

P2C4, P2C4 A9

QSALTQPASVSGSPGQSIASCTGTSSDIGHYDFVSWYQQHPGTAPKLLIYDINNRPSGISNR
 FSGSKSDNMASLTISGLQPEDEADYYCSAYTSSDTLVFGGGTKLT (SEQ ID NO:1)

LC-CDR1: TGTSSDIGHYDFVS (SEQ ID NO:2)
 LC-CDR2: DINNRPS (SEQ ID NO:3)
 LC-CDR3: SAYTSSDTLV (SEQ ID NO:4)

P2H7

DIQMTQSPSTLSASVGDRVTLSCRAGQAISSWLAWYQQKPGKAPKLLIYKASNLESGVPSR
 FSGGGSGAEFTLTISLQPDDEFATYYCQQYQSYPTYFGQGTKLEIR (SEQ ID NO:5)

LC-CDR1: RAGQAISSWLA (SEQ ID NO:6)
 LC-CDR2: KASNLES (SEQ ID NO:7)
 LC-CDR3: QQYQSYPTY (SEQ ID NO:8)

P2D12

DIQLTQSPSSLSASVGDRVITITCQASQDIGNYLNWYQLKPGKAPKLLIYDASNLETGVPSRF
 SGSGSGTDFTFITISLQPEDATYYCLQLYDYPLTFGGGTKVEIK (SEQ ID NO:9)

LC-CDR1: QASQDIGNYLN (SEQ ID NO:10)
 LC-CDR2: DASNLET (SEQ ID NO:11)
 LC-CDR3: LQLYDYPLT (SEQ ID NO:12)

P1G11

NFMLTQPHSVSESPGKTVTISCTRSSGSIASNYVQWYQQRPGSSPTTVIFDDNQRPTGVPD
 RFSAADTSSSSASLTISGLTAEDEADYYCQSSHSTAVVFGGGTKLTVL (SEQ ID NO:13)

LC-CDR1: TRSSGSIASNYVQ (SEQ ID NO:14)
 LC-CDR2: DDNQRPT (SEQ ID NO:15)
 LC-CDR3: QSSHSTAVV (SEQ ID NO:16)

Figure 1

P2C4 A4, P2C4 C1

QSALTQPASVSGSPGQSIASCTGTSSDIGDYDFVSWYQQHPGTAPKLIYDINNRP^{SGISNR}
 FSGSKSDN^{MASLTISGLQPEDEADYYCSAYTSSDTLV}VFGGGTKLT (SEQ ID NO:17)

LC-CDR1: TGTSSDIGDYDFVS (SEQ ID NO:18)
 LC-CDR2: DINNRPS (SEQ ID NO:3)
 LC-CDR3: SAYTSSDTLV (SEQ ID NO:4)

P2C4 B1

QSALTQPASVSGSPGQSIASCTGTSSDIGHYDFVSWYQQHPGTAPKLIYDNNNRPS^{GISN}
 RFSGSKSDN^{MASLTISGLQPEDEADYYCSAYTSSDTLV}VFGGGTKLT (SEQ ID NO:19)

LC-CDR1: TGTSSDIGHYDFVS (SEQ ID NO:2)
 LC-CDR2: DNNNRPS (SEQ ID NO:20)
 LC-CDR3: SAYTSSDTLV (SEQ ID NO:4)

P2C4 B5

QSALTQPASVSGSPGQSITISCTGTSSDIGHYDFVSWYQQHPGTAPKLIYDINNRP^{SGISNR}
 FSGSKSDN^{MASLTISGLQPEDEADYYCSAYTSSDTV}VFGGGTKLT (SEQ ID NO:21)

LC-CDR1: TGTSSDIGHYDFVS (SEQ ID NO:2)
 LC-CDR2: DINNRPS (SEQ ID NO:3)
 LC-CDR3: SAYTSSDTV (SEQ ID NO:22)

**P2C4 B6, P2C4 B8, P2C4 C12, P2C4 D10, P2C4 E2, P2C4 E3, P2C4 E8, P2C4 G2,
 P2C4 G11, P2C4 H1, P2C4 H2, P2C4 H3**

QSALTQPASVSGSPGQSIASCTGTSSDIGHYDFVSWYQQHPGTAPKLIYDINNRP^{SGISNR}
 FSGSKSDN^{MASLTISGLQPEDEADYYCSAYTSSDTV}VFGGGTKLT (SEQ ID NO:23)

LC-CDR1: TGTSSDIGHYDFVS (SEQ ID NO:2)
 LC-CDR2: DINNRPS (SEQ ID NO:3)
 LC-CDR3: SAYTSSDTV (SEQ ID NO:22)

Figure 1 (Cont.)

P2C4 B12

QSALTQPASVSGSPGQSIASCTGTSSDIGHYDFISWYQQHPGTAPKLIYDFNNRPSGISNR
FSGSKSDNMA SLTISGLQPEDEADYYCSAYTSSDTLVFGGGTKLT (SEQ ID NO:24)

LC-CDR1: TGTSSDIGHYDFIS (SEQ ID NO:25)
LC-CDR2: DFNNRPS (SEQ ID NO:26)
LC-CDR3: SAYTSSDTLV (SEQ ID NO:4)

P2C4 C4

QSALTQPASVSGSPGQSIASCTGTSSDIGHYDFVSWYQQHPGTAPKLIYDNNNRPSGISN
RFSGSKSDNMA SLTISGLQPEDEADYYCSAYTSSDTVVFSGGGTKLT (SEQ ID NO:27)

LC-CDR1: TGTSSDIGHYDFVS (SEQ ID NO:2)
LC-CDR2: DNNNRPS (SEQ ID NO:20)
LC-CDR3: SAYTSSDTV (SEQ ID NO:22)

P2C4 C7

QSALTQPASVSGSPGQSIVISCTGTSSDIGHYDFVSWYQQHPGTAPKLIYDINNRP SGISNR
FSGSKSDNMA SLTISGLQPEDEADYYCSAYTSSDTVVFSGGGTKLT (SEQ ID NO:28)

LC-CDR1: TGTSSDIGHYDFVS (SEQ ID NO:2)
LC-CDR2: DINNRPS (SEQ ID NO:3)
LC-CDR3: SAYTSSDTV (SEQ ID NO:22)

P2C4 E6

QSALTQPASVSGSPGQSIASCTGTSSDIGDYDFVSWYQQHPGTAPKLIYDINNRP SGISNR
FSGSKSDNMA SLIISGLQPEDEADYYCSAYTSSDTLVFGGGTKLT (SEQ ID NO:29)

LC-CDR1: TGTSSDIGDYDFVS (SEQ ID NO:18)
LC-CDR2: DINNRPS (SEQ ID NO:3)
LC-CDR3: SAYTSSDTLV (SEQ ID NO:4)

Figure 1 (Cont.)

P2C4 E7

QSALTQPASVSGSPGQSIASCTGTSSDIGHYDFVSWYQQHPGTAPKLIYDINNRPSGISNR
 FSGSKSDDMASLTISGLQPEDEADYYCSAYTSSDTVVFGGGTKLT (SEQ ID NO:30)

LC-CDR1: TGTSSDIGHYDFVS (SEQ ID NO:2)
 LC-CDR2: DINNRPS (SEQ ID NO:3)
 LC-CDR3: SAYTSSDTVV (SEQ ID NO:22)

P2C4 E9

QSALTQPASVSGSPGQSIASCTGTSSDIGHYDFVSWYQQHPGTAPKLIYDINNRASGISNR
 FSGSKSDNMASTISGLQPEDEADYYCSAYTSSDTVVFGGGTKLT (SEQ ID NO:31)

LC-CDR1: TGTSSDIGHYDFVS (SEQ ID NO:2)
 LC-CDR2: DINNRAS (SEQ ID NO:32)
 LC-CDR3: SAYTSSDTVV (SEQ ID NO:22)

P2C4 F8

QSALTQPASVSGNPGQSIASCTGTSSDIGHYDFVSWYQQHPGTAPKLIYDINNRPSGISNR
 FSGSKSDNMASTISGLQPEDEADYYCSAYTSSDTVVFGGGTKLT (SEQ ID NO:33)

LC-CDR1: TGTSSDIGHYDFVS (SEQ ID NO:2)
 LC-CDR2: DINNRPS (SEQ ID NO:3)
 LC-CDR3: SAYTSSDTVV (SEQ ID NO:22)

P2C4 F11

QSTLTQPASVSGSPGQSITISCTGTSSDIGHYDFVSWYQQHPGTAPKLIYDINNRPSGISNR
 FSGSKSDNMASTISGLQPEDEADYYCSAYTSSDTVVFGGGTKLT (SEQ ID NO:34)

LC-CDR1: TGTSSDIGHYDFVS (SEQ ID NO:2)
 LC-CDR2: DINNRPS (SEQ ID NO:3)
 LC-CDR3: SAYTSSDTVV (SEQ ID NO:22)

Figure 1 (Cont.)

P2C4 C1D10

QSALTQPASVSGSPGQSIAISCTGTSSDIGDYDFVSWYQQHPGTAPKLIYDINNRPSGISNR
 FSGSKSDNMASTISGLQPEDEADYYCSAYTSSDTVVFGGGTKLT (SEQ ID NO:148)

LC-CDR1: TGTSSDIGDYDFVS (SEQ ID NO:18)
 LC-CDR2: DINNRPS (SEQ ID NO:3)
 LC-CDR3: SAYTSSDTV (SEQ ID NO:22)

P2C4 FW2

QSVLTQPPSVSGAPGQRVTISCTGTSSDIGHYDFVSWYQQLPGTAPKLLIYDINNRPSGVP
 DRFSGSKSGTSASLAITGLQAEDEADYYCSAYTSSDTLVFGGGTKLT (SEQ ID NO:149)

LC-CDR1: TGTSSDIGHYDFVS (SEQ ID NO:2)
 LC-CDR2: DINNRPS (SEQ ID NO:3)
 LC-CDR3: SAYTSSDTLV (SEQ ID NO:4)

Figure 1 (Cont.)

P2C4, P2C4 A4, P2C4 B1, P2C4 B5, P2C4 C1, P2C4 C4, P2C4 C7, P2C4 D10, P2C4 E6, P2C4 E7, P2C4 F8

EVQLVQSGAEVKKPGSSVKVSCKASGYTFTNYYMHVVRQAPGQGLEWMGAIMPSRGGT
 SYPQKFQGRVTMTGDTSTSTVYMELSSLRSEDTAVYYCARGEY^YYDSSG^YY^YWGQGLTV
 TVSS (SEQ ID NO:35)

HC-CDR1:	NYYMH	(SEQ ID NO:36)
HC-CDR2:	AIMPSRGGTSYPQKFQG	(SEQ ID NO:37)
HC-CDR3:	GEY ^Y YDSSG ^Y Y ^Y	(SEQ ID NO:38)

P2H7

EVQLVQSGTEVKKPGASVKVSCKASGYTFTTYAMHWVRQAPGQSLEWMGWINTGNGNT
 KYSQNFQGRVTMTTRDTSISTAYMELSR^LRSDDTAVYYCARDLGQLERLYFWGQGLTVTVS
 S (SEQ ID NO:39)

HC-CDR1:	TYAMH	(SEQ ID NO:40)
HC-CDR2:	WINTGNGNTKYSQNFQG	(SEQ ID NO:41)
HC-CDR3:	DLGQLERLYFW	(SEQ ID NO:42)

P2D12

HVQLVETGGGLVQPGGSLRLSCAASGFTFSSYAMSWVRQAPGKGLEWVSAISGSGGSTY
 YADSVKGRFTISRDN^SKNTLYLQMNSLRAEDTAVYYCARDLG^DYWGQGLTVTVSS (SEQ
 ID NO:43)

HC-CDR1:	SYAMS	(SEQ ID NO:44)
HC-CDR2:	AISGSGGSTYYADSVKG	(SEQ ID NO:45)
HC-CDR3:	DLGDY	(SEQ ID NO:46)

P1G11

QVQLQQWGAGLLKPSETLSLTCAVYGGSFSGY^YWSWIRQPPGKGLEWIG^EINHSGSTN^YN
 PSLKSRVTISVDTSKNQFSLKLSSVTAADTAVYYCARSSSGDAFDI^WWGQGTMTVTVSS (SEQ
 ID NO:47)

HC-CDR1:	GY ^Y WS	(SEQ ID NO:48)
HC-CDR2:	EINHSGSTN ^Y NPSLKS	(SEQ ID NO:49)
HC-CDR3:	SSSGDAFD	(SEQ ID NO:50)

Figure 2

P2C4 A9

EVQLVQSGAEVKKPGSSVKVSCKASGYTFTNYYMHVVRQAPGQGLEWMGAIMPSRGGT
 SYPQKFQGRVTMTGDTSTSTVYMELSSLRSED~~TAVYYCARGEY~~YYDSSGYYNWGQGTLV
 TVSS (SEQ ID NO:51)

HC-CDR1:	NYYMH	(SEQ ID NO:36)
HC-CDR2:	AIMPSRGGTSYPQKFQG	(SEQ ID NO:37)
HC-CDR3:	GEYYYDSSGYYN	(SEQ ID NO:52)

P2C4 B6, P2C4 E9

EVQLVQSGAEVKKPGSSVKVSCKASGYTFTNYYIHWVRQAPGQGLEWMGAIMPSRGGTS
 YPQKFQGRVTMTGDTSTSTVYMELSSLRSED~~TAVYYCARGEY~~YYDSSGYYYWGQGT~~LV~~
 VSS (SEQ ID NO:53)

HC-CDR1:	NYYIH	(SEQ ID NO:54)
HC-CDR2:	AIMPSRGGTSYPQKFQG	(SEQ ID NO:37)
HC-CDR3:	GEYYYDSSGYYY	(SEQ ID NO:38)

P2C4 B8

EVQLVQSGAEVKKPGSSVKVSCKASGYTFTNYYMHVVRQPPGQGLEWMGAIMPSRGGT
 SYPQKFQGRVTMTGDTSTSTVYMELSSLRSED~~TAVYYCARGEY~~YYDSSGYYYWGQGT~~LV~~
 TVSS (SEQ ID NO:55)

HC-CDR1:	NYYMH	(SEQ ID NO:36)
HC-CDR2:	AIMPSRGGTSYPQKFQG	(SEQ ID NO:37)
HC-CDR3:	GEYYYDSSGYYY	(SEQ ID NO:38)

P2C4 B12

EVQLVQSGAEVKKPGSTVKVSCKASGYTFTNYYMHVVRQAPGQGLEWMGAIMPSRGGT
 SYPQKFQGRVTMTGDTSTSTVYMELSSLRSED~~TAVYYCARGEY~~YYDSSGYYYWGQGT~~LV~~
 TVSS (SEQ ID NO:56)

HC-CDR1:	NYYMH	(SEQ ID NO:36)
HC-CDR2:	AIMPSRGGTSYPQKFQG	(SEQ ID NO:37)
HC-CDR3:	GEYYYDSSGYYY	(SEQ ID NO:38)

Figure 2 (Cont.)

P2C4 C12

EVQLVQSGAEVKKPGSSVKVSCKASGYTFTNYYMHWVRQAPGQGLEWMGAIMPSRGGT
SYPQKFQGRVTMTGDTSTSTVYMELSNLRSEDTAVYYCARGEYYYDSSGYYYWGQGTLV
 TVSN (SEQ ID NO:57)

HC-CDR1:	NYYMH	(SEQ ID NO:36)
HC-CDR2:	AIMPSRGGTSYPQKFQG	(SEQ ID NO:37)
HC-CDR3:	GEYYDSSGYYY	(SEQ ID NO:38)

P2C4 E2

EVQLVQSGAEVKEPGSSVKVSCKASGYTFTNYYMHWVRQAPGQGLEWMGAIMPSRGGT
SYPQKFQGRVTMTGDISTSTVYMELSSLRSEDTAVYYCARGEYYYDSSGYYYWGQGTLV
 VSS (SEQ ID NO:58)

HC-CDR1:	NYYMH	(SEQ ID NO:36)
HC-CDR2:	AIMPSRGGTSYPQKFQG	(SEQ ID NO:37)
HC-CDR3:	GEYYDSSGYYY	(SEQ ID NO:38)

P2C4 E3

EVQLVQSGAEVKKPGSSVKVSCKASGYTFTNYYIHWVRQAPGQGLEWMGAIMPSRGGTS
YPQKFQGRVTMTGDTSTSTVYMELNSLRSEDTAVYYCARGEYYYDSSGYYYWGQGTLV
 VSS (SEQ ID NO:59)

HC-CDR1:	NYYIH	(SEQ ID NO:54)
HC-CDR2:	AIMPSRGGTSYPQKFQG	(SEQ ID NO:37)
HC-CDR3:	GEYYDSSGYYY	(SEQ ID NO:38)

P2C4 E8

EVQLVQSGAEVKKPGSSVKVSCKASGYTFTNYYMHWVRQAPGQGLEWMGAIMPSRGGT
SYPQKFQGRVTMTGDTSTSTVYMELSSLRSEDTAVYYCARGEYYYDSSGYYYWGPGT
 LVSS (SEQ ID NO:60)

HC-CDR1:	NYYMH	(SEQ ID NO:36)
HC-CDR2:	AIMPSRGGTSYPQKFQG	(SEQ ID NO:37)
HC-CDR3:	GEYYDSSGYYY	(SEQ ID NO:38)

Figure 2 (Cont.)

P2C4 F11

EVQLVQSGAEVKKPGSSVKVSCKASGYTFTNYYMHWVRQAPGQGLEWMGAIMPSRGGT
 SYPQKFQGRVTMTGDTSTSTVYMELSSLRSEDAMYYCARGEYYYDSSGYYYWGQGTLV
 TVSS (SEQ ID NO:61)

HC-CDR1:	NYYMH	(SEQ ID NO:36)
HC-CDR2:	AIMPSRGGTSYPQKFQG	(SEQ ID NO:37)
HC-CDR3:	GEYYDSSGYYY	(SEQ ID NO:38)

P2C4 G2

EVQLVQSGAEVKKPGSSVKVSCKASGYTFTNYYMHWVRQAPGQGLEWMGAIMPSRGGT
 SYPQKFQGRVTMTGDTSTSTVYMELSSLRTEDAVYYCARGEYYYDSSGYYYWGQGTLV
 TVSS (SEQ ID NO:62)

HC-CDR1:	NYYMH	(SEQ ID NO:36)
HC-CDR2:	AIMPSRGGTSYPQKFQG	(SEQ ID NO:37)
HC-CDR3:	GEYYDSSGYYY	(SEQ ID NO:38)

P2C4 G11

EVQLVQSGAEVKKPGSSVKVSCKASGYTFTNYYMHWVRQAPGQGLEWMGAIMPSRGGT
 SYPQKFQGRVTMTGDTSTSTVYMELSNLRSEDAMYYCARGEYYYDSSGYYYWGQGTLV
 TVSS (SEQ ID NO:63)

HC-CDR1:	NYYMH	(SEQ ID NO:36)
HC-CDR2:	AIMPSRGGTSYPQKFQG	(SEQ ID NO:37)
HC-CDR3:	GEYYDSSGYYY	(SEQ ID NO:38)

P2C4 H1

EVQLVQSGAEVKKPGSSVKVSCKASGYTFTNYYMHWVRQAPGQGLEWMGAIMPSRGGT
 SYPQKFQGRVTMTGDTSTSTVYMELSSLRSEDAMYYCARGEYYYDSSGYYYWGQGTLV
 NVSS (SEQ ID NO:64)

HC-CDR1:	NYYMH	(SEQ ID NO:36)
HC-CDR2:	AIMPSRGGTSYPQKFQG	(SEQ ID NO:37)
HC-CDR3:	GEYYDSSGYYY	(SEQ ID NO:38)

Figure 2 (Cont.)

P2C4 H2

EVQLVQSGAEVKKPGSSVKVSCKASGYTFSNYYMHWVRQAPGQGLEWIGAIMPSRGGTS
 YPQKFQGRVTMTGDTSTSTVYMELSSLRSED~~TAVYYCARGEY~~YDSSGYYYWGQGLVT
 VSS (SEQ ID NO:65)

HC-CDR1:	NYYMH	(SEQ ID NO:36)
HC-CDR2:	AIMPSRGGTSYPQKFQG	(SEQ ID NO:37)
HC-CDR3:	GEYYDSSGYYY	(SEQ ID NO:38)

P2C4 H3

EVQLVQSGAEVKKPGSSVKVSCKATGYTFTNYYMHWVRQAPGQGLEWMGAIMPSRGGT
 SYPQKFQGRVTMTGDTSTSTVYMELSSLRSED~~TAVYYCARGEY~~YDSSGYYYWGQGLTV
 TVSS (SEQ ID NO:66)

HC-CDR1:	NYYMH	(SEQ ID NO:36)
HC-CDR2:	AIMPSRGGTSYPQKFQG	(SEQ ID NO:37)
HC-CDR3:	GEYYDSSGYYY	(SEQ ID NO:38)

P2C4 C1D10

EVQLVQSGAEVKKPGSSVKVSCKASGYTFTNYYMHWVRQAPGQGLEWMGAIMPSRGGT
 SYPQKFQGRVTMTGDTSTSTVYMELSSLRSED~~TAVYYCARGEY~~YDSSGYYYWGQGTPV
 TVSS (SEQ ID NO:150)

HC-CDR1:	NYYMH	(SEQ ID NO:36)
HC-CDR2:	AIMPSRGGTSYPQKFQG	(SEQ ID NO:37)
HC-CDR3:	GEYYDSSGYYY	(SEQ ID NO:38)

P2C4 FW2

EVQLVQSGAEVKKPGASVKVSCKASGYTFTNYYMHWVRQAPGQGLEWMGAIMPSRGGT
 SYPQKFQGRVTITADKSTSTAYMELSSLRSED~~TAVYYCARGEY~~YDSSGYYYWGQGLVT
 VSS (SEQ ID NO:151)

HC-CDR1:	NYYMH	(SEQ ID NO:36)
HC-CDR2:	AIMPSRGGTSYPQKFQG	(SEQ ID NO:37)
HC-CDR3:	GEYYDSSGYYY	(SEQ ID NO:38)

Figure 2 (Cont.)

P1A3, P1A3 B3, P1A3 E8, P1A3 E9

DVVMTQSPLSLPVTGPGEPAISCRSSQSLLSNGYNYLDWYLQKPGQSPQLLIYLGSNRDS
 GVPDRFSGSGSGTDFTLKISRVEAEDVGVYYCMQGTHWPWTFGQGTKVEIK (SEQ ID
 NO:67)

LC-CDR1:	RSSQSLLSNGYNYLD	(SEQ ID NO:68)
LC-CDR2:	LGSNRDS	(SEQ ID NO:69)
LC-CDR3:	MQGTHWPWT	(SEQ ID NO:70)

P2B9

SYELTQPPSMSVSPGQTARITCSGDALPKQFAFWYQQKPGQAPVLVIYKDTERPSGIPERF
 SGSSSGTTVTLTITGVQAEDEADYYCQSPDSSGTVEVFGGGTKLTVL (SEQ ID NO:71)

LC-CDR1:	SGDALPKQFAF	(SEQ ID NO:72)
LC-CDR2:	KDTERPS	(SEQ ID NO:73)
LC-CDR3:	QSPDSSGTVEV	(SEQ ID NO:74)

P1A3 B4

DVVMTQSPLSLPVTGPGESVSISCRSSQSLLSNGYNYLDWYLQKPGQSPQLLIYLGSNRDS
 GVPDRFSGSGSGTDFTLKISRVEAEDVGVYYCMQGTHWPWTFGQGTKVEIK (SEQ ID
 NO:75)

LC-CDR1:	RSSQSLLSNGYNYLD	(SEQ ID NO:68)
LC-CDR2:	LGSNRDS	(SEQ ID NO:69)
LC-CDR3:	MQGTHWPWT	(SEQ ID NO:70)

P1A3 FW2

DIQMTQSPSSLSASVGDRVTITCRSSQSLLSNGYNYLDWYQQKPGKAPKLLIYLGSNRDS
 GVPSRFSGSGSGTDFTLTISSLQPEDFATYYCMQGTHWPWTFGQGTKVEIK (SEQ ID NO:
 152)

LC-CDR1:	RSSQSLLSNGYNYLD	(SEQ ID NO:68)
LC-CDR2:	LGSNRDS	(SEQ ID NO:69)
LC-CDR3:	MQGTHWPWT	(SEQ ID NO:70)

Figure 3

P1A3

QVQLQQWGAGLLKPSETLSLTCAVYGGSFSGYYWSWIRQPPGKGLEWIGEINHSGSTNYN
PSLKSRATISVDTSKNQFSLKLSSVTAADTAVYYCATSPGGYSGGYFQHWGQGTLTVSS
 (SEQ ID NO:76)

HC-CDR1:	GYYSWS	(SEQ ID NO:48)
HC-CDR2:	EINHSGSTNYNPSLKS	(SEQ ID NO:49)
HC-CDR3:	SPGGYSGGYFQH	(SEQ ID NO:77)

P2B9

QVQLQESGPGLVKPSETLSLTCTVSGGSISSSSYYWGWIRQPPGKGLEWIGSIYYSGSTYY
NPSLKSRVTISVDTSKNQFSLKLSSVTAADTAVYYCAGDILTGYALDYWGQGTLTVSS
 (SEQ ID NO:78)

HC-CDR1:	SSSYYWG	(SEQ ID NO:79)
HC-CDR2:	SIYYSGSTYYNPSLK	(SEQ ID NO:80)
HC-CDR3:	DILTGYALDY	(SEQ ID NO:81)

P1A3 B3, P1A3 B4, P1A3 E9

QVQLQQWGAGLLKPSETLSLTCAVYGGSFSGYYWSWIRQPPGKGLEWIGEINHFGSTNYN
PSLKSRATISVDTSKNQFSLKLSSVTAADTAVYYCATSPGGYSGGYFQHWGQGTLTVSS
 (SEQ ID NO:82)

HC-CDR1:	GYYSWS	(SEQ ID NO:48)
HC-CDR2:	EINHFGSTNYNPSLKS	(SEQ ID NO:83)
HC-CDR3:	SPGGYSGGYFQH	(SEQ ID NO:77)

P1A3 E8

QVQLQQWGAGMLKPSETLSLTCAVYGGSFSGYYWSWIRQPPGKGLEWIGEINHFGSTNY
NPSLKSRATISVDTSKNQFSLKLSSVTAADTAVYYCATSPGGYSGGYFQHWGQGTLTVSS
 (SEQ ID NO:84)

HC-CDR1:	GYYSWS	(SEQ ID NO:48)
HC-CDR2:	EINHFGSTNYNPSLKS	(SEQ ID NO:83)
HC-CDR3:	SPGGYSGGYFQH	(SEQ ID NO:77)

Figure 4

P1A3 FW2

EVQLVESGGGLVQPGGSLRLSCAASGGSFSGYYWSWVRQAPGKGLEWVSEINHSGSTNY
NPSLKSRFTISRDN SKNTLYLQMNSLRAEDTAVYYCARSPGGYSGGYFQHWGQGTLVTVS
S (SEQ ID NO: 153)

HC-CDR1:	GYYS	(SEQ ID NO:48)
HC-CDR2:	EINHSGSTNYPNPSLKS	(SEQ ID NO:49)
HC-CDR3:	SPGGYSGGYFQH	(SEQ ID NO:77)

Figure 4 (cont.)

