO: 17), GRTFTTY (SEQ ID NO: 18), GRTLSFNTY (SEQ ID NO: 19), GLTFSSYR (SEQ ID NO: 20), GSIFSINV (SEQ ID NO: 21), GTSVSSNA (SEQ ID NO: 22), GRTFSSYA (SEQ ID NO: 23), GSSVSSDA (SEQ ID NO: 24), RSIGSINV (SEQ ID NO: 25), GRTFSTYR (SEQ ID NO: 26), GFTFTRYA (SEQ ID NO: 27), GRTFTTYR (SEQ ID NO: 28), GRTLSFNTYA (SEQ ID NO: 29), GLTFSSYRMG (SEQ ID NO: 154), GSIFSINVMG (SEQ ID NO: 155), GTSVSSNAMG (SEQ ID NO: 156), GRTFSSYAMG (SEQ ID NO: 157), GSSVSSDAMG (SEQ ID NO: 158), RSIGSINVMG (SEQ ID NO: 159), GRTFSTYRMG (SEQ ID NO: 160), GFTFTRYAMG (SEQ ID NO: 161), GRTFTTYRMG (SEQ ID NO: 162), GRTLSFNTYAMG (SEQ ID NO: 163), SSYRMG (SEQ ID NO: 164), SINVMG (SEQ ID NO: 165), SSNAMG (SEQ ID NO: 166), SSYAMG (SEQ ID NO: 167), SSDAMG (SEQ ID NO: 168), SINVMG (SEQ ID NO: 169), STYRMG (SEQ ID NO: 170), TRYAMG (SEQ ID NO: 171), TTYRMG (SEQ ID NO: 172), SFNTYAMG (SEQ ID NO: 173), GLTFSSYRMG (SEQ ID NO: 174), GSIFSINVMG (SEQ ID NO: 175), GTSVSSNAMG (SEQ ID NO: 176), GRTFSSYAMG (SEQ ID NO: 177), GSSVSSDAMG (SEQ ID NO: 178), RSIGSINVMG (SEQ ID NO: 179), GRTFSTYRMG (SEQ ID NO: 180), GFTFTRYAMG (SEQ ID NO: 181), GRTFTTYRMG (SEQ ID NO: 182), or GRTLSFNTYAMG (SEQ ID NO: 183);

~~ID NO: 180), GFTFTRYAMG (SEQ ID NO: 181), GRTFTTYRMG (SEQ ID NO: 182), or GRTLSFNTYAMG (SEQ ID NO: 183).~~

~~83. The process of any one of claims 51 to 82, wherein the single domain antibody comprises~~ d)

_____a CDR1 sequence, a CDR2 sequence, and a CDR3 sequence ~~of the single domain antibody~~ selected from the group consisting of:

a) i) VHH1:

i) 1) the CDR1 sequence of SYRMG (SEQ ID NO: 1), the CDR2 sequence of AIDWNGRGTYYRYYADSVKG (SEQ ID NO: 30), and the CDR3 sequence of GSIDLNWYGGMDY (SEQ ID NO: 60);

ii) 2) the CDR1 sequence of GLTFSSY (SEQ ID NO: 10), the CDR2 sequence of DWNGRGTYY (SEQ ID NO: 40) or WNGRGTY (SEQ ID NO: 260), and the CDR3 sequence of GSIDLNWYGGMDY (SEQ ID NO: 71) or SIDLNWYGGMD (SEQ ID NO: 272);

iii) 3) the CDR1 sequence of GLTFSSYR (SEQ ID NO: 20), the CDR2 sequence of IDWNGRGTYY (SEQ ID NO: 50) or IDWNGRGTYYR (SEQ ID NO: 270), and the CDR3 sequence of CAAGSIDLNWYGGMDY (SEQ ID NO: 82) or AAGSIDLNWYGGMDY (SEQ ID NO: 283);

iv) 4) the CDR1 sequence of GLTFSSYRMG (SEQ ID NO: 154), the CDR 2 sequence of AIDWNGRGTYYRYYADSVKG (SEQ ID NO: 184), and the CDR3 sequence of GSIDLNWYGGMDY (SEQ ID NO: 214);

v) 5) the CDR1 sequence of SSYRMG (SEQ ID NO: 164), the CDR2 sequence of FVAAIDWNGRGTYYRY (SEQ ID NO: 194), and the CDR3 sequence of AAGSIDLNWYGGMD (SEQ ID NO: 225); or

vi) 6) the CDR1 sequence of GLTFSSYRMG (SEQ ID NO: 174), the CDR2 sequence of AIDWNGRGTYYRY (SEQ ID NO: 204), and the CDR3 sequence of GSIDLNWYGGMDY (SEQ ID NO: 236);

b) ii) VHH2:

i) 1) the CDR1 sequence of SYRMG (SEQ ID NO: 1), the CDR2 sequence of AIDWNGRGTYYRYYADSVKG (SEQ ID NO: 30), and the CDR3 sequence of TTVLTDPRVLNEYAT (SEQ ID NO: 61);

ii) 2) the CDR1 sequence of GLTFSSY (SEQ ID NO: 10), the CDR2 sequence of DWNGRGTYY (SEQ ID NO: 40) or WNGRGTY (SEQ ID NO: 260), and the CDR3 sequence of TTVLTDPRVLNEYAT (SEQ ID NO: 72) or TVLTDPRVLNEYA (SEQ ID NO: 273);

iii) 3) the CDR1 sequence of GLTFSSYR (SEQ ID NO: 20), the CDR2 sequence of IDWNGRGTYY (SEQ ID NO: 50) or IDWNGRGTYYR (SEQ ID NO: 270), and the

CDR3 sequence of CAATTVLTDPRVLNEYAT (SEQ ID NO: 83) or AATTVLTDPRVLNEYAT (SEQ ID NO: 284);

~~iv)~~ 4) the CDR1 sequence of GLTFSSYRMG (SEQ ID NO: 154), the CDR2 sequence of AIDWNGRGTYYRYYADSVKG (SEQ ID NO: 184), and the CDR3 sequence of TTVLTDPRVLNEYAT (SEQ ID NO: 215);

~~v)~~ 5) the CDR1 sequence of SSYRMG (SEQ ID NO: 164), the CDR2 sequence of FVAAIDWNGRGTYYRY (SEQ ID NO: 194), and the CDR3 sequence of AATTVLTDPRVLNEYA (SEQ ID NO: 226); or

~~vi)~~ 6) the CDR1 sequence of GLTFSSYRMG (SEQ ID NO: 174), the CDR2 sequence of AIDWNGRGTYYRY (SEQ ID NO: 204), and the CDR3 sequence of TTVLTDPRVLNEYAT (SEQ ID NO: 237);

~~c)~~ iii) VHH3:

~~i)~~ 1) the CDR1 sequence of INVMG (SEQ ID NO: 2), the CDR2 sequence of RINGGGITHYAESVKG (SEQ ID NO: 31), and the CDR3 sequence of DVFGSSGYVETY (SEQ ID NO: 62);

~~ii)~~ 2) the CDR1 sequence of GSIFSIN (SEQ ID NO: 11), the CDR2 sequence of NGGGI (SEQ ID NO: 41) or GGG (SEQ ID NO: 261), and the CDR3 sequence of DVFGSSGYVETY (SEQ ID NO: 73) or VFGSSGYVET (SEQ ID NO: 274);~~iii)~~ 3) the CDR1 sequence of GSIFSINV (SEQ ID NO: 21), the CDR2 sequence of INGGGIT (SEQ ID NO: 51), and the CDR3 sequence of KADVFGSSGYVETY (SEQ ID NO: 84);

~~iv)~~ 4) the CDR1 sequence of GSIFSINVMG (SEQ ID NO: 155), the CDR2 sequence of RINGGGITHYAESVKG (SEQ ID NO: 185), and the CDR3 sequence of DVFGSSGYVETY (SEQ ID NO: 216);

~~v)~~ 5) the CDR1 sequence of SINVMG (SEQ ID NO: 165), the CDR2 sequence of LVARINGGGITH (SEQ ID NO: 195), and the CDR3 sequence of KADVFGSSGYVET (SEQ ID NO: 227); or

~~vi)~~ 6) the CDR1 sequence of GSIFSINVMG (SEQ ID NO: 175), the CDR2 sequence of RINGGGITH (SEQ ID NO: 205), and the CDR3 sequence of DVFGSSGYVETY (SEQ ID NO: 238);

~~d)~~ iv) VHH4:

~~i)~~ 1) the CDR1 sequence of SNAMG (SEQ ID NO: 3), the CDR2 sequence of FIDRIATTTIATSVKG (SEQ ID NO: 32), and the CDR3 sequence of PLTAR (SEQ ID NO: 63);

~~ii)~~ 2) the CDR1 sequence of GTSVSSN (SEQ ID NO: 12), the CDR2 sequence of DRIAT (SEQ ID NO: 42) or RIA (SEQ ID NO: 262), and the CDR3 sequence of PLTAR (SEQ ID NO: 74) or LTA (SEQ ID NO: 275);

~~iii)~~ 3) the CDR1 sequence of GTSVSSNA (SEQ ID NO: 22), the CDR2 sequence of IDRIATT (SEQ ID NO: 52), and the CDR3 sequence of NHPLTAR (SEQ ID NO: 85);

~~iv)~~ 4) the CDR1 sequence of GTSVSSNAMG (SEQ ID NO: 156), the CDR2 sequence of FIDRIATTTIATSVKG (SEQ ID NO: 186), and the CDR3 sequence of PLTAR (SEQ ID NO: 217);

~~v)~~ 5) the CDR1 sequence of SSNAMG (SEQ ID NO: 166), the CDR2 sequence of WVGFIDRIATTT (SEQ ID NO: 196), and the CDR3 sequence of NHPLTA (SEQ ID NO: 228); or

~~vi)~~ 6) the CDR1 sequence of GTSVSSNAMG (SEQ ID NO: 176), the CDR2 sequence of FIDRIATTT (SEQ ID NO: 206), and the CDR3 sequence of PLTAR (SEQ ID NO: 239);

~~e)~~ v) VHH5:

~~i)~~ 1) the CDR1 sequence of SYAMG (SEQ ID NO: 4), the CDR2 sequence of AITWNGGTTYYADSVKG (SEQ ID NO: 33), and the CDR3 sequence of DPFNQGY (SEQ ID NO: 64);

~~ii)~~ 2) the CDR1 sequence of GRTFSSY (SEQ ID NO: 13), the CDR2 sequence of TWNGGT (SEQ ID NO: 43) or WNGG (SEQ ID NO: 263), and the CDR3 sequence of DPFNQGY (SEQ ID NO: 75) or PFNQG (SEQ ID NO: 276);

~~iii)~~ 3) the CDR1 sequence of GRTFSSYA (SEQ ID NO: 23), the CDR2 sequence of ITWNGGTT (SEQ ID NO: 53), and the CDR3 sequence of AADPFNQGY (SEQ ID NO: 86);

~~iv)~~ 4) the CDR1 sequence of GRTFSSYAMG (SEQ ID NO: 157), the CDR2 sequence of AITWNGGTTYYADSVKG (SEQ ID NO: 187), and the CDR3 sequence of DPFNQGY (SEQ ID NO: 218);

~~v)~~ 5) the CDR1 sequence of SSYAMG (SEQ ID NO: 167), the CDR2 sequence of FVAAITWNGGTTY (SEQ ID NO: 197), and the CDR3 sequence of AADPFNQG (SEQ ID NO: 229); or

~~vi)~~ 6) the CDR1 sequence of GRTFSSYAMG (SEQ ID NO: 177), the CDR2 sequence of AITWNGGTTY (SEQ ID NO: 207), and the CDR3 sequence of DPFNQGY (SEQ ID NO: 240);

~~f)~~ vi) VHH6:

~~i)~~ 1) the CDR1 sequence of SDAMG (SEQ ID NO: 5), the CDR2 sequence of FISGGGTTTYADSVKG (SEQ ID NO: 34), and the CDR3 sequence of PLTSR (SEQ ID NO: 65);

~~ii)~~ 2) the CDR1 sequence of GSSVSSD (SEQ ID NO: 14), the CDR2 sequence of SGGGT (SEQ ID NO: 44) or GGG (SEQ ID NO: 264), and the CDR3 sequence of PLTSR (SEQ ID NO: 76) or LTS (SEQ ID NO: 277);

~~iii)~~ 3) the CDR1 sequence of GSSVSSDA (SEQ ID NO: 24), the CDR2 sequence of ISGGGTT (SEQ ID NO: 54), and the CDR3 sequence of NHPLTSR (SEQ ID NO: 87);

~~iv)~~ 4) the CDR1 sequence of GSSVSSDAMG (SEQ ID NO: 158), the CDR2 sequence of FISGGGTTTYADSVKG (SEQ ID NO: 188), and the CDR3 sequence of PLTSR (SEQ ID NO: 219);

~~v)~~ 5) the CDR1 sequence of SSDAMG (SEQ ID NO: 168), the CDR2 sequence of WVAFISGGGTTT (SEQ ID NO: 198), and the CDR3 sequence of NHPLTS (SEQ ID NO: 230); or

