

Figure 1

Numbering according to Kabat (VH)	Numbering according to Chothia (VH)	Aho numbering	IMGT
11	11	12	12
14	14	15	15
41	41	48	46
42	42	49	47
87	87	101	99
89	89	103	101
108	108	144	---
110	110	146	---
112	112	148	---
Source: http://www.bioc.uzh.ch/plueckthun/antibody/Numbering/NumFrame.html			

Figure 2

SEQ ID NO	Description	Sequence
1	Reference	EVQLVESGGGLVQPGNSLRRLSCAASGFTFSSFGMSWVR QAPGKGLEWVSSISGSGSDTLYADSVKGRFTISRDNKT TLYLQMNSLRPEDTAVYYCTIGGSLSRSSQGTLVTVSS
2	Reference	EVQLLESGGGLVQPGGSLRLSCAASGFTFRSFGMSWVR QAPGKGPEWVSSISGSGSDTLYADSVKGRFTISRDN SKN TLYLQMNSLRPEDTAVYYCTIGGSLSRSSQGTLVTVSS
3	CDR1 (Kabat)	SFGMS
4	CDR2 (Kabat)	SISGSGSDTLYADSVKG
5	CDR3 (Kabat/Abm)	GGSLSR
6	CDR1 (Abm)	GFTFRSFGMS
7	CDR2 (Abm)	SISGSGSDTL
8	CDR3 (Kabat/Abm)	GGSLSR
9	CDR1 (Kabat)	TYVMG
10	CDR2 (Kabat)	AISQNSIHTYYANSVKG
11	CDR2 (Kabat))	AISQNSIHTYYADSVKG
12	CDR1 (Abm)	GGTFSTYVMG
13	CDR2 (Abm)	AISQNSIHTY
14	CDR3 (Kabat/Abm)	SRFTSWYTADYEYDY
15	C-terminal sequence	VTVSS
16	15GS linker	GGGGSGGGGSGGGGS
17	35 GS linker	GGGGSGGGGSGGGGSGGGGSGGGGSGGGGSGGGGS

Figure 2 (continued)

SEQ ID NO	Description	Sequence
18	Invention	EVQLVESGGGLVQTDGSLRLSCAASGGTFSTYVMGWF RQAPGKEREFVSAISQNSIHTYYANSVKGRFTISRDNNDK NTVYLQLNSLKPEDTAVYYCAASRFTSWYTADYEYDY WGQGTLVTVSS
19	Invention	EVQLVESGGGVVQPGDSLRLSCAASGGTFSTYVMGWF RQAPGKEREFVSAISQNSIHTYYANSVKGRFTISRDNNSK NTVYLQLNSLRPEDTALYYCAASRFTSWYTADYEYDY WGQGTLVTVSS
20	Invention	EVQLVESGGGVVQPGGSLRLSCAASGGTFSTYVMGWF RQAPGKEREFVSAISQNSIHTYYADSVKGRFTISRDNNSK NTVYLQLNSLRPEDTALYYCAASRFTSWYTADYEYDY WGQGTLVTVSS
21	Invention	EVQLVESGGGVVQPGGSLRLSCAASGGTFSTYVMGWF RQAPGKEREFVSAISQNSIHTYYANSVKGRFTISRDNNSK NTVYLMNSLRPEDTALYYCAASRFTSWYTADYEYDY WGQGTLVTVSS
22	Invention	EVQLVESGGGVVQPGGSLRLSCAASGGTFSTYVMGWF RQAPGKEREFVSAISQNSIHTYYADSVKGRFTISRDNNSK NTVYLMNSLRPEDTALYYCAASRFTSWYTADYEYDY WGQGTLVTVSS
23	Invention	EVQLVESGGGVVQPGGSLRLSCAASGGTFSTYVMGWF RQAPGKEREFVAAISQNSIHTYYANSVKGRFTISRDNNSK NTVYLQLNSLRPEDTALYYCAASRFTSWYTADYEYDY WGQGTLVTVSS
24	Invention	EVQLVESGGGVVQPGGSLRLSCAASGGTFSTYVMGWF RQAPGKEREFVAAISQNSIHTYYADSVKGRFTISRDNNSK NTVYLQLNSLRPEDTALYYCAASRFTSWYTADYEYDY WGQGTLVTVSS
25	Invention	EVQLVESGGGVVQPGGSLRLSCAASGGTFSTYVMGWF RQAPGKEREFVAAISQNSIHTYYANSVKGRFTISRDNNSK NTVYLMNSLRPEDTALYYCAASRFTSWYTADYEYDY WGQGTLVTVSS
26	Invention	EVQLVESGGGVVQPGGSLRLSCAASGGTFSTYVMGWF RQAPGKEREFVAAISQNSIHTYYADSVKGRFTISRDNNSK NTVYLMNSLRPEDTALYYCAASRFTSWYTADYEYDY WGQGTLVTVSS