Clone	CDR 1	CDR 2	CDR 3
Light Chain			
P2C4 P2C4_A9 P2C4_FW2	TGTSSDIGHYDFVS (SEQ ID NO:2)	DINNRP (SEQ ID NO:3)	SAYTSSDTLV (SEQ ID NO:4)
P2H7	RAGQAISWLA (SEQ ID NO:6)	KASNLES (SEQ ID NO:7)	QQYQSYPT (SEQ ID NO:8)
P2D12	QASQDIGNYLN (SEQ ID NO:10)	DASNLET (SEQ ID NO:11)	LQLYDYPLT (SEQ ID NO:12)
P1G11	TRSSGSIASNYVQ (SEQ ID NO:14)	DDNQRPT (SEQ ID NO:15)	QSSHSTAVV (SEQ ID NO:16)
P2C4_A4 P2C4_C1 P2C4_E6	TGTSSDIGDYDFVS (SEQ ID NO:18)	DINNRP (SEQ ID NO:3)	SAYTSSDTLV (SEQ ID NO:4)
P2C4_B1	TGTSSDIGHYDFVS (SEQ ID NO:2)	DNNRP (SEQ ID NO:20)	SAYTSSDTLV (SEQ ID NO:4)
P2C4_B5 P2C4_B6 P2C4_B8 P2C4_C7 P2C4_C12 P2C4_D10 P2C4_E2 P2C4_E3 P2C4_E7 P2C4_E8 P2C4_F8 P2C4_F11 P2C4_G2 P2C4_G11 P2C4_H1 P2C4_H2 P2C4_H3	TGTSSDIGHYDFVS (SEQ ID NO:2)	DINNRP (SEQ ID NO:3)	SAYTSSDTV (SEQ ID NO:22)
P2C4_B12	TGTSSDIGHYDFIS (SEQ ID NO:25)	DFNNRP (SEQ ID NO:26)	SAYTSSDTLV (SEQ ID NO:4)
P2C4_C4	TGTSSDIGHYDFVS (SEQ ID NO:2)	DNNRP (SEQ ID NO:20)	SAYTSSDTV (SEQ ID NO:22)
P2C4_E9	TGTSSDIGHYDFVS (SEQ ID NO:2)	DINNRP (SEQ ID NO:32)	SAYTSSDTV (SEQ ID NO:22)
P2C4_C1D10	TGTSSDIGDYDFVS (SEQ ID NO:18)	DINNRP (SEQ ID NO:3)	SAYTSSDTV (SEQ ID NO:22)

Figure 5

Clone	CDR 1	CDR 2	CDR 3
Heavy Chain			
P2C4 P2C4_A4 P2C4_B1 P2C4_B5 P2C4_B8 P2C4_B12 P2C4_C1 P2C4_C4 P2C4_C7 P2C4_C12 P2C4_D10 P2C4_E2 P2C4_E6 P2C4_E7 P2C4_E8 P2C4_F8 P2C4_F11 P2C4_G2 P2C4_G11 P2C4_H1 P2C4_H2 P2C4_H3 P2C4_C1D10 P2C4_FW2	NYYMH (SEQ ID NO:36)	AIMPSRGGTSYPQKFQG (SEQ ID NO:37)	GEYYDSSGYYY (SEQ ID NO:38)
P2H7	TYAMH (SEQ ID NO:40)	WINTGNGNTKYSQNFQG (SEQ ID NO:41)	DLGQLERLYFW (SEQ ID NO:42)
P2D12	SYAMS (SEQ ID NO:44)	AISGSGGSTYYADSVKG (SEQ ID NO:45)	DLGDY (SEQ ID NO:46)
P1G11	GYAWS (SEQ ID NO:48)	EINHSGSTNYPNPSLKS (SEQ ID NO:49)	SSSGDAFD (SEQ ID NO:50)
P2C4_A9	NYYMH (SEQ ID NO:36)	AIMPSRGGTSYPQKFQG (SEQ ID NO:37)	GEYYDSSGYYN (SEQ ID NO:52)
P2C4_B6 P2C4_E3 P2C4_E9	NYYIH (SEQ ID NO:54)	AIMPSRGGTSYPQKFQG (SEQ ID NO:37)	GEYYDSSGYYY (SEQ ID NO:38)

Figure 6

Clone	CDR 1	CDR 2	CDR 3
Light Chain			
P1A3 P1A3_B3 P1A3_E8 P1A3_E9 P1A3_B4 P1A3_FW2	RSSQSLLHSNGYNYLD (SEQ ID NO:68)	LGSNRDS (SEQ ID NO:69)	MQGTHWPWT (SEQ ID NO:70)
P2B9	SGDALPKQFAF (SEQ ID NO:72)	KDTERPS (SEQ ID NO:73)	QSPDSSGTVEV (SEQ ID NO:74)

Figure 7

Clone	CDR 1	CDR 2	CDR 3
Heavy Chain			
P1A3 P1A3_FW2	GYWWS (SEQ ID NO:48)	EINHSGSTNYNPSLKS (SEQ ID NO:49)	SPGGYSGGYFQH (SEQ ID NO:77)
P2B9	SSSYWYG (SEQ ID NO:79)	SIYYSGSTYYNPSLK (SEQ ID NO:80)	DILTGYALDY (SEQ ID NO:81)
P1A3_B3 P1A3_B4 P1A3_E8 P1A3_E9	GYWWS (SEQ ID NO:48)	EINHFGSTNYNPSLKS (SEQ ID NO:83)	SPGGYSGGYFQH (SEQ ID NO:77)

Figure 8

Clone	CDR 1	CDR 2	CDR 3
Light Chain			
P2C4 P2C4_A9 P2C4_FW2	TGTSSDIGHYDFVS (SEQ ID NO:2)	DINNRPS (SEQ ID NO:3)	SAYTSSDTLV (SEQ ID NO:4)
P2C4_A4 P2C4_C1 P2C4_E6	TGTSSDIGDYDFVS (SEQ ID NO:18)	DINNRPS (SEQ ID NO:3)	SAYTSSDTLV (SEQ ID NO:4)
P2C4_B1	TGTSSDIGHYDFVS (SEQ ID NO:2)	DNNRPS (SEQ ID NO:20)	SAYTSSDTLV (SEQ ID NO:4)
P2C4_B5 P2C4_B6 P2C4_B8 P2C4_C7 P2C4_C12 P2C4_D10 P2C4_E2 P2C4_E3 P2C4_E7 P2C4_E8 P2C4_F8 P2C4_F11 P2C4_G2 P2C4_G11 P2C4_H1 P2C4_H2 P2C4_H3	TGTSSDIGHYDFVS (SEQ ID NO:2)	DINNRPS (SEQ ID NO:3)	SAYTSSDTV (SEQ ID NO:22)
P2C4_B12	TGTSSDIGHYDFIS (SEQ ID NO:25)	DFNNRPS (SEQ ID NO:26)	SAYTSSDTLV (SEQ ID NO:4)
P2C4_C4	TGTSSDIGHYDFVS (SEQ ID NO:2)	DNNRPS (SEQ ID NO:20)	SAYTSSDTV (SEQ ID NO:22)
P2C4_E9	TGTSSDIGHYDFVS (SEQ ID NO:2)	DINNRAS (SEQ ID NO:32)	SAYTSSDTV (SEQ ID NO:22)
P2C4_C1D10	TGTSSDIGDYDFVS (SEQ ID NO:18)	DINNRPS (SEQ ID NO:3)	SAYTSSDTV (SEQ ID NO:22)
CONSENSUS	TGTSSDIGX ₁ YDFX ₂ S (SEQ ID NO:85) wherein X ₁ = H or D, and X ₂ = V or I	DX ₃ NNRX ₄ S (SEQ ID NO:86) wherein X ₃ = I, N or F, and X ₄ = P or A	SAYTSSDTX ₅ V (SEQ ID NO:87) wherein X ₅ = L or V

Figure 9

Clone	CDR 1	CDR 2	CDR 3
Heavy Chain			
P2C4 P2C4_A4 P2C4_B1 P2C4_B5 P2C4_B8 P2C4_B12 P2C4_C1 P2C4_C4 P2C4_C7 P2C4_C12 2C4_D10 P2C4_E2 P2C4_E6 P2C4_E7 P2C4_E8 P2C4_F8 P2C4_F11 P2C4_G2 P2C4_G11 P2C4_H1 P2C4_H2 P2C4_H3 P2C4_H3 P2C4_C1D10 P2C4_FW2	NYYMH (SEQ ID NO:36)	AIMPSRGGTSYPQKFQG (SEQ ID NO:37)	GEYYDSSGYYY (SEQ ID NO:38)
P2C4_A9	NYYMH (SEQ ID NO:36)	AIMPSRGGTSYPQKFQG (SEQ ID NO:37)	GEYYDSSGYYN (SEQ ID NO:52)
P2C4_B6 P2C4_E3 P2C4_E9	NYYIH (SEQ ID NO:54)	AIMPSRGGTSYPQKFQG (SEQ ID NO:37)	GEYYDSSGYYY (SEQ ID NO:38)
CONSENSUS	NYYX ₆ H (SEQ ID NO:88) wherein X ₆ = M or I	AIMPSRGGTSYPQKFQG (SEQ ID NO:37)	GEYYDSSGYYX ₇ (SEQ ID NO:89) wherein X ₇ = Y or N

Figure 10

Clone	CDR 1	CDR 2	CDR 3
Light Chain			
P1A3 P1A3_B3 P1A3_E8 P1A3_E9 P1A3_B4 P1A3_FW2	RSSQSLLHSNGYNYLD (SEQ ID NO:68)	LGSNRDS (SEQ ID NO:69)	MQGTHWPWT (SEQ ID NO:70)
CONSENSUS	RSSQSLLHSNGYNYLD (SEQ ID NO:68)	LGSNRDS (SEQ ID NO:69)	MQGTHWPWT (SEQ ID NO:70)

Figure 11

Clone	CDR 1	CDR 2	CDR 3
Heavy Chain			
P1A3 P1A3_FW2	GYYSWS (SEQ ID NO:48)	EINHSGSTNYNPSLKS (SEQ ID NO:49)	SPGGYSGGYFQH (SEQ ID NO:77)
P1A3_B3 P1A3_B4 P1A3_E8 P1A3_E9	GYYSWS (SEQ ID NO:48)	EINHFGSTNYNPSLKS (SEQ ID NO:83)	SPGGYSGGYFQH (SEQ ID NO:77)
CONSENSUS	GYYSWS (SEQ ID NO:48)	EINHX ₈ GSTNYNPSLKS (SEQ ID NO:90) wherein X ₈ = S or F	SPGGYSGGYFQH (SEQ ID NO:77)

Figure 12

P2C4 CH2

PCPAPEAAGGPSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNA
KTKPREEQYNSTYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAK (SEQ ID
NO:91)

P2C4 CH3

GQPREPQVYTLPPCRDELTKNQVSLWCLVKGFYPSDIAVEWESNGQPENNYKTTPPVLDS
DGSFFLYSKLTVDKSRWQQGNVFCSSVMHEALHNHYTQKSLSLSPGK (SEQ ID NO:92)

Figure 13**P1A3 CH2**

PCPAPEAAGGPSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNA
KTKPREEQYNSTYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAK (SEQ ID
NO:93)

P1A3 CH3

GQPREPQVCTLPPSRDELTKNQVSLSCAVKGFYPSDIAVEWESNGQPENNYKTTPPVLDS
DGSFFLCVSKLTVDKSRWQQGNVFCSSVMHEALHNHYTQKSLSLSPGK (SEQ ID NO:94)

Figure 14

P2C4

EVQLVQSGAEVKKPGSSVKVSCKASGYTFTNYYMHWRQAPGQGLEWMGAIMPSRGGT
SY PQKFQGRVTMTGDTSTSTVYME LSSLRSEDTAVYYCARGEY YDSSGYYYWGQGLTV
TVSSGGGGSGGGSGGGGSQSALTQPASVSGSPGQSIASCTGTSSDIGHYDFVSWYQQ
HPGTAPKLIYDINNRP SGISNRFSGSKSDNMA SLTISGLQPEDEADYYCSAYTSSDTLVFGG
GTKLTVLNSGAGTAAATHTCPPCPAPEAAGGPSVFLFPPKPKDTLMISRTPEVTCVVVDVS
HEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYRVVSVLTVLHQDWLNGKEYKCKVSNK
ALPAPIEKTISKAKGQPREPQVYTLPPCRDELTKNQVSLWCLVKGFYPSDIAVEWESNGQP
ENNYKTTTPVLDSDGSFFLYSKLTVDKSRWQQGNV FSCSVMHEALHNHYTQKSLSLSPGK
 (SEQ ID NO:95)

P2H7

EVQLVQSGTEVKKPGASVKVSCKASGYTFTTYAMHWVRQAPGQSLEWMGWINTGNGNT
KYSQNFQGRVTMTRDTSISTAYMEL SRLRSDDTAVYYCARDLGQLERLYFWGQGLTVTS
SGGGSGGGSGGGSGGGSDIQMTQSPSTLSASVGDRVTLS CRAGQAISSWLAWYQQKPGK
APKLLIYKASNLESGVPSRFSGGGSGAEFTLTISSLQPD DFATYYCQQYQSYPTFTGQGTKL
EIR (SEQ ID NO:96)

P2D12

HVQLVETGGGLVQPGGSLRLSCAASGFTFSSYAMSWVRQAPGKGLEWVSAISGSGGSTY
YADSVKGRFTISRDN SKNTLYLQMNSLRAEDTAVYYCARDLG DYWGQGLTVTVSSGGGGSG
GGGGSGGGSGSDIQLTQSPSSLSASVGDRVTITCQASQDIGNYLNWYQLKPGKAPKLLIYDA
SNLETGVPSRFSGSGSGTDFTFTISSLQPED IATYYCLQLYDYPLTFGGG TKVEIK (SEQ ID NO:97)

P1G11

QVQLQQWGAGLLKPSETLSLTC A VYGGSFSGYYWSWIRQPPGKGLEWIGEINHSGSTNYN
PSLKSRVTISVDTSKNQFSLKLSSVTAADTAVYYCARSSSGDAFDIWGQGMVTVSSGGGG
SGGGSGGGSGSNFMLTQPHSVSESPGKTVTISCTRSSGSIASNYVQWYQQRPGSSPTTVI
FDDNQRPTGVPDRFSA AIDTSSSSASLTISGLTAEDEADYYCQSSHSTAVVFGGGTKLTVL
 (SEQ ID NO:98)

P2C4 A4

EVQLVQSGAEVKKPGSSVKVSCKASGYTFTNYYMHWRQAPGQGLEWMGAIMPSRGGT
SY PQKFQGRVTMTGDTSTSTVYME LSSLRSEDTAVYYCARGEY YDSSGYYNWGQGLTV
TVSSGGGGSGGGSGGGGSQSALTQPASVSGSPGQSIASCTGTSSDIGDYDFVSWYQQ
HPGTAPKLIYDINNRP SGISNRFSGSKSDNMA SLTISGLQPEDEADYYCSAYTSSDTLVFGG
GTKLTVLAAAAHHHHHH (SEQ ID NO:99)

P2C4 A9

EVQLVQSGAEVKKPGSSVKVSCKASGYTFTNYYMHWRQAPGQGLEWMGAIMPSRGGT
SY PQKFQGRVTMTGDTSTSTVYME LSSLRSEDTAVYYCARGEY YDSSGYYNWGQGLTV
TVSSGGGGSGGGSGGGGSQSALTQPASVSGSPGQSIASCTGTSSDIGHYDFVSWYQQ
HPGTAPKLIYDINNRP SGISNRFSGSKSDNMA SLTISGLQPEDEADYYCSAYTSSDTVVF
GGTKLTVLAAAAHHHHHH (SEQ ID NO:100)

Figure 15

P2C4 B1

EVQLVQSGAEVKKPGSSVKVSCKASGYTFTNYYMHWVRQAPGQGLEWMGAIMPSRGGT
SY PQKFQGRVTMTGDTSTSTVYME LSSLRSEDTAVYYCARGEY YDSSGYYYWGQGLV
TVSSGGGGSGGGGSGGGGSQSALTQPASVSGSPGQSIAISCTGTSSDIGHYDFVSWYQQ
HPGTAPKLIYDNNRPSGISNRFSGSKSDNMA SLTISGLQPEDEADYYCSAYTSSDTLVFG
GGTKLTVLAAAHHHHHH (SEQ ID NO:101)

P2C4 B5

EVQLVQSGAEVKKPGSSVKVSCKASGYTFTNYYMHWVRQAPGQGLEWMGAIMPSRGGT
SY PQKFQGRVTMTGDTSTSTVYME LSSLRSEDTAVYYCARGEY YDSSGYYYWGQGLV
TVSSGGGGSGGGGSGGGGSQSALTQPASVSGSPGQSITISCTGTSSDIGHYDFVSWYQQ
HPGTAPKLIYDINNRP SGISNRFSGSKSDNMA SLTISGLQPEDEADYYCSAYTSSDTVVF
GGTKLTVLAAAHHHHHH (SEQ ID NO:102)

P2C4 B6

EVQLVQSGAEVKKPGSSVKVSCKASGYTFTNYYIHWVRQAPGQGLEWMGAIMPSRGGTS
YPQKFQGRVTMTGDTSTSTVYME LSSLRSEDTAVYYCARGEY YDSSGYYYWGQGLVT
VSSGGGGSGGGGSGGGGSQSALTQPASVSGSPGQSIAISCTGTSSDIGHYDFVSWYQQH
PGTAPKLIYDINNRP SGISNRFSGSKSDNMA SLTISGLQPEDEADYYCSAYTSSDTVVF
GGTKLTVLAAAHHHHHH (SEQ ID NO103)

P2C4 B8

EVQLVQSGAEVKKPGSSVKVSCKASGYTFTNYYMHWVRQPPGQGLEWMGAIMPSRGGT
SY PQKFQGRVTMTGDTSTSTVYME LSSLRSEDTAVYYCARGEY YDSSGYYYWGQGLV
TVSSGGGGSGGGGSGGGGSQSALTQPASVSGSPGQSIAISCTGTSSDIGHYDFVSWYQQ
HPGTAPKLIYDINNRP SGISNRFSGSKSDNMA SLTISGLQPEDEADYYCSAYTSSDTVVF
GGTKLTVLAAAHHHHHH (SEQ ID NO:104)

P2C4 B12

EVQLVQSGAEVKKPGSTVKVSCKASGYTFTNYYMHWVRQAPGQGLEWMGAIMPSRGGT
SY PQKFQGRVTMTGDTSTSTVYME LSSLRSEDTAVYYCARGEY YDSSGYYYWGQGLV
TVSSGGGGSGGGGSGGGGSQSALTQPASVSGSPGQSIAISCTGTSSDIGHYDFISWYQQH
PGTAPKLIYDFNNRP SGISNRFSGSKSDNMA SLTISGLQPEDEADYYCSAYTSSDTLVF
GGTKLTVLAAAHHHHHH (SEQ ID NO:105)

P2C4 C1

EVQLVQSGAEVKKPGSSVKVSCKASGYTFTNYYMHWVRQAPGQGLEWMGAIMPSRGGT
SY PQKFQGRVTMTGDTSTSTVYME LSSLRSEDTAVYYCARGEY YDSSGYYYWGQGTPV
TVSSGGGGSGGGGSGGGGSQSALTQPASVSGSPGQSIAISCTGTSSDIGDYDFVSWYQQ
HPGTAPKLIYDINNRP SGISNRFSGSKSDNMA SLTISGLQPEDEADYYCSAYTSSDTLVF
GGTKLTVLAAAHHHHHH (SEQ ID NO:106)

P2C4 C4

EVQLVQSGAEVKKPGSSVKVSCKASGYTFTNYYMHWVRQAPGQGLEWMGAIMPSRGGT
SY PQKFQGRVTMTGDTSTSTVYME LSSLRSEDTAVYYCARGEY YDSSGYYYWGQGLV
TVSSGGGGSGGGGSGGGGSQSALTQPASVSGSPGQSIAISCTGTSSDIGHYDFVSWYQQ
HPGTAPKLIYDNNRPSGISNRFSGSKSDNMA SLTISGLQPEDEADYYCSAYTSSDTVVF
GGTKLTVLAAAHHHHHH (SEQ ID NO:107)

Figure 15 (Cont.)

P2C4 C7

EVQLVQSGAEVKKPGSSVKVSCKASGYTFTNYYMHWVRQAPGQGLEWMGAIMPSRGGT
SY PQKFQGRVTMTGDTSTSTVYMELSSLRSED TAVYYCARGEY YDSSGYYYWGQGLV
TVSSGGGGSGGGGSGGGGSQSALTQPASVSGSPGQSIVISCTGTSSDIGHYDFVSWYQQ
HPGTAPKLIIDINNRP SGISNRFSGSKSDNMASLTISGLQPEDEADYYCSAYTSSDTVVF
GGTKLTVLAAAHHHH (SEQ ID NO:108)

P2C4 C12

EVQLVQSGAEVKKPGSSVKVSCKASGYTFTNYYMHWVRQAPGQGLEWMGAIMPSRGGT
SY PQKFQGRVTMTGDTSTSTVYMELSNLRSED TAVYYCARGEY YDSSGYYYWGQGLV
TVSNGGGGSGGGGSGGGGSQSALTQPASVSGSPGQSIAISCTGTSSDIGHYDFVSWYQQ
HPGTAPKLIIDINNRP SGISNRFSGSKSDNMASLTISGLQPEDEADYYCSAYTSSDTVVF
GGTKLTVLAAAHHHHHH (SEQ ID NO:109)

P2C4 D10

EVQLVQSGAEVKKPGSSVKVSCKASGYTFTNYYMHWVRQAPGQGLEWMGAIMPSRGGT
SY PQKFQGRVTMTGDTSTSTVYMELSSLRSED TAVYYCARGEY YDSSGYYYWGQGLV
TVSSGGGGSGGGGSGGGGSQSALTQPASVSGSPGQSIAISCTGTSSDIGHYDFVSWYQQ
HPGTAPKLIIDINNRP SGISNRFSGSKSDNMASLTISGLQPEDEADYYCSAYTSSDTVVF
GGTKLTVLAAAHHHHHH (SEQ ID NO:110)

P2C4 E2

EVQLVQSGAEVKEPGSSVKVSCKASGYTFTNYYMHWVRQAPGQGLEWMGAIMPSRGGT
SY PQKFQGRVTMTGDISTSTVYMELSSLRSED TAVYYCARGEY YDSSGYYYWGQGLV
VSSGGGGSGGGGSGGGGSQSALTQPASVSGSPGQSIAISCTGTSSDIGHYDFVSWYQQH
PGTAPKLIIDINNRP SGISNRFSGSKSDNMASLTISGLQPEDEADYYCSAYTSSDTVVF
GKLTVLAAAHHHHHH (SEQ ID NO:111)

P2C4 E3

EVQLVQSGAEVKKPGSSVKVSCKASGYTFTNYYIHWVRQAPGQGLEWMGAIMPSRGGTS
YPQKFQGRVTMTGDTSTSTVYMELNSLRSED TAVYYCARGEY YDSSGYYYWGQGLV
VSSGGGGSGGGGSGGGGSQSALTQPASVSGSPGQSIAISCTGTSSDIGHYDFVSWYQQH
PGTAPKLIIDINNRP SGISNRFSGSKSDNMASLTISGLQPEDEADYYCSAYTSSDTVVF
GKLTVLAAAHHHHHH (SEQ ID NO:112)

P2C4 E6

EVQLVQSGAEVKKPGSSVKVSCKASGYTFTNYYMHWVRQAPGQGLEWMGAIMPSRGGT
SY PQKFQGRVTMTGDTSTSTVYMELSSLRSED TAVYYCARGEY YDSSGYYYWGQGLV
TVSSGGGGSGGGGSGGGGSQSALTQPASVSGSPGQSIAISCTGTSSDIGDYDFVSWYQQ
HPGTAPKLIIDINNRP SGISNRFSGSKSDNMASLIISGLQPEDEADYYCSAYTSSDTLVF
GKLTVLAAAHHHHHH (SEQ ID NO:113)

P2C4 E7

EVQLVQSGAEVKKPGSSVKVSCKASGYTFTNYYMHWVRQAPGQGLEWMGAIMPSRGGT
SY PQKFQGRVTMTGDTSTSTVYMELSSLRSED TAVYYCARGEY YDSSGYYYWGQGLV
TVSSGGGGSGGGGSGGGGSQSALTQPASVSGSPGQSIAISCTGTSSDIGHYDFVSWYQQ
HPGTAPKLIIDINNRP SGISNRFSGSKSDNMASLTISGLQPEDEADYYCSAYTSSDTVVF
GGTKLTVLAAAHHHHHH (SEQ ID NO:114)

Figure 15 (Cont.)

P2C4 E8

EVQLVQSGAEVKKPGSSVKVSCKASGYTFTNYYMHWVRQAPGQGLEWMGAIMPSRGGT
SY PQKFQGRVTMTGDTSTSTVMELSSLRSEDTAVYYCARGEYYYDSSGYYYWGP GTLV
TVSSGGGGSGGGGSGGGGSQSALTQPASVSGSPGQSIASCTGTSSDIGHYDFVSWYQQ
HPGTAPKLIYDINNRPSGISNRFSGSKSDNMASLTISGLQPEDEADYYCSAYTSSDTVVFG
GGTKLTVLAAAAHHHHHH (SEQ ID NO:115)

P2C4 E9

EVQLVQSGAEVKKPGSSVKVSCKASGYTFTNYYIHWVRQAPGQGLEWMGAIMPSRGGTS
YPQKFQGRVTMTGDTSTSTVMELSSLRSEDTAVYYCARGEYYYDSSGYYYWGQ GTLV
VSSGGGGSGGGGSGGGGSQSALTQPASVSGSPGQSIASCTGTSSDIGHYDFVSWYQQH
PGTAPKLIYDINNRASGISNRFSGSKSDNMASLTISGLQPEDEADYYCSAYTSSDTVVFGG
GTKLTVLAAAAHHHHHH (SEQ ID NO:116)

P2C4 F8

EVQLVQSGAEVKKPGSSVKVSCKASGYTFTNYYMHWVRQAPGQGLEWMGAIMPSRGGT
SY PQKFQGRVTMTGDTSTSTVMELSSLRSEDTAVYYCARGEYYYDSSGYYYWGQ GTLV
TVSSGGGGSGGGGSGGGGSQSALTQPASVSGNPGQSIASCTGTSSDIGHYDFVSWYQQ
HPGTAPKLIYDINNRPSGISNRFSGSKSDNMASLTISGLQPEDEADYYCSAYTSSDTVVFG
GGTKLTVLAAAAHHHHHH (SEQ ID NO:117)

P2C4 F11

EVQLVQSGAEVKKPGSSVKVSCKASGYTFTNYYMHWVRQAPGQGLEWMGAIMPSRGGT
SY PQKFQGRVTMTGDTSTSTVMELSSLRSEDTAMYYCARGEYYYDSSGYYYWGQ GTLV
TVSSGGGGSGGGGSGGGGSQSTLTQPASVSGSPGQSITISCTGTSSDIGHYDFVSWYQQ
HPGTAPKLIYDINNRPSGISNRFSGSKSDNMASLTISGLQPEDEADYYCSAYTSSDTVVFG
GGTKLTVLAAAAHHHHHH (SEQ ID NO:118)

P2C4 G2

EVQLVQSGAEVKKPGSSVKVSCKASGYTFTNYYMHWVRQAPGQGLEWMGAIMPSRGGT
SY PQKFQGRVTMTGDTSTSTVMELSSLRTEDTAVYYCARGEYYYDSSGYYYWGQ GTLV
TVSSGGGGSGGGGSGGVGSQSALTQPASVSGSPGQSIASCTGTSSDIGHYDFVSWYQQ
HPGTAPKLIYDINNRPSGISNRFSGSKSDNMASLTISGLQPEDEADYYCSAYTSSDTVVFG
GGTKLTVLAAAAHHHHHH (SEQ ID NO:119)

P2C4 G11

EVQLVQSGAEVKKPGSSVKVSCKASGYTFTNYYMHWVRQAPGQGLEWMGAIMPSRGGT
SY PQKFQGRVTMTGDTSTSTVMELSNLRSEDTAVYYCARGEYYYDSSGYYYWGQ GTLV
TVSSGGGGSGGGGSGGGGSQSALTQPASVSGSPGQSIASCTGTSSDIGHYDFVSWYQQ
HPGTAPKLIYDINNRPSGISNRFSGSKSDNMASLTISGLQPEDEADYYCSAYTSSDTVVFG
GGTKLTVLAAAAHHHHHH (SEQ ID NO:120)

P2C4 H1

EVQLVQSGAEVKKPGSSVKVSCKASGYTFTNYYMHWVRQAPGQGLEWMGAIMPSRGGT
SY PQKFQGRVTMTGDTSTSTVMELSSLRSEDTAVYYCARGEYYYDSSGYYYWGQ GTLV
NVSSGGGGSGGGGSGGGGSQSALTQPASVSGSPGQSIASCTGTSSDIGHYDFVSWYQQ
HPGTAPKLIYDINNRPSGISNRFSGSKSDNMASLTISGLQPEDEADYYCSAYTSSDTVVFG
GGTKLTVLAAAAHHHHHH (SEQ ID NO:121)

Figure 15 (Cont.)