~~vi)~~ 6) the CDR1 sequence of GSSVSSDAMG (SEQ ID NO: 178), the CDR2 sequence of FISGGGTTT (SEQ ID NO: 208), and the CDR3 sequence of PLTSR (SEQ ID NO: 241);

~~g)~~ vii) VHH7:

~~i)~~ 1) the CDR1 sequence of INVMG (SEQ ID NO: 6), the CDR2 sequence of RITGGGSTHYAESVKG (SEQ ID NO: 35), and the CDR3 sequence of MVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 66);

~~ii)~~ 2) the CDR1 sequence of RSIGSIN (SEQ ID NO: 15), the CDR2 sequence of TGGGS (SEQ ID NO: 45) or GGG (SEQ ID NO: 265), and the CDR3 sequence of

MVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 77) or VNPIITAWGTIGVREIPDYD (SEQ ID NO: 278);

iii) 3) the CDR1 sequence of RSIGSINV (SEQ ID NO: 25), the CDR2 sequence of ITGGGST (SEQ ID NO: 55), and the CDR3 sequence of ASMVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 88);

iv) 4) the CDR1 sequence of RSIGSINVMG (SEQ ID NO: 159), the CDR2 sequence of RITGGGSTHYAESVKG (SEQ ID NO: 189), and the CDR3 sequence of MVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 220);

v) 5) the CDR1 sequence of SINVMG (SEQ ID NO: 169), the CDR2 sequence of LVARITGGGSTH (SEQ ID NO: 199), and the CDR3 sequence of ASMVNPIITAWGTIGVREIPDYD (SEQ ID NO: 231); or

vi) 6) the CDR1 sequence of RSIGSINVMG (SEQ ID NO: 179), the CDR2 sequence of RITGGGSTH (SEQ ID NO: 209), and the CDR3 sequence of MVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 242);

h) VHH9:

i) viii) VHH8:

1) the CDR1 sequence of TYRMG (SEQ ID NO: 7), the CDR2 sequence of AISWSGGSTTYADPVKG (SEQ ID NO: 36), and the CDR3 sequence of DQRGY (SEQ ID NO: 67) or QRGY (SEQ ID NO: 271);

ii) 2) the CDR1 sequence of GRTFSTY (SEQ ID NO: 16), the CDR2 sequence of SWSGGS (SEQ ID NO: 46) or WSGG (SEQ ID NO: 266), and the CDR3 sequence of DQRGY (SEQ ID NO: 78) or RG (SEQ ID NO: 279);

iii) 3) the CDR1 sequence of GRTFSTYR (SEQ ID NO: 26), the CDR2 sequence of ISWSGGST (SEQ ID NO: 56), and the CDR3 sequence of NDQRGY (SEQ ID NO: 89);

iv) 4) the CDR1 sequence of GRTFSTYRMG (SEQ ID NO: 160), the CDR2 sequence of AISWSGGSTTYADPVKG (SEQ ID NO: 190), and the CDR3 sequence of QRGY (SEQ ID NO: 221);

v) 5) the CDR1 sequence of STYRMG (SEQ ID NO: 170), the CDR2 sequence of FVAAISWSGGSTT (SEQ ID NO: 200), and the CDR3 sequence of NDQRG (SEQ ID NO: 232); or

~~vi)~~ 6) the CDR1 sequence of GRTFSTYRMG (SEQ ID NO: 180), the CDR2 sequence of AISWSGGSTT (SEQ ID NO: 210), and the CDR3 sequence of QRGY (SEQ ID NO: 243);

~~i) VHH10:~~

~~i)~~ ix) VHH9:

1) the CDR1 sequence of RYAMG (SEQ ID NO: 8), the CDR2 sequence of AISWSGSSAGYGDSVKG (SEQ ID NO: 37), and the CDR3 sequence of DPFNQGY (SEQ ID NO: 68);

~~ii)~~ 2) the CDR1 sequence of GFTFTRY (SEQ ID NO: 17), the CDR2 sequence of SWSGSS (SEQ ID NO: 47) or WSGS (SEQ ID NO: 267), and the CDR3 sequence of DPFNQGY (SEQ ID NO: 79) or PFNQG (SEQ ID NO: 280);

~~iii)~~ 3) the CDR1 sequence of GFTFTRYA (SEQ ID NO: 27), the CDR2 sequence of ISWSGSSA (SEQ ID NO: 57), and the CDR3 sequence of AADPFNQGY (SEQ ID NO: 90);

~~iv)~~ 4) the CDR1 sequence of GFTFTRYAMG (SEQ ID NO: 161), the CDR2 sequence of AISWSGSSAGYGDSVKG (SEQ ID NO: 191), and the CDR3 sequence of DPFNQGY (SEQ ID NO: 222);

~~v)~~ 5) the CDR1 sequence of TRYAMG (SEQ ID NO: 171), the CDR2 sequence of FVAAISWSGSSAG (SEQ ID NO: 201), and the CDR3 sequence of AADPFNQG (SEQ ID NO: 233); or

~~vi)~~ 6) the CDR1 sequence of GFTFTRYAMG (SEQ ID NO: 181), the CDR2 sequence of AISWSGSSAG (SEQ ID NO: 211), and the CDR3 sequence of DPFNQGY (SEQ ID NO: 244);

~~j) VHH11:~~

~~i)~~ x) VHH10:

1) the CDR1 sequence of FTTYRMG (SEQ ID NO: 258) or TYRMG (SEQ ID NO: 259), the CDR2 sequence of AIRWSGGRTLYADSVKG (SEQ ID NO: 38), and the CDR3 sequence of DLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 69);

~~ii)~~ 2) the CDR1 sequence of GRTFTTY (SEQ ID NO: 18), the CDR2 sequence of RWSGGR (SEQ ID NO: 48) or WSGG (SEQ ID NO: 268), and the CDR3 sequence of DLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 80) or LAEYSGTYSSPADSPAGYD (SEQ ID NO: 281);

~~iii)~~ 3) the CDR1 sequence of GRTFTTYR (SEQ ID NO: 28), the CDR2 sequence of IRWSGGRT (SEQ ID NO: 58), and the CDR3 sequence of AADLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 91);

~~iv)~~ 4) the CDR1 sequence of GRTFTTYRMG (SEQ ID NO: 162), the CDR2 sequence of AIRWSGGRTLYADSVKG (SEQ ID NO: 192), and the CDR3 sequence of DLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 223);

~~v)~~ 5) the CDR1 sequence of TTYRMG (SEQ ID NO: 172), the CDR2 sequence of FVAAIRWSGGRTL (SEQ ID NO: 202), and the CDR3 sequence of AADLAEYSGTYSSPADSPAGYD (SEQ ID NO: 234); or

~~vi)~~ 6) the CDR1 sequence of GRTFTTYRMG (SEQ ID NO: 182), the CDR2 sequence of AIRWSGGRTL (SEQ ID NO: 212), and the CDR3 sequence of DLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 245); and

~~k) VHH12:~~

~~i)~~ xi) VHH11:

1) the CDR1 sequence of FNTYAMG (SEQ ID NO: 9), the CDR2 sequence of SITWNGGSTSYADSVKG (SEQ ID NO: 39), and the CDR3 sequence of ARYYVSGTYFPANY (SEQ ID NO: 70);

~~ii)~~ 2) the CDR1 sequence of GRTLSFNTY (SEQ ID NO: 19), the CDR2 sequence of TWNGGS (SEQ ID NO: 49) or WNGG (SEQ ID NO: 269), and the CDR3 sequence of ARYYVSGTYFPANY (SEQ ID NO: 81) or RYYVSGTYFPAN (SEQ ID NO: 282);

~~iii)~~ 3) the CDR1 sequence of GRTLSFNTYA (SEQ ID NO: 29), the CDR2 sequence of ITWNGGST (SEQ ID NO: 59), and the CDR3 sequence of AAARYYVSGTYFPANY (SEQ ID NO: 92);

~~iv)~~ 4) the CDR1 sequence of GRTLSFNTYAMG (SEQ ID NO: 163), the CDR2 sequence of SITWNGGSTSYADSVKG (SEQ ID NO: 193), and the CDR3 sequence of ARYYVSGTYFPANY (SEQ ID NO: 224);

v) 5) the CDR1 sequence of SFNTYAMG (SEQ ID NO: 173), the CDR2 sequence of FVASITWNGGSTS (SEQ ID NO: 203), and the CDR3 sequence of AAARYYVSGTYFPAN (SEQ ID NO: 235); or

vi) 6) the CDR1 sequence of GRTLSFNTYAMG (SEQ ID NO: 183), the CDR2 sequence of SITWNGGSTS (SEQ ID NO: 213), and the CDR3 sequence of ARYYVSGTYFPANY (SEQ ID NO: 246).);

84. The process of any one of claims 51 to 83, wherein the single domain antibody comprises e) a framework derived from the framework of any of the single domain antibodysantibodies comprising the sequences of

QVQLVESGGGLVQAGGSLKLACAAPGLTFSSYRMGWFRQAPGQEREFVAAIDWNGRG TYYRYYADSVKGRSTISRDNAKNTMYLQMNSLKPEDTAVYYCAAGSIDLNWYGGMD YWGQGTQVTVSSQVQLVESGGGLVQAGGSLKLACAAPGLTFSSYRMGWFRQAPGQER EFVAAIDWNGRGTYYRYYADSVKGRSTISRDNAKNTMYLQMNSLKPEDTAVYYCAAG SIDLNWYGGMDYWGQGTQVTVSS (SEQ ID NO: 93),

EVQVVESGGGLVQAGGSLKLACAAPGLTFSSYRMGWFRQAPGQEREFVAAIDWNGRG TYYRYYADSVKGRSTISRDNAKNTVYLQMNSLKPEDTAVYYCAATTVLTDPRVLNEYA TWGQGTQVTVSSEVQVVESGGGLVQAGGSLKLACAAPGLTFSSYRMGWFRQAPGQERE FVAAIDWNGRGTYYRYYADSVKGRSTISRDNAKNTVYLQMNSLKPEDTAVYYCAATT VLTDPRVLNEYATWGQGTQVTVSS (SEQ ID NO: 94),

QLQLVESGGGLVQPGGSLRLSCAASGSIFSINVMGWYRQAPGKQRELVARINGGGITHY AESVKGRFTISRDNAKNTVYLQMNSLKPEDTAAYYCKADVFGSSGYVETYWGQGTQV TVSSQLQLVESGGGLVQPGGSLRLSCAASGSIFSINVMGWYRQAPGKQRELVARINGGGI THYAESVKGRFTISRDNAKNTVYLQMNSLKPEDTAAYYCKADVFGSSGYVETYWGQG TQVTVSS (SEQ ID NO: 95),

EVQVVESGGGLVQAGGSLRLSCAVSGTSVSSNAMGWYRQAPGKQREWVGFIDRIATTT IATSVKGRFAITRDNAKNTVYLQMSGLKPEDTAVYYCNHPLTARWGQGTQVTVSS

EVQVVESGGGLVQAGGSLRLSCAVSGTSVSSNAMGWYRQAPGKQREWVGFIDRIATTT IATSVKGRFAITRDNAKNTVYLQMSGLKPEDTAVYYCNHPLTARWGQGTQVTVSS (SEQ ID NO: 96),

QVQLVESGGGLVQAGGSLRLSCAASGRTFSSYAMGWFRQAPGKEREFVAAITWNGGTT
YYADSVKGRFTISRDNAKNTVYLQMNSLKPEDTAVYYCAADPFNQGYWGQGTQVTVS

SQVQLVESGGGLVQAGGSLRLSCAASGRTFSSYAMGWFRQAPGKEREFVAAITWNGGT
TYYADSVKGRFTISRDNAKNTVYLQMNSLKPEDTAVYYCAADPFNQGYWGQGTQVTV
SS (SEQ ID NO: 97),
EVQLVESGGGLVQAGGSLRLSCAVSGSSVSSDAMGWYRQAPGNQRAWVAFISGGGTT
TYADSVKGRFTISRDNTKNTVYLHMNSLKPEDTAVYYCNHPLTSRWGQGTQVTVSS

EVQLVESGGGLVQAGGSLRLSCAVSGSSVSSDAMGWYRQAPGNQRAWVAFISGGGTT
TYADSVKGRFTISRDNTKNTVYLHMNSLKPEDTAVYYCNHPLTSRWGQGTQVTVSS
(SEQ ID NO: 98),

EVQVVESGGGLVQAGGSLRLACVASRSIGSINVMGWYRQAPGKQRDLVARITGGGSTH
YAESVKGRFTISRDNAKNTVYLQMNSLEPEDTAVYYCASMVNPIITAWGTIGVREIPDY
DYWGQGTQVTVSS
EVQVVESGGGLVQAGGSLRLACVASRSIGSINVMGWYRQAPGKQRDLVARITGGGSTH
YAESVKGRFTISRDNAKNTVYLQMNSLEPEDTAVYYCASMVNPIITAWGTIGVREIPDY
DYWGQGTQVTVSS (SEQ ID NO: 99),
QVQLVESGGGLVQAGGSLRLSCAVSGRTFSTYRMGWFRQAPGKERSFVAAISWSGGST
TYADPVKGRFTISRDNAKNTVYLRMNSLKPEDTAVYYCNDQRGYWGQGTLVTVSS