Figure 2 (continued)

SEQ ID NO	Description	Sequence
27	Invention	EVQLVESGGGLVQTDGSLRLSCAASGGTFSTYVMGWF RQAPGKEREFVSAISQNSIHTYYANSVKGRFTISRDNNDK NTVYLQLNSLKPEDTAVYYCAASRFTSWYTADYEYDY WGQGTLVTVSSA
28	Invention	EVQLVESGGGVVQPGDSLRLSCAASGGTFSTYVMGWF RQAPGKEREFVSAISQNSIHTYYANSVKGRFTISRDNNDK NTVYLQLNSLRPEDTALYYCAASRFTSWYTADYEYDY WGQGTLVTVSSA
29	Invention	EVQLVESGGGVVQPGGSLRLSCAASGGTFSTYVMGWF RQAPGKEREFVSAISQNSIHTYYADSVKGRFTISRDNNDK NTVYLQLNSLRPEDTALYYCAASRFTSWYTADYEYDY WGQGTLVTVSSA
30	Invention	EVQLVESGGGVVQPGGSLRLSCAASGGTFSTYVMGWF RQAPGKEREFVSAISQNSIHTYYANSVKGRFTISRDNNDK NTVYLQMNSLRPEDTALYYCAASRFTSWYTADYEYDY WGQGTLVTVSSA
31	Invention	EVQLVESGGGVVQPGGSLRLSCAASGGTFSTYVMGWF RQAPGKEREFVSAISQNSIHTYYADSVKGRFTISRDNNDK NTVYLQMNSLRPEDTALYYCAASRFTSWYTADYEYDY WGQGTLVTVSSA
32	Invention	EVQLVESGGGVVQPGGSLRLSCAASGGTFSTYVMGWF RQAPGKEREFVAAISQNSIHTYYANSVKGRFTISRDNNDK NTVYLQLNSLRPEDTALYYCAASRFTSWYTADYEYDY WGQGTLVTVSSA
33	Invention	EVQLVESGGGVVQPGGSLRLSCAASGGTFSTYVMGWF RQAPGKEREFVAAISQNSIHTYYADSVKGRFTISRDNNDK NTVYLQLNSLRPEDTALYYCAASRFTSWYTADYEYDY WGQGTLVTVSSA
34	Invention	EVQLVESGGGVVQPGGSLRLSCAASGGTFSTYVMGWF RQAPGKEREFVAAISQNSIHTYYANSVKGRFTISRDNNDK NTVYLQMNSLRPEDTALYYCAASRFTSWYTADYEYDY WGQGTLVTVSSA
35	Invention	EVQLVESGGGVVQPGGSLRLSCAASGGTFSTYVMGWF RQAPGKEREFVAAISQNSIHTYYADSVKGRFTISRDNNDK NTVYLQMNSLRPEDTALYYCAASRFTSWYTADYEYDY WGQGTLVTVSSA

Figure 2 (continued)