P2C4 H2

EVQLVQSGAEVKKPGSSVKVSCKASGYTFSNYYMHWVRQAPGQGLEWIGAIMPSRGGTS
YPQKFQGRVTMTGDTSTSTVYMELSSLRSEDVAVYYCARGEYYYDSSGYYYWGQGLVT
VSSGGGGSGGGGSGGGGSQSALTQPASVSGSPGQSIASCTGTSSDIGHYDFVSWYQQH
PGTAPKLIYDINNRPISNRFSGSKSDNMASTISGLQPEDEADYYCSAYTSSDTVVFGG
GTKLTVLAAAAHHHHH (SEQ ID NO:122)

P2C4 H3

EVQLVQSGAEVKKPGSSVKVSCKATGYTFTNYYMHWVRQAPGQGLEWMGAIMPSRGGT
SYPQKFQGRVTMTGDTSTSTVYMELSSLRSEDVAVYYCARGEYYYDSSGYYYWGQGLV
TVSSGGGGSGGGGSGGGGSQSALTQPASVSGSPGQSIASCTGTSSDIGHYDFVSWYQQ
HPGTAPKLIYDINNRPISNRFSGSKSDNMASTISGLQPEDEADYYCSAYTSSDTVVFG
GGTKLTVLAAAAHHHHH (SEQ ID NO:123)

P2C4 C1D10

EVQLVQSGAEVKKPGSSVKVSCKASGYTFTNYYMHWVRQAPGQGLEWMGAIMPSRGGT
SYPQKFQGRVTMTGDTSTSTVYMELSSLRSEDVAVYYCARGEYYYDSSGYYYWGQGPV
TVSSGGGGSGGGGSGGGGSQSALTQPASVSGSPGQSIASCTGTSSDIGDYDFVSWYQQ
HPGTAPKLIYDINNRPISNRFSGSKSDNMASTISGLQPEDEADYYCSAYTSSDTVVFG
GGTKLTVL (SEQ ID NO:154)

P2C4 FW2

EVQLVQSGAEVKKPGASVKVSCKASGYTFTNYYMHWVRQAPGQGLEWMGAIMPSRGGT
SYPQKFQGRVTITADKSTSTAYMELSSLRSEDVAVYYCARGEYYYDSSGYYYWGQGLVT
VSSGGGGSGGGGSGGGGSQSVLTQPPSVSGAPGQRTISCTGTSSDIGHYDFVSWYQQ
PGTAPKLLIYDINNRPISGVDPDRFSGSKSGTSASLAITGLQAEDEADYYCSAYTSSDTLVFGG
GTKLTVL (SEQ ID NO:155)

Figure 15 (Cont.)

P1A3

QVQLQQWGAGLLKPSETLSLTCAVYGGSFSGYYWSWIRQPPGKGLEWIGEINHSGSTNYN
 PSLKSRATISVDTSKNQFSLKLSSVTAADTAVYYCATSPGGYSGGYFQHWGQGTLTVTVSS
GGGGSGGGGSGGGGSDVVMTQSPLSLPVTGPGEPAISCRSSQSLHNSNGYNYLDWYLQK
 PGQSPQLLIYLGSNRDSGVPDRFSGSGSGTDFTLKISRVEAEDVGVYYCMQGTHWPWTFG
 QGTKVEIK**NSGAGTAAATH**TCPPCPAPEAAGGPSVFLFPPKPKDTLMISRTPEVTCVVVDV
 SHEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYRVVSVLTVLHQDWLNGKEYKCKVSN
 KALPAPIEKTISKAKGQPREPQVCTLPPSRDELTKNQVSLSCAVKGFYPSDIAVEWESNGQP
 ENNYKTTTPVLDSDGSFFLCVSKLTVDKSRWQQGNVFCFSVMHEALHNHYTQKSLSLSPG
 K (SEQ ID NO:124)

P2B9

QVQLQESGPGLVKPSETLSLTCTVSGGSISSSSYYWGWIRQPPGKGLEWIGSIYYSGSTYY
 NPSLKSRVTISVDTSKNQFSLKLSSVTAADTAVYYCAGDILTGYALDYWGQGTTLTVTVSS**GG**
GGSGGGGSGGGGSSYELTQPPSMSPVSPGQTARITCSGDALPKQFAFWYQQKPGQAPVL
 VIYKDTERPSPGIPERFSGSSSGTTVTLTITGVQAEDEADYYCQSPDSSSGTVEVFGGGTLTV
 L (SEQ ID NO:125)

P1A3 B3

QVQLQQWGAGLLKPSETLSLTCAVYGGSFSGYYWSWIRQPPGKGLEWIGEINHFGSTNYN
 PSLKSRATISVDTSKNQFSLKLSSVTAADTAVYYCATSPGGYSGGYFQHWGQGTLTVTVSS
GGGGSGGGGSGGGGSDVVMTQSPLSLPVTGPGEPAISCRSSQSLHNSNGYNYLDWYLQK
 PGQSPQLLIYLGSNRDSGVPDRFSGSGSGTDFTLKISRVEAEDVGVYYCMQGTHWPWTFG
 QGTKVEIKAAAHHHHHH (SEQ ID NO:126)

P1A3 B4

QVQLQQWGAGLLKPSETLSLTCAVYGGSFSGYYWSWIRQPPGKGLEWIGEINHFGSTNYN
 PSLKSRATISVDTSKNQFSLKLSSVTAADTAVYYCATSPGGYSGGYFQHWGQGTLTVTVSS
GGGGSGGGGSGGGGSDVVMTQSPLSLPVTGPGEVSISCRSSQSLHNSNGYNYLDWYLQK
 PGQSPQLLIYLGSNRDSGVPDRFSGSGSGTDFTLKISRVEAEDVGVYYCMQGTHWPWTFG
 QGTKVEIKAAAHHHHHH (SEQ ID NO:127)

P1A3 E8

QVQLQQWGAGMLKPSETLSLTCAVYGGSFSGYYWSWIRQPPGKGLEWIGEINHFGSTNY
 NPSLKSRATISVDTSKNQFSLKLSSVTAADTAVYYCATSPGGYSGGYFQHWGQGTLTVTVSS
GGGGSGGGGSGGGGSDVVMTQSPLSLPVTGPGEPAISCRSSQSLHNSNGYNYLDWYLQK
 PGQSPQLLIYLGSNRDSGVPDRFSGSGSGTDFTLKISRVEAEDVGVYYCMQGTHWPWTFG
 QGTKVEIKAAAHHHHHH (SEQ ID NO:128)

Figure 16

P1A3 E9

QVQLQQWGAGLLKPSETLSLTCAVYGGSFSGYYWSWIRQPPGKGLEWIGEINHFGSTNYN
PSLKSRATISVDTSKNQFSLKLSSVTAADTAVYYCATSPGGYSGGYFQHWGQGTLVTVSS
GGGGSGEGGSGGGGSDVVMTQSPLSLPVTPEPASISCRSSQSLLHSNGYNYLDWYLQK
PGQSPQLLIYLGSNRDSGVPDRFSGSGSGTDFTLKISRVEAEDVGVYYCMQGTHWPWTFG
QGTKVEIKAAAAHHHHH (SEQ ID NO:129)

P1A3 FW2

EVQLVESGGGLVQPGGSLRLSCAASGGSFSGYYWSWVRQAPGKGLEWVSEINHSGSTNY
NPSLKSRFTISRDN SKNTLYLQMNSLRAEDTAVYYCARSPGGYSGGYFQHWGQGTLVTVS
SGGGSSGGGSSGGGSDIQMTQSPSSLSASVGDRTITCRSSQSLLHSNGYNYLDWYQQ
KPGKAPKLLIYLGSNRDSGVPDRFSGSGSGTDFTLTISLQPEDFATYYCMQGTHWPWTF
GQGTKVEIK (SEQ ID NO:156)

Figure 16 (cont.)

P2C4 Fab Light Chain ntd (VL, joint, CL):

CAGTCTGCCCTGACTCAGCCTGCCTCCGTGTCTGGGTCTCCTGGACAGTCGATCGCCA
 TTTCTGCACTGGAACCAGCAGTGACATTGGTCATTATGACTTTGTCTCCTGGTACCAA
 CAGCACCCAGGCACAGCCCCCAAACCTCATAATTTATGATATCAATAATCGGCCCTCAGG
 GATTTCTAATCGCTTCTCTGGCTCCAAGTCTGACAATATGGCCTCCCTGACCATCTCTG
 GGCTCCAGCCTGAGGACGAGGCTGATTATTACTGCAGTGCATATACAAGCAGCGACAC
 TCTGGTCTTCGGCGGAGGGACCAAGTTGACCGTCCTCAGTCAGCCCAAGGCTGCCCC
 CTCGGTCACTCTGTTCCCAACCCTCCTCTGAGGAGCTTCAAGCCAACAAGGCCACACTG
 GTGTGTCTCATAAGTGACTTCTACCCGGGAGCCGTGACAGTGGCCTGGAAGGCAGATA
 GCAGCCCCGTCAAGGCGGGAGTGGAGACCACCACACCCTCCAAACAAAGCAACAACA
 AGTACGCGGCCAGCAGCTACCTGAGCCTGACGCCTGAGCAGTGAAGTCCCACAAAA
 GCTACAGCTGCCAGGTCACGCATGAAGGGAGCACCGTGGAGAAGACAGTGGCCCCCTA
 CAGAATGTTCA (SEQ ID NO:130)

P2C4 Fab Heavy Chain ntd (VH, joint, CH):

GAGGTCCAGCTGGTACAGTCTGGGGCTGAGGTGAAGAAGCCTGGGTCCTCAGTGAAG
 GTTTCCTGCAAGGCATCTGGATACACCTTCACCAACTACTATATGCACTGGGTGCGACA
 GGCCCCCTGGACAAGGGCTTGAGTGGATGGGGGCAATCATGCCTAGTCGTGGTGGCAC
 AAGTTACCCACAGAAGTTCCAGGGCAGAGTCACCATGACCGGGGACACGTCCACGAG
 CACAGTCTACATGGAGCTGAGCAGCCTGAGATCTGAGGACACGGCCGTGTATTACTGT
 GCGAGAGGGGAGTATTACTATGATAGTAGTGTTATTACTACTGGGGCCAGGGCACCC
 TGGTCACCGTCTCAAGCGCCTCCACCAAGGGCCCATCGGTCTTCCCCCTGGCACCCCTC
 CTCCAAGAGCACCTCTGGGGGCACAGCGGCCCTGGGCTGCCTGGTCAAGGACTACTT
 CCCCGAACCGGTGACGGTGTCTGGAAGTCAAGGCGCCCTGACCAGCGGCGTCCACAC
 CTTCCCGGCTGTCTACAGTCCTCAGGACTCTACTCCCTCAGCAGCGTAGTGACCGTG
 CCCTCCAGCAGCTTGGGCACCCAGACCTACATCTGCAACGTGAATCACAAGCCCAGCA
 ACACCAAGGTGGACAAGAAAGTTGAGCCCAAATCTTGT (SEQ ID NO:131)

Figure 17

P2C4 scFv ntd (scFv and Fc with knob modification):

GAAGTGCAGCTGGTGCAGAGCGGGGCAGAAAGTAAAAAGCCTGGGTCAAGCGTGAAG
GTCTCCTGTAAAGCAAGCGGATACACATTACAACTACTATATGCACTGGGTGCGGCA
GGCCCCCGGACAGGGCCTGGAGTGGATGGGCGCTATCATGCCTTCCCGAGGCGGGA
CTTCTTACCCACAGAAGTTCCAGGGAAGAGTGACCATGACAGGCGACACTAGCACCTC
CACAGTCTATATGGAGCTGAGCAGCCTGAGGAGCGAAGACACTGCCGTGTACTATTGC
GCTCGCGGAGAATACTATTACGATTCTAGTGGCTATTACTATTGGGGGCAGGGAACACT
GGTGAAGTGTCTCAAGCGGAGGAGGAGGAAGTGGCGGAGGAGGCTCCCGAGGAGGCG
GGTCTCAGAGTGCAGTGAACAGCCAGCATCAGTGAGCGGCAGCCCCGGCCAGTCTA
TCGCAATTAGTTGTACTGGGACCTCCTCTGACATCGGACACTACGATTTCTGCTCTTGG
TATCAGCAGCACCCCGGCACCGCTCCTAAGCTGATCATCTACGACATCAACAATCGGC
CCAGCGGCATTTCCAACAGATTTTCTGGGAGTAAATCAGATAATATGGCCTCACTGACA
ATTAGCGGCCTCCAGCCTGAGGACGAAGCTGATTACTATTGCTCCGCATACACTAGTTC
AGATACCCTGGTGTGGAGGCGGGACCAAACTGACAGTCCCTGAACAGCGGCGCGGG
CACCGCGGCGCGGACTCACACATGCCACCGTGCCAGCACCTGAAGCCGCGGGGG
GACCGTCAGTCTTCTTCCCCCAAAACCCAAAGGACACCCTCATGATCTCCCGGAC
CCCTGAGGTCACATGCGTGGTGGTGGACGTGAGCCACGAAGACCCTGAGGTCAAGTT
CAACTGGTACGTGGACGGCGTGGAGGTGCATAATGCCAAGACAAAGCCGCGGGAGGA
GCAGTACAACAGCACGTACCGTGTGGTCAGCGTCCTCACCGTCCTGCACCAGGACTGG
CTGAATGGCAAGGAGTACAAGTGCAAGGTCTCCAACAAAGCCCTCCAGCCCCCATCG
AGAAAACCATCTCCAAAGCCAAAGGGCAGCCCCGAGAACCACAGGTGTACACCCTGCC
CCCATGCCGGGATGAGCTGACCAAGAACCAGGTGAGCCTGTGGTGCCTGGTCAAAGG
CTTCTATCCCAGCGACATCGCCGTGGAGTGGGAGAGCAATGGGCAGCCGGAGAACAA
CTACAAGACCACGCCTCCCGTGCTGGACTCCGACGGCTCCTTCTTCTCTACAGCAAG
CTCACCGTGGACAAGAGCAGGTGGCAGCAGGGGAACGTCTTCTCATGCTCCGTGATG
CATGAGGCTCTGCACAACCACTACACGCAGAAGAGCCTCTCCCTGTCTCCGGGTAAA
(SEQ ID NO:132)

P2H7 Fab Light Chain ntd (VL, joint, CL):

GACATCCAGATGACCCAGTCTCCTTCCACATTGTCTGCATCTGTAGGAGACAGAGTCAC
ACTCTCTTGCCGGGCGCGGTGAGGCTATTAGTAGTTGGTTGGCCTGGTATCAACAGAAA
CCAGGTAAAGCCCCAAAGCTTCTGATCTATAAGGCATCTAATTTAGAAAGTGGAGTCCC
ATCAAGGTTTCAGCGGCGGTGGATCTGGGGCAGAATCACTCTCACCATCAGCAGCCTG
CAGCCTGATGATTTTGCAACTTATTACTGCCAACAGTATCAGAGCTACCCTTACACTTTT
GGCCAGGGGACCAAGCTGGAGATCAGACGAAGTGTGGCTGCACCATCTGTCTTCATCT
TCCCGCCATCTGATGAGCAGTTGAAATCTGGAAGTGCCTCTGTTGTGTGCCTGCTGAAT
AACTTCTATCCCAGAGAGGGCCAAAGTACAGTGGAAGGTGGATAACGCCCTCCAATCGG
GTAAGTCCCAGGAGAGTGTACAGAGCAGGACAGCAAGGACAGCACCTACAGCCTCA
GCAGCACCCCTGACGCTGAGCAAAGCAGACTACGAGAAACACAAAGTCTACGCCTGCGA
AGTCACCCATCAGGGCCTGAGCTCGCCCGTCACAAAGAGCTTCAACAGGGGAGAGTGT
(SEQ ID NO:133)

Figure 17 (Cont.)

P2H7 Fab Heavy Chain ntd (VH, joint, CH):

GAGGTGCAGCTGGTGCAGTCTGGGACTGAGGTGAAGAAGCCTGGGGCCTCAGTGAAG
 GTTTCCTGCAAGGCTTCTGGATACACCTTCACTACCTATGCTATGCATTGGGTGCGCCA
 GGCCCCCGGACAAAGCCTTGAGTGGATGGGATGGATCAACACTGGCAATGGTAACACA
 AAATATTCACAGAACTTCCAGGGCAGAGTCACCATGACCAGGGACACGTCCATCAGCA
 CAGCCTACATGGAGCTGAGCAGGCTGAGATCTGACGACACGGCCGTGTATTACTGTGC
 GAGAGATCTCGGGCAACTGGAACGACTCTACTTCTGGGGCCAGGGCACCCCTGGTCAC
 CGTCTCAAGCGCCTCCACCAAGGGGCCCATCGGTCTTCCCCCTGGCACCCCTCCTCCAAG
 AGCACCTCTGGGGGCACAGCGGCCCTGGGCTGCCTGGTCAAGGACTACTTCCCCGAA
 CCGGTGACGGTGTCTGGAAGTCAAGGCGCCCTGACCAGCGGCGTCCACACCTTCCCG
 GCTGTCTACAGTCTCAGGACTCTACTCCCTCAGCAGCGTAGTGACCGTGCCCTCCA
 GCAGCTTGGGCACCCAGACCTACATCTGCAACGTGAATCACAAGCCAGCAACACCAA
 GGTGGACAAGAAAGTTGAGCCCCAAATCTTGT (SEQ ID NO:134)

P2H7 scFv ntd (scFv and Fc with knob modification):

GAGGTGCAGCTGGTGCAGTCTGGGACTGAGGTGAAGAAGCCTGGGGCCTCAGTGAAG
 GTTTCCTGCAAGGCTTCTGGATACACCTTCACTACCTATGCTATGCATTGGGTGCGCCA
 GGCCCCCGGACAAAGCCTTGAGTGGATGGGATGGATCAACACTGGCAATGGTAACACA
 AAATATTCACAGAACTTCCAGGGCAGAGTCACCATGACCAGGGACACGTCCATCAGCA
 CAGCCTACATGGAGCTGAGCAGGCTGAGATCTGACGACACGGCCGTGTATTACTGTGC
 GAGAGATCTCGGGCAACTGGAACGACTCTACTTCTGGGGCCAGGGCACCCCTGGTCAC
 CGTCTCAAGCGGAGGAGGAGGATCTGGCGGAGGAGGCAGTGGAGGAGGAGGGTCAC
 TTGACATCCAGATGACCCAGTCTCCTTCCACATTGTCTGCATCTGTAGGAGACAGAGTC
 AACTCTCTTGCCGGGCGCGTCAAGGCTATTAGTAGTTGGTTGGCCTGGTATCAACAGA
 AACCAGGTAAAGCCCCAAAGCTTCTGATCTATAAGGCATCTAATTTAGAAAGTGGAGTC
 CCATCAAGGTTGAGCGGCGGTGGATCTGGGGCAGAATTCACTCTCACCATCAGCAGCC
 TGCAGCCTGATGATTTTGCAACTTATTACTGCCAACAGTATCAGAGCTACCCTTACACTT
 TTGGCCAGGGGACCAAGCTGGAGATCAGAAACAGCGGCGCGGGCACCGCGGCCGCG
 ACTCACACATGCCACCGTGCCCAGCACCTGAAGCCGCGGGGGGACCGTCAGTCTTC
 CTCTTCCCCCAAACCCAAAGGACACCCTCATGATCTCCCGGACCCCTGAGGTACAT
 GCGTGGTGGTGGACGTGAGCCACGAAGACCCTGAGGTCAAGTTCAACTGGTACGTGG
 ACGGCGTGGAGGTGCATAATGCCAAGACAAAGCCGCGGGAGGAGCAGTACAACAGCA
 CGTACCGTGTGGTCAGCGTCCTCACCGTCCTGCACCAGGACTGGCTGAATGGCAAGG
 AGTACAAGTGCAAGGTCTCCAACAAAGCCCTCCCAGCCCCCATCGAGAAAACCATCTC
 CAAAGCCAAAGGGCAGCCCCGAGAACCACAGGTGTACACCCTGCCCCCATGCCGGGA
 TGAGCTGACCAAGAACCAGGTGAGCCTGTGGTGCCTGGTCAAAGGCTTCTATCCCAGC
 GACATCGCCGTGGAGTGGGAGAGCAATGGGCAGCCGGAGAACAACTACAAGACCACG
 CCTCCCGTGTGGACTCCGACGGCTCCTTCTTCTCTACAGCAAGCTCACCGTGGACA
 AGAGCAGGTGGCAGCAGGGGAACGTCTTCTCATGCTCCGTGATGCATGAGGCTCTGCA
 CAACCACTACACGCAGAAGAGCCTCTCCCTGTCTCCGGGTAAA (SEQ ID NO:135)

Figure 17 (Cont.)

P2D12 Fab Light Chain ntd (VL, joint, CL):

GACATCCAGTTGACCCAGTCTCCATCCTCCCTGTCTGCATCTGTAGGAGACAGAGTCAC
 CATCACTTGCCAGGCGAGTCAGGACATTGGCAACTATTTAAATTGGTATCAGCTTAAAC
 CAGGGAAAGCCCCTAAGCTCCTGATCTACGATGCATCCAATTTGGAAACAGGGGTCCC
 ATCAAGGTTCAAGTGAAGTGGATCTGGGACAGATTTTACTTTCACCATCAGCAGCCTGC
 AGCCTGAAGATATTGCAACATATTACTGTCTACAACCTTTATGATTACCCCTCACTTTTCG
 GCGGAGGGACCAAGGTGGAGATCAAACGAACTGTGGCTGCACCATCTGTCTTCATCTT
 CCCGCCATCTGATGAGCAGTTGAAATCTGGAAGTGCCTCTGTTGTGTGCCTGCTGAATA
 ACTTCTATCCCAGAGAGGGCCAAAGTACAGTGAAGGTGGATAACGCCCTCCAATCGGG
 TAACTCCCAGGAGAGTGTACAGAGCAGGACAGCAAGGACAGCACCTACAGCCTCAGC
 AGCACCTGACGCTGAGCAAAGCAGACTACGAGAAACACAAAGTCTACGCCTGCGAAG
 TCACCCATCAGGGCCTGAGCTCGCCCGTCACAAAGAGCTTCAACAGGGGAGAGTGT
 (SEQ ID NO:136)

P2D12 Fab Heavy Chain ntd (VH, joint, CH):

CACGTGCAGCTGGTGGAGACTGGGGGAGGCTTGGTGCAGCCTGGGGGGTCCCTGAG
 ACTCTCCTGTGCAGCCTCTGGATTACCTTTAGCAGCTATGCCATGAGCTGGGTCCGC
 CAGGCTCCAGGGAAGGGGCTGGAGTGGGTCTCAGCTATTAGTGGTAGTGGTGGTAGC
 ACATACTACGCAGACTCCGTGAAGGGCCGGTTCACCATCTCCAGAGACAATTCCAAGA
 ACACGCTGTATCTGCAAATGAACAGCCTGAGAGCCGAGGACACGGCCGTATATTACTG
 TCGAGAGATCTCGGGGATTATTGGGGCCAGGGAACCCCTGGTCACCGTCTCAAGCGC
 CTCCACCAAGGGCCCATCGGTCTTCCCCCTGGCACCCCTCCTCCAAGAGCACCTCTGGG
 GGCACAGCGGCCCTGGGCTGCCTGGTCAAGGACTACTTCCCCGAACCGGTGACGGTG
 TCGTGGAACCTCAGGCGCCCTGACCAGCGGCGTCCACACCTTCCCGGCTGTCCTACAGT
 CCTCAGGACTCTACTCCCTCAGCAGCGTAGTGACCGTGCCCTCCAGCAGCTTGGGCAC
 CCAGACCTACATCTGCAACGTGAATCACAAGCCCAGCAACACCAAGGTGGACAAGAAA
 GTTGAGCCCAAATCTTGT (SEQ ID NO:137)

Figure 17 (Cont.)