QVQLVESGGGLVQAGGSLRLSCAVSGRTFSTYRMGWFRQAPGKERSFVAAISWSGGST
TYADPVKGRFTISRDNAKNTVYLRMNSLKPEDTAVYYCNDQRGYWGQGTLVTVSS
(SEQ ID NO: 100),
EVQVVESGGGLVQAGGSLRLSCAASGFTFTRYAMGWFRQAPGKERSFVAAISWSGSSA
GYGDSVKGRFTISRDNAKNTLYLQMNSLKPEDTAVYYCAADPFNQGYWGQGTQVTVS
SEVQVVESGGGLVQAGGSLRLSCAASGFTFTRYAMGWFRQAPGKERSFVAAISWSG
SSAGYGDSVKGRFTISRDNAKNTLYLQMNSLKPEDTAVYYCAADPFNQGYWGQ
GTQVTVSS (SEQ ID NO: 101),
EVQVVESGGGLVQAGGSLRLSCAASGRTFTTYRMGWFRQAPGKEREFVAAIRWSG
GRT
LYADSVKGRFTISRDNAKNTAYLQMNNLRPEDTAVYYCAADLAEYSGTYSSPADSP

AG
YDYWGQGTQVTVSSEVQVVESGGGLVQAGGSLRLSCAASGRTFTTYRMGWFRQAPGKEREFVAAIRWSGGRTLYADSVKGRFTISRDNAKNTAYLQMNNLRPEDTAVYYCAADLAEYSGTYSSPADSPAGYDYWGQGTQVTVSS (SEQ ID NO: 102), or QVQLVETGGGLVQAGDSLRLSCAASGRTLSFNTYAMGWFRQAPGKEREFVASITWNG
GSTSYADSVKGRFTITRDNAKNTATLRMNSLQPDDTAVYYCAAARYYVSGTYFPANY
WGQGTQVTVSSQVQLVETGGGLVQAGDSLRLSCAASGRTLSFNTYAMGWFRQAPGKEREFVASITWNGGSTSYADSVKGRFTITRDNAKNTATLRMNSLQPDDTAVYYCAAARYYVSGTYFPANYWGQGTQVTVSS (SEQ ID NO: 103).);

85. The process of any one of claims 51 to 83, wherein the single domain antibody comprises f)

_____a framework comprising sequence having at least 75%, 80%, 85%, 90%, 95%, 96%, 97%, 98%, 99%, or 100% sequence identity with the sequence of QVQLVESGGGLVQAGGSLKLACAAPGLTFSSYRMGWFRQAPGQEREFVAAIDWNGRG
TYYRYYADSVKGRSTISRDNAKNTMYLQMNSLKPEDTAVYYCAAGSIDLNWYGGMD YWGQGTQVTVSS (SEQ ID NO: 93),
EVQVVESGGGLVQAGGSLKLACAAPGLTFSSYRMGWFRQAPGQEREFVAAIDWNGRG
TYYRYYADSVKGRSTISRDNAKNTVYLQMNSLKPEDTAVYYCAATTVLTDPRVLNEYA TWGQGTQVTVSS (SEQ ID NO: 94),
QLQLVESGGGLVQPGGSLRLSCAASGSIFSINVMGWYRQAPGKQRELVARINGGGITHY
AESVKGRFTISRDNAKNTVYLQMNSLKPEDTAAYYCKADVFGSSGYVETYWGQGTQV TVSS (SEQ ID NO: 95),
EVQVVESGGGLVQAGGSLRLSCAVSGTSVSSNAMGWYRQAPGKQREWVGFIDRIATTT
IATSVKGRFAITRDNAKNTVYLQMSGLKPEDTAVYYCNHPLTARWGQGTQVTVSSSEQ ID NOS: 93-103; or

(SEQ ID NO: 96),

~~QVQLVESGGGLVQAGGSLRLSCAASGRTFSSYAMGWFRQAPGKEREFVAAITWNGGTT YYADSVKGRFTISRDNAKNTVYLQMNSLKPEDTAVYYCAADPFNQGYWGQGTQVTVS~~

~~S (SEQ ID NO: 97),~~
~~EVQLVESGGGLVQAGGSLRLSCAVSGSSVSSDAMGWYRQAPGNQRAWVAFISGGGTT TYADSVKGRFTISRDNTKNTVYLHMNSLKPEDTAVYYCNHPLTSRWGQGTQVTVSS~~

~~(SEQ ID NO: 98),~~
~~EVQVVESGGGLVQAGGSLRLACVASRSIGSINVMGWYRQAPGKQRDLVARITGGGSTH YAESVKGRFTISRDNAKNTVYLQMNSLEPEDTAVYYCASMVNPIITAWGTIGVREIPDY DYWGQGTQVTVSS (SEQ ID NO: 99),~~
~~QVQLVESGGGLVQAGGSLRLSCAVSGRTFSTYRMGWFRQAPGKERSFVAAISWSGGST TYADPVKGRFTISRDNAKNTVYLRMNSLKPEDTAVYYCNDQRGYWGQGTLVTVSS~~

~~(SEQ ID NO: 100),~~
~~EVQVVESGGGLVQAGGSLRLSCAASGFTFTRYAMGWFRQAPGKERSFVAAISWSGSSA GYGDSVKGRFTISRDNAKNTLYLQMNSLKPEDTAVYYCAADPFNQGYWGQGTQVTVS~~

~~S (SEQ ID NO: 101),~~
~~EVQVVESGGGLVQAGGSLRLSCAASGRTFTTYRMGWFRQAPGKEREFVAAIRWSGGRT LYADSVKGRFTISRDNAKNTAYLQMNNLRPEDTAVYYCAADLAEYSGTYSSPADSPAG YDYWGQGTQVTVSS (SEQ ID NO: 102), or~~
~~QVQLVETGGGLVQAGDSLRLSCAASGRTLSFNTYAMGWFRQAPGKEREFVASITWNG GSTSYADSVKGRFTITRDNAKNTATLRMNSLQPDDTAVYYCAAARYYVSGTYFPANY WGQGTQVTVSS (SEQ ID NO: 103).~~

~~86. The process of any one of claims 51 to 85, wherein the single domain antibody is comprised of~~

g) a sequence having at least 75%, 80%, 85%, 90%, 95%, 96%, 97%, 98%, 99%, or 100% sequence identity with the sequence of ~~QVQLVESGGGLVQAGGSLKLACAAPGLTFSSYRMGWFRQAPGQEREFVAAIDWNG RG TYYRYYADSVKGRSTISRDNAKNTMYLQMNSLKPEDTAVYYCAAGSIDLNWYGGM D YWGQGTQVTVSS (SEQ ID NO: 93), EVQVVESGGGLVQAGGSLKLACAAPGLTFSSYRMGWFRQAPGQEREFVAAIDWNG RG~~

~~TYYRYYADSVKGRSTISRDNAKNTVYLQMNSLKPEDTAVYYCAATTVLTDPRVLNE YA TWGQGTQVTVSS (SEQ ID NO: 94),~~SEQ ID NOS: 93-103.

~~QLQLVESGGGLVQPGGSLRLSCAASGSIFSINVMGWYRQAPGKQRELVARINGGGITHY AESVKGRFTISRDNAKNTVYLQMNSLKPEDTAAYYCKADVFGSSGYVETYWGQGTQV TVSS (SEQ ID NO: 95),~~
~~EVQVVESGGGLVQAGGSLRLSCAVSGTSVSSNAMGWYRQAPGKQREWVGFIDRIATTT IATSVKGRFAITRDNAKNTVYLQMSGLKPEDTAVYYCNHPLTARWGQGTQVTVSS~~

~~(SEQ ID NO: 96),~~
~~QVQLVESGGGLVQAGGSLRLSCAASGRTFSSYAMGWFRQAPGKEREFVAAITWNGGTT YYADSVKGRFTISRDNAKNTVYLQMNSLKPEDTAVYYCAADPFNQGYWGQGTQVTVS~~

~~S (SEQ ID NO: 97),~~
~~EVQLVESGGGLVQAGGSLRLSCAVSGSSVSSDAMGWYRQAPGNQRAWVAFISGGGTT TYADSVKGRFTISRDNTKNTVYLHMNSLKPEDTAVYYCNHPLTSRWGQGTQVTVSS~~

~~(SEQ ID NO: 98),~~
~~EVQVVESGGGLVQAGGSLRLACVASRSIGSINVMGWYRQAPGKQRDLVARITGGGSTH YAESVKGRFTISRDNAKNTVYLQMNSLEPEDTAVYYCASMVNPIITAWGTIGVREIPDY DYWGQGTQVTVSS (SEQ ID NO: 99),~~
~~QVQLVESGGGLVQAGGSLRLSCAVSGRTFSTYRMGWFRQAPGKERSFVAAISWSGGST TYADPVKGRFTISRDNAKNTVYLRMNSLKPEDTAVYYCNDQRGYWGQGTLVTVSS~~

~~(SEQ ID NO: 100),~~
~~EVQVVESGGGLVQAGGSLRLSCAASGFTFTRYAMGWFRQAPGKERSFVAAISWSGSSA GYGDSVKGRFTISRDNAKNTLYLQMNSLKPEDTAVYYCAADPFNQGYWGQGTQVTVS~~

~~S (SEQ ID NO: 101),~~
~~EVQVVESGGGLVQAGGSLRLSCAASGRTFTTYRMGWFRQAPGKEREFVAAIRWSGGRT LYADSVKGRFTISRDNAKNTAYLQMNNLRPEDTAVYYCAADLAEYSGTYSSPADSPAG YDYWGQGTQVTVSS (SEQ ID NO: 102), or~~
~~QVQLVETGGGLVQAGDSLRLSCAASGRTLSFNTYAMGWFRQAPGKEREFVASITWNG GSTSYADSVKGRFTITRDNAKNTATLRMNSLQPDDTAVYYCAAARYYVSGTYFPANY WGQGTQVTVSS (SEQ ID NO: 103).~~

~~87.~~

19. The process of any one of claims ~~51~~14 to ~~86~~18, wherein the single domain antibody is~~.~~:

a) genetically fused ~~or~~ to the agent;

b) chemically conjugated to the agent~~.~~; or

~~88.~~ c) non-covalently bound to the agent.

20. The process of claim ~~87~~19, further comprising a linker between the single domain antibody and the agent~~.~~

~~89. The process of claim 88,~~; wherein optionally, the linker~~.~~:

a) is a polypeptide~~.~~; or

~~90. The process of claim 89, wherein the linker~~ b) is a flexible linker comprising a sequence selected from the group consisting of EPKTPKPQPQPQLQPQPNPTTESKSPK (SEQ ID NO: 130), (EAAAK)n (SEQ ID NO: 147), (GGGGS)n (SEQ ID NO: 148) and (GGGS)n (SEQ ID NO: 149), wherein n is an integer from 1 to 20.

~~91.~~

21. The process of any one of claims ~~87~~14 to ~~90~~20, wherein the ~~single domain antibody is chemically conjugated to the agent.~~

~~92. The~~ process ~~of any one of claims 87 to 90, wherein the single domain antibody is non-covalently bound to the agent.~~

~~93. The process of any one of claims 51 to 92, wherein the process~~ does not inhibit pIgR-mediated transcytosis of IgA.