SEQ ID NO	Description	Sequence
36	Invention	DVQLVESGGGLVQTGDSLRLSCAASGGTFSTYVMGWF RQAPGKEREFVSAISQNSIHTYYANSVKGRFTISRDNKD NTVYLQLNSLPEDTAVYYCAASRFTSWYTADYEYDY WGQGTLVTVSS
37	Invention	DVQLVESGGGVVQP GDSLRLSCAASGGTFSTYVMGWF RQAPGKEREFVSAISQNSIHTYYANSVKGRFTISRDN SK NTVYLQLNSLRPEDTALYYCAASRFTSWYTADYEYDY WGQGTLVTVSS
38	Invention	DVQLVESGGGVVQP GGSRLRLSCAASGGTFSTYVMGWF RQAPGKEREFVSAISQNSIHTYYADSVKGRFTISRDN SK NTVYLQLNSLRPEDTALYYCAASRFTSWYTADYEYDY WGQGTLVTVSS
39	Invention	DVQLVESGGGVVQP GGSRLRLSCAASGGTFSTYVMGWF RQAPGKEREFVSAISQNSIHTYYANSVKGRFTISRDN SK NTVY LQMNSLRPEDTALYYCAASRFTSWYTADYEYDY WGQGTLVTVSS
40	Invention	DVQLVESGGGVVQP GGSRLRLSCAASGGTFSTYVMGWF RQAPGKEREFVSAISQNSIHTYYADSVKGRFTISRDN SK NTVY LQMNSLRPEDTALYYCAASRFTSWYTADYEYDY WGQGTLVTVSS
41	Invention	DVQLVESGGGVVQP GGSRLRLSCAASGGTFSTYVMGWF RQAPGKEREFVAAISQNSIHTYYANSVKGRFTISRDN SK NTVYLQLNSLRPEDTALYYCAASRFTSWYTADYEYDY WGQGTLVTVSS
42	Invention	DVQLVESGGGVVQP GGSRLRLSCAASGGTFSTYVMGWF RQAPGKEREFVAAISQNSIHTYYADSVKGRFTISRDN SK NTVYLQLNSLRPEDTALYYCAASRFTSWYTADYEYDY WGQGTLVTVSS
43	Invention	DVQLVESGGGVVQP GGSRLRLSCAASGGTFSTYVMGWF RQAPGKEREFVAAISQNSIHTYYANSVKGRFTISRDN SK NTVY LQMNSLRPEDTALYYCAASRFTSWYTADYEYDY WGQGTLVTVSS
44	Invention	DVQLVESGGGVVQP GGSRLRLSCAASGGTFSTYVMGWF RQAPGKEREFVAAISQNSIHTYYADSVKGRFTISRDN SK NTVY LQMNSLRPEDTALYYCAASRFTSWYTADYEYDY WGQGTLVTVSS

Figure 2 (continued)

SEQ ID NO	Description	Sequence
45	anti-HER2-Nanobody	EVQLVESGGGLVQAGGSLRLSCAASGITFSINTMGWYR QAPGKQRELVALISSIGDTYYADSVKGRFTISRDNKNT VYLQMNSLKPEDTAVYYCKRFRTAAQGTDYWGQGT LTVSS
46	Compound of the invention	DVQLVESGGGLVQAGGSLRLSCAASGITFSINTMGWYR QAPGKQRELVALISSIGDTYYADSVKGRFTISRDNKNT VYLQMNSLKPEDTAVYYCKRFRTAAQGTDYWGQGT LTVSSGGGGSGGGGSGGGGSGGGGSGGGGSGGGGSGG GGSEVQLVESGGGVVQPGDSLRLSCAASGGTFSTYVMG WFRQAPGKEREFVSAISQNSIHTYYANSVKGRFTISRDN SKNTVYLQLNSLRPEDTALYYCAASRFTSWYTADYEYD YWGQGT LTVSSA
47	Compound of the invention	DVQLVESGGGLVQAGGSLRLSCAASGITFSINTMGWYR QAPGKQRELVALISSIGDTYYADSVKGRFTISRDNKNT VYLQMNSLKPEDTAVYYCKRFRTAAQGTDYWGQGT LTVSSGGGGSGGGGSGGGGSEVQLVESGGGVVQPGDS LRLSCAASGGTFSTYVMGWFRQAPGKEREFVSAISQNSI HTYYANSVKGRFTISRDN SKNTVYLQLNSLRPEDTALY YCAASRFTSWYTADYEYDYWGQGT LTVSSA
48	Compound of the invention	DVQLVESGGGVVQPGDSLRLSCAASGGTFSTYVMGWF RQAPGKEREFVSAISQNSIHTYYANSVKGRFTISRDN SK NTVYLQLNSLRPEDTALYYCAASRFTSWYTADYEYDY WGQGT LTVSSGGGGSGGGGSGGGGSEVQLVESGGGL VQAGGSLRLSCAASGITFSINTMGWYRQAPGKQRELVA LISSIGDTYYADSVKGRFTISRDNKNTVYLQMNSLKPE DTAVYYCKRFRTAAQGTDYWGQGT LTVSSA
49	Compound of the invention	DVQLVESGGGVVQPGDSLRLSCAASGGTFSTYVMGWF RQAPGKEREFVSAISQNSIHTYYANSVKGRFTISRDN SK NTVYLQLNSLRPEDTALYYCAASRFTSWYTADYEYDY WGQGT LTVSSGGGGSGGGGSGGGGSGGGGSGGGGSGGGG GGGGSGGGGSEVQLVESGGGLVQAGGSLRLSCAASGIT FSINTMGWYRQAPGKQRELVALISSIGDTYYADSVKGR FTISRDNKNTVYLQMNSLKPEDTAVYYCKRFRTAAQG TDYWGQGT LTVSSA