P2D12 scFv ntd (scFv and Fc with knob modification):

CAGGTCCAGCTGCAGGAGTCCGGGGCCAGGGCTGGTGAAACCAAGCGAAACACTGAGT
CTGACATGTACCGTGAGTGGGGGGTCCATTAACAATAGTAACTACTATTGGTCATGGAT
CAGACAGAGCCCTGGAAGAGGCCTGGAGTGGATCGGCGGGATCTACTTCAGCGGCAC
CACATACTATAACCCATCACTGCAGAGCCGGGTGACTATCTCCATTGACACCTCTAAGA
ATCAGTTCAGCCTGAAGCTGAGCAGCGTGACCGCCGCTGATACAGCCATCTACTATTG
CGTCCGGCAGATGAATTACTATCACCTGGGCTCTAGTGTGGGGTTCGACCCCTGGGGA
CAGGGAGCACTGGCCACCGTGTCAAGCGTCTCCTCTGGAGGAGGAGGCAGCGGCGG
AGGAGGCTCTGGAGGAGGCGGGAGTGATGTGGTCATGACACAGAGCCCAGCTACTCT
GTCTGTGAGTCCCGGCGAAAGGGCCACACTGAGCTGTGCGGCTTCACAGAGCGTCAG
TTCAAACCTGGCATGGTACCAGCAGAAGCCAGGACAGGCACCTTCCCTGCTGATCTAT
GAGGCTTCTACACGAGCAACTGGCATTCTGCTAGATTCTCCGGCTCTGGGAGTGGAA
CCGACTTTACTCTGACCATCAGCTCCCTGCAGAGCGAAGATTTTGCAATCTACTATTGT
CAGCAGTATAACGATTGGCTGTGGACCTTCGGGCAGGGGACTAAAGTGGAGATTCCGA
ACAGCGGCGCGGGCACC GCGGCCGCGACTCACACATGCCACCGTGCCACGACCT
GAAGCCGCGGGGGGACCGTCAGTCTTCTCTTCCCCCAAACCCAAAGGACACCCTCA
TGATCTCCCGGACCCCTGAGGTACATGCGTGGTGGTGGACGTGAGCCACGAAGACC
CTGAGGTCAAGTTCAACTGGTACGTGGACGGCGTGGAGGTGCATAATGCCAAGACAAA
GCCGCGGGAGGAGCAGTACAACAGCACGTACCGTGTGGTCAGCGTCCTCACCGTCCT
GCACCAGGACTGGCTGAATGGCAAGGAGTACAAGTGCAAGGTCTCCAACAAAGCCCTC
CCAGCCCCCATCGAGAAAACCATCTCCAAAGCCAAAGGGCAGCCCCGAGAACCACAG
GTGTACACCCTGCCCCCATGCCGGGATGAGCTGACCAAGAACCAGGTGAGCCTGTGG
TGCTTGGTCAAAGGCTTCTATCCCAGCGACATCGCCGTGGAGTGGGAGAGCAATGGG
CAGCCGGAGAACAACTACAAGACCACGCTCCCGTGCTGGACTCCGACGGCTCCTTCT
TCCTCTACAGCAAGCTCACCGTGGACAAGAGCAGGTGGCAGCAGGGGAACGTCTTCTC
ATGCTCCGTGATGCATGAGGCTCTGCACAACCACTACACGCAGAAGAGCCTCTCCCTG
TCTCCGGGTAAA (SEQ ID NO:138)

P1G11 Fab Light Chain ntd (VL, joint, CL):

AATTTTATGCTGACTCAGCCCCACTCTGTGTGCGAGTCTCCGGGGAAGACGGTAACCA
TCTCCTGCACCCGCAGCAGTGGCAGCATTGCCAGCAACTATGTGCAGTGGTACCAGCA
GCGCCCGGGCAGTTCCTCCACACGGTCATTTTTGACGACAATCAAAGACCCACTGGT
GTCCCTGATCGCTTCTCTGCCGCCATCGACACCTCCTCCAGTTCTGCCTCCCTCACCAT
CTCTGGACTGACGGCTGAGGACGAGGCCGATTACTATTGTCAGTCGTCTCATAGCACC
GCTGTCGTCTTTGGCGGAGGGACCAAGCTGACCGTCCTAAGTCAGCCCAAGGCTGCC
CCCTCGGTCACTCTGTTCCCGCCCTCCTCTGAGGAGCTTCAAGCCAACAAGGCCACAC
TGGTGTGTCTCATAAGTGACTTCTACCCGGGAGCCGTGACAGTGGCCTGGAAGGCAGA
TAGCAGCCCCGTCAAGGCGGGAGTGGAGACCACACACCCTCCAAACAAAGCAACAA
CAAGTACGCGGCCAGCAGCTACCTGAGCCTGACGCCTGAGCAGTGGAAAGTCCCACAA
AAGCTACAGCTGCCAGGTCACGCATGAAGGGAGCACCGTGGAGAAGACAGTGGCCCC
TACAGAATGTTCA (SEQ ID NO:139)

Figure 17 (Cont.)

P1G11 Fab Heavy Chain ntd (VH, joint, CH):

CAGGTGCAGCTACAGCAGTGGGGCGCAGGACTGTTGAAGCCTTCGGAGACCCTGTCC
CTCACCTGCGCTGTCTATGGTGGGTCTTCAGTGGTTACTACTGGAGCTGGATCCGCC
AGCCCCCAGGGAAGGGGCTGGAGTGGATTGGGGAAATCAATCATAGTGGGAAGCACCA
ACTACAACCCGTCCCTCAAGAGTCGAGTCACCATATCAGTAGACACGTCCAAGAACCA
GTTCTCCCTGAAGCTGAGCTCTGTGACCGCCGCGGACACGGCTGTGTATTACTGTGCG
AGAAGCTCGTCCGGGGATGCTTTTGATATCTGGGGCCAAGGGACAATGGTCACCGTCT
CAAGCGCCTCCACCAAGGGCCCATCGGTCTTCCCCCTGGCACCCCTCCTCCAAGAGCAC
CTCTGGGGGACAGCGGCCCTGGGCTGCCTGGTCAAGGACTACTTCCCCGAACCGGT
GACGGTGTCTGGAAGTCAAGCGCCCTGACCAGCGGCGTCCACACCTTCCCGGCTGT
CCTACAGTCCTCAGGACTCTACTCCCTCAGCAGCGTAGTGACCGTGCCCTCCAGCAGC
TTGGGCACCCAGACCTACATCTGCAACGTGAATCACAAGCCCAGCAACACCAAGGTGG
ACAAGAAAGTTGAGCCCAAATCTTGT (SEQ ID NO:140)

P1G11 scFv ntd (scFv and Fc with knob modification):

CAGGTGCAGCTACAGCAGTGGGGCGCAGGACTGTTGAAGCCTTCGGAGACCCTGTCC
CTCACCTGCGCTGTCTATGGTGGGTCTTCAGTGGTTACTACTGGAGCTGGATCCGCC
AGCCCCCAGGGAAGGGGCTGGAGTGGATTGGGGAAATCAATCATAGTGGGAAGCACCA
ACTACAACCCGTCCCTCAAGAGTCGAGTCACCATATCAGTAGACACGTCCAAGAACCA
GTTCTCCCTGAAGCTGAGCTCTGTGACCGCCGCGGACACGGCTGTGTATTACTGTGCG
AGAAGCTCGTCCGGGGATGCTTTTGATATCTGGGGCCAAGGGACAATGGTCACCGTCT
CAAGCGGAGGAGGAGGATCTGGCGGAGGAGGCAGTGGAGGAGGAGGGTCACTTAATT
TTATGCTGACTCAGCCCCACTCTGTGTCCGAGTCTCCGGGGAAGACGGTAACCATCTC
CTGCACCCGCAGCAGTGGCAGCATTGCCAGCAACTATGTGCAGTGGTACCAGCAGCG
CCCGGGCAGTTCCCCCACCACGGTCATTTTTGACGACAATCAAAGACCCACTGGTGTCT
CCTGATCGCTTCTCTGCCGCCATCGACACCTCCTCCAGTTCTGCCTCCCTCACCATCTC
TGGACTGACGGCTGAGGACGAGGCGGATTACTATTGTCAGTCGTCTCATAGCACCGCT
GTCGTCTTTGGCGGAGGGACCAAGCTGACCGTCTTAAACAGCGGCGCGGGGACCGCG
GCCGCGACTCACACATGCCACCGTGCCACAGCAGCTGAAGCCGCGGGGGGACCGTCA
GTCTTCCTCTTCCCCCCTAAACCAAGGACACCCTCATGATCTCCCGGACCCCTGAGG
TCACATGCGTGGTGGTGGACGTGAGCCACGAAGACCCTGAGGTCAAGTTCAACTGGTA
CGTGGACGGCGTGGAGGTGCATAATGCCAAGACAAAGCCGCGGGAGGAGCAGTACAA
CAGCACGTACCGTGTGGTCAGCGTCCTCACCCTCCTGCACCAGGACTGGCTGAATGG
CAAGGAGTACAAGTGCAAGGTCTCCAACAAAGCCCTCCCAGCCCCATCGAGAAAACC
ATCTCCAAAGCCAAAGGGCAGCCCCGAGAACCACAGGTGTACACCCTGCCCCCATGCC
GGGATGAGCTGACCAAGAACCAGGTGAGCCTGTGGTGCCTGGTCAAAGGCTTCTATCC
CAGCGACATCGCCGTGGAGTGGGAGAGCAATGGGCAGCCGGAGAACAACTACAAGAC
CACGCCTCCCGTGCTGGACTCCGACGGCTCCTTCTTCTCTACAGCAAGCTCACCCTG
GACAAGAGCAGGTGGCAGCAGGGGAACGTCTTCTCATGCTCCGTGATGCATGAGGCT
CTGCACAACCACTACACGCAGAAGAGCCTCTCCCTGTCTCCGGGTAAA (SEQ ID
NO:141)

Figure 17 (Cont.)

P1A3 Fab Light Chain ntd (VL, joint, CL):

GATGTTGTGATGACTCAGTCTCCACTCTCCCTGCCCGTCACCCCTGGAGAGCCGGCCT
CCATCTCCTGCAGGTCTAGTCAGAGCCTCCTGCATAGTAATGGATACAACCTATTTGGAT
TGGTACCTGCAGAAGCCAGGGCAGTCTCCACAGCTCCTGATCTATTTGGGTTCTAACC
GGGACTCTGGGGTCCCAGACAGATTGAGCGGCAGTGGGTCAGGCACTGATTTCACT
GAAATCAGCAGGGGTGGAGGCTGAGGATGTTGGGGTTTATTACTGCATGCAAGGTACA
CACTGGCCGTGGACGTTTCGGCCAAGGGACCAAGGTGGAAATCAAACGAACTGTGGCT
GCACCATCTGTCTTCATCTTCCCGCCATCTGATGAGCAGTTGAAATCTGGAAGTGCCTC
TGTTGTGTGCCTGCTGAATAACTTCTATCCCAGAGAGGGCCAAAGTACAGTGGAAGGTG
GATAACGCCCTCCAATCGGGTAACTCCCAGGAGAGTGTACAGAGCAGGACAGCAAG
GACAGCACCTACAGCCTCAGCAGCACCTGACGCTGAGCAAAGCAGACTACGAGAAAC
ACAAAGTCTACGCCTGCGAAGTCACCCATCAGGGCCTGAGCTCGCCCGTCACAAAGAG
CTTCAACAGGGGAGAGTGT (SEQ ID NO:142)

P1A3 Fab Heavy Chain ntd (VH, joint, CH):

CAGGTGCAGCTACAGCAGTGGGGCGCAGGACTGTTGAAGCCTTCGGAGACCCTGTCC
CTCACCTGCGCTGTCTATGGTGGGTCCTTCAGTGGTTACTACTGGAGCTGGATCCGCC
AGCCCCCAGGGAAGGGGCTGGAGTGGATTGGGGAAATCAATCATAGTGGAAGCACCA
ACTACAACCCGTCCTCAAGAGTCGAGCCACCATATCAGTAGACACGTCCAAGAACCA
GTTCTCCCTGAAGCTGAGCTCTGTGACCGCCGCGGACACGGCTGTGTATTACTGTGCG
ACCAGCCCGGGAGGCTATTCCGGGGGATACTTCCAGCACTGGGGCCAGGGAACCCTG
GTCACCGTCTCAAGCGCCTCCACCAAGGGGCCCATCGGTCTTCCCCCTGGCACCCCTCCT
CCAAGAGCACCTCTGGGGGCACAGCGGCCCTGGGCTGCCTGGTCAAGGACTACTTCC
CCGAACCGGTGACGGTGTCTGTGAACTCAGGCGCCCTGACCAGCGGCGTCCACACCT
TCCCGGCTGTCCTACAGTCCTCAGGACTCTACTCCCTCAGCAGCGTAGTGACCGTGCC
CTCCAGCAGCTTGGGCACCCAGACCTACATCTGCAACGTGAATCACAAGCCCAGCAAC
ACCAAGGTGGACAAGAAAGTTGAGCCCAAATCTTGT (SEQ ID NO:143)

Figure 18

P1A3 scFv ntd (scFv and Fc with hole modification):

CAGGTCCAGCTGCAGCAGTGGGGAGCCGGCCTGCTGAAACCATCTGAAACTCTGAGC
CTGACTTGCGCTGTCTACGGGGGGTCTTCAGTGGCTACTATTGGTCATGGATCAGGC
AGCCCCCTGGGAAGGGACTGGAGTGGATCGGGGAAATTAACCACTCCGGATCTACAAA
CTACAATCCCAGTCTGAAATCACGCGCCACCATTTCTGTGGACACCAGTAAGAATCAGT
TCAGCCTGAAGCTGAGCAGCGTGACAGCCGCTGATACCGCCGTGTACTATTGCGCAAC
CAGCCCTGGCGGATACTCCGGAGGCTATTTTCAGCATTGGGGCCAGGGGACCCTGGT
GACAGTCTCTAGTGGGGGAGGAGGGTCTGGAGGAGGAGGAAGTGGAGGAGGAGGCT
CCGACGTGGTCATGACTCAGAGCCCACTGTCCCTGCCAGTGACCCCCGGCGAGCCTG
CTAGTATCTCATGTGATCAAGCCAGTCACTGCTGCACAGCAACGGGTACAATTATCTG
GATTGGTACTTGCGAGAAGCCAGGCCAGTCTCCCCAGCTGCTGATCTATCTGGGCTCCA
ACCGGGACTCTGGGGTGCCTGATAGATTACGCGGCAGCGGCTCTGGGACTGACTTTAC
CCTGAAAATTTCCAGAGTCGAGGCAGAAGATGTGGGAGTCTACTATTGCATGCAGGGC
ACTCATTGGCCCTGGACCTTCGGACAGGGCACAAAGGTGGAGATCAAGAACAGCGGC
GCGGGCACCGCGGCCGCGACTCACACATGCCACCGTGCCACAGCACCTGAACTCCTG
GGGGGACCGTCAGTCTTCTCTTCCCCCAAAACCCAAGGACACCCTCATGATCTCCC
GGACCCCTGAGGTCACATGCGTGGTGGTGGACGTGAGCCACGAAGACCCTGAGGTCA
AGTTCAACTGGTACGTGGACGGCGTGGAGGTGCATAATGCCAAGACAAAGCCGCGGG
AGGAGCAGTACAACAGCACGTACCGTGTGGTTCAGCGTCCTCACCGTCCTGCACCAGGA
CTGGCTGAATGGCAAGGAGTACAAGTGCAAGGTCTCCAACAAAGCCCTCCCAGCCCCC
ATCGAGAAAACCATCTCCAAAGCCAAAGGGCAGCCCCGAGAACCACAGGTGTGCACCC
TGCCCCCATCCCGGGATGAGCTGACCAAGAACCAGGTGAGCCTGTCCTGCGCCGTCA
AAGGCTTCTATCCCAGCGACATCGCCGTGGAGTGGGAGAGCAATGGGCAGCCGGAGA
ACAACCTACAAGACCACGCCTCCCGTGTGACTCCGACGGCTCCTTCTTCTCGTGAG
CAAGCTCACCGTGGACAAGAGCAGGTGGCAGCAGGGGAACGTCTTCTCATGCTCCGT
GATGCATGAGGCTCTGCACAACCACTACACGCAGAAGAGCCTCTCCCTGTCTCCGGGT
AAA (SEQ ID NO:144)

P2B9 Fab Light Chain ntd (VL, joint, CL):

TCCTATGAGCTGACTCAGCCACCCTCGATGTCAGTGTCCCCAGGACAGACGGCCAGGA
TCACCTGCTCTGGAGATGCATTGCCAAAACAATTTGCTTTTTTGGTACCAGCAGAAGCCA
GGCCAGGCCCTGTGTTGGTGATTTATAAAGACACTGAGAGGCCCTCAGGGATCCCTG
AGCGATTCTCTGGCTCCAGCTCAGGGACAACAGTCACGTTGACCATCACTGGAGTCCA
GGCAGAAGATGAGGCTGACTATTACTGTCAATCTCCAGACAGCAGTGGTACCGTCGAA
GTGTTGCGCGGAGGGACCAAGCTGACCGTCCTAGGTGAGCCCAAGGCTGCCCCCTCG
GTCACCTCTGTTCCCGCCCTCCTCTGAGGAGCTTCAAGCCAACAAGGCCCACTGGTGT
GTCTCATAAGTGACTTCTACCCGGGAGCCGTGACAGTGGCCTGGAAGGCAGATAGCAG
CCCCGTCAAGGCGGGAGTGGAGACCACCACACCCTCCAAACAAAGCAACAACAAGTAC
GCGGCCAGCAGCTACCTGAGCCTGACGCCTGAGCAGTGGAGTCCCACAGAAGCTAC
AGCTGCCAGGTCACGCATGAAGGGAGCACCGTGGAGAAGACAGTGGCCCCTGCAGAA
TGTTCA (SEQ ID NO:145)

Figure 18 (Cont.)

P2B9 Fab Heavy Chain ntd (VH, joint, CH):

CAGGTGCAGCTGCAGGAGTCGGGCCCAGGACTGGTGAAGCCTTCGGAGACCCTGTCC
CTCACCTGCACTGTCTCTGGTGGCTCCATCAGCAGTAGTAGTTACTACTGGGGCTGGA
TCCGCCAGCCCCCAGGGAAGGGGCTGGAGTGGATTGGGAGTATCTATTATAGTGGGA
GCACCTACTACAACCCGTCCCTCAAGAGTCGAGTCACCATATCCGTAGACACGTCCAA
GAACCAGTTCTCCCTGAAGCTGAGCTCTGTGACCGCCGCAGACACGGCTGTGTATTAC
TGTGCGGGCGATATTTTGAAGTGGTTATGCCCTTGACTACTGGGGCCAGGGAACCCTGG
TCACCGTCTCAAGCGCCTCCACCAAGGGCCCATCGGTCTTCCCCCTGGCACCCTCCTC
CAAGAGCACCTCTGGGGGCACAGCGGCCCTGGGCTGCCTGGTCAAGGACTACTTCCC
CGAACCGGTGACGGTGTCTGTGAACTCAGGCGCCCTGACCAGCGGCGTCCACACCTT
CCCGGCTGTCTACAGTCCTCAGGACTCTACTCCCTCAGCAGCGTAGTGACCGTGCCC
TCCAGCAGCTTGGGCACCCAGACCTACATCTGCAACGTGAATCACAAGCCCAGCAACA
CCAAGGTGGACAAGAAAGTTGAGCCCAAATCTTGT (SEQ ID NO:146)

P2B9 scFv ntd (scFv and Fc with hole modification):

CAGGTGCAGCTGCAGGAAAGCGGACCCGGACTGGTGAAGCCATCTGAAACACTGAGC
CTGACTTGTACCGTGAGCGGCGGAAGCATCAGCTCCTCTAGTTACTATTGGGGATGGA
TCAGGCAGCCCCCTGGCAAGGGGCTGGAGTGGATCGGCAGCATCTACTATAGCGGCT
CCACATACTATAACCCTAGCCTGAAATCCCGCGTGACAATCTCTGTGGACACTAGTAAG
AATCAGTTCTCTCTGAAACTGTCAAGCGTGACCGCCGCTGATACAGCTGTCTACTATTG
CGCAGGCGACATTCTGACCGGGTACGCCCTGGATTATTGGGGACAGGGCACTCTGGT
GACCGTCTCCTCTGGAGGAGGAGGCTCAGGAGGAGGAGGGTCCGGAGGCGGGGGAA
GTTTCATACGAACTGACACAGCCACCCTCTATGAGTGTGTCACCAGGGCAGACTGCACG
AATCACCTGTAGCGGAGACGCCCTGCCAAGCAGTTCGCTTTTTGGTATCAGCAGAAA
CCTGGCCAGGCTCCAGTGCTGGTCATCTATAAGGATACTGAGCGGCCCTCTGGGATTC
CTGAAAGATTCAAGTGGCAGCAGCAGCGGAACCACAGTGAAGTCTGACCATTACAGGCGT
GCAGGCAGAGGACGAAGCCGATTACTATTGCCAGTCCCCCGACAGTTCAGGCACCGT
GGAGGTCTTTGGCGGGGGAACAAACTGACTGTGCTGAACAGCGGCGCGGGCACCGC
GGCCGCGACTCACACATGCCACCGTGCCAGCACCTGAACTCCTGGGGGGACCGTC
AGTCTTCCTCTTCCCCCAAAACCCAAGGACACCCTCATGATCTCCCGGACCCCTGAG
GTCACATGCGTGGTGGTGGACGTGAGCCACGAAGACCCTGAGGTCAAGTTCAACTGGT
ACGTGGACGGCGTGGAGGTGCATAATGCCAAGACAAAGCCGCGGGAGGAGCAGTACA
ACAGCACGTACCGTGTGGTCAGCGTCCTCACCGTCCTGCACCAGGACTGGCTGAATGG
CAAGGAGTACAAGTGCAAGGTCTCCAACAAAGCCCTCCCAGCCCCCATCGAGAAAACC
ATCTCCAAAGCCAAAGGGCAGCCCCGAGAACCACAGGTGTGCACCCTGCCCCCATCC
CGGGATGAGCTGACCAAGAACCAGGTCAGCCTGTCTGCGCCGTCAAAGGCTTCTATC
CCAGCGACATCGCCGTGGAGTGGGAGAGCAATGGGCAGCCGGAGAACAACACTACAAGA
CCACGCCTCCCGTGCTGGACTCCGACGGCTCCTTCTTCTCTCGTGAGCAAGCTCACCGT
GGACAAGAGCAGGTGGCAGCAGGGGAACGTCTTCTCATGCTCCGTGATGCATGAGGC
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NO:147)

Figure 18 (Cont.)