~~94.~~

22. The process of claim ~~93~~21, wherein the single domain antibody comprises~~.~~:

a) a CDR1 sequence of SNAMG (SEQ ID NO: 3), INVMG (SEQ ID NO: 6), TYRMG (SEQ ID NO: 7), RYAMG (SEQ ID NO: 8), FTTYRMG (SEQ ID NO: 258), TYRMG (SEQ ID NO: 259), FNTYAMG (SEQ ID NO: 9), GTSVSSN (SEQ ID NO: 12), GRTFSSY (SEQ ID NO: 13), RSIGSIN (SEQ ID NO: 15), GRTFSTY (SEQ ID NO: 16), GFTFTRY (SEQ ID NO: 17), GRTFTTY (SEQ ID NO: 18), GRTLSFNTY (SEQ ID NO: 19), GTSVSSNA (SEQ ID NO: 22), RSIGSINV (SEQ ID NO: 25), GRTFSTYR (SEQ ID NO: 26), GFTFTRYA (SEQ ID NO:

27), GRTFTTYR (SEQ ID NO: 28), GRTLSFNTYA (SEQ ID NO: 29), GTSVSSNAMG (SEQ ID NO: 156), RSIGSINVMG (SEQ ID NO: 159), GRTFSTYRMG (SEQ ID NO: 160), GFTFTRYAMG (SEQ ID NO: 161), GRTFTTYRMG (SEQ ID NO: 162), GRTLSFNTYAMG (SEQ ID NO: 163), SSNAMG (SEQ ID NO: 166), SINVMG (SEQ ID NO: 169), STYRMG (SEQ ID NO: 170), TRYAMG (SEQ ID NO: 171), TTYRMG (SEQ ID NO: 172), SFNTYAMG (SEQ ID NO: 173), GTSVSSNAMG

(SEQ ID NO: 176), RSIGSINVMG (SEQ ID NO: 179), GRTFSTYRMG (SEQ ID NO: 180), GFTFTRYAMG (SEQ ID NO: 181), GRTFTTYRMG (SEQ ID NO: 182) or GRTLSFNTYAMG (SEQ ID NO: 183).);

95. The process of claim 93 or claim 94, wherein the single domain antibody comprises b)

a CDR2 sequence of FIDRIATTTIATSVKG (SEQ ID NO: 32), RITGGGSTHYAESVKG (SEQ ID NO: 35), AISWSGGSTTYADPVKG (SEQ ID NO: 36), AISWSGSSAGYGDSVKG (SEQ ID NO: 37), AIRWSGGRTLYADSVKG (SEQ ID NO: 38), SITWNGGSTSYADSVKG (SEQ ID NO: 39), DRIAT (SEQ ID NO: 42), RIA (SEQ ID NO: 262), TGGGS (SEQ ID NO: 45), GGG (SEQ ID NO: 265), SWSGGS (SEQ ID NO: 46), WSGG (SEQ ID NO: 266), SWSGSS (SEQ ID NO: 47), WSGS (SEQ ID NO: 267), RWSGGR (SEQ ID NO: 48), WSGG (SEQ ID NO: 268), TWNGGS (SEQ ID NO: 49), WNGG (SEQ ID NO: 269), IDRIATT (SEQ ID NO: 52), ITGGGST (SEQ ID NO: 55), ISWSGGST (SEQ ID NO: 56), ISWSGSSA (SEQ ID NO: 57), IRWSGGRT (SEQ ID NO: 58), ITWNGGST (SEQ ID NO: 59), FIDRIATTTIATSVKG (SEQ ID NO: 186), RITGGGSTHYAESVKG (SEQ ID NO: 189), AISWSGGSTTYADPVKG (SEQ ID NO: 190), AISWSGSSAGYGDSVKG (SEQ ID NO: 191), AIRWSGGRTLYADSVKG (SEQ ID NO: 192), SITWNGGSTSYADSVKG (SEQ ID NO: 193), WVGFIDRIATTT (SEQ ID NO: 196), LVARITGGGSTH (SEQ ID NO: 199), FVAAISWSGGSTT (SEQ ID NO: 200), FVAAISWSGSSAG (SEQ ID NO: 201), FVAAIRWSGGRTL (SEQ ID NO: 202), FVASITWNGGSTS (SEQ ID NO: 203), FIDRIATTT (SEQ ID NO: 206), RITGGGSTH (SEQ ID NO: 209), AISWSGGSTT (SEQ ID NO: 210), AISWSGSSAG (SEQ ID NO: 211), AIRWSGGRTL (SEQ ID NO: 212), SITWNGGSTS (SEQ ID NO: 213).); or

96. The process of any one of claims 93 to 95, wherein the single domain antibody comprises c)

a CDR3 sequence of PLTAR (SEQ ID NO: 63), MVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 66), DQRGY (SEQ ID NO: 67), QRGY (SEQ ID NO: 271), DPFNQGY (SEQ ID NO:

68), DLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 69), ARYYVSGTYFPANY (SEQ ID NO: 70), PLTAR (SEQ ID NO: 74), LTA (SEQ ID NO: 275), MVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 77), VNPIITAWGTIGVREIPDYD (SEQ ID NO: 278), DQRGY (SEQ ID NO: 78), RG (SEQ ID NO: 279), DPFNQGY (SEQ ID NO: 79), PFNQG (SEQ ID NO: 280), DLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 80), LAEYSGTYSSPADSPAGYD (SEQ ID NO: 281), ARYYVSGTYFPANY (SEQ ID NO: 81), RYYVSGTYFPAN (SEQ ID NO: 282), NHPLTAR (SEQ ID NO: 85), ASMVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 88), NDQRGY (SEQ ID NO: 89), AADPFNQGY (SEQ ID NO: 90), AADLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 91), AAARYYVSGTYFPANY (SEQ ID NO: 92), PLTAR (SEQ ID NO: 217), MVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 220), QRGY (SEQ ID NO: 221), DPFNQGY (SEQ ID NO: 222), DLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 223), ARYYVSGTYFPANY (SEQ ID NO: 224), NHPLTA (SEQ ID NO: 228), ASMVNPIITAWGTIGVREIPDYD (SEQ ID NO: 231), NDQRG (SEQ ID NO: 232), AADPFNQG (SEQ ID NO: 233), AADLAEYSGTYSSPADSPAGYD (SEQ ID NO: 234), AAARYYVSGTYFPAN (SEQ ID NO: 235), PLTAR (SEQ ID NO: 239), MVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 242), QRGY (SEQ ID NO: 243), DPFNQGY (SEQ ID NO: 244), DLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 245), or ARYYVSGTYFPANY (SEQ ID NO: 246).

~~97.~~

23. A process comprising steps for providing a molecule to a subject~~.~~

~~98. The process of claim 97,~~; wherein optionally, the molecule comprises an agent and a single domain antibody that binds to pIgR.

~~99.~~

24. The process of claim ~~98~~23, wherein~~:~~

a) the agent is an antibody or fragment thereof, a peptide, a vaccine, a small molecule, a polynucleotide, a radioisotope, a toxin, an enzyme, an anticoagulant, a hormone, a cytokine, an anti-inflammatory molecule, an RNAi, an antibiotic, or an antibody-antibiotic conjugate~~.~~; or

~~100. The process of any one of claims 97 to 99, wherein the agent is an antibody or fragment thereof, a peptide, or a vaccine.~~

~~101. The process of any one of claims 98 to 100, wherein~~ b) the single domain antibody is genetically fused or chemically conjugated to the agent.

~~102.~~

25. A system for providing a molecule to lamina propria of a subject, comprising a molecule suitable ~~for administering~~to be administered to the subject, the molecule comprising an agent and a single domain antibody that binds to pIgR, wherein the molecule is to be administered to the subject via oral delivery, buccal delivery, nasal delivery or inhalation delivery, or a combination thereof.

~~103.~~

26. The system of claim ~~102~~25, wherein the agent is a~~-~~:

a) diabetes medication~~.~~

~~104. The system of claim 103,~~; optionally wherein the diabetes medication is selected from a group consisting of insulin, glucagon-like-peptide-1, insulin-mimic peptides, and glucagon-like-peptide-1-mimic peptides~~.~~;

~~105. The system of claim 102, wherein the agent is a~~ b) peptide or an antibody or a fragment thereof~~.~~

~~106. The system of claim 105,~~; optionally wherein the antibody or fragment thereof is selected from a group consisting of an anti-TNF-alpha antibody or a fragment thereof, an anti-IL23 antibody or a fragment thereof, and an antibody that binds to a receptor of IL23 or a fragment thereof~~.~~; or

~~107. The system of claim 102, wherein the agent is a vaccine.~~

~~108. The system of claim 107,~~c) vaccine; optionally wherein the vaccine is for preventing an infection selected from a group consisting of Vibrio, Cholera, Typhoid, Rotavirus, Tuberculosis, HIV, Flu, Ebola, and Sendai.

~~109.~~

27. The system of ~~any one of claims 102 to 108~~claim 25 or claim 26, wherein the single domain antibody~~-~~:

a) binds to~~-~~:

i) an extracellular domain 1, an extracellular domain 2, an extracellular domain 1-2, an extracellular domain 3, an extracellular domain 2-3, an extracellular domain 4-5, or an extracellular domain 5 of pIgR.;

~~110. The system of any one of claims 102 to 108, wherein the single domain antibody binds to~~ ii) an extracellular domain 1 of pIgR.;

~~111. The system of any one of claims 102 to 108, wherein the single domain antibody binds to~~ iii) an extracellular domain 2 of pIgR.;

~~112. The system of any one of claims 102 to 108, wherein the single domain antibody binds to~~ iv) an extracellular domain 1-2 of pIgR.;

~~113. The system of any one of claims 102 to 108, wherein the single domain antibody binds to~~ v) an extracellular domain 3 of pIgR.;

~~114. The system of any one of claims 102 to 108, wherein the single domain antibody binds to~~ vi) an extracellular domain 2-3 of pIgR.;

~~115. The system of any one of claims 102 to 108, wherein the single domain antibody binds to~~ vii) an extracellular domain 4-5 of pIgR.; or

~~116. The system of any one of claims 102 to 108, wherein the single domain antibody binds to~~ viii) an extracellular domain 5 of pIgR.;

~~117. The system of any one of claims 102 to 116, wherein the single domain antibody~~ b) competes with IgA binding to the pIgR.; or

~~118. The system of any one of claims 102 to 116, wherein the single domain antibody~~ c) promotes IgA binding to the pIgR.

~~119.~~

28. The system of any one of claims ~~102~~25 to ~~118~~27, wherein-:

a) the K_D of the binding of the single domain antibody to pIgR-:

i) is from about 4 to about 525 nM.;

~~120. The system of any one of claims 102 to 118, wherein the K_D of the binding of the single domain antibody to pIgR~~ ii) is less than about 50 nM.; or

~~121. The system of any one of claims 102 to 118, wherein the KD of the binding of the single domain antibody to pIgR~~ iii) is from about 4 to about 34 nM.;

~~122. The system of any one of claims 102 to 121, wherein~~ b) the T_m of the single domain antibody-:

i) is from about 53 to about 77 °C.; or

~~123. The system of any one of claims 102 to 121, wherein the T_m of the single domain antibody~~

ii) is from 53.9 to 76.4 °C~~.~~;

~~124. The system of any one of claims 102 to 123, wherein~~ c) pIgR is~~:~~

i) human pIgR~~.~~; or

~~125. The system of any one of claims 102 to 123, wherein pIgR is mouse pIgR.~~

~~126. The system of any one of claims 102 to 123, wherein~~ ii) mouse pIgR;

or

d) the single domain antibody does not bind to a stalk sequence of human pIgR and/or a stalk sequence of mouse pIgR.

~~127.~~

29. The system of any one of claims ~~102~~25 to ~~126~~28, wherein the single domain antibody comprises~~:~~

a) a CDR3 sequence of GSIDLNWYGGMDY (SEQ ID NO: 60), TTVLTDPRVLNEYAT (SEQ ID NO: 61), DVFGSSGYVETY (SEQ ID NO: 62), PLTAR (SEQ ID NO: 63), DPFNQGY (SEQ ID NO: 64), PLTSR (SEQ ID NO: 65), MVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 66), DQRGY (SEQ ID NO: 67), QRGY (SEQ ID NO: 271), DPFNQGY (SEQ ID NO: 68), DLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 69), ARYYVSGTYFPANY (SEQ ID NO: 70), GSIDLNWYGGMDY (SEQ ID NO: 71), SIDLNWYGGMD (SEQ ID NO: 272), TTVLTDPRVLNEYAT (SEQ ID NO: 72), TVLTDPRVLNEYA (SEQ ID NO: 273), DVFGSSGYVETY (SEQ ID NO: 73), VFGSSGYVET (SEQ ID NO: 274), PLTAR (SEQ ID NO: 74), LTA (SEQ ID NO: 275), DPFNQGY (SEQ ID NO: 75), PFNQG (SEQ ID NO: 276), PLTSR (SEQ ID NO: 76), LTS (SEQ ID NO: 277), MVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 77), VNPIITAWGTIGVREIPDYD (SEQ ID NO: 278), DQRGY (SEQ ID NO: 78), RG (SEQ ID NO: 279), DPFNQGY (SEQ ID NO: 79), PFNQG (SEQ ID NO: 280), DLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 80), LAEYSGTYSSPADSPAGYD (SEQ ID NO: 281), ARYYVSGTYFPANY (SEQ ID NO: 81), RYYVSGTYFPAN (SEQ ID NO: 282), CAAGSIDLNWYGGMDY (SEQ ID NO: 82), AAGSIDLNWYGGMDY (SEQ ID NO: 283), CAATTVLTDPRVLNEYAT (SEQ ID NO: 83), AATTVLTDPRVLNEYAT (SEQ ID NO: 284), KADVFGSSGYVETY (SEQ ID NO: 84), NHPLTAR (SEQ ID NO: 85), AADPFNQGY (SEQ ID NO: 86), NHPLTSR (SEQ ID NO: 87),

ASMVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 88), NDQRGY (SEQ ID NO: 89), AADPFNQGY (SEQ ID NO: 90), AADLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 91), AAARYYVSGTYFPANY (SEQ ID NO: 92), GSIDLNWYGGMDY (SEQ ID NO: 214), TTVLTDPRVLNEYAT (SEQ ID NO: 215), DVFGSSGYVETY (SEQ ID NO: 216), PLTAR (SEQ ID NO: 217), DPFNQGY (SEQ ID NO: 218), PLTSR (SEQ ID NO: 219), MVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 220), QRGY (SEQ ID NO: 221), DPFNQGY (SEQ ID NO: 222), DLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 223), ARYYVSGTYFPANY (SEQ ID NO: 224), AAGSIDLNWYGGMD (SEQ ID NO: 225), AATTVLTDPRVLNEYA (SEQ ID NO: 226), KADVFGSSGYVET (SEQ ID NO: 227), NHPLTA (SEQ ID NO: 228), AADPFNQG (SEQ ID NO: 229), NHPLTS (SEQ ID NO: 230), ASMVNPIITAWGTIGVREIPDYD (SEQ ID NO: 231), NDQRG (SEQ ID NO: 232), AADPFNQG (SEQ ID NO: 233), AADLAEYSGTYSSPADSPAGYD (SEQ ID NO: 234), AAARYYVSGTYFPAN (SEQ ID NO: 235), GSIDLNWYGGMDY (SEQ ID NO: 236), TTVLTDPRVLNEYAT (SEQ ID NO: 237), DVFGSSGYVETY (SEQ ID NO: 238), PLTAR (SEQ ID NO: 239), DPFNQGY (SEQ ID NO: 240), PLTSR (SEQ ID NO: 241), MVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 242), QRGY (SEQ ID NO: 243), DPFNQGY (SEQ ID NO: 244), DLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 245), or ARYYVSGTYFPANY (SEQ ID NO: 246~~).~~);

~~128. The system of any one of claims 102 to 127, wherein the single domain antibody comprises~~ b)

_____a CDR2 sequence of AIDWNGRGTYYRYYADSVKG (SEQ ID NO: 30), RINGGGITHYAESVKG (SEQ ID NO: 31), FIDRIATTTIATSVKG (SEQ ID NO: 32), AITWNGGTTYYADSVKG (SEQ ID NO: 33), FISGGGTTTYADSVKG (SEQ ID NO: 34), RITGGGSTHYAESVKG (SEQ ID NO: 35), AISWSGGSTTYADPVKG (SEQ ID NO: 36), AISWSGSSAGYGDSVKG (SEQ ID NO: 37), AIRWSGGRTLYADSVKG (SEQ ID NO: 38), SITWNGGSTSYADSVKG (SEQ ID NO: 39), DWNGRGTYY (SEQ ID NO: 40), WNGRGTY (SEQ ID NO: 260), NGGGI (SEQ ID NO: 41), GGG (SEQ ID NO: 261), DRIAT (SEQ ID NO: 42), RIA (SEQ ID NO: 262), TWNGGT (SEQ ID NO: 43), WNGG (SEQ ID NO: 263), SGGGT (SEQ ID NO: 44), GGG (SEQ ID NO: 264), TGGGS (SEQ ID NO: 45), GGG (SEQ ID NO: 265), SWSGGS (SEQ ID NO: 46), WSGG (SEQ ID NO: 266), SWSGSS (SEQ ID NO: 47), WSGS (SEQ ID NO: 267), RWSGGR (SEQ ID NO: 48), WSGG (SEQ ID NO: 268), TWNGGS (SEQ ID NO: 49), WNGG (SEQ ID NO: 269), IDWNGRGTYY (SEQ ID NO:

50), IDWNGRGTYYR (SEQ ID NO: 270), INGGGIT (SEQ ID NO: 51), IDRIATT (SEQ ID NO: 52), ITWNGGTT (SEQ ID NO: 53), ISGGGTT (SEQ ID NO: 54), ITGGGST (SEQ ID NO: 55), ISWSGGST (SEQ ID NO: 56), ISWSGSSA (SEQ ID NO: 57), IRWSGGRT (SEQ ID NO: 58), ITWNGGST (SEQ ID NO: 59), AIDWNGRGTYYRYYADSVKG (SEQ ID NO: 184), RINGGGITHYAESVKG (SEQ ID NO: 185), FIDRIATTTIATSVKG (SEQ ID NO: 186), AITWNGGTTYYADSVKG (SEQ ID NO: 187), FISGGGTTTYADSVKG (SEQ ID NO: 188), RITGGGSTHYAESVKG (SEQ ID NO: 189), AISWSGGSTTYADPVKG (SEQ ID NO: 190), AISWSGSSAGYGDSVKG (SEQ ID NO: 191), AIRWSGGRTLYADSVKG (SEQ ID NO: 192), SITWNGGSTSYADSVKG (SEQ ID NO: 193), FVAAIDWNGRGTYYRY (SEQ ID NO: 194), LVARINGGGITH (SEQ ID NO: 195), WVGFIDRIATTT (SEQ ID NO: 196), FVAAITWNGGTTY (SEQ ID NO: 197), WVAFISGGGTTT (SEQ ID NO: 198), LVARITGGGSTH (SEQ ID NO: 199), FVAAISWSGGSTT (SEQ ID NO: 200), FVAAISWSGSSAG (SEQ ID NO: 201), FVAAIRWSGGRTL (SEQ ID NO: 202), FVASITWNGGSTS (SEQ ID NO: 203), AIDWNGRGTYYRY (SEQ ID NO: 204), RINGGGITH (SEQ ID NO: 205), FIDRIATTT (SEQ ID NO: 206), AITWNGGTTY (SEQ ID NO: 207), FISGGGTTT (SEQ ID NO: 208), RITGGGSTH (SEQ ID NO: 209), AISWSGGSTT (SEQ ID NO: 210), AISWSGSSAG (SEQ ID NO: 211), AIRWSGGRTL (SEQ ID NO: 212), or SITWNGGSTS (SEQ ID NO: 213)~~.~~);

~~129. The system of any one of claims 102 to 128, wherein the single domain antibody comprises~~ c)

a CDR1 sequence of SYRMG (SEQ ID NO: 1), INVMG (SEQ ID NO: 2), SNAMG (SEQ ID NO: 3), SYAMG (SEQ ID NO: 4), SDAMG (SEQ ID NO: 5), INVMG (SEQ ID NO: 6), TYRMG (SEQ ID NO: 7), RYAMG (SEQ ID NO: 8), FTTYRMG (SEQ ID NO: 258), TYRMG (SEQ ID NO: 259), FNTYAMG (SEQ ID NO: 9), GLTFSSY (SEQ ID NO: 10), GSIFSIN (SEQ ID NO: 11), GTSVSSN (SEQ ID NO: 12), GRTFSSY (SEQ ID NO: 13), GSSVSSD (SEQ ID NO: 14), RSIGSIN (SEQ ID NO: 15), GRTFSTY (SEQ ID NO: 16), GFTFTRY (SEQ ID NO: 17), GRTFTTY (SEQ ID NO: 18), GRTLSFNTY (SEQ ID NO: 19), GLTFSSYR (SEQ ID NO: 20), GSIFSINV (SEQ ID NO: 21), GTSVSSNA (SEQ ID NO: 22), GRTFSSYA (SEQ ID NO: 23),

GSSVSSDA (SEQ ID NO: 24), RSIGSINV (SEQ ID NO: 25), GRTFSTYR (SEQ ID NO: 26), GFTFTRYA (SEQ ID NO: 27), GRTFTTYR (SEQ ID NO: 28), GRTLSFNTYA

(SEQ ID NO: 29), GLTFSSYRMG (SEQ ID NO: 154), GSIFSINVMG (SEQ ID NO: 155), GTSVSSNAMG (SEQ ID NO: 156), GRTFSSYAMG (SEQ ID NO: 157), GSSVSSDAMG (SEQ ID NO: 158), RSIGSINVMG (SEQ ID NO: 159), GRTFSTYRMG (SEQ ID NO: 160), GFTFTRYAMG (SEQ ID NO: 161), GRTFTTYRMG (SEQ ID NO: 162), GRTLSFNTYAMG (SEQ ID NO: 163), SSYRMG (SEQ ID NO: 164), SINVMG (SEQ ID NO: 165), SSNAMG (SEQ ID NO: 166), SSYAMG (SEQ ID NO: 167), SSDAMG (SEQ ID NO: 168), SINVMG (SEQ ID NO: 169), STYRMG (SEQ ID NO: 170), TRYAMG (SEQ ID NO: 171), TTYRMG (SEQ ID NO: 172), SFNTYAMG (SEQ ID NO: 173), GLTFSSYRMG (SEQ ID NO: 174), GSIFSINVMG (SEQ ID NO: 175), GTSVSSNAMG (SEQ ID NO: 176), GRTFSSYAMG (SEQ ID NO: 177), GSSVSSDAMG (SEQ ID NO: 178), RSIGSINVMG (SEQ ID NO: 179), GRTFSTYRMG (SEQ ID NO: 180), GFTFTRYAMG (SEQ ID NO: 181), GRTFTTYRMG (SEQ ID NO: 182), or GRTLSFNTYAMG (SEQ ID NO: 183~~).~~);

~~130. The system of any one of claims 102 to 129, wherein the single domain antibody comprises~~ d) a CDR1 sequence, a CDR2 sequence, and a CDR3 sequence ~~of the single domain antibody~~ selected from the group consisting of:

~~a)~~ i) VHH1:

~~i)~~ 1) the CDR1 sequence of SYRMG (SEQ ID NO: 1), the CDR2 sequence of AIDWNGRGTYYRYYADSVKG (SEQ ID NO: 30), and the CDR3 sequence of GSIDLNWYGGMDY (SEQ ID NO: 60);

~~ii)~~ 2) the CDR1 sequence of GLTFSSY (SEQ ID NO: 10), the CDR2 sequence of DWNGRGTYY (SEQ ID NO: 40) or WNGRGTY (SEQ ID NO: 260), and the CDR3 sequence of GSIDLNWYGGMDY (SEQ ID NO: 71) or SIDLNWYGGMD (SEQ ID NO: 272);

~~iii)~~ 3) the CDR1 sequence of GLTFSSYR (SEQ ID NO: 20), the CDR2 sequence of IDWNGRGTYY (SEQ ID NO: 50) or IDWNGRGTYYR (SEQ ID NO: 270), and the CDR3 sequence of CAAGSIDLNWYGGMDY (SEQ ID NO: 82) or AAGSIDLNWYGGMDY (SEQ ID NO: 283);

~~iv)~~ 4) the CDR1 sequence of GLTFSSYRMG (SEQ ID NO: 154), the CDR 2 sequence of AIDWNGRGTYYRYYADSVKG (SEQ ID NO: 184), and the CDR3 sequence of GSIDLNWYGGMDY (SEQ ID NO: 214);

~~v)~~ 5) the CDR1 sequence of SSYRMG (SEQ ID NO: 164), the CDR2 sequence of FVAAIDWNGRGTYYRY (SEQ ID NO: 194), and the CDR3 sequence of AAGSIDLNWYGGMD (SEQ ID NO: 225); or

~~vi)~~ 6) the CDR1 sequence of GLTFSSYRMG (SEQ ID NO: 174), the CDR2 sequence of AIDWNGRGTYYRY (SEQ ID NO: 204), and the CDR3 sequence of GSIDLNWYGGMDY (SEQ ID NO: 236);

~~b)~~ ii) VHH2:

~~i)~~ 1) the CDR1 sequence of SYRMG (SEQ ID NO: 1), the CDR2 sequence of AIDWNGRGTYYRYYADSVKG (SEQ ID NO: 30), and the CDR3 sequence of TTVLTDPRVLNEYAT (SEQ ID NO: 61);

~~ii)~~ 2) the CDR1 sequence of GLTFSSY (SEQ ID NO: 10), the CDR2 sequence of DWNGRGTYY (SEQ ID NO: 40) or WNGRGTY (SEQ ID NO: 260), and the CDR3 sequence of TTVLTDPRVLNEYAT (SEQ ID NO: 72) or TVLTDPRVLNEYA (SEQ ID NO: 273);

~~iii)~~ 3) the CDR1 sequence of GLTFSSYR (SEQ ID NO: 20), the CDR2 sequence of IDWNGRGTYY (SEQ ID NO: 50) or IDWNGRGTYYR (SEQ ID NO: 270), and the CDR3 sequence of CAATTVLTDPRVLNEYAT (SEQ ID NO: 83) or AATTVLTDPRVLNEYAT (SEQ ID NO: 284);

~~iv)~~ 4) the CDR1 sequence of GLTFSSYRMG (SEQ ID NO: 154), the CDR2 sequence of AIDWNGRGTYYRYYADSVKG (SEQ ID NO: 184), and the CDR3 sequence of TTVLTDPRVLNEYAT (SEQ ID NO: 215);

~~v)~~ 5) the CDR1 sequence of SSYRMG (SEQ ID NO: 164), the CDR2 sequence of FVAAIDWNGRGTYYRY (SEQ ID NO: 194), and the CDR3 sequence of AATTVLTDPRVLNEYA (SEQ ID NO: 226); or

~~vi)~~ 6) the CDR1 sequence of GLTFSSYRMG (SEQ ID NO: 174), the CDR2 sequence of AIDWNGRGTYYRY (SEQ ID NO: 204), and the CDR3 sequence of TTVLTDPRVLNEYAT (SEQ ID NO: 237);

~~c)~~ iii) VHH3:

~~i)~~ 1) the CDR1 sequence of INVMG (SEQ ID NO: 2), the CDR2 sequence of RINGGGITHYAESVKG (SEQ ID NO: 31), and the CDR3 sequence of DVFGSSGYVETY (SEQ ID NO: 62);