Figure 2 (continued)

SEQ ID NO	Description	Sequence
50	Compound of the invention	DVQLVESGGGLVQAGGSLRLSCAASGITFSINTMGWYR QAPGKQRELVALISSIGDTYYADSVKGRFTISRDN AKNTVYLQMN SLKPEDTAVYYCKRFRTAAQGTDYWGQGT LTVTVSSGGGGSGGGGSGGGGSGGGGSGGGGSGGGGSGG GGSEVQLVESGGGLVQAGGSLRLSCAASGITFSINTMG WYRQAPGKQRELVALISSIGDTYYADSVKGRFTISRDN AKNTVYLQMN SLKPEDTAVYYCKRFRTAAQGTDYWG QGT LTVTVSSGGGGSGGGGSGGGGSGGGGSGGGGSGGGGSGGG GGGGGGSEVQLVESGGGVVQPGDSLRLSCAASGGTFST YVMGWFRQAPGKEREFVSAISQNSIHTYYANSVKGRFT ISRDN SKNTVYLQNL SLRPEDTALYYCAASRFTSWYTA DYEYDYWGQGT LTVTVSSA
51	Compound of the invention	DVQLVESGGGLVQAGGSLRLSCAASGITFSINTMGWYR QAPGKQRELVALISSIGDTYYADSVKGRFTISRDN AKNTVYLQMN SLKPEDTAVYYCKRFRTAAQGTDYWGQGT LTVTVSSGGGGSGGGGSGGGGSGGGGSGGGGSGGGGSGG GGSEVQLVESGGGVVQPGDSLRLSCAASGGTFSTYVMG WFRQAPGKEREFVSAISQNSIHTYYANSVKGRFTISRDN SKNTVYLQNL SLRPEDTALYYCAASRFTSWYTADYEYD YWGQGT LTVTVSSGGGGSGGGGSGGGGSGGGGSGGGGSGGGG SGGGGSGGGGSEVQLVESGGGLVQAGGSLRLSCAASGI TFSINTMGWYRQAPGKQRELVALISSIGDTYYADSVKG RFTISRDN AKNTVYLQMN SLKPEDTAVYYCKRFRTAAQ GTDYWGQGT LTVTVSSA
52	Compound of the invention	DVQLVESGGGVVQPGDSLRLSCAASGGTFSTYVMGWFR QAPGKEREFVSAISQNSIHTYYANSVKGRFTISRDN SKNTVYLQNL SLRPEDTALYYCAASRFTSWYTADYEYD YWGQGT LTVTVSSGGGGSGGGGSGGGGSGGGGSGGGGSGGGG GGGGSGGGGSEVQLVESGGGLVQAGGSLRLSCAASGIT FSINTMGWYRQAPGKQRELVALISSIGDTYYADSVKGR FTISRDN AKNTVYLQMN SLKPEDTAVYYCKRFRTAAQ GTDYWGQGT LTVTVSSGGGGSGGGGSGGGGSGGGGSGGGGSGGGG GGGGSGGGGSEVQLVESGGGLVQAGGSLRLSCAA SGITFSINTMGWYRQAPGKQRELVALISSIGDTYYADSV KGRFTISRDN AKNTVYLQMN SLKPEDTAVYYCKRFRTAAQ GTDYWGQGT LTVTVSSA