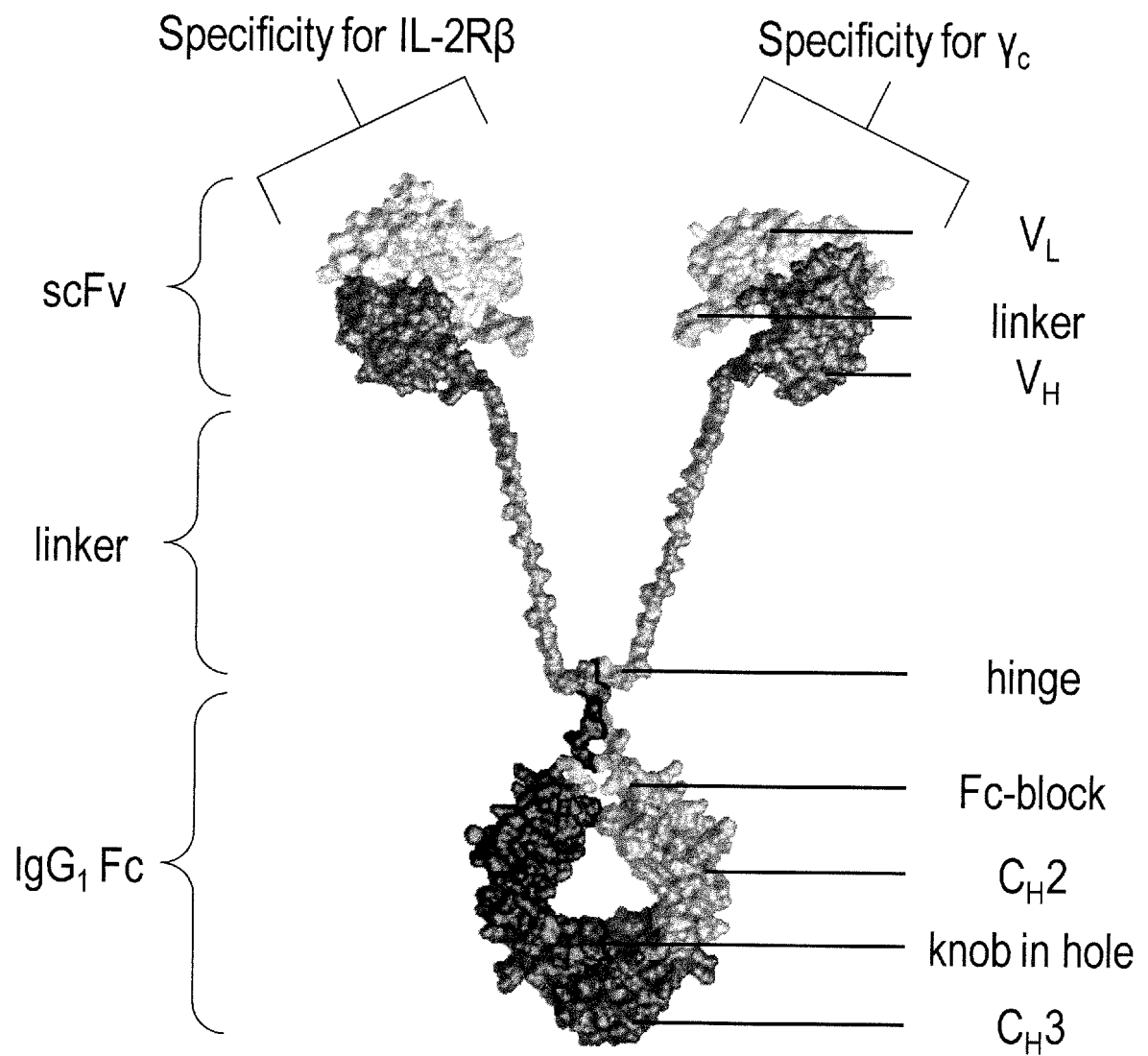


Figure 19

Human IL-2R β

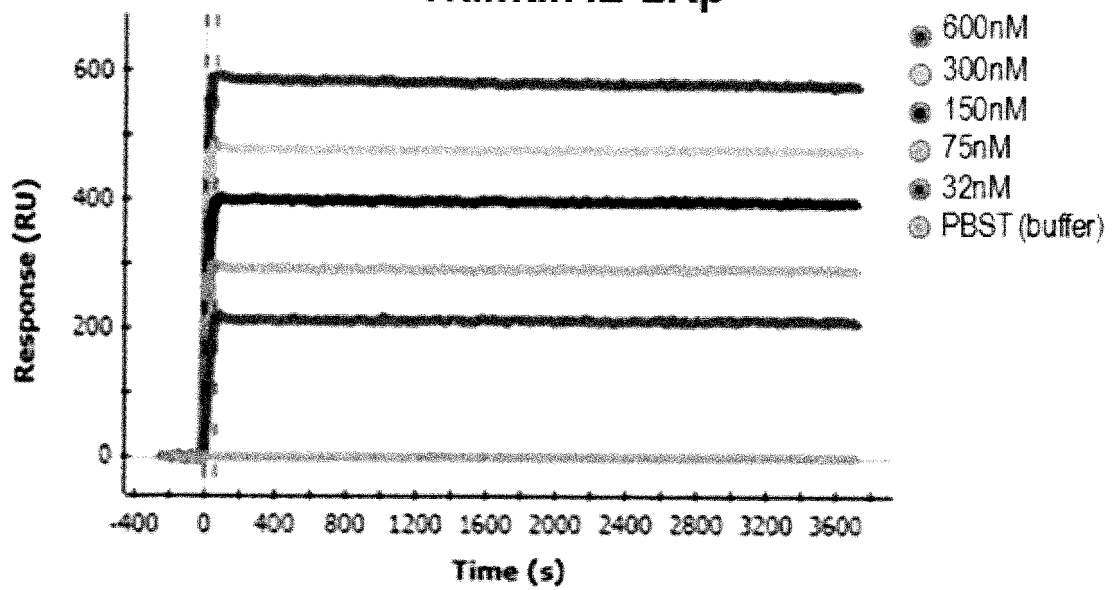


Figure 20A

Human IL-2R γ

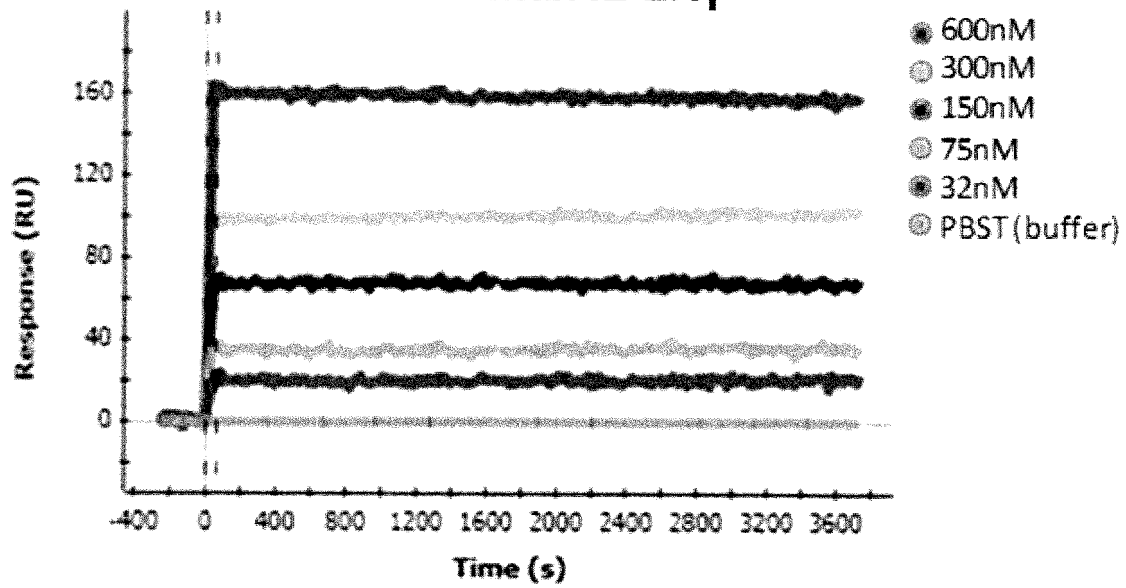


Figure 20B

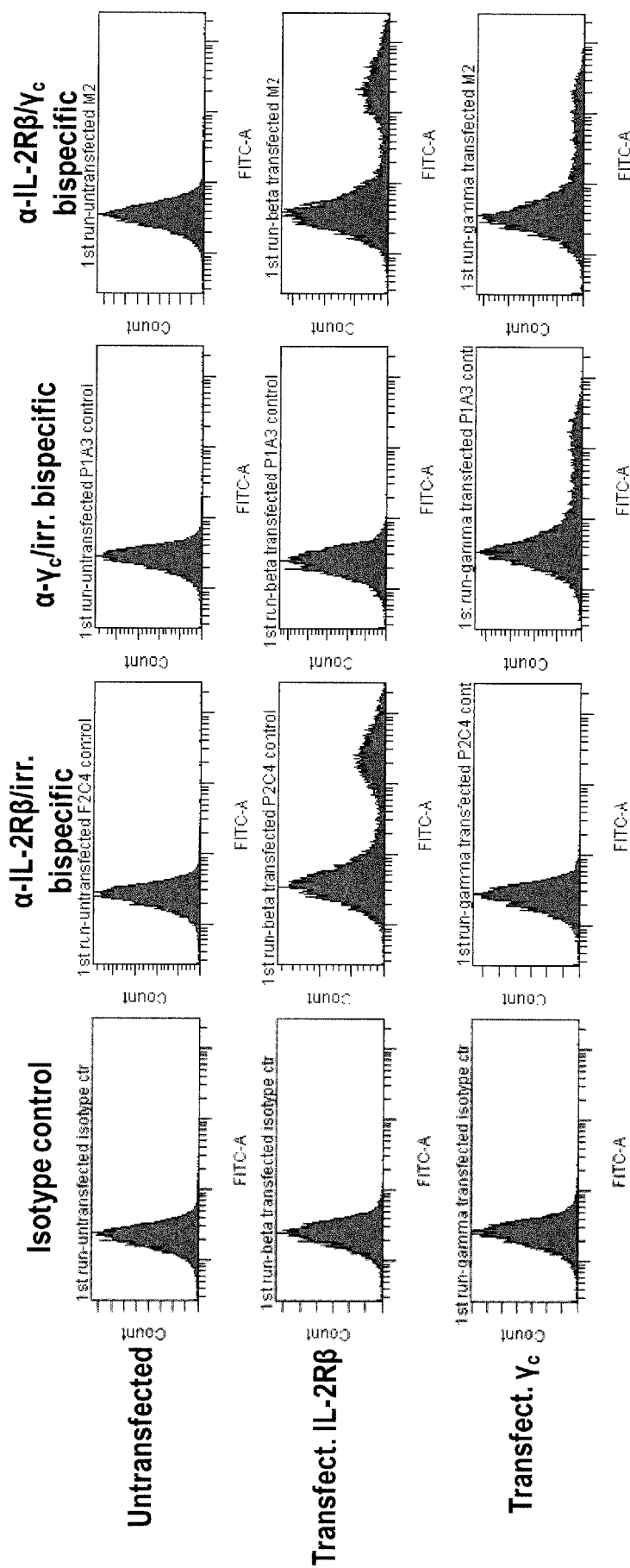


Figure 21A

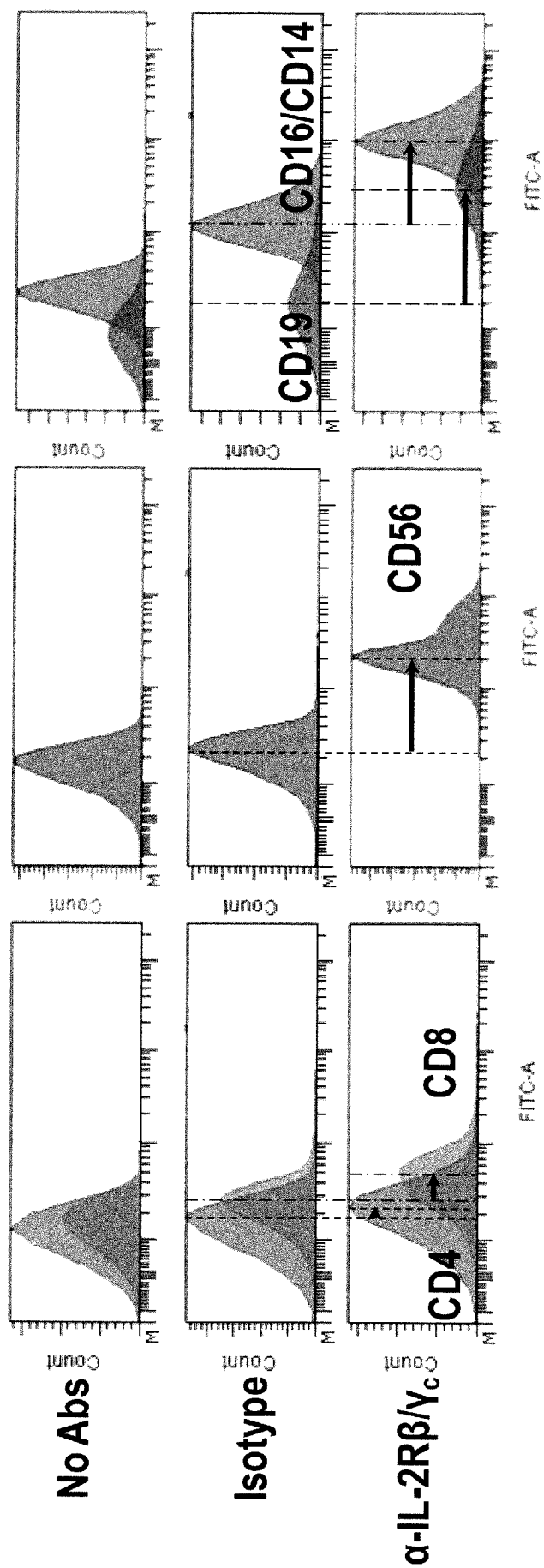


Figure 21B

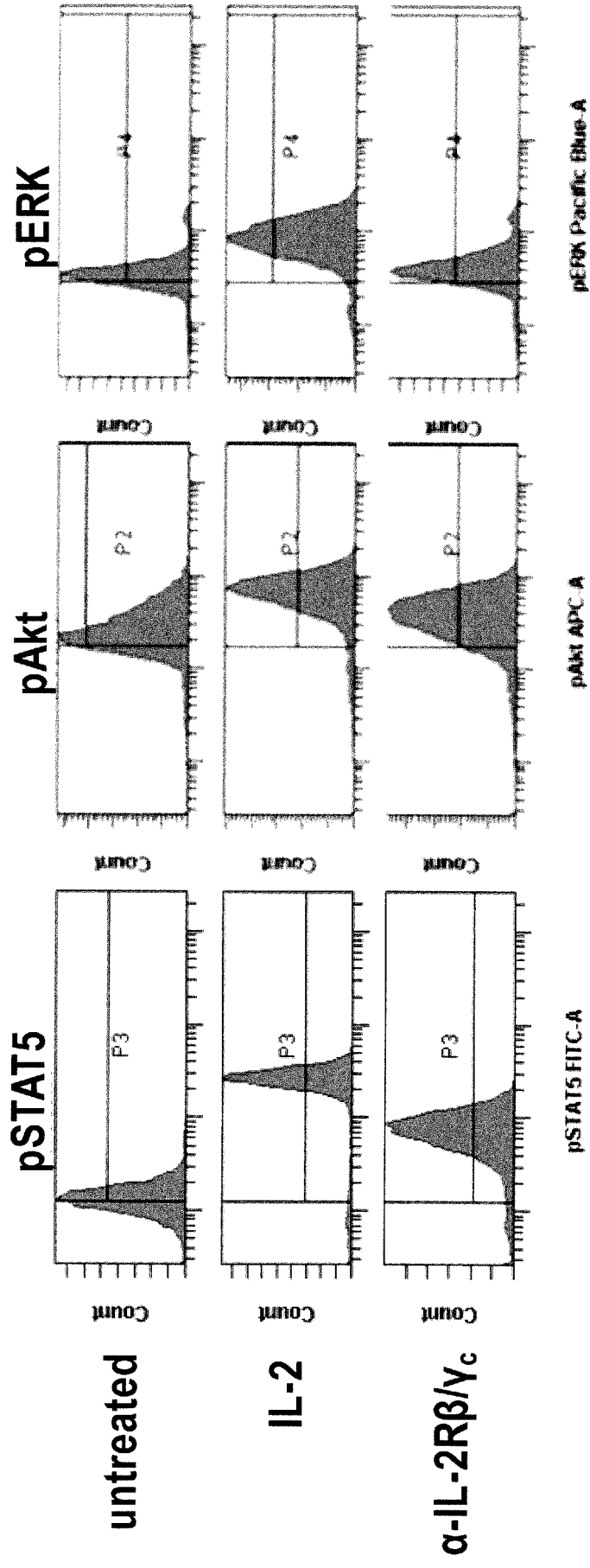


Figure 22

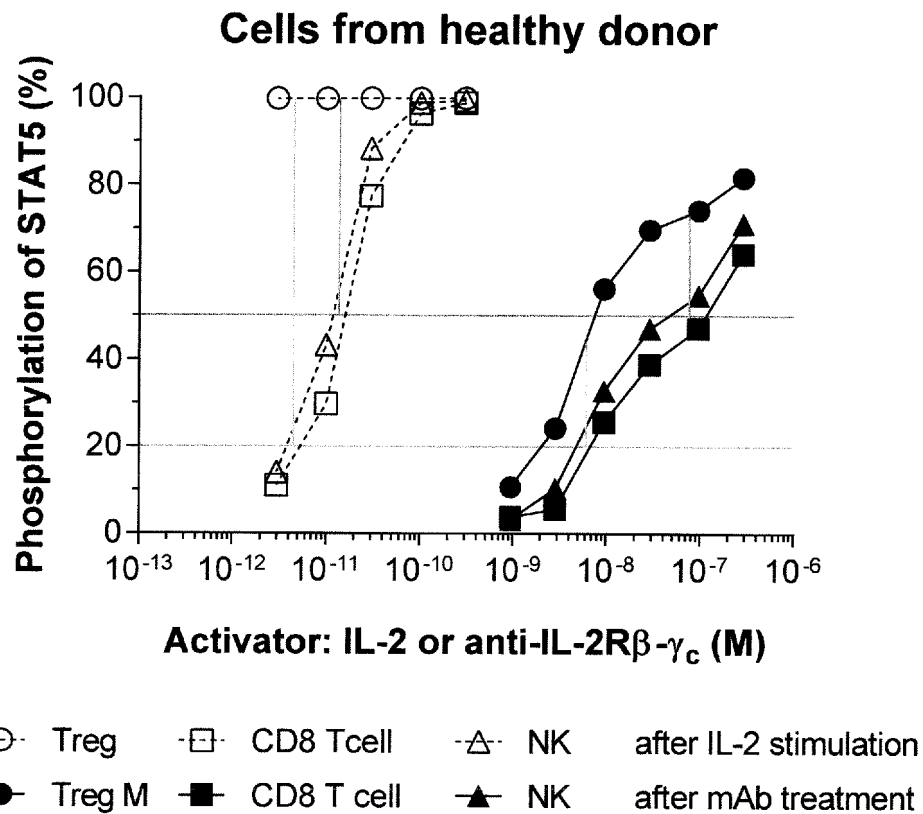


Figure 23

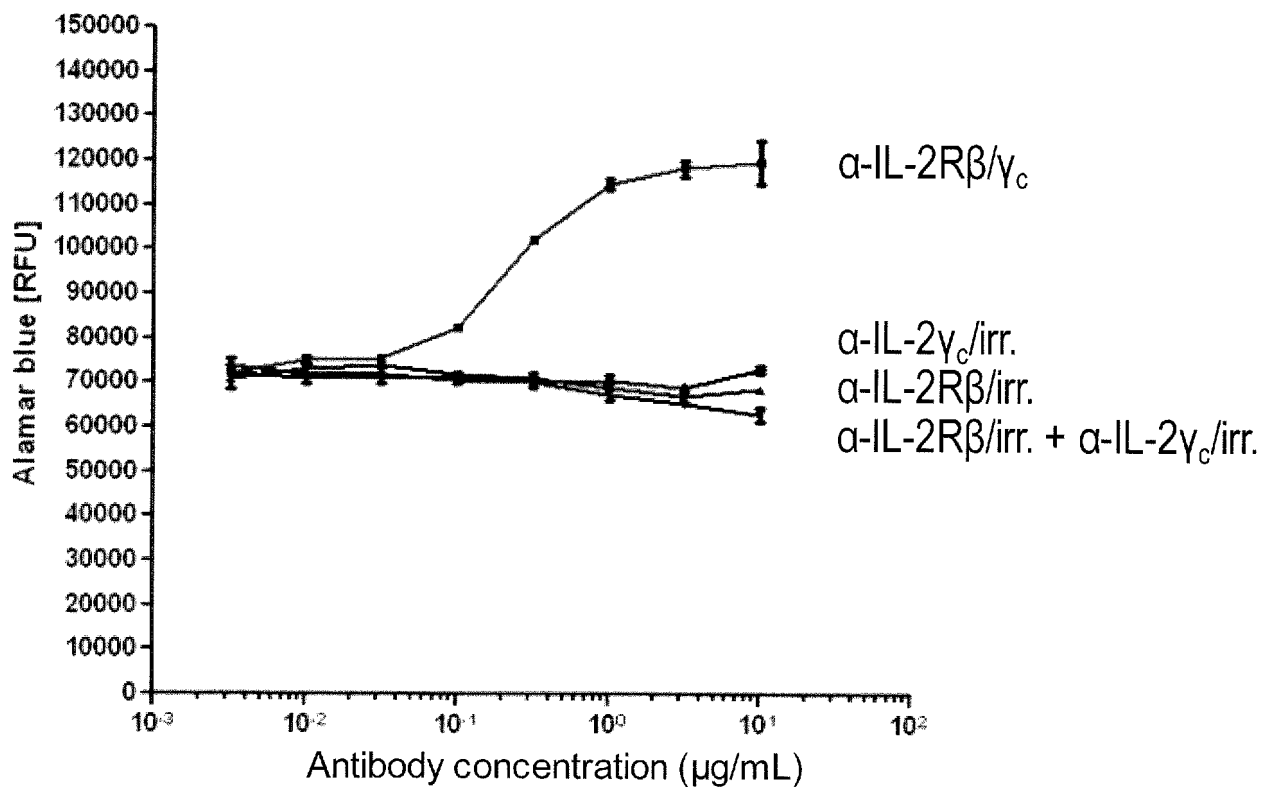


Figure 24

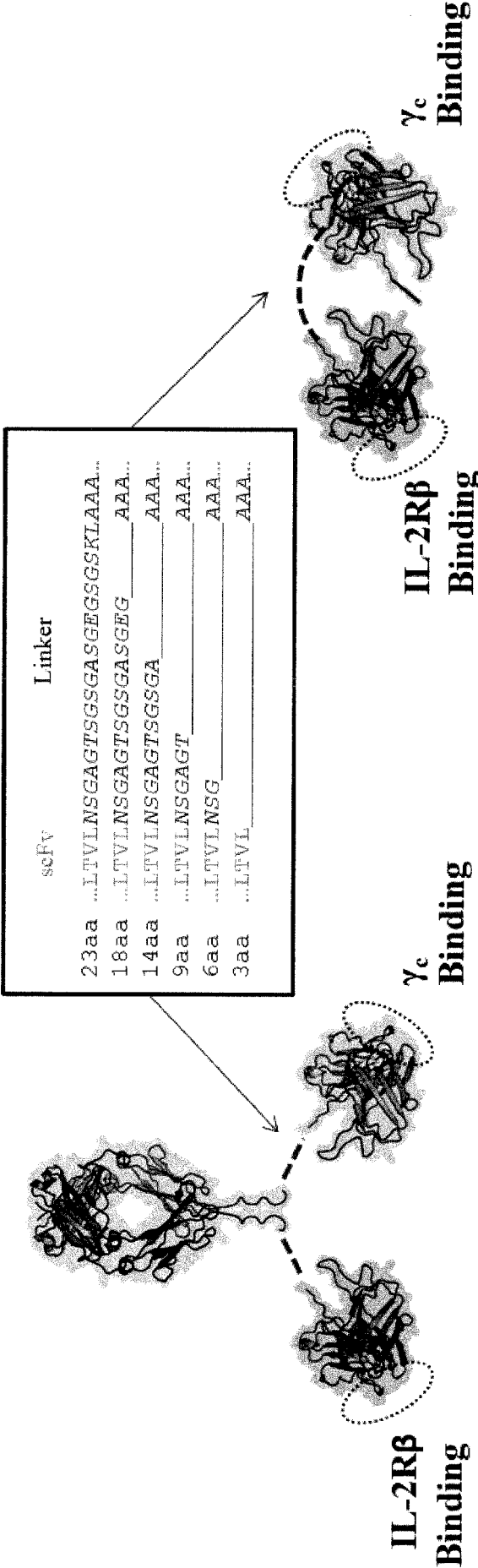


Figure 25A

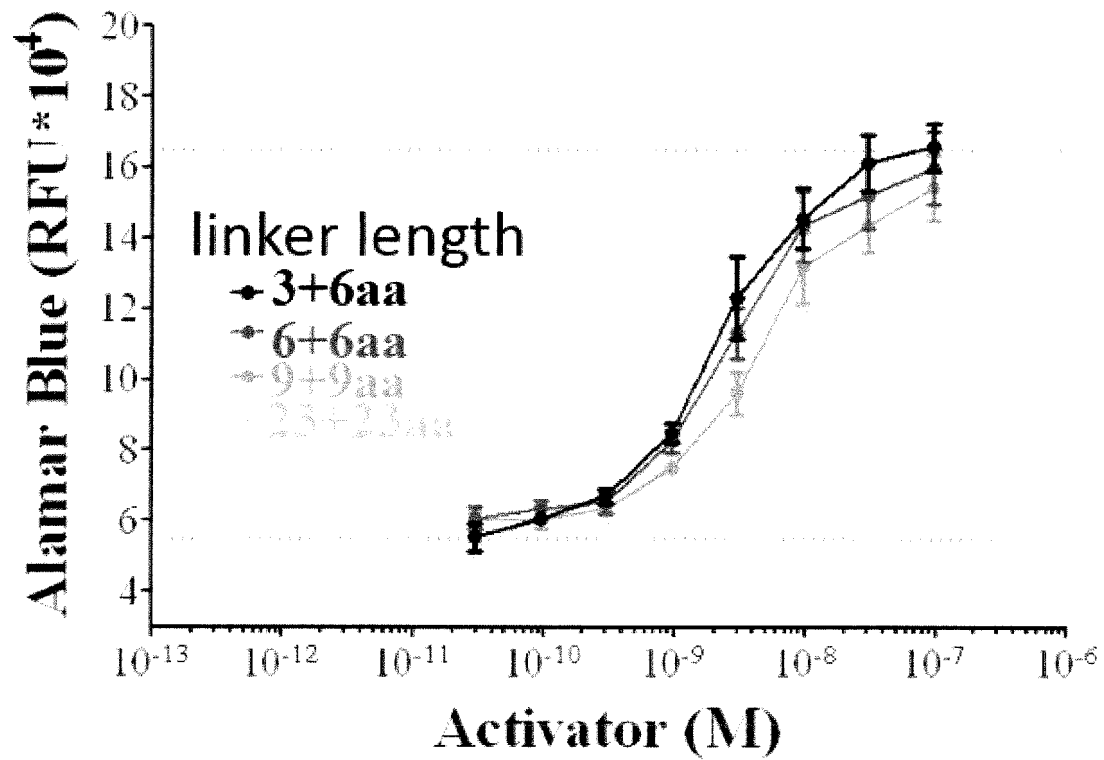


Figure 25B

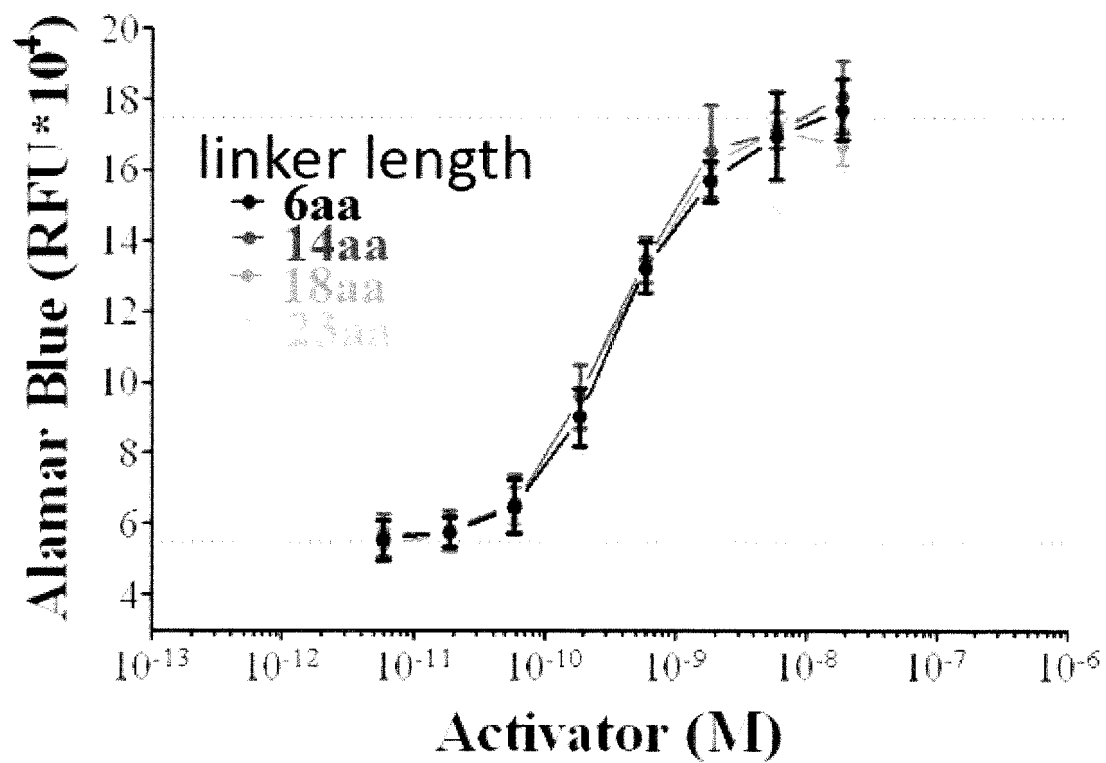


Figure 25C

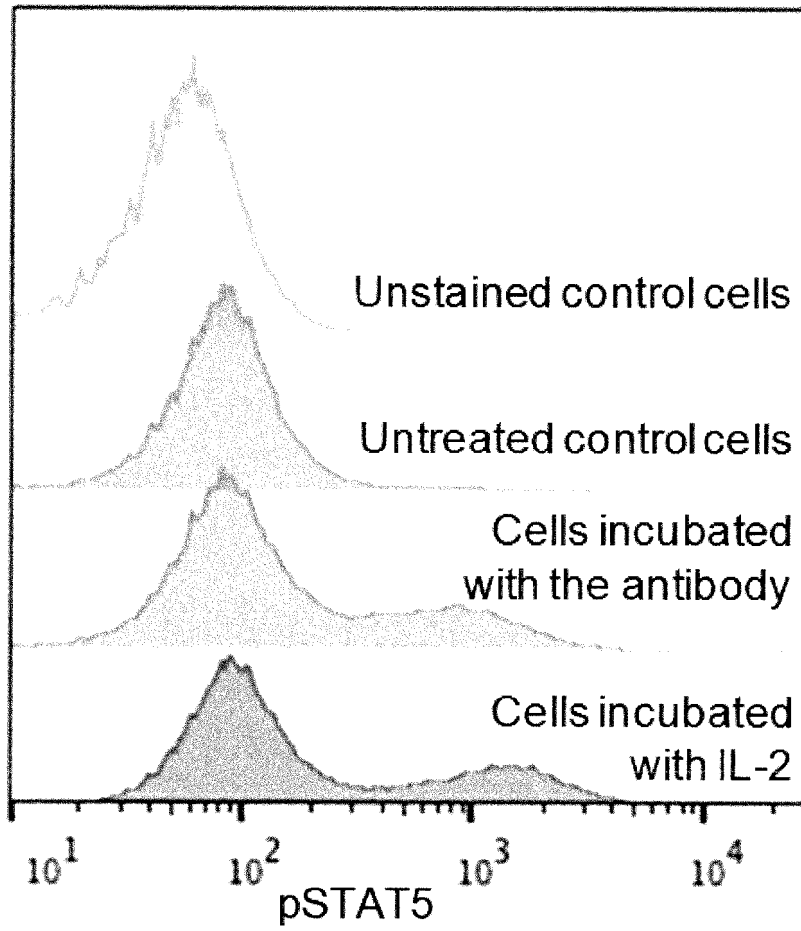


Figure 26

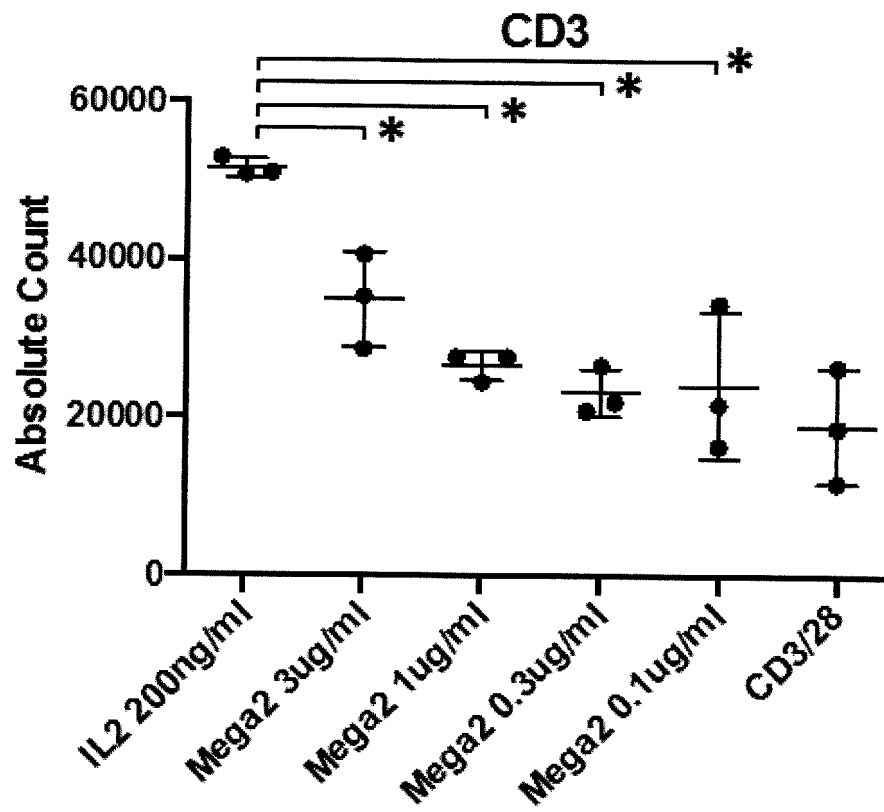


Figure 27A

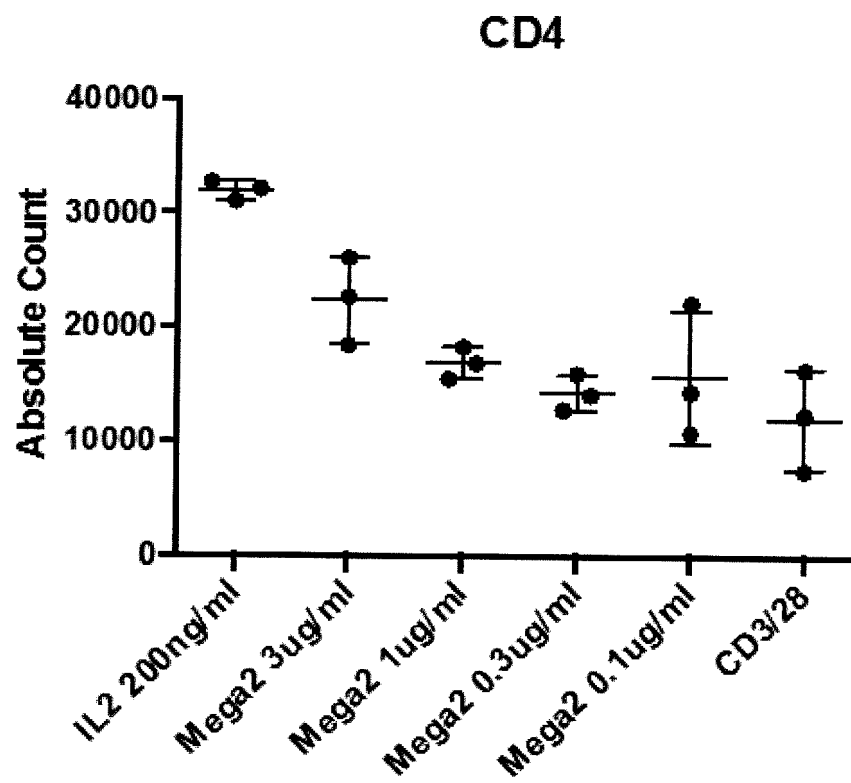


Figure 27B

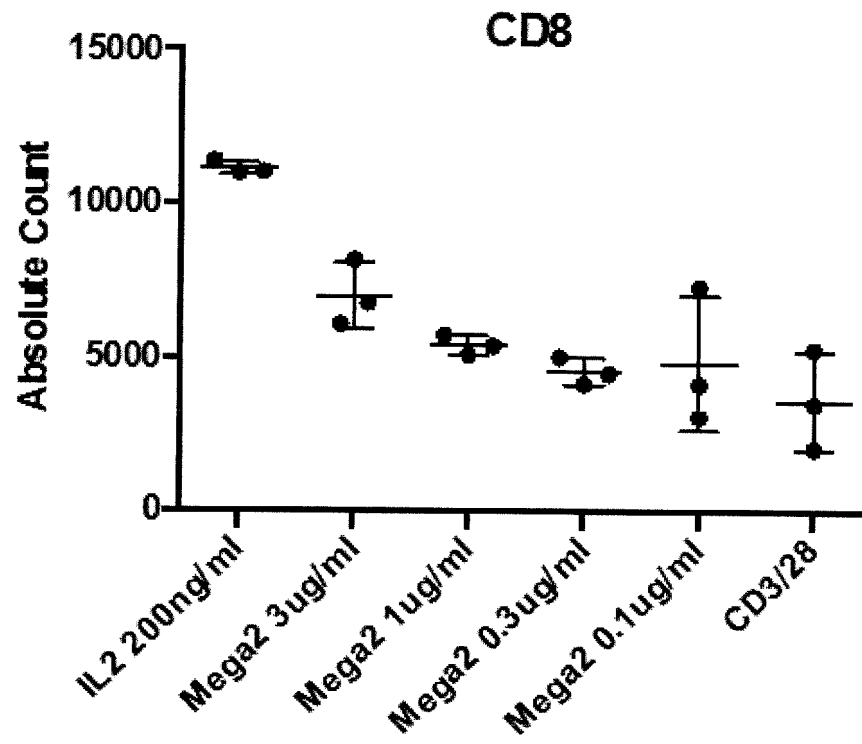