~~ii)~~ 2) the CDR1 sequence of GSIFSIN (SEQ ID NO: 11), the CDR2 sequence of NGGGI (SEQ ID NO: 41) or GGG (SEQ ID NO: 261), and the CDR3 sequence of DVFGSSGYVETY (SEQ ID NO: 73) or VFGSSGYVET (SEQ ID NO: 274); ~~iii)~~ 3) the CDR1 sequence of GSIFSINV (SEQ ID NO: 21), the CDR2 sequence of INGGGIT (SEQ ID NO: 51), and the CDR3 sequence of KADVFGSSGYVETY (SEQ ID NO: 84);

~~iv)~~ 4) the CDR1 sequence of GSIFSINVMG (SEQ ID NO: 155), the CDR2 sequence of RINGGGITHYAESVKG (SEQ ID NO: 185), and the CDR3 sequence of DVFGSSGYVETY (SEQ ID NO: 216);

~~v)~~ 5) the CDR1 sequence of SINVMG (SEQ ID NO: 165), the CDR2 sequence of LVARINGGGITH (SEQ ID NO: 195), and the CDR3 sequence of KADVFGSSGYVET (SEQ ID NO: 227); or

~~vi)~~ 6) the CDR1 sequence of GSIFSINVMG (SEQ ID NO: 175), the CDR2 sequence of RINGGGITH (SEQ ID NO: 205), and the CDR3 sequence of DVFGSSGYVETY (SEQ ID NO: 238);

~~d)~~ iv) VHH4:

~~i)~~ 1) the CDR1 sequence of SNAMG (SEQ ID NO: 3), the CDR2 sequence of FIDRIATTTIATSVKG (SEQ ID NO: 32), and the CDR3 sequence of PLTAR (SEQ ID NO: 63);

~~ii)~~ 2) the CDR1 sequence of GTSVSSN (SEQ ID NO: 12), the CDR2 sequence of DRIAT (SEQ ID NO: 42) or RIA (SEQ ID NO: 262), and the CDR3 sequence of PLTAR (SEQ ID NO: 74) or LTA (SEQ ID NO: 275);

~~iii)~~ 3) the CDR1 sequence of GTSVSSNA (SEQ ID NO: 22), the CDR2 sequence of IDRIATT (SEQ ID NO: 52), and the CDR3 sequence of NHPLTAR (SEQ ID NO: 85);

~~iv)~~ 4) the CDR1 sequence of GTSVSSNAMG (SEQ ID NO: 156), the CDR2 sequence of FIDRIATTTIATSVKG (SEQ ID NO: 186), and the CDR3 sequence of PLTAR (SEQ ID NO: 217);

~~v)~~ 5) the CDR1 sequence of SSNAMG (SEQ ID NO: 166), the CDR2 sequence of WVGFIDRIATTT (SEQ ID NO: 196), and the CDR3 sequence of NHPLTA (SEQ ID NO: 228); or

~~vi)~~ 6) the CDR1 sequence of GTSVSSNAMG (SEQ ID NO: 176), the CDR2 sequence of FIDRIATTT (SEQ ID NO: 206), and the CDR3 sequence of PLTAR (SEQ ID NO: 239);

~~e)~~ v) VHH5:

~~i)~~ 1) the CDR1 sequence of SYAMG (SEQ ID NO: 4), the CDR2 sequence of AITWNGGTTYYADSVKG (SEQ ID NO: 33), and the CDR3 sequence of DPFNQGY (SEQ ID NO: 64);

~~ii)~~ 2) the CDR1 sequence of GRTFSSY (SEQ ID NO: 13), the CDR2 sequence of TWNGGT (SEQ ID NO: 43) or WNGG (SEQ ID NO: 263), and the CDR3 sequence of DPFNQGY (SEQ ID NO: 75) or PFNQG (SEQ ID NO: 276);

~~iii)~~ 3) the CDR1 sequence of GRTFSSYA (SEQ ID NO: 23), the CDR2 sequence of ITWNGGTT (SEQ ID NO: 53), and the CDR3 sequence of AADPFNQGY (SEQ ID NO: 86);

~~iv)~~ 4) the CDR1 sequence of GRTFSSYAMG (SEQ ID NO: 157), the CDR2 sequence of AITWNGGTTYYADSVKG (SEQ ID NO: 187), and the CDR3 sequence of DPFNQGY (SEQ ID NO: 218);

~~v)~~ 5) the CDR1 sequence of SSYAMG (SEQ ID NO: 167), the CDR2 sequence of FVAAITWNGGTTY (SEQ ID NO: 197), and the CDR3 sequence of AADPFNQG (SEQ ID NO: 229); or

~~vi)~~ 6) the CDR1 sequence of GRTFSSYAMG (SEQ ID NO: 177), the CDR2 sequence of AITWNGGTTY (SEQ ID NO: 207), and the CDR3 sequence of DPFNQGY (SEQ ID NO: 240);

~~f)~~ vi) VHH6:

~~i)~~ 1) the CDR1 sequence of SDAMG (SEQ ID NO: 5), the CDR2 sequence of FISGGGTTTYADSVKG (SEQ ID NO: 34), and the CDR3 sequence of PLTSR (SEQ ID NO: 65);

~~ii)~~ 2) the CDR1 sequence of GSSVSSD (SEQ ID NO: 14), the CDR2 sequence of SGGGT (SEQ ID NO: 44) or GGG (SEQ ID NO: 264), and the CDR3 sequence of PLTSR (SEQ ID NO: 76) or LTS (SEQ ID NO: 277);

~~iii)~~ 3) the CDR1 sequence of GSSVSSDA (SEQ ID NO: 24), the CDR2 sequence of ISGGGTT (SEQ ID NO: 54), and the CDR3 sequence of NHPLTSR (SEQ ID NO: 87);

~~iv)~~ 4) the CDR1 sequence of GSSVSSDAMG (SEQ ID NO: 158), the CDR2 sequence of FISGGGTTTYADSVKG (SEQ ID NO: 188), and the CDR3 sequence of PLTSR (SEQ ID NO: 219);

~~v)~~ 5) the CDR1 sequence of SSDAMG (SEQ ID NO: 168), the CDR2 sequence of WVAFISGGGTTT (SEQ ID NO: 198), and the CDR3 sequence of NHPLTS (SEQ ID NO: 230); or

~~vi)~~ 6) the CDR1 sequence of GSSVSSDAMG (SEQ ID NO: 178), the CDR2 sequence of FISGGGTTT (SEQ ID NO: 208), and the CDR3 sequence of PLTSR (SEQ ID NO: 241);

~~g)~~ vii) VHH7:

~~i)~~ 1) the CDR1 sequence of INVMG (SEQ ID NO: 6), the CDR2 sequence of RITGGGSTHYAESVKG (SEQ ID NO: 35), and the CDR3 sequence of MVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 66);

~~ii)~~ 2) the CDR1 sequence of RSIGSIN (SEQ ID NO: 15), the CDR2 sequence of TGGGS (SEQ ID NO: 45) or GGG (SEQ ID NO: 265), and the CDR3 sequence of MVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 77) or VNPIITAWGTIGVREIPDYD (SEQ ID NO: 278);

~~iii)~~ 3) the CDR1 sequence of RSIGSINV (SEQ ID NO: 25), the CDR2 sequence of ITGGGST (SEQ ID NO: 55), and the CDR3 sequence of ASMVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 88);

~~iv)~~ 4) the CDR1 sequence of RSIGSINVMG (SEQ ID NO: 159), the CDR2 sequence of RITGGGSTHYAESVKG (SEQ ID NO: 189), and the CDR3 sequence of MVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 220);

~~v)~~ 5) the CDR1 sequence of SINVMG (SEQ ID NO: 169), the CDR2 sequence of LVARITGGGSTH (SEQ ID NO: 199), and the CDR3 sequence of ASMVNPIITAWGTIGVREIPDYD (SEQ ID NO: 231); or

~~vi)~~ 6) the CDR1 sequence of RSIGSINVMG (SEQ ID NO: 179), the CDR2 sequence of RITGGGSTH (SEQ ID NO: 209), and the CDR3 sequence of MVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 242);

~~h) VHH9:~~

~~i)~~ viii) VHH8:

1) the CDR1 sequence of TYRMG (SEQ ID NO: 7), the CDR2 sequence of AISWSGGSTTYADPVKG (SEQ ID NO: 36), and the CDR3 sequence of DQRGY (SEQ ID NO: 67) or QRGY (SEQ ID NO: 271);

~~ii)~~ 2) the CDR1 sequence of GRTFSTY (SEQ ID NO: 16), the CDR2 sequence of SWSGGS (SEQ ID NO: 46) or WSGG (SEQ ID NO: 266), and the CDR3 sequence of DQRGY (SEQ ID NO: 78) or RG (SEQ ID NO: 279);

~~iii)~~ 3) the CDR1 sequence of GRTFSTYR (SEQ ID NO: 26), the CDR2 sequence of ISWSGGST (SEQ ID NO: 56), and the CDR3 sequence of NDQRGY (SEQ ID NO: 89);

~~iv)~~ 4) the CDR1 sequence of GRTFSTYRMG (SEQ ID NO: 160), the CDR2 sequence of AISWSGGSTTYADPVKG (SEQ ID NO: 190), and the CDR3 sequence of QRGY (SEQ ID NO: 221);

~~v)~~ 5) the CDR1 sequence of STYRMG (SEQ ID NO: 170), the CDR2 sequence of FVAAISWSGGSTT (SEQ ID NO: 200), and the CDR3 sequence of NDQRG (SEQ ID NO: 232); or

~~vi)~~ 6) the CDR1 sequence of GRTFSTYRMG (SEQ ID NO: 180), the CDR2 sequence of AISWSGGSTT (SEQ ID NO: 210), and the CDR3 sequence of QRGY (SEQ ID NO: 243);

~~i) VHH10:~~

~~i)~~ ix) VHH9:

1) the CDR1 sequence of RYAMG (SEQ ID NO: 8), the CDR2 sequence of AISWSGSSAGYGDSVKG (SEQ ID NO: 37), and the CDR3 sequence of DPFNQGY (SEQ ID NO: 68);

~~ii)~~ 2) the CDR1 sequence of GFTFTRY (SEQ ID NO: 17), the CDR2 sequence of SWSGSS (SEQ ID NO: 47) or WSGS (SEQ ID NO: 267), and the CDR3 sequence of DPFNQGY (SEQ ID NO: 79) or PFNQG (SEQ ID NO: 280);

~~iii)~~ 3) the CDR1 sequence of GFTFTRYA (SEQ ID NO: 27), the CDR2 sequence of ISWSGSSA (SEQ ID NO: 57), and the CDR3 sequence of AADPFNQGY (SEQ ID NO: 90);

~~iv)~~ 4) the CDR1 sequence of GFTFTRYAMG (SEQ ID NO: 161), the CDR2 sequence of AISWSGSSAGYGDSVKG (SEQ ID NO: 191), and the CDR3 sequence of DPFNQGY (SEQ ID NO: 222);

~~v)~~ 5) the CDR1 sequence of TRYAMG (SEQ ID NO: 171), the CDR2 sequence of FVAAISWSGSSAG (SEQ ID NO: 201), and the CDR3 sequence of AADPFNQG (SEQ ID NO: 233); or

~~vi)~~ 6) the CDR1 sequence of GFTFTRYAMG (SEQ ID NO: 181), the CDR2 sequence of AISWSGSSAG (SEQ ID NO: 211), and the CDR3 sequence of DPFNQGY (SEQ ID NO: 244);

~~j) VHH11:~~

~~i)~~ x) VHH10:

1) the CDR1 sequence of FTTYRMG (SEQ ID NO: 258) or TYRMG (SEQ ID NO: 259), the CDR2 sequence of AIRWSGGRTLYADSVKG (SEQ ID NO: 38), and the CDR3 sequence of DLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 69);

~~ii)~~ 2) the CDR1 sequence of GRTFTTY (SEQ ID NO: 18), the CDR2 sequence of RWSGGR (SEQ ID NO: 48) or WSGG (SEQ ID NO: 268), and the CDR3 sequence of DLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 80) or LAEYSGTYSSPADSPAGYD (SEQ ID NO: 281);

~~iii)~~ 3) the CDR1 sequence of GRTFTTYR (SEQ ID NO: 28), the CDR2 sequence of IRWSGGRT (SEQ ID NO: 58), and the CDR3 sequence of AADLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 91);

~~iv)~~ 4) the CDR1 sequence of GRTFTTYRMG (SEQ ID NO: 162), the CDR2 sequence of AIRWSGGRTLYADSVKG (SEQ ID NO: 192), and the CDR3 sequence of DLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 223);

~~v)~~ 5) the CDR1 sequence of TTYRMG (SEQ ID NO: 172), the CDR2 sequence of FVAAIRWSGGRTL (SEQ ID NO: 202), and the CDR3 sequence of AADLAEYSGTYSSPADSPAGYD (SEQ ID NO: 234); or