Figure 2 (continued)

SEQ ID NO	Description	Sequence
53	Compound of the invention	DVQLVESGGGVVQPGGSLRLSCAASGRTFSSYAMGWF RQAPGKEREVAAISWSDGSTYYADSVKGRFTISRDN A KNTVYLQMNSLRPEDTALYYCAADLTSTNPGSYIYIWA YDYWGQGTLLTVSSGGGGSGGGGSGGGGSGGGGSGG GSGGGGSGGGGSEVQLVESGGGVVQPGGSLRLSCAA SGRTFSSYAMGWFRQAPGKEREVAAISWSDGSTYYAD SVKGRFTISRDNKNTVYLQMNSLRPEDTALYYCAADL TSTNPGSYIYIWAYDYWGQGTLLTVSSGGGGSGGGGSG GGGSGGGGSGGGGSGGGGSGGGGSEVQLVESGGGVVQ PGGSLRLSCAASGGTFSTYVMGWFRQAPGKEREVSAI SQNSIHTYYANSVKGRFTISRDNKNTVYLQMNSLRPED TALYYCAASRFTSWYTADYEYDYWGQGTLLTVSS

Figure 3A

1	EVQLVESGGG	LVQPGNSLRL	SCAASGGTFS	SFGMSWVRQA	PKGLEWYSS	ISGSGSDTLY	ADSVKGRFTI	SRDNAKTITLY	LOMNSLRPED	TAVYYCTIGG	SLRSS	-----	QGTLY	TVSS	115
2	L	G	R	P	P	QNSIH.Y	N	S.N	L	K	AASR	FT.WYTADYE	YDYWG		115
18	T.D	G	G	TYV.G.F	ER.F.A	QNSIH.Y	N	D.N.V	L	K	AASR	FT.WYTADYE	YDYWG		124
19	V	D	G	TYV.G.F	ER.F.A	QNSIH.Y	N	S.N.V	L	K	AASR	FT.WYTADYE	YDYWG		124

Figure 3B

18	EVQLVESGGG	LVQPGNSLRL	SCAASGGTFS	TYVMGWFRQA	PGKEREFSVA	ISONSHTYY	ANSVKGRFTI	SRDNKNTVY	LOLNSLKPED	TAVYYCAASR	FTSWYTADYE	YDYWGQGTLY	TVSS	124
19	Y	P	G	S	GLW.S	GSGD.L	D	S	R	L	TIGG	SL.RSS		124
1	P.N	F	F	SFG.S.V	GP.W.S	GSGD.L	D	A.T.L	M	R	TIGG	SL.RSS		115
2	L	P.G	F	R	SFG.S.V	GP.W.S	D	S	M	R	TIGG	SL.RSS		115

	20	40	60	80	100	120							
18	EVQLVESGGG	LVQIGDSLR	SCAASGGTFS	TYWNGWFRQA	PKEREFYSA	ISQNSHTYY	ANSVKGRFTI	SRQNDKNTVY	LQNLNKLKPED	TAVVYCAASR	FTSWYATDYE	YDWWQGGTIV	TVSS-124
19	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	S.	R.	L.	L.	L.	-124
20	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	S.	S.	L.	L.	L.	-124
21	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	S.	S.	L.	L.	L.	-124
22	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	S.	M.	R.	L.	L.	-124
23	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	S.	M.	R.	L.	L.	-124
24	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	S.	R.	L.	L.	L.	-124
25	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	S.	M.	R.	L.	L.	-124
26	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	S.	M.	R.	L.	L.	-124
27	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	S.	M.	R.	L.	L.	-124
28	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	S.	R.	L.	L.	L.	A125
29	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	S.	R.	L.	L.	L.	A125
30	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	S.	M.	R.	L.	L.	A125
31	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	S.	M.	R.	L.	L.	A125
32	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	S.	M.	R.	L.	L.	A125
33	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	S.	M.	R.	L.	L.	A125
34	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	S.	M.	R.	L.	L.	A125
35	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	S.	M.	R.	L.	L.	A125
36	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	S.	M.	R.	L.	L.	A125
37	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	S.	R.	L.	L.	L.	-124
38	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	S.	M.	R.	L.	L.	-124
39	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	S.	M.	R.	L.	L.	-124
40	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	S.	M.	R.	L.	L.	-124
41	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	S.	M.	R.	L.	L.	-124
42	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	S.	M.	R.	L.	L.	-124
43	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	S.	M.	R.	L.	L.	-124
44	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	V.P.	S.	M.	R.	L.	L.	-124