Figure 27C

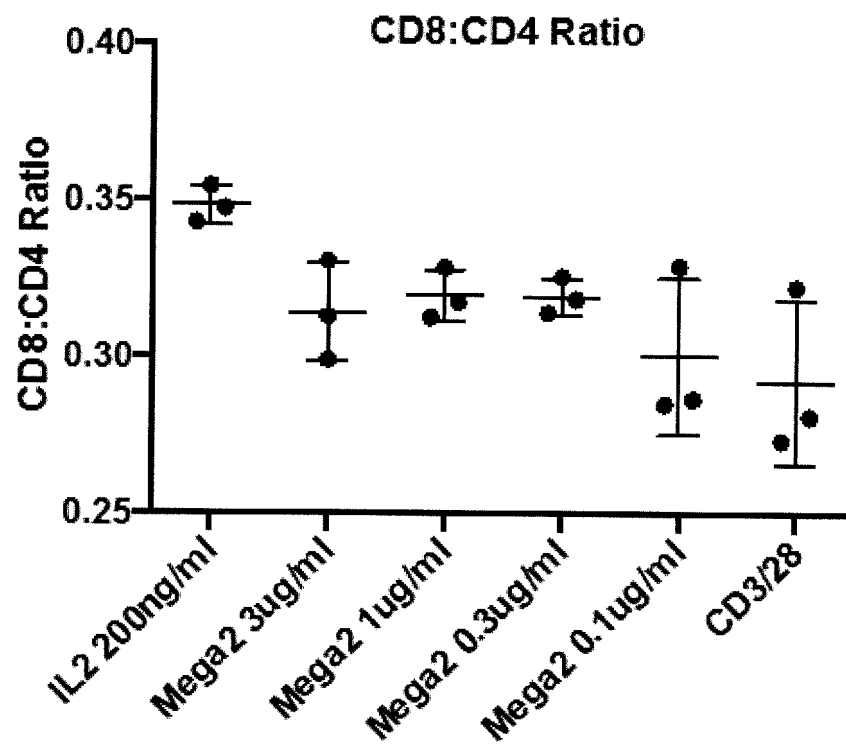


Figure 27D

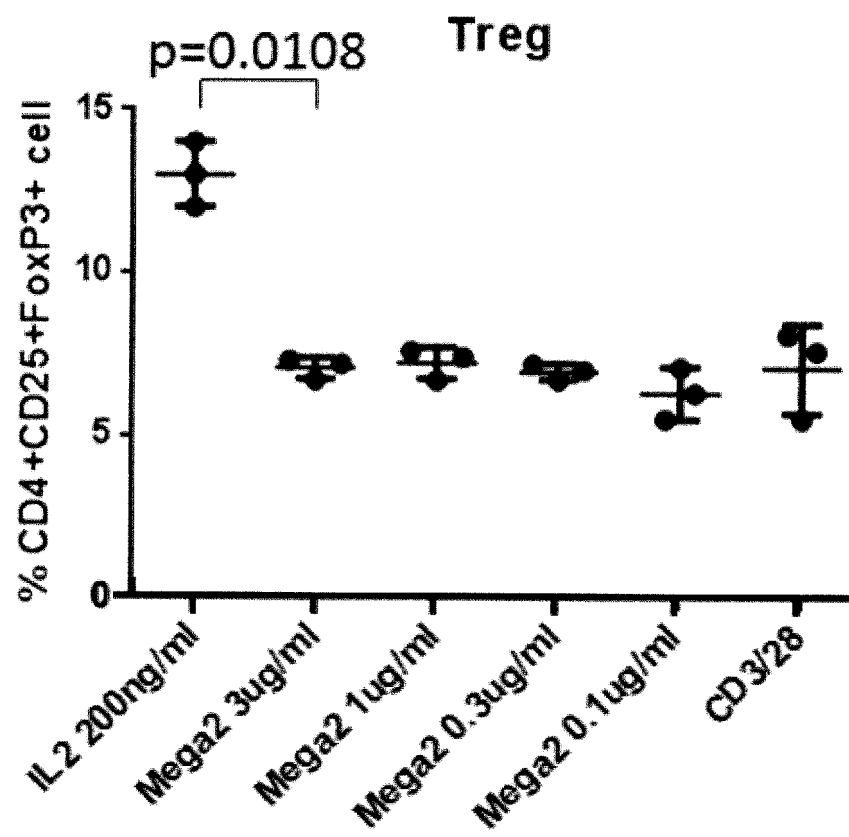


Figure 28

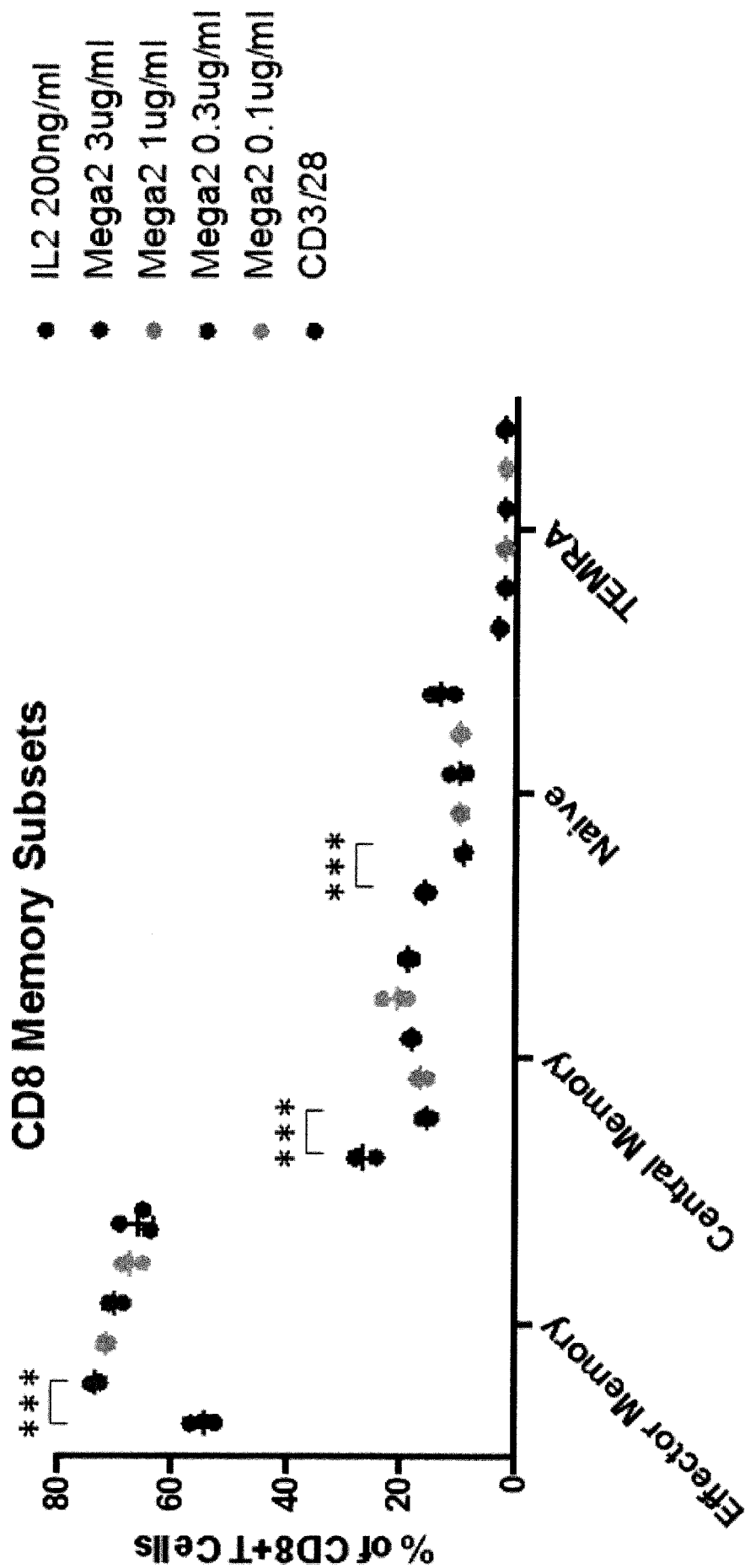


Figure 29

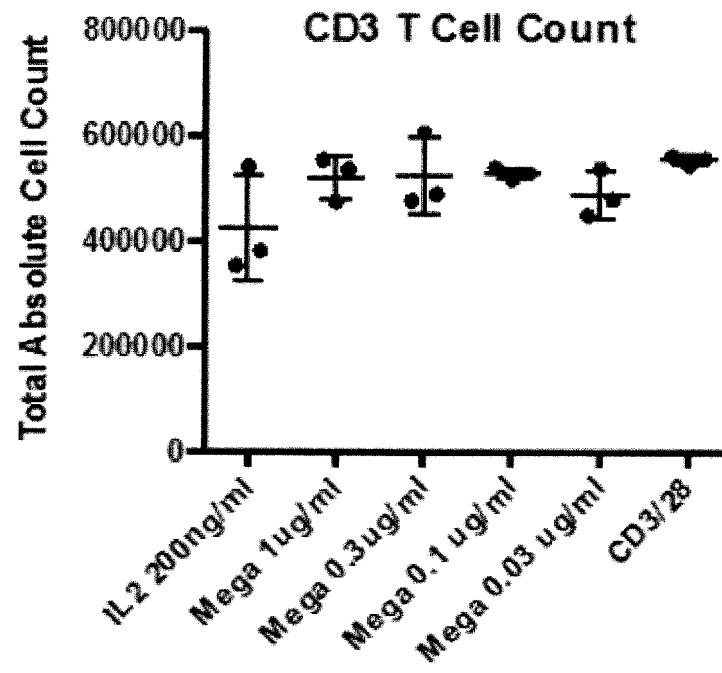


Figure 30A

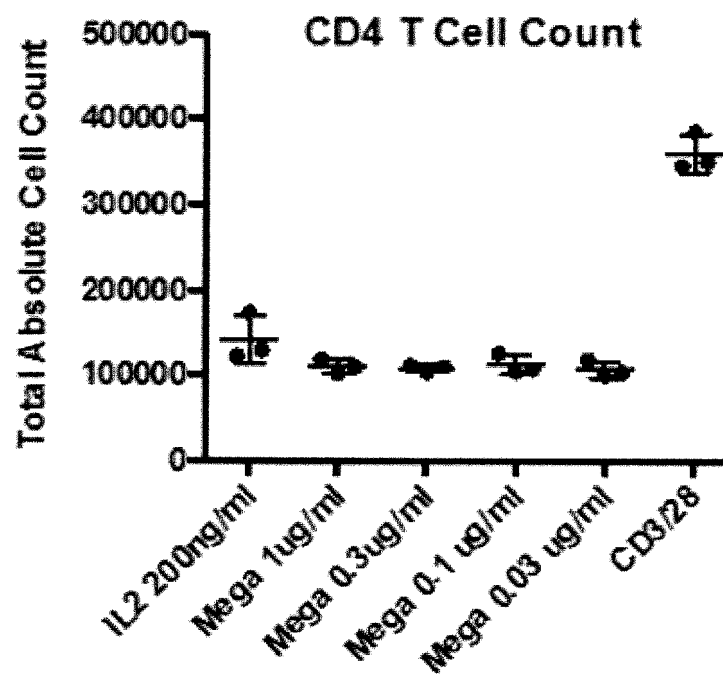


Figure 30B

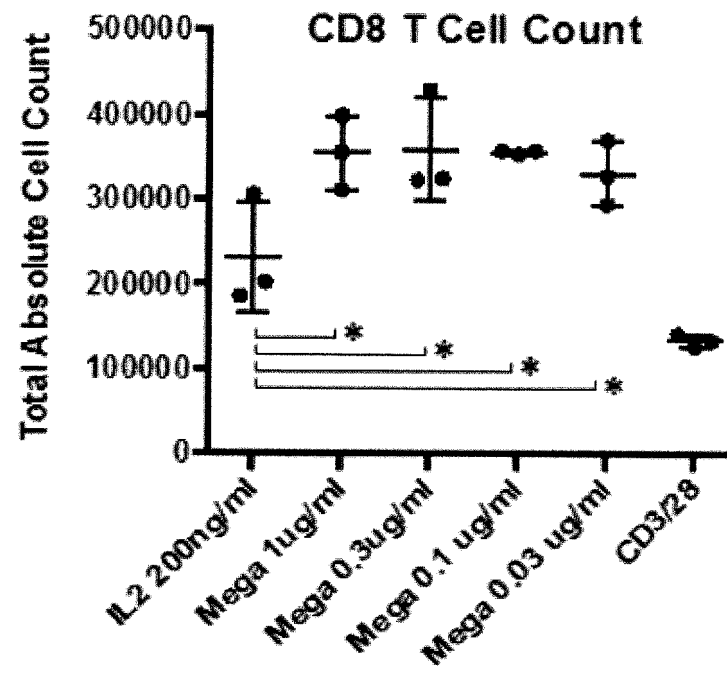


Figure 30C

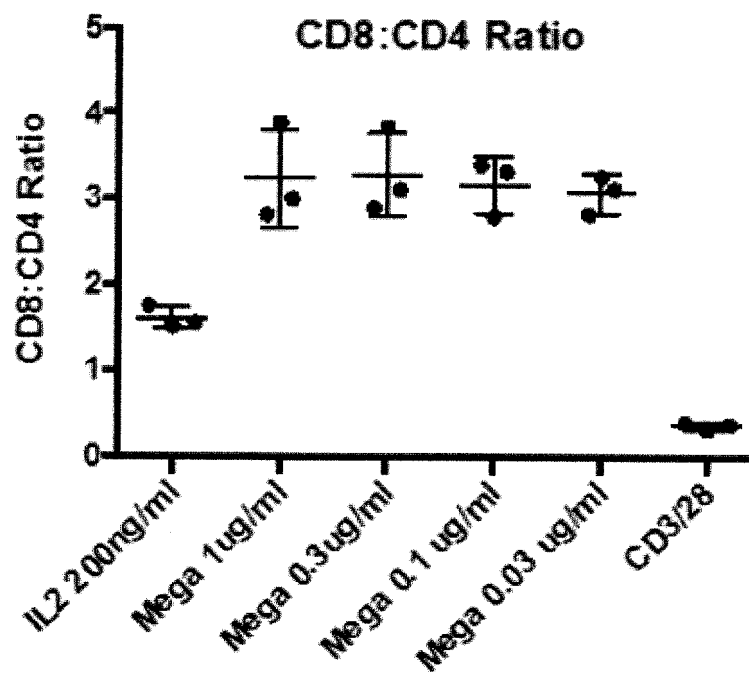


Figure 30D

CD8+ Memory Subset

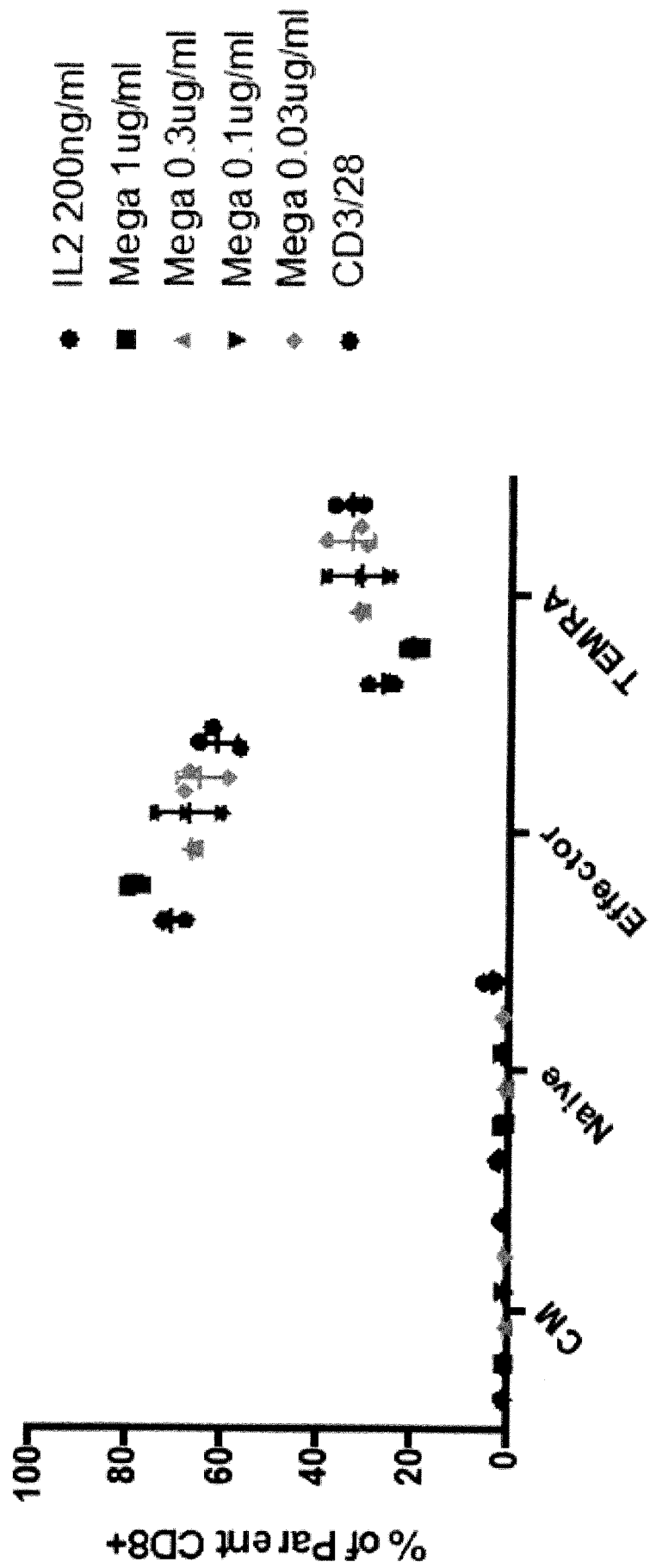


Figure 31A

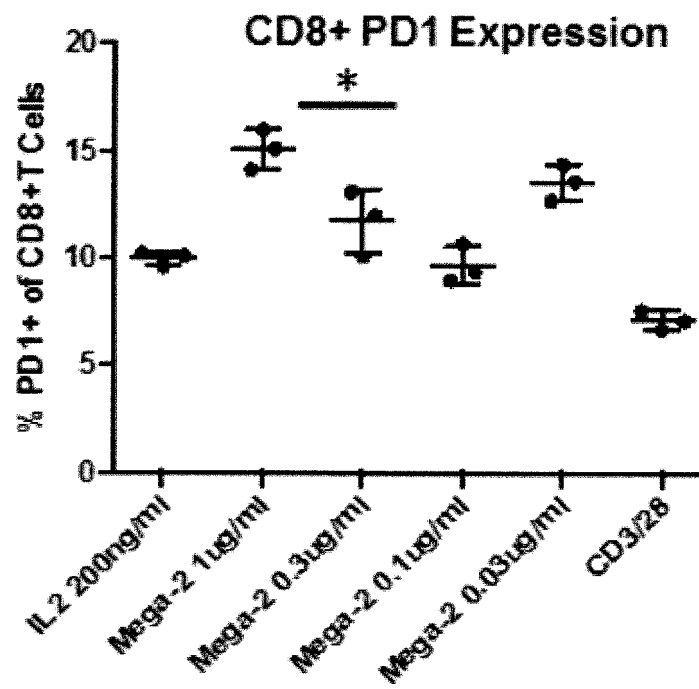


Figure 31B

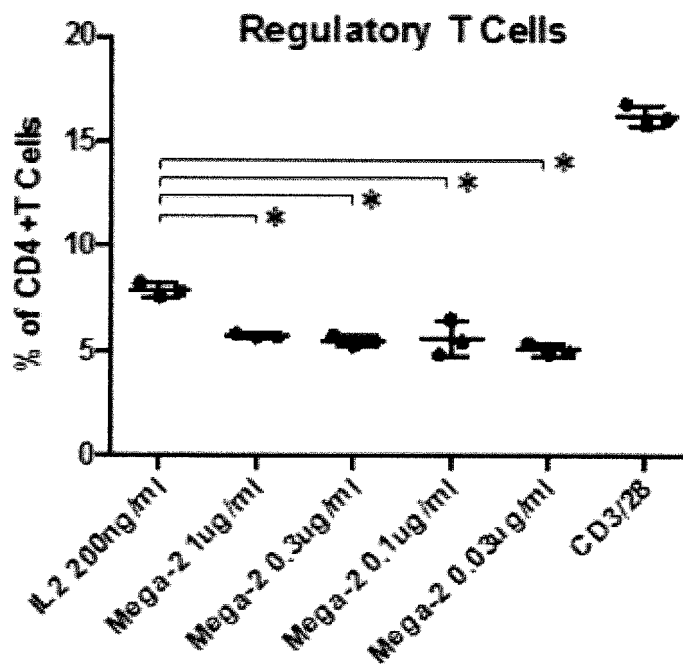


Figure 31C

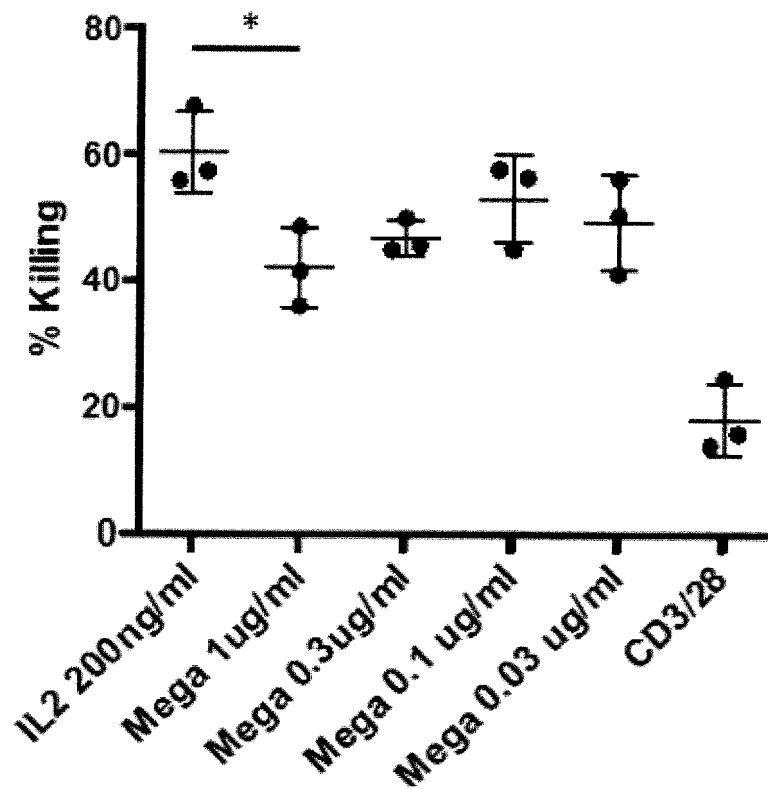


Figure 32

Thermal Stability of P1A3 clone and derivatives experiment 1/2

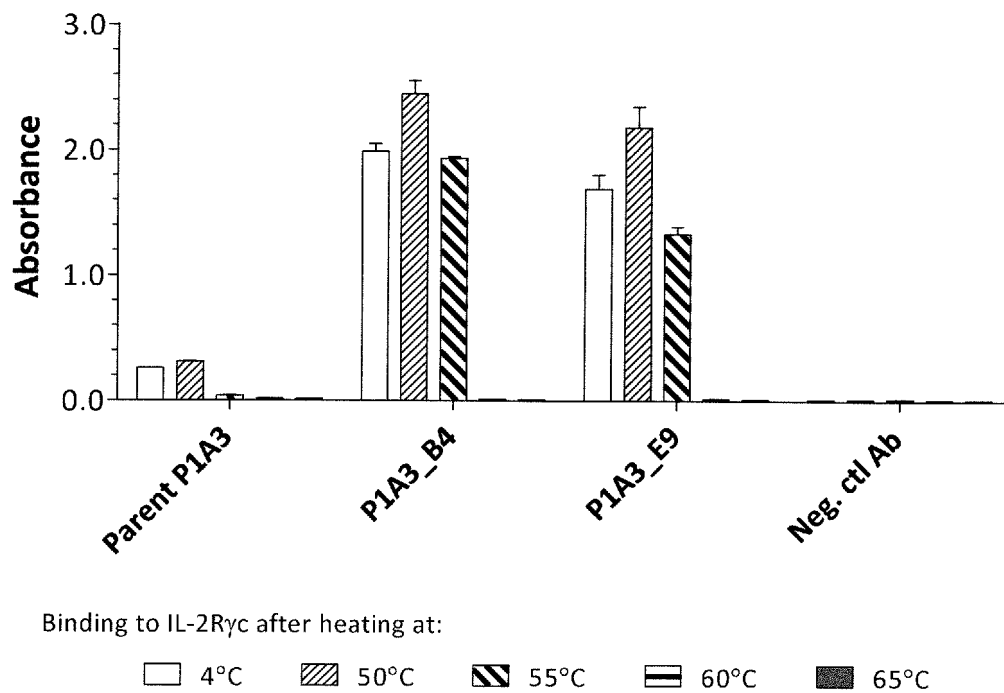


Figure 33A

Thermal Stability of P1A3 clone and derivatives experiment 2/2