~~vi)~~ 6) the CDR1 sequence of GRTFTTYRMG (SEQ ID NO: 182), the CDR2 sequence of AIRWSGGRTL (SEQ ID NO: 212), and the CDR3 sequence of DLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 245); and

~~k) VHH12:~~

~~i)~~ xi) VHH11:

1) the CDR1 sequence of FNTYAMG (SEQ ID NO: 9), the CDR2 sequence of SITWNGGSTSYADSVKG (SEQ ID NO: 39), and the CDR3 sequence of ARYYVSGTYFPANY (SEQ ID NO: 70);

~~ii)~~ 2) the CDR1 sequence of GRTLSFNTY (SEQ ID NO: 19), the CDR2 sequence of TWNGGS (SEQ ID NO: 49) or WNGG (SEQ ID NO: 269), and the CDR3 sequence of ARYYVSGTYFPANY (SEQ ID NO: 81) or RYYVSGTYFPAN (SEQ ID NO: 282);

~~iii)~~ 3) the CDR1 sequence of GRTLSFNTYA (SEQ ID NO: 29), the CDR2 sequence of ITWNGGST (SEQ ID NO: 59), and the CDR3 sequence of AAARYYVSGTYFPANY (SEQ ID NO: 92);

~~iv)~~ 4) the CDR1 sequence of GRTLSFNTYAMG (SEQ ID NO: 163), the CDR2 sequence of SITWNGGSTSYADSVKG (SEQ ID NO: 193), and the CDR3 sequence of ARYYVSGTYFPANY (SEQ ID NO: 224);

~~v)~~ 5) the CDR1 sequence of SFNTYAMG (SEQ ID NO: 173), the CDR2 sequence of FVASITWNGGSTS (SEQ ID NO: 203), and the CDR3 sequence of AAARYYVSGTYFPAN (SEQ ID NO: 235); or

~~vi)~~ 6) the CDR1 sequence of GRTLSFNTYAMG (SEQ ID NO: 183), the CDR2 sequence of SITWNGGSTS (SEQ ID NO: 213), and the CDR3 sequence of ARYYVSGTYFPANY (SEQ ID NO: 246~~).~~);

~~131. The system of any one of claims 102 to 130, wherein the single domain antibody comprises~~ e) a framework derived from the framework of any of the single domain ~~antibodys~~antibodies comprising the sequences of

~~QVQLVESGGGLVQAGGSLKLACAAPGLTFSSYRMGWFRQAPGQEREFVAAIDWNGRG~~

~~TYYRYYADSVKGRSTISRDNAKNTMYLQMNSLKPEDTAVYYCAAGSIDLNWYGGMD~~
~~YWGQGTQVTVSS~~

QVQLVESGGGLVQAGGSLKLACAAPGLTFSSYRMGWFRQAPGQEREFVAAIDWNGRG
TYYRYYADSVKGRSTISRDNAKNTMYLQMNSLKPEDTAVYYCAAGSIDLNWYGGMD
YWGQGTQVTVSS (SEQ ID NO: 93),

~~EVQVVESGGGLVQAGGSLKLACAAPGLTFSSYRMGWFRQAPGQEREFVAAIDWNGRG~~
~~TYYRYYADSVKGRSTISRDNAKNTVYLQMNSLKPEDTAVYYCAATTVLTDPRVLNEYA~~
~~TWGQGTQVTVSS~~EVQVVESGGGLVQAGGSLKLACAAPGLTFSSYRMGWFRQAPGQERE
FVAAIDWNGRGTYYRYYADSVKGRSTISRDNAKNTVYLQMNSLKPEDTAVYYCAATT
VLTDPRVLNEYATWGQGTQVTVSS (SEQ ID NO: 94),

~~QLQLVESGGGLVQPGGSLRLSCAASGSIFSINVMGWYRQAPGKQRELVARINGGGITHY~~
~~AESVKGRFTISRDNAKNTVYLQMNSLKPEDTAAYYCKADVFGSSGYVETYWGQGTQV~~
~~TVSS~~QLQLVESGGGLVQPGGSLRLSCAASGSIFSINVMGWYRQAPGKQRELVARINGGGI
THYAESVKGRFTISRDNAKNTVYLQMNSLKPEDTAAYYCKADVFGSSGYVETYWGQG
TQVTVSS (SEQ ID NO: 95),

~~EVQVVESGGGLVQAGGSLRLSCAVSGTSVSSNAMGWYRQAPGKQREWVGFIDRIATTT~~
~~IATSVKGRFAITRDNAKNTVYLQMSGLKPEDTAVYYCNHPLTARWGQGTQVTVSS~~

EVQVVESGGGLVQAGGSLRLSCAVSGTSVSSNAMGWYRQAPGKQREWVGFIDRIATTT
IATSVKGRFAITRDNAKNTVYLQMSGLKPEDTAVYYCNHPLTARWGQGTQVTVSS
(SEQ ID NO: 96),

~~QVQLVESGGGLVQAGGSLRLSCAASGRTFSSYAMGWFRQAPGKEREFVAAITWNGGTT~~
~~YYADSVKGRFTISRDNAKNTVYLQMNSLKPEDTAVYYCAADPFNQGYWGQGTQVTVS~~

~~S~~QVQLVESGGGLVQAGGSLRLSCAASGRTFSSYAMGWFRQAPGKEREFVAAITWNGGT
TYYADSVKGRFTISRDNAKNTVYLQMNSLKPEDTAVYYCAADPFNQGYWGQGTQVTV
SS (SEQ ID NO: 97),

~~EVQLVESGGGLVQAGGSLRLSCAVSGSSVSSDAMGWYRQAPGNQRAWVAFISGGGTT~~
~~TYADSVKGRFTISRDNTKNTVYLHMNSLKPEDTAVYYCNHPLTSRWGQGTQVTVSS~~

EVQLVESGGGLVQAGGSLRLSCAVSGSSVSSDAMGWYRQAPGNQRAWVAFISGGGTT
TYADSVKGRFTISRDNTKNTVYLHMNSLKPEDTAVYYCNHPLTSRWGQGTQVTVSS
(SEQ ID NO: 98),
~~EVQVVESGGGLVQAGGSLRLACVASRSIGSINVMGWYRQAPGKQRDLVARITGGGSTH~~
~~YAESVKGRFTISRDNAKNTVYLQMNSLEPEDTAVYYCASMVNPIITAWGTIGVREIPDY~~
~~DYWGQGTQVTVSS~~EVQVVESGGGLVQAGGSLRLACVASRSIGSINVMGWYRQAPGKQR
DLVARITGGGSTHYAESVKGRFTISRDNAKNTVYLQMNSLEPEDTAVYYCASMVNPIIT
AWGTIGVREIPDYDYWGQGTQVTVSS (SEQ ID NO: 99),
~~QVQLVESGGGLVQAGGSLRLSCAVSGRTFSTYRMGWFRQAPGKERSFVAAISWSGGST~~
~~TYADPVKGRFTISRDNAKNTVYLRMNSLKPEDTAVYYCNDQRGYWGQGTLVTVSS~~

QVQLVESGGGLVQAGGSLRLSCAVSGRTFSTYRMGWFRQAPGKERSFVAAISWSGGST
TYADPVKGRFTISRDNAKNTVYLRMNSLKPEDTAVYYCNDQRGYWGQGTLVTVSS
(SEQ ID NO: 100),
~~EVQVVESGGGLVQAGGSLRLSCAASGFTFTRYAMGWFRQAPGKERSFVAAISWSGSSA~~
~~GYGDSVKGRFTISRDNAKNTLYLQMNSLKPEDTAVYYCAADPFNQGYWGQGTQVTVS~~

~~S~~EVQVVESGGGLVQAGGSLRLSCAASGFTFTRYAMGWFRQAPGKERSFVAAISWSGSS
AGYGDSVKGRFTISRDNAKNTLYLQMNSLKPEDTAVYYCAADPFNQGYWGQGTQVTV
SS (SEQ ID NO: 101),
~~EVQVVESGGGLVQAGGSLRLSCAASGRTFTTYRMGWFRQAPGKEREFVAAIRWSGGRT~~
~~LYADSVKGRFTISRDNAKNTAYLQMNNLRPEDTAVYYCAADLAEYSGTYSSPADSPAG~~
~~YDYWGQGTQVTVSS~~EVQVVESGGGLVQAGGSLRLSCAASGRTFTTYRMGWFRQAPGK
EREFVAAIRWSGGRTLYADSVKGRFTISRDNAKNTAYLQMNNLRPEDTAVYYCAADLA
EYSGTYSSPADSPAGYDYWGQGTQVTVSS (SEQ ID NO: 102), or

~~QVQLVETGGGLVQAGDSLRLSCAASGRTLSFNTYAMGWFRQAPGKEREFVASITWNG~~
~~GSTSYADSVKGRFTITRDNAKNTATLRMNSLQPDDTAVYYCAAARYYVSGTYFPANY~~
~~WGQGTQVTVSS~~
QVQLVETGGGLVQAGDSLRLSCAASGRTLSFNTYAMGWFRQAPGKEREFVASIT
WNGGSTSYADSVKGRFTITRDNAKNTATLRMNSLQPDDTAVYYCAAARYYVSG
TYFPANYWGQGTQVTVSS (SEQ ID NO: 103~~).~~);

~~132. The system of any one of claims 102 to 130, wherein the single domain antibody comprises~~

f) a framework comprising sequence having at least 75%, 80%, 85%, 90%, 95%, 96%, 97%, 98%, 99%, or 100% sequence identity with the sequence of ~~QVQLVESGGGLVQAGGSLKLACAAPGLTFSSYRMGWFRQAPGQEREFVAAIDWNG RG TYYRYYADSVKGRSTISRDNAKNTMYLQMNSLKPEDTAVYYCAAGSIDLNWYGGM D YWGQGTQVTVSS (SEQ ID NO: 93), EVQVVESGGGLVQAGGSLKLACAAPGLTFSSYRMGWFRQAPGQEREFVAAIDWNG RG TYYRYYADSVKGRSTISRDNAKNTVYLQMNSLKPEDTAVYYCAATTVLTDPRVLNE YA TWGQGTQVTVSS (SEQ ID NO: 94), QLQLVESGGGLVQPGGSLRLSCAASGSIFSINVMGWYRQAPGKQRELVARINGGGIT HY AESVKGRFTISRDNAKNTVYLQMNSLKPEDTAAYYCKADVFGSSGYVETYWGQGT QV TVSS (SEQ ID NO: 95), EVQVVESGGGLVQAGGSLRLSCAVSGTSVSSNAMGWYRQAPGKQREWVGFIDRIA TTT IATSVKGRFAITRDNAKNTVYLQMSGLKPEDTAVYYCNHPLTARWGQGTQVTVSS~~S EQ ID NOS: 93-103; or

~~(SEQ ID NO: 96), QVQLVESGGGLVQAGGSLRLSCAASGRTFSSYAMGWFRQAPGKEREFVAAITWNGGTT YYADSVKGRFTISRDNAKNTVYLQMNSLKPEDTAVYYCAADPFNQGYWGQGTQVTVS~~

~~S (SEQ ID NO: 97), EVQLVESGGGLVQAGGSLRLSCAVSGSSVSSDAMGWYRQAPGNQRAWVAFISGGGTT TYADSVKGRFTISRDNTKNTVYLHMNSLKPEDTAVYYCNHPLTSRWGQGTQVTVSS~~

~~(SEQ ID NO: 98), EVQVVESGGGLVQAGGSLRLACVASRSIGSINVMGWYRQAPGKQRDLVARITGGGSTH YAESVKGRFTISRDNAKNTVYLQMNSLEPEDTAVYYCASMVNPIITAWGTIGVREIPDY DYWGQGTQVTVSS (SEQ ID NO: 99), QVQLVESGGGLVQAGGSLRLSCAVSGRTFSTYRMGWFRQAPGKERSFVAAISWSGGST TYADPVKGRFTISRDNAKNTVYLRMNSLKPEDTAVYYCNDQRGYWGQGTLVTVSS~~

~~(SEQ ID NO: 100),~~

~~EVQVVESGGGLVQAGGSLRLSCAASGFTFTRYAMGWFRQAPGKERSFVAAISWSGSSA~~

~~GYGDSVKGRFTISRDNAKNTLYLQMNSLKPEDTAVYYCAADPFNQGYWGQGTQVTVS S~~
~~(SEQ ID NO: 101),~~
~~EVQVVESGGGLVQAGGSLRLSCAASGRTFTTYRMGWFRQAPGKEREFVAAIRWSGGRT~~
~~LYADSVKGRFTISRDNAKNTAYLQMNNLRPEDTAVYYCAADLAEYSGTYSSPADSPAG~~
~~YDYWGQGTQVTVSS (SEQ ID NO: 102), or~~
~~QVQLVETGGGLVQAGDSLRLSCAASGRTLSFNTYAMGWFRQAPGKEREFVASITWNG~~
~~GSTSYADSVKGRFTITRDNAKNTATLRMNSLQPDDTAVYYCAAARYYVSGTYFPANY~~
~~WGQGTQVTVSS (SEQ ID NO: 103).~~

~~133. The system of any one of claims 102 to 132, wherein the single domain antibody is comprised~~ ~~of~~ g) a sequence having at least 75%, 80%, 85%, 90%, 95%, 96%, 97%, 98%, 99%, or 100% sequence identity with the sequence of ~~QVQLVESGGGLVQAGGSLKLACAAPGLTFSSYRMGWFRQAPGQEREFVAAIDWNG~~
~~RG~~
~~TYYRYYADSVKGRSTISRDNAKNTMYLQMNSLKPEDTAVYYCAAGSIDLNWYGGM~~
~~D YWGQGTQVTVSS (SEQ ID NO~~SEQ ID NOS: 93~~),~~
~~EVQVVESGGGLVQAGGSLKLACAAPGLTFSSYRMGWFRQAPGQEREFVAAIDWNG~~
~~RG~~
~~TYYRYYADSVKGRSTISRDNAKNTVYLQMNSLKPEDTAVYYCAATTVLTDPRVLNE~~
~~YA TWGQGTQVTVSS (SEQ ID NO: 94),~~
~~QLQLVESGGGLVQPGGSLRLSCAASGSIFSINVMGWYRQAPGKQRELVARINGGGIT~~
~~HY~~
~~AESVKGRFTISRDNAKNTVYLQMNSLKPEDTAAYYCKADVFGSSGYVETYWGQGT~~
~~QV TVSS (SEQ ID NO: 95),~~
~~EVQVVESGGGLVQAGGSLRLSCAVSGTSVSSNAMGWYRQAPGKQREWVGFIDRIA~~
~~TTT~~
~~IATSVKGRFAITRDNAKNTVYLQMSGLKPEDTAVYYCNHPLTARWGQGTQVTVSS~~
103.