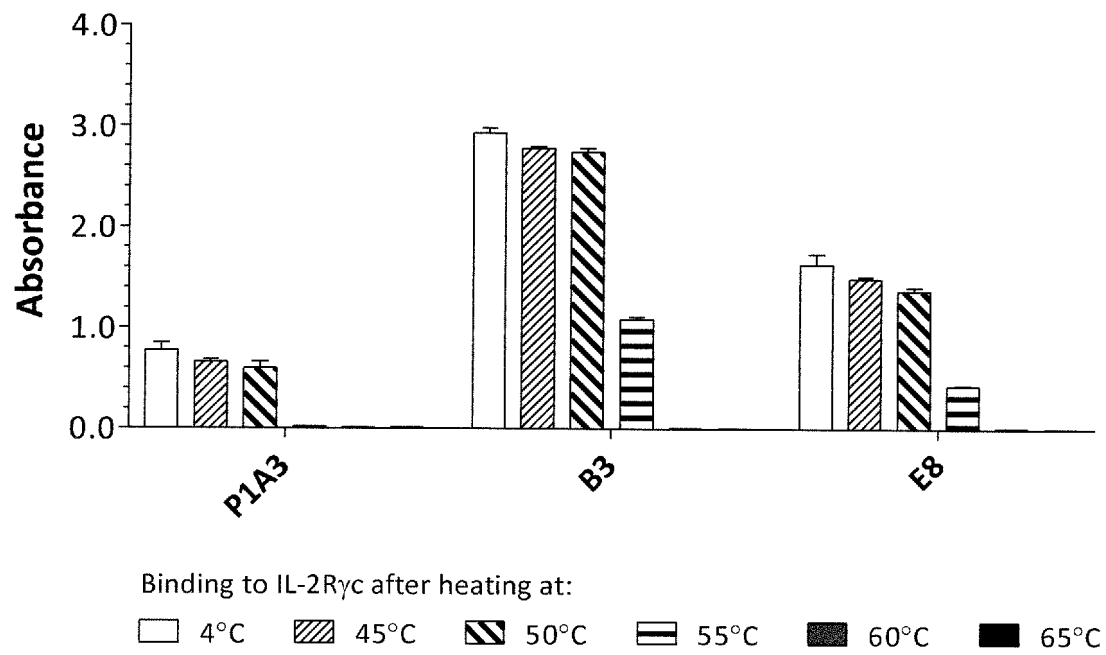


Figure 33B

Thermal Stability of P2C4 clone and derivatives
experiment 1/2

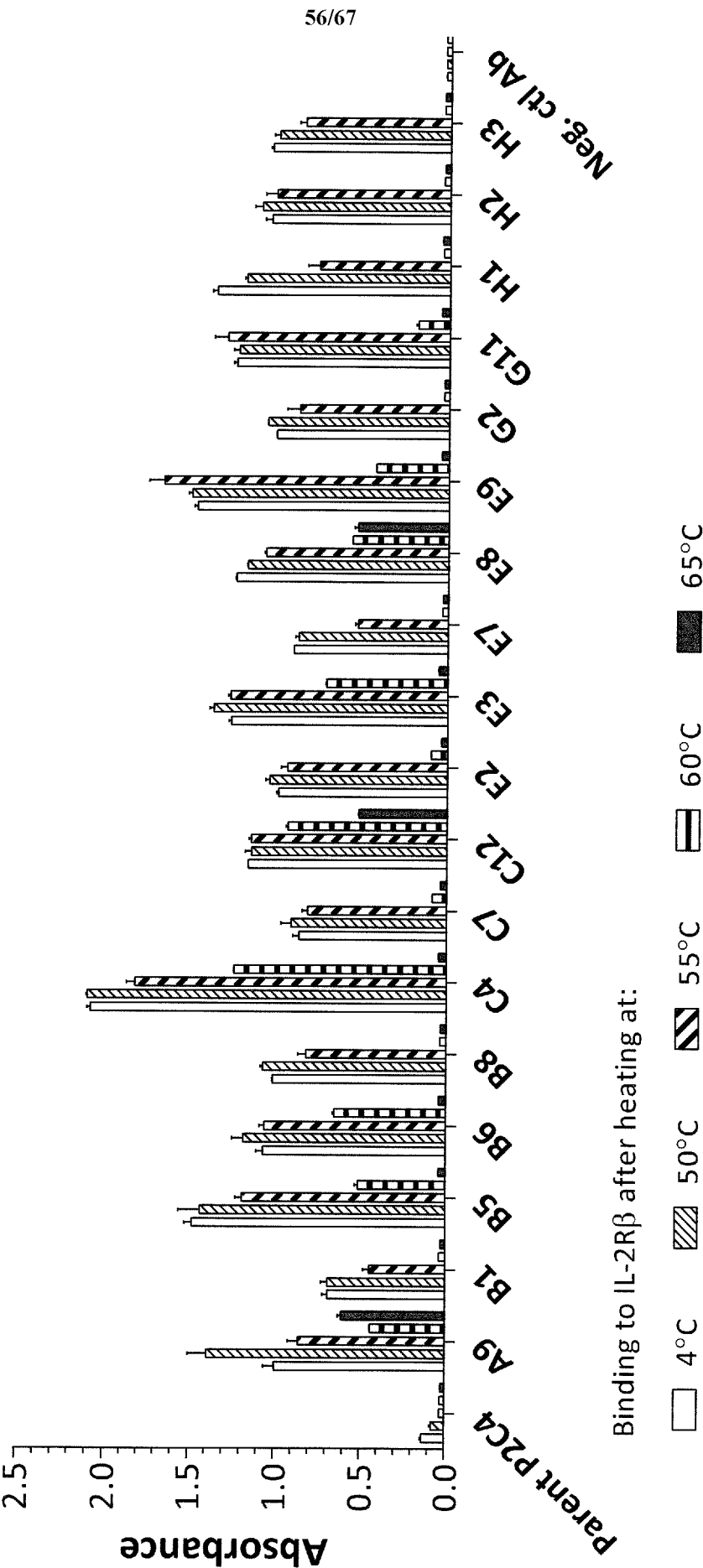


Figure 34A

Thermal Stability of P2C4 clone and derivatives
experiment 2/2

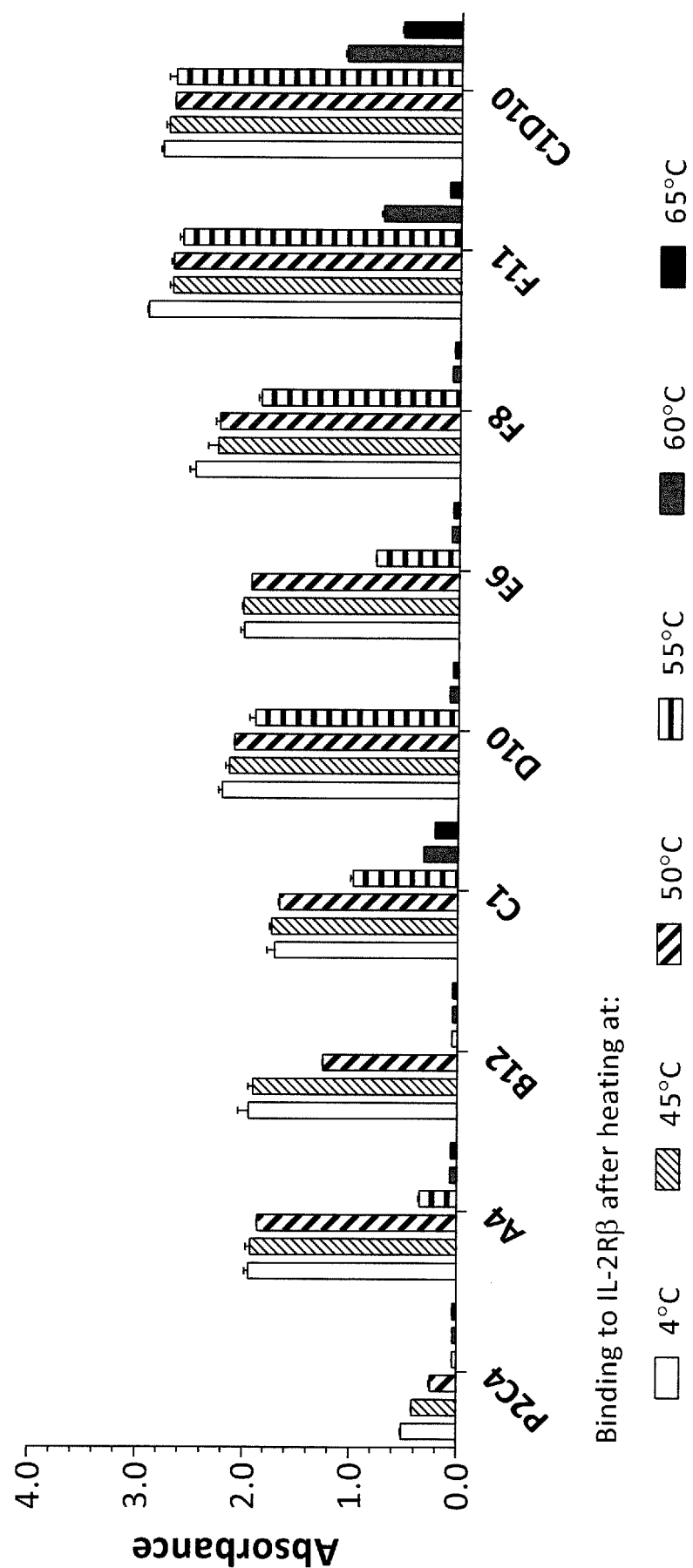


Figure 34B

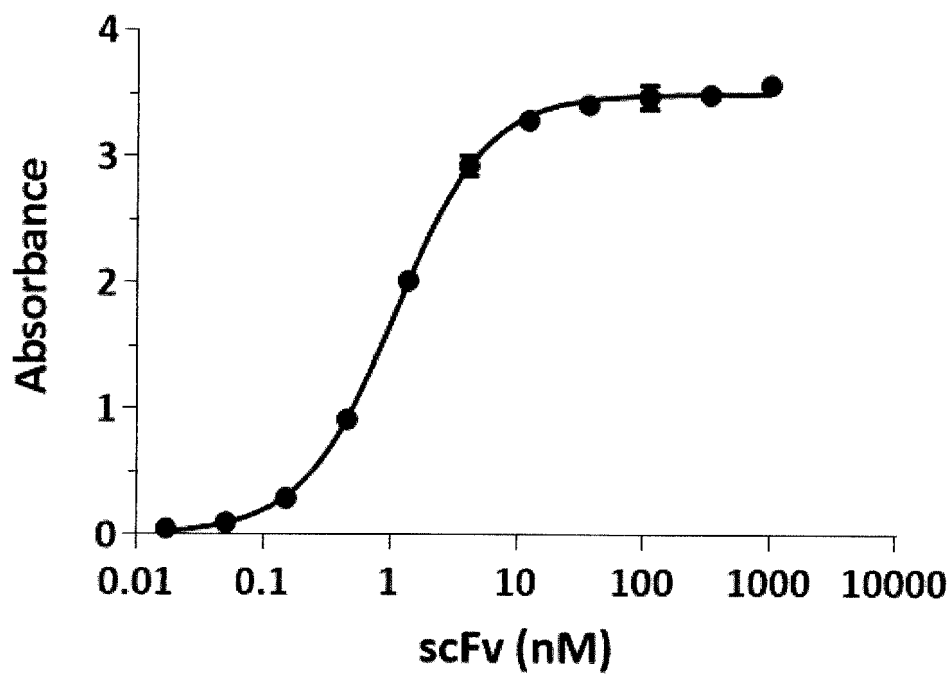
Binding of P2C4_FW2 to IL-2R β 

Figure 35A

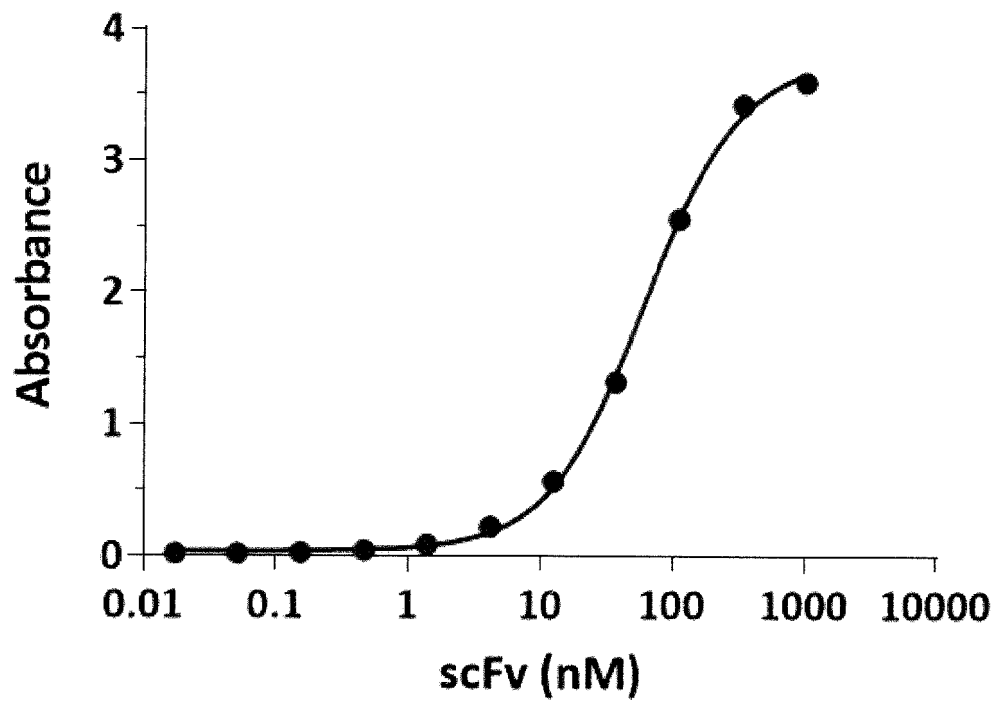
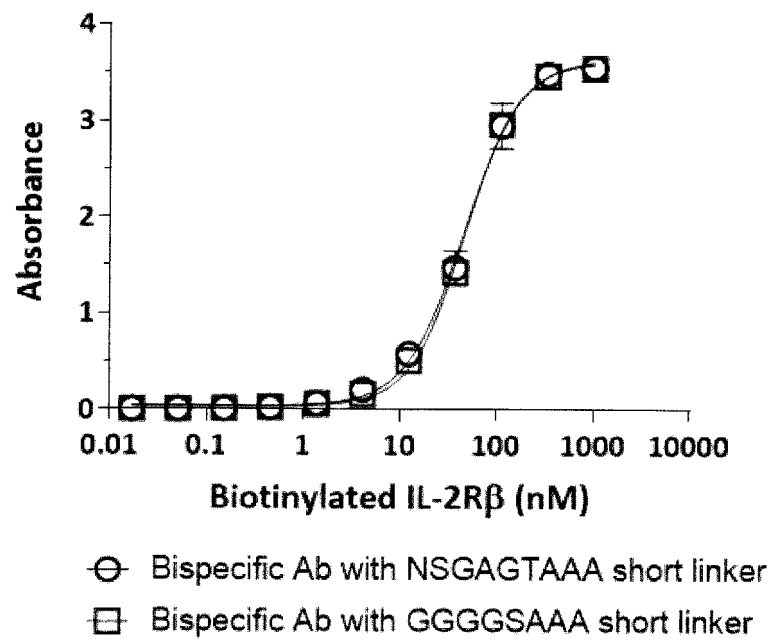
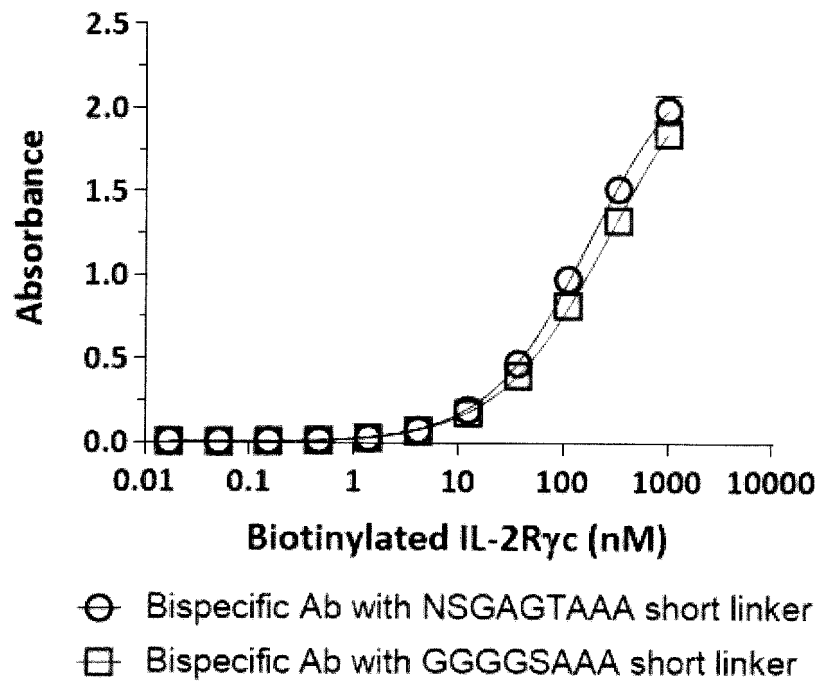
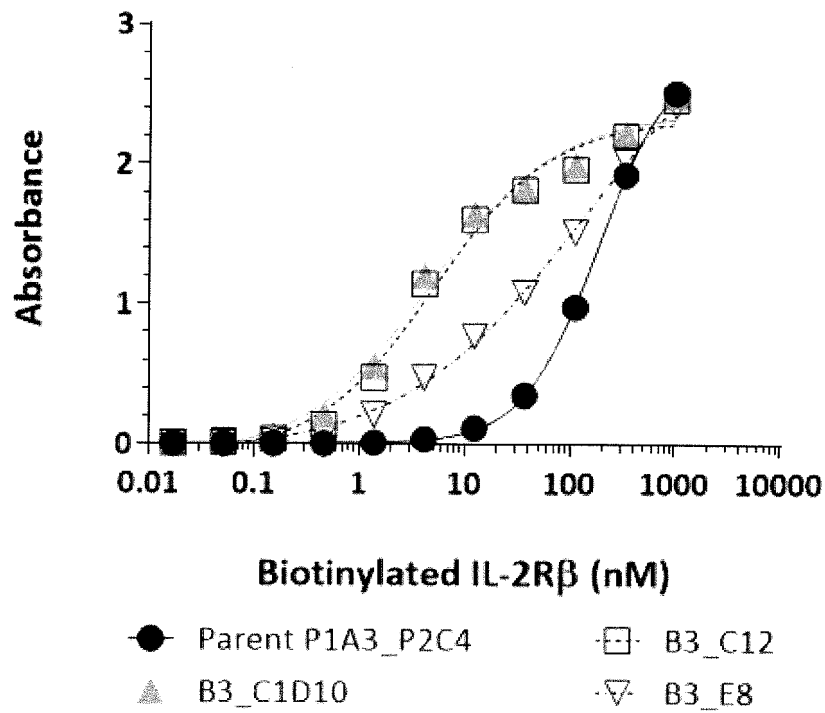
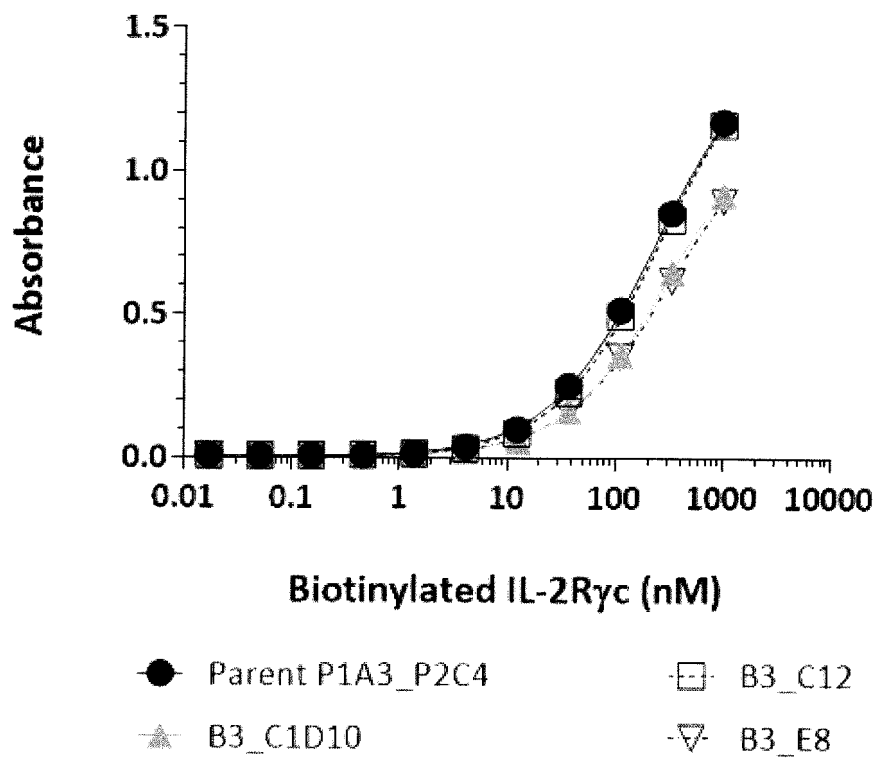
Binding of P1A3_FW2 to IL-2R γ c

Figure 35B

Binding to IL-2R β **Figure 36A****Binding to IL-2R γ c****Figure 36B**

Binding of bispecific constructs to IL-2R β **Figure 37A****Binding of bispecific constructs to IL-2R γ** **Figure 37B**