~~(SEQ ID NO: 96),~~

~~QVQLVESGGGLVQAGGSLRLSCAASGRTFSSYAMGWFRQAPGKEREFVAAITWNGGTT~~
~~YYADSVKGRFTISRDNAKNTVYLQMNSLKPEDTAVYYCAADPFNQGYWGQGTQVTVS~~

~~S (SEQ ID NO: 97),~~

~~EVQLVESGGGLVQAGGSLRLSCAVSGSSVSSDAMGWYRQAPGNQRAWVAFISGGGTT~~
~~TYADSVKGRFTISRDNTKNTVYLHMNSLKPEDTAVYYCNHPLTSRWGQGTQVTVSS~~

~~(SEQ ID NO: 98),~~

~~EVQVVESGGGLVQAGGSLRLACVASRSIGSINVMGWYRQAPGKQRDLVARITGGGSTH~~

~~YAESVKGRFTISRDNAKNTVYLQMNSLEPEDTAVYYCASMVNPIITAWGTIGVREIPDY~~
~~DYWGQGTQVTVSS (SEQ ID NO: 99),~~
~~QVQLVESGGGLVQAGGSLRLSCAVSGRTFSTYRMGWFRQAPGKERSFVAAISWSGGST~~
~~TYADPVKGRFTISRDNAKNTVYLRMNSLKPEDTAVYYCNDQRGYWGQGTLVTVSS~~

~~(SEQ ID NO: 100),~~
~~EVQVVESGGGLVQAGGSLRLSCAASGFTFTRYAMGWFRQAPGKERSFVAAISWSGSSA~~
~~GYGDSVKGRFTISRDNAKNTLYLQMNSLKPEDTAVYYCAADPFNQGYWGQGTQVTVS~~

~~S (SEQ ID NO: 101),~~
~~EVQVVESGGGLVQAGGSLRLSCAASGRTFTTYRMGWFRQAPGKEREFVAAIRWSGGRT~~
~~LYADSVKGRFTISRDNAKNTAYLQMNNLRPEDTAVYYCAADLAEYSGTYSSPADSPAG~~
~~YDYWGQGTQVTVSS (SEQ ID NO: 102), or~~
~~QVQLVETGGGLVQAGDSLRLSCAASGRTLSFNTYAMGWFRQAPGKEREFVASITWNG~~
~~GSTSYADSVKGRFTITRDNAKNTATLRMNSLQPDDTAVYYCAAARYYVSGTYFPANY~~
~~WGQGTQVTVSS (SEQ ID NO: 103).~~
~~134.~~

30. The system of any one of claims ~~102~~25 to ~~133~~29, wherein the single domain antibody~~-~~:

a) is genetically fused ~~or~~to the agent;

b) is chemically conjugated to the agent~~.~~; or

~~135.~~ c) is non-covalently bound to the agent.

31. The system of claim ~~134~~30, further comprising a linker between the single domain antibody and the agent~~.~~

~~136. The system of claim 135,~~; wherein optionally, the linker~~:~~

a) is a polypeptide~~.~~; or

~~137. The system of claim 136, wherein the linker~~ b) is a flexible linker comprising a sequence selected from the group consisting of EPKTPKPQPQPQLQPQPNPTTESKSPK (SEQ ID NO: 130), (EAAAK)n (SEQ ID NO: 147), (GGGGS)n (SEQ ID NO: 147) and (GGGS)n (SEQ ID NO: 149), wherein n is an integer from 1 to 20.

~~138.~~

32. The system of any one of claims ~~134~~25 to ~~137~~31, wherein the ~~single domain antibody is chemically conjugated to the agent.~~

~~139. The~~ system ~~of any one of claims 134 to 137, wherein the single domain antibody is non-covalently bound to the agent.~~

~~140. The system of any one of claims 102 to 139, wherein the system~~ does not inhibit pIgR-mediated transcytosis of IgA.

~~141.~~

33. The system of claim ~~140~~32, wherein the single domain antibody comprises~~:~~

a) a CDR1 sequence of SNAMG (SEQ ID NO: 3), INVMG (SEQ ID NO: 6), TYRMG (SEQ ID NO: 7), RYAMG (SEQ ID NO: 8), FTTYRMG (SEQ ID NO: 258), TYRMG (SEQ ID NO: 259), FNTYAMG (SEQ ID NO: 9), GTSVSSN (SEQ ID NO: 12), GRTFSSY (SEQ ID NO: 13), RSIGSIN (SEQ ID NO: 15), GRTFSTY (SEQ ID NO: 16), GFTFTRY (SEQ ID NO: 17), GRTFTTY (SEQ ID NO: 18), GRTLSFNTY (SEQ ID NO: 19), GTSVSSNA (SEQ ID NO: 22), RSIGSINV (SEQ ID NO: 25), GRTFSTYR (SEQ ID NO: 26), GFTFTRYA (SEQ ID NO: 27), GRTFTTYR (SEQ ID NO: 28), GRTLSFNTYA (SEQ ID NO: 29), GTSVSSNAMG (SEQ ID NO: 156), RSIGSINVMG (SEQ ID NO: 159), GRTFSTYRMG (SEQ ID NO: 160), GFTFTRYAMG (SEQ ID NO: 161), GRTFTTYRMG (SEQ ID NO: 162), GRTLSFNTYAMG (SEQ ID NO: 163), SSNAMG (SEQ ID NO: 166), SINVMG (SEQ ID NO: 169), STYRMG (SEQ ID NO: 170), TRYAMG (SEQ ID NO: 171), TTYRMG (SEQ ID NO: 172), SFNTYAMG (SEQ ID NO: 173), GTSVSSNAMG (SEQ ID NO: 176), RSIGSINVMG (SEQ ID NO: 179),

GRTFSTYRMG (SEQ ID NO: 180), GFTFTRYAMG (SEQ ID NO: 181), GRTFTTYRMG (SEQ ID NO: 182) or GRTLSFNTYAMG (SEQ ID NO: 183~~).~~);

~~142. The system of claim 140 or claim 141, wherein the single domain antibody comprises~~ b) a CDR2 sequence of FIDRIATTTIATSVKG (SEQ ID NO: 32), RITGGGSTHYAESVKG (SEQ ID NO: 35), AISWSGGSTTYADPVKG (SEQ ID NO: 36), AISWSGSSAGYGDSVKG (SEQ ID NO: 37), AIRWSGGRTLYADSVKG (SEQ ID NO: 38), SITWNGGSTSYADSVKG (SEQ ID NO: 39), DRIAT (SEQ ID NO: 42), RIA (SEQ ID NO: 262), TGGGS (SEQ ID NO: 45), GGG (SEQ ID NO: 265), SWSGGS (SEQ ID NO: 46), WSGG (SEQ ID NO: 266), SWSGSS (SEQ ID NO: 47), WSGS (SEQ ID NO: 267), RWSGGR (SEQ ID NO: 48), WSGG (SEQ ID NO: 268), TWNGGS (SEQ ID NO: 49), WNGG (SEQ ID NO: 269), IDRIATT (SEQ ID NO: 52), ITGGGST (SEQ ID NO: 55), ISWSGGST (SEQ ID NO: 56), ISWSGSSA (SEQ ID NO: 57), IRWSGGRT

(SEQ ID NO: 58), ITWNGGST (SEQ ID NO: 59), FIDRIATTTIATSVKG (SEQ ID NO: 186), RITGGGSTHYAESVKG (SEQ ID NO: 189), AISWSGGSTTYADPVKG (SEQ ID NO: 190), AISWSGSSAGYGDSVKG (SEQ ID NO: 191), AIRWSGGRTLYADSVKG (SEQ ID NO: 192), SITWNGGSTSYADSVKG (SEQ ID NO: 193), WVGFIDRIATTT (SEQ ID NO: 196), LVARITGGGSTH (SEQ ID NO: 199), FVAAISWSGGSTT (SEQ ID NO: 200), FVAAISWSGSSAG (SEQ ID NO: 201), FVAAIRWSGGRTL (SEQ ID NO: 202), FVASITWNGGSTS (SEQ ID NO: 203), FIDRIATTT (SEQ ID NO: 206), RITGGGSTH (SEQ ID NO: 209), AISWSGGSTT (SEQ ID NO: 210), AISWSGSSAG (SEQ ID NO: 211), AIRWSGGRTL (SEQ ID NO: 212), SITWNGGSTS (SEQ ID NO: 213~~).~~); or

~~143. The system of any one of claims 140 to 142, wherein the single domain antibody comprises~~ c) a CDR3 sequence of PLTAR (SEQ ID NO: 63), MVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 66), DQRGY (SEQ ID NO: 67), QRGY (SEQ ID NO: 271), DPFNQGY (SEQ ID NO: 68), DLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 69), ARYYVSGTYFPANY (SEQ ID NO: 70), PLTAR (SEQ ID NO: 74), LTA (SEQ ID NO: 275), MVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 77), VNPIITAWGTIGVREIPDYD (SEQ ID NO: 278), DQRGY (SEQ ID NO: 78), RG (SEQ ID NO: 279), DPFNQGY (SEQ ID NO: 79), PFNQG (SEQ ID NO: 280), DLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 80), LAEYSGTYSSPADSPAGYD

(SEQ ID NO: 281), ARYYVSGTYFPANY (SEQ ID NO: 81), RYYVSGTYFPAN (SEQ ID NO: 282), NHPLTAR (SEQ ID NO: 85), ASMVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 88), NDQRGY (SEQ ID NO: 89), AADPFNQGY (SEQ ID NO: 90), AADLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 91), AAARYYVSGTYFPANY (SEQ ID NO: 92), PLTAR (SEQ ID NO: 217), MVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 220), QRGY (SEQ ID NO: 221), DPFNQGY (SEQ ID NO: 222), DLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 223), ARYYVSGTYFPANY (SEQ ID NO: 224), NHPLTA (SEQ ID NO: 228), ASMVNPIITAWGTIGVREIPDYD (SEQ ID NO: 231), NDQRG (SEQ ID NO: 232), AADPFNQG (SEQ ID NO: 233), AADLAEYSGTYSSPADSPAGYD (SEQ ID NO: 234), AAARYYVSGTYFPAN (SEQ ID NO: 235), PLTAR (SEQ ID NO: 239), MVNPIITAWGTIGVREIPDYDY (SEQ ID NO: 242), QRGY (SEQ ID NO: 243), DPFNQGY (SEQ ID NO: 244), DLAEYSGTYSSPADSPAGYDY (SEQ ID NO: 245), or ARYYVSGTYFPANY (SEQ ID NO: 246).

~~144.~~

34. A system comprising a means for providing a molecule to lamina propria of a subject~~.~~

~~145. The system of claim 144,~~; optionally wherein~~:~~

a) the molecule comprises an agent and a single domain antibody that binds to pIgR~~.~~;

~~146. The system of claim 145, wherein~~ b) the agent is an antibody or fragment thereof, a peptide, a vaccine, a small molecule, a polynucleotide, a radioisotope, a toxin, an enzyme, an anticoagulant, a hormone, a cytokine, an anti-inflammatory molecule, an RNAi, an antibiotic, or an antibody-antibiotic conjugate~~.~~; or

~~147. The system of any one of claims 144 to 146, wherein the agent is an antibody or fragment thereof, a peptide, or a vaccine.~~

~~148. The system of any one of claims 145 to 147, wherein~~ c) the single domain antibody is genetically fused or chemically conjugated to the agent.