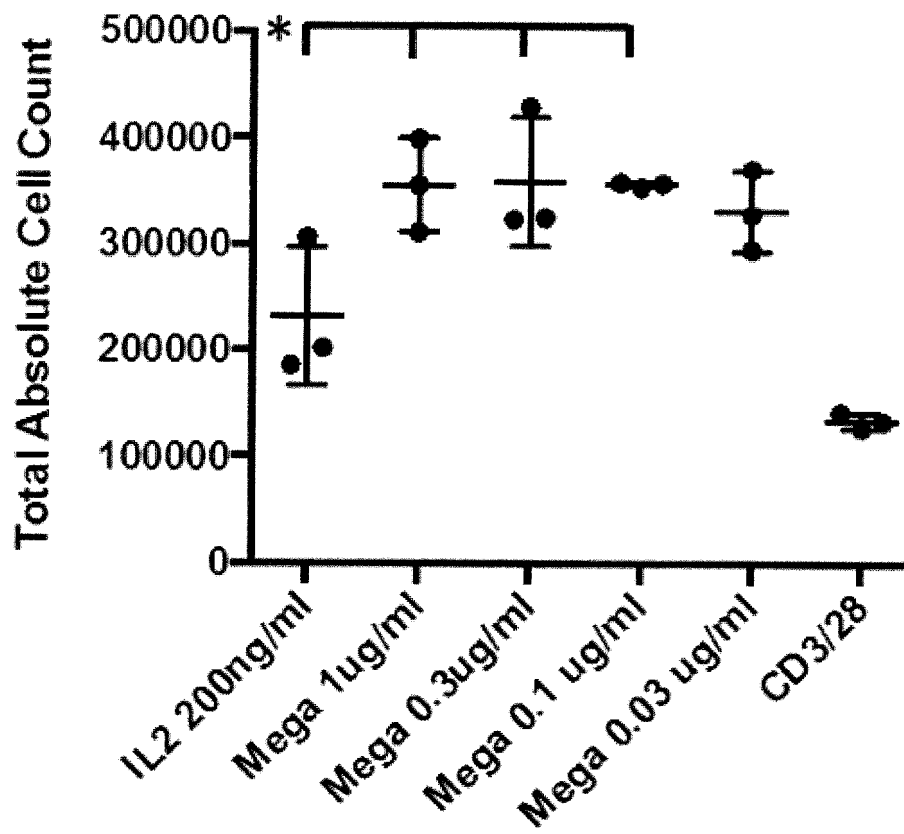


Figure 38A

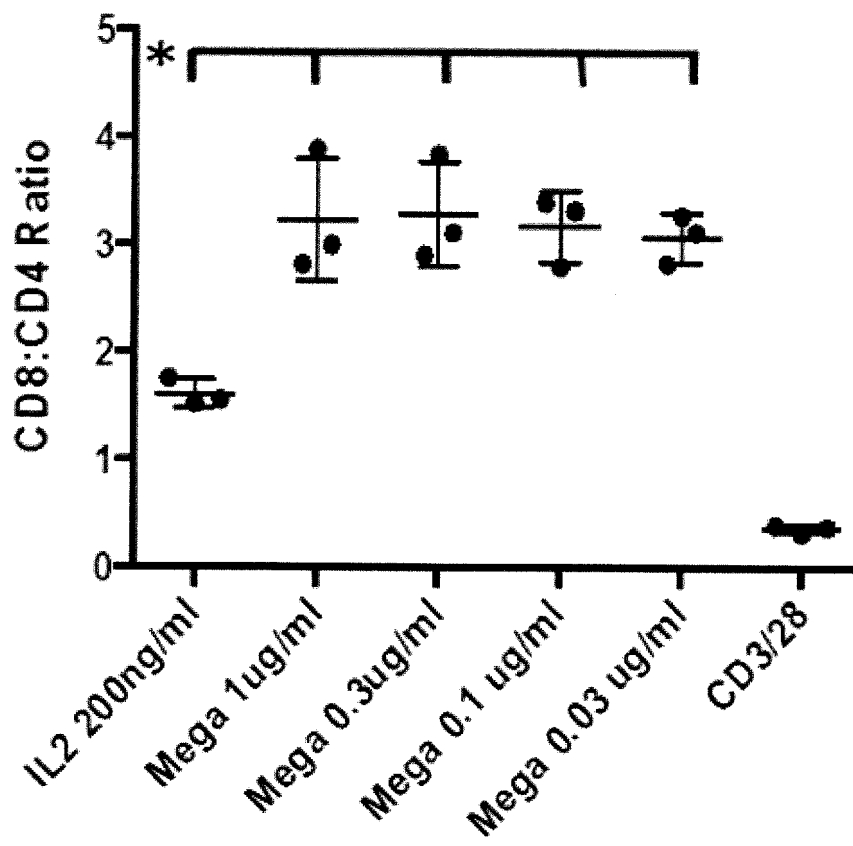


Figure 38B

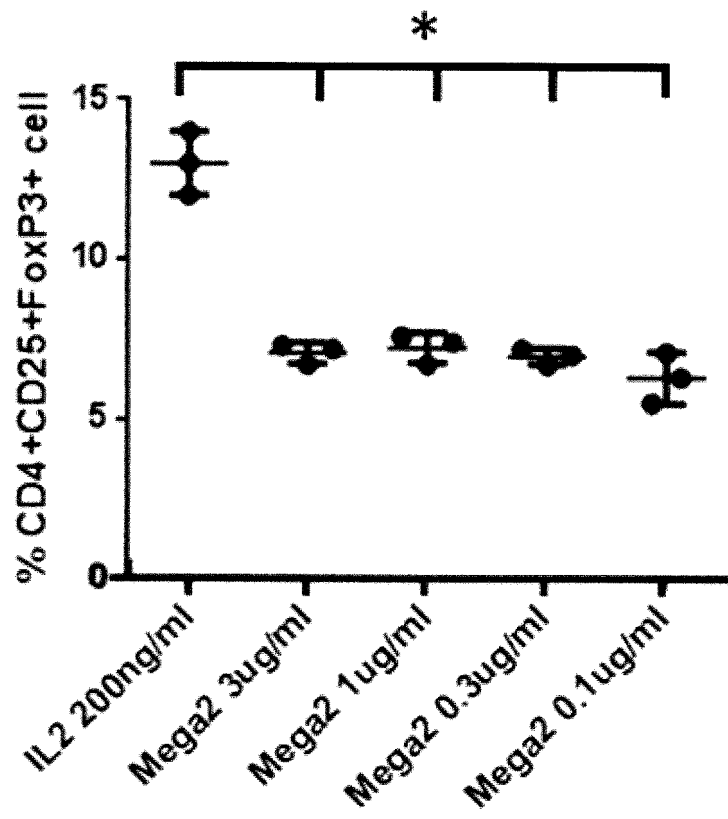


Figure 39A

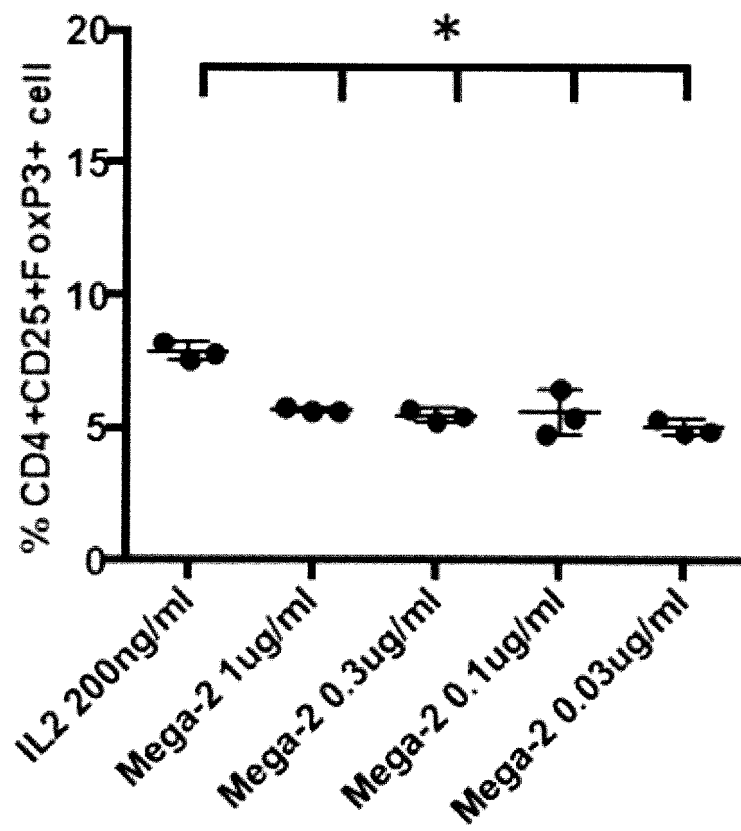


Figure 39B

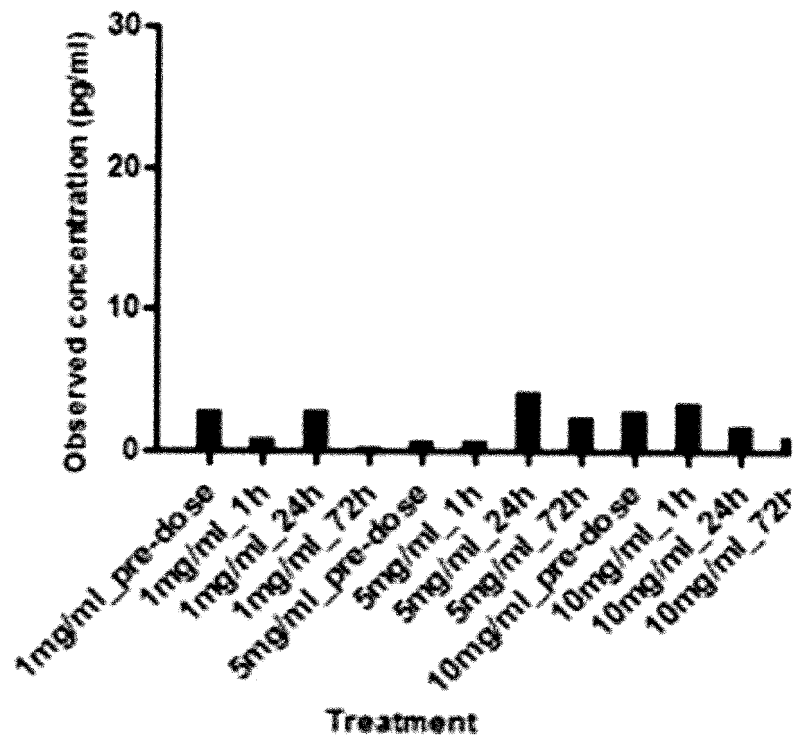
IFN γ 

Figure 40A

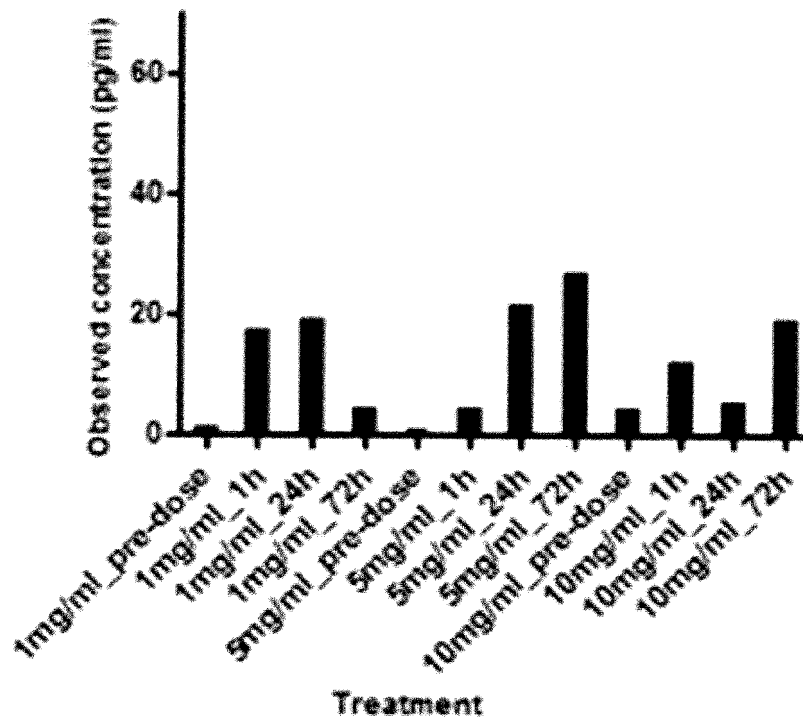
IL-15

Figure 40B

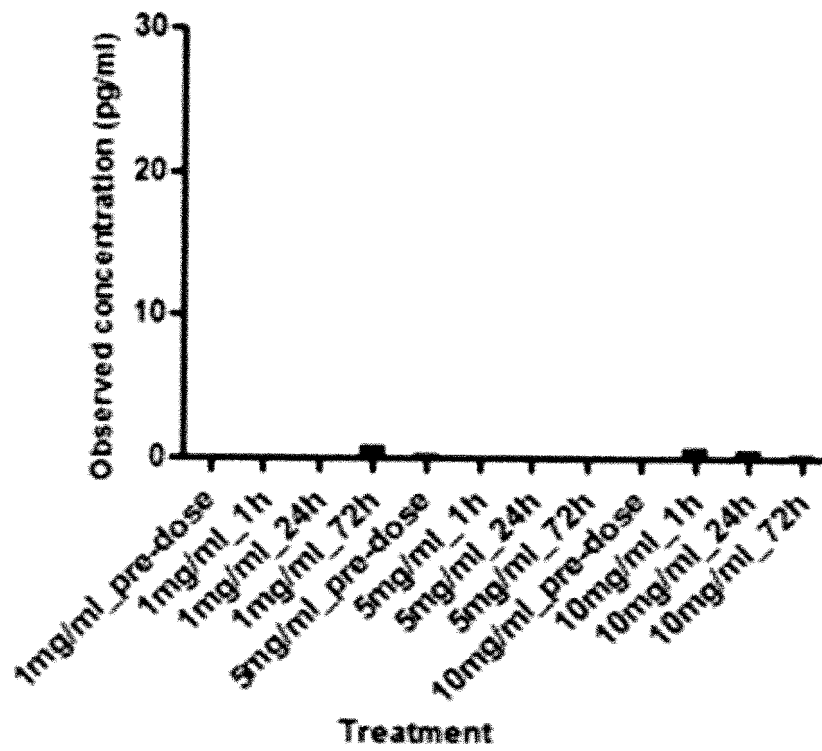
IL-1b

Figure 40C

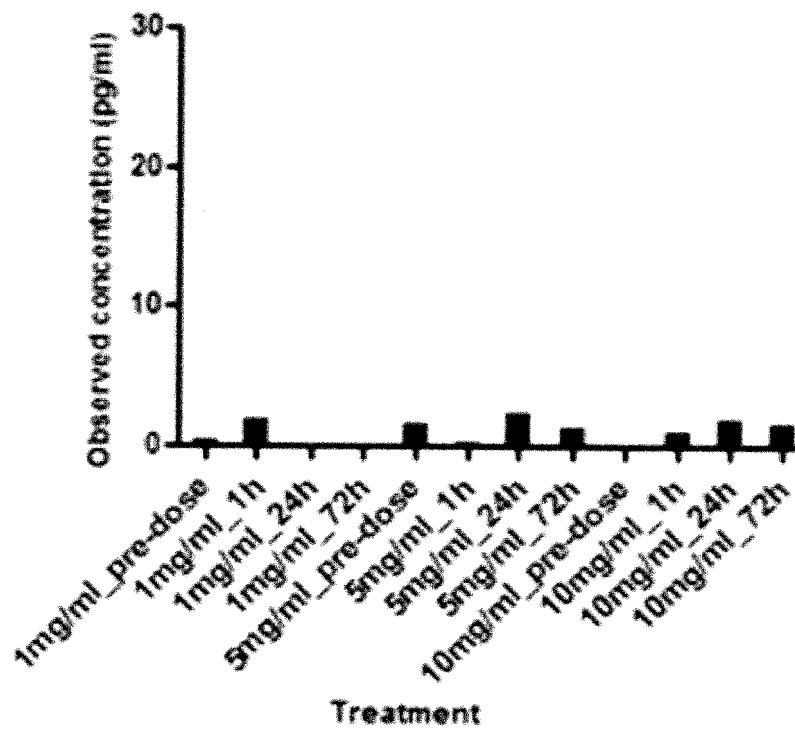
IL-6

Figure 40D

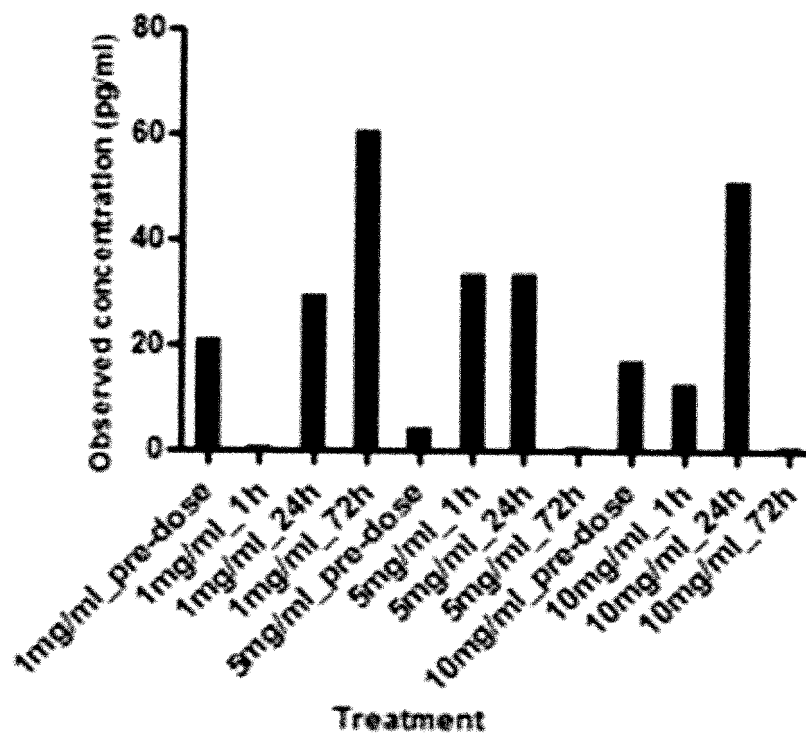
TNF α 

Figure 40E

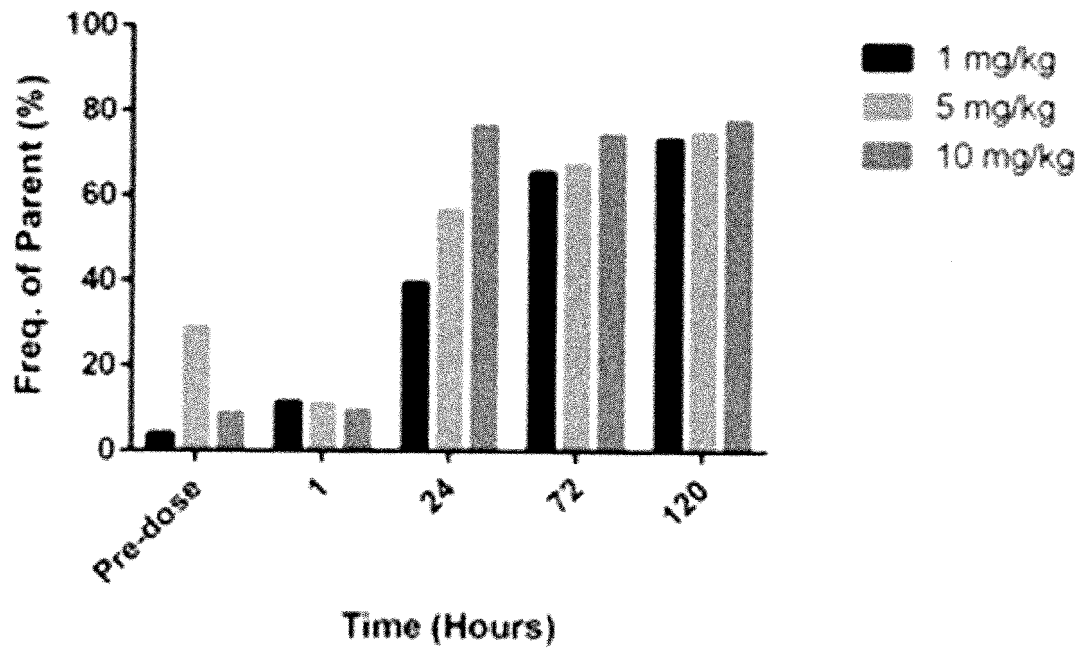
T-cells

Figure 41A

Proliferating CD8+ T cells

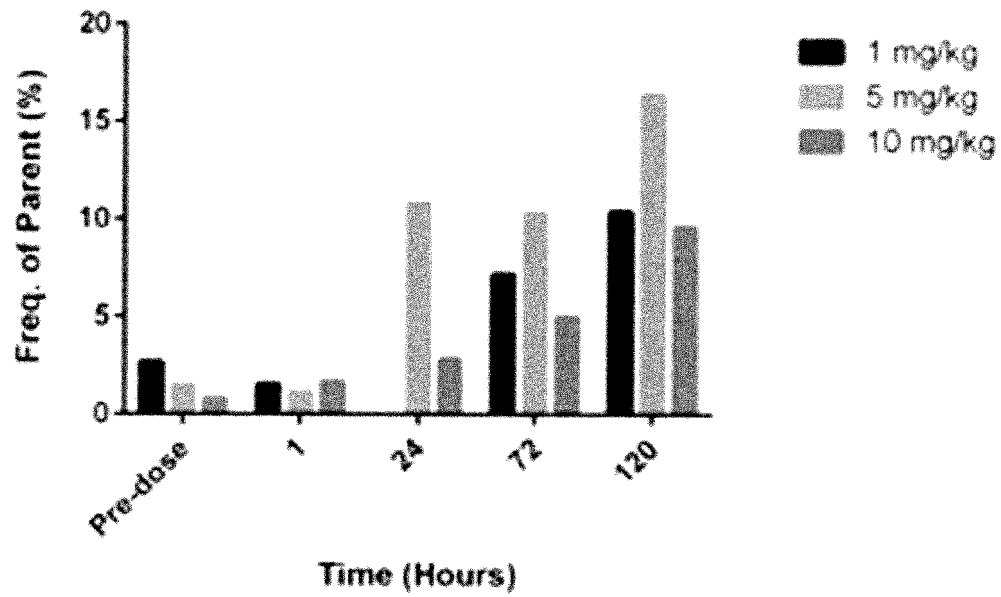


Figure 41B

Proliferating CD4+ T cells

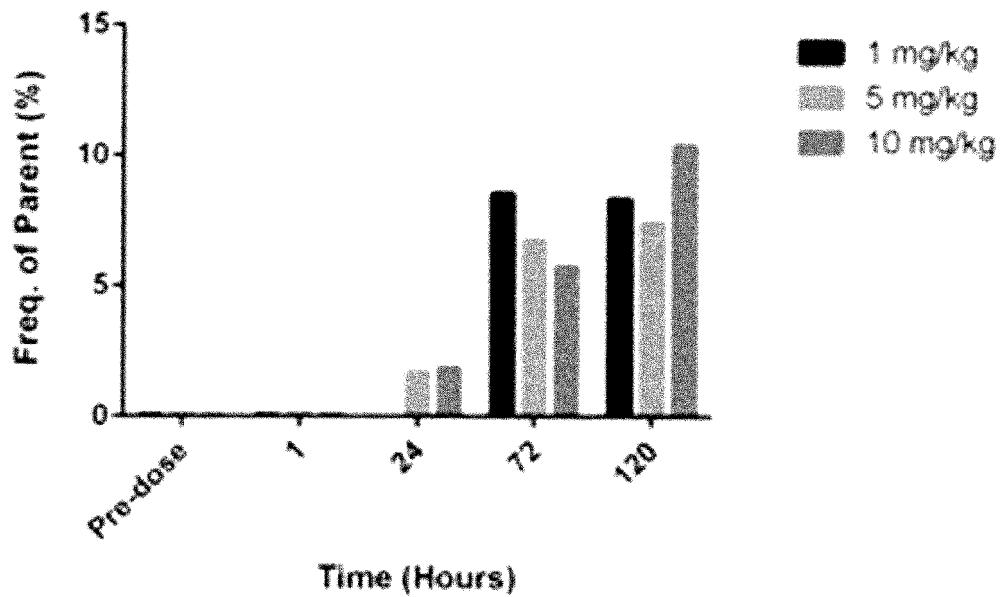


Figure 41C

NK Cells

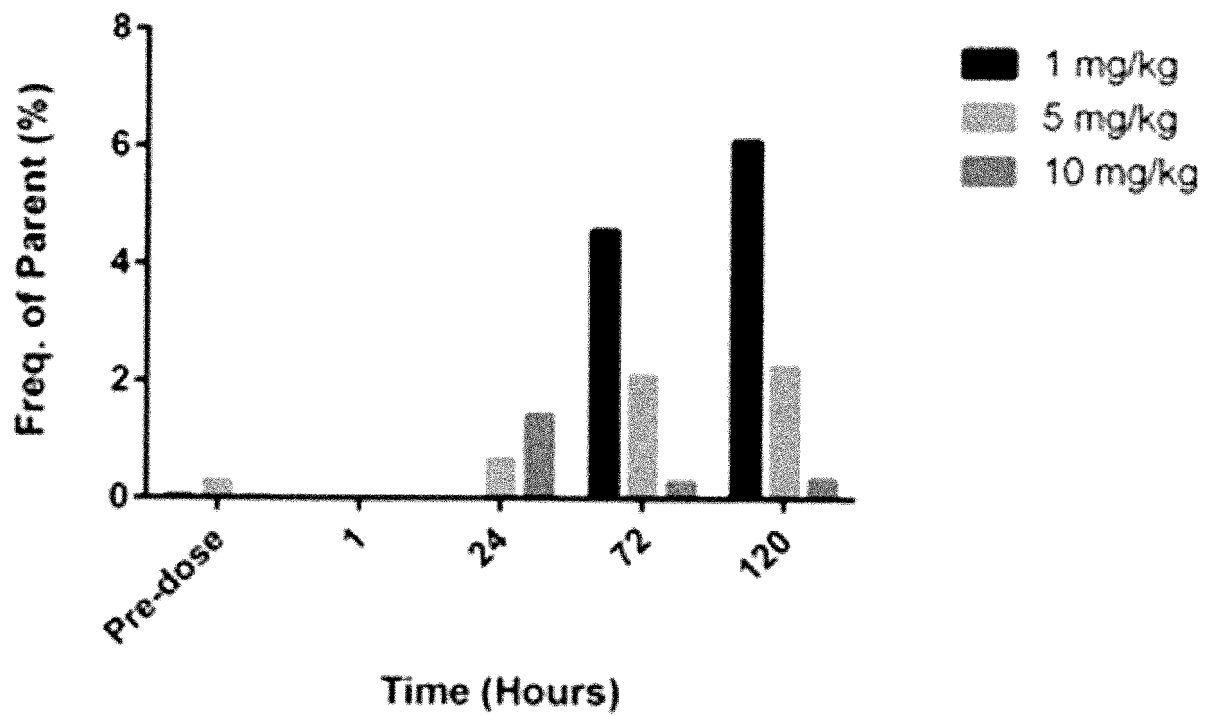


Figure 42A

Proliferating NK cells

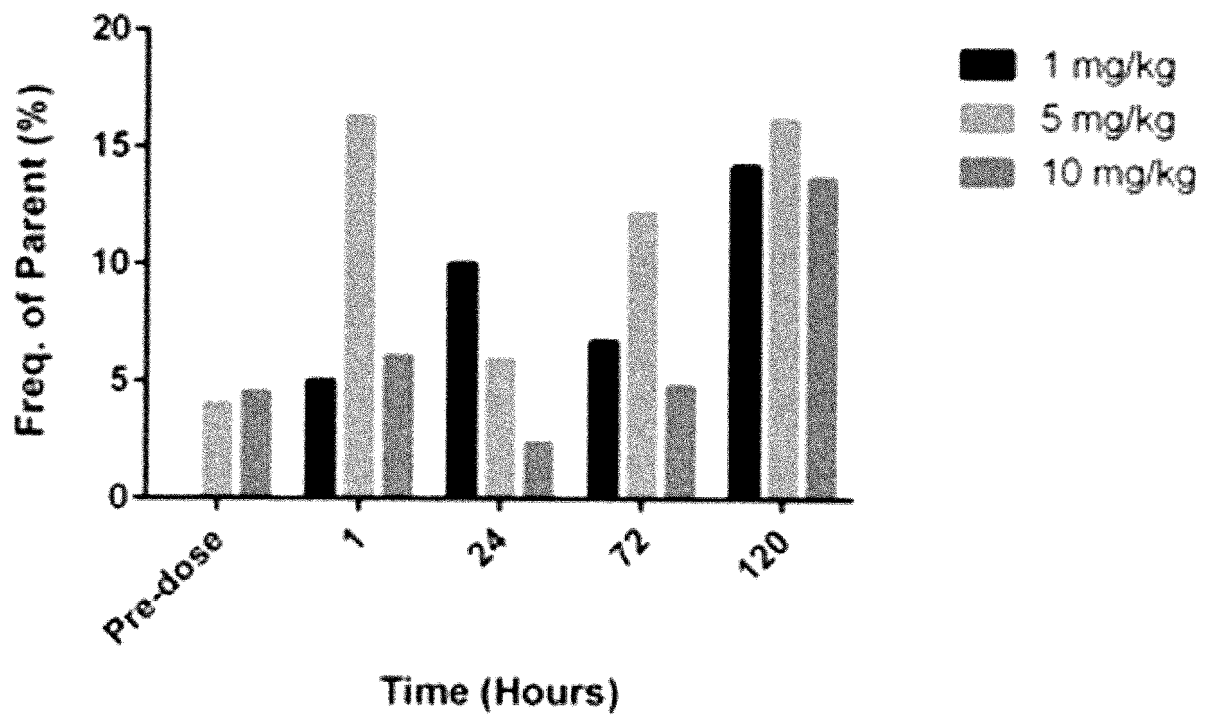


Figure 42B