Figure 5

Mouse	MKWVTFLLLLFVSGSAFSR---GVFRREA--HKSEIAHRYNDLGEQHFGLVLIAFSQY	54
Rat	MKWVTFLLLLFISGSAFSR---GVFRREA--HKSEIAHRFKDLGEQHFGLVLIAFSQY	54
Dog	MKWVTFISLFFLFSSAYSR---GLVRREA--YKSEIAHRYNDLGEEHFRGLVLVAFSQY	54
Cat	MKWVTFISLLLLFSSAYSR---GVTRREA--HQSEIAHRFNDLGEEHFRGLVLVAFSQY	54
Human	MKWVTFISLLFLFSSAYSR---GVFRDA--HKSEVAHRFKDLGEENFKALVLIAFQAQY	54
Cow	MKWVTFISLLLLFSSAYSR---GVFRDRT--HKSEIAHRFKDLGEEHFKGLVLIAFSQY	54
Sheep	MKWVTFISLLLLFSSAYSR---GVFRDRT--HKSEIAHRFNDLGEENFQGLVLIAFSQY	54
Pig	MKWVTFISLLFLFSSAYSR---GVFRDRT--YKSEIAHRFKDLGEQYFKGLVLIAFSQH	54
Horse	MKWVTFVSLFLFSSAYSR---GVLRRDT--HKSEIAHRFNDLGEKHFKGLVLVAFSQY	54
Rabbit	MKWVTFISLLFLFSSAYSR---GVFRREA--HKSEIAHRFNDVGEEHFIGLVLITFSQY	54

Mouse	LQKCSYDEHAKLVQEVTDFAKTCVADESAANCDKSLHTLFGDKLCAIPNLRENYGELADC	114
Rat	LQKCPYEEHIKLVQEVTDFAKTCVADENAENCDKSIHTLFGDKLCAIPKLRDNYGELADC	114
Dog	LQQCPFEDHVKLAKVTEFAKACAAEESGANCDKSLHTLFGDKLCTVASLRDKYGDMADC	114
Cat	LQQCPFEDHVKLVNEVTEFAKGCVADQSAANCEKSLHELLGDKLCTVASLRDKYGEADC	114
Human	LQQCPFEDHVKLVNEVTEFAKTCVADESAENCDKSLHTLFGDKLCTVATLRETYGEADC	114
Cow	LQQCPFDEHVKLVNEVTEFAKTCVADESHAGCEKSLHTLFGDELCKVASLRETYGDMADC	114
Sheep	LQQCPFDEHVKLVKELTEFAKTCVADESHAGCDKSLHTLFGDELCKVATLRETYGDMADC	114
Pig	LQQCPYEEHVKLVRVTEFAKTCVADESAENCDKSIHTLFGDKLCAIPSLREHYGDLADC	114
Horse	LQQCPFEDHVKLVNEVTEFAKKCAADESAENCDKSLHTLFGDKLCTVATLRATYGEADC	114
Rabbit	LQKCPYEEHAKLVKEVTDLAKACVADESAANCDKSLHDI FGDKICALPSLRDITYGDVADC	114

Mouse	CTKQEPERNECFLQHKDDNPSP-LP-PFERPEAEAMCTSFKENPTTFMGHYLHEVARRHPYF	173
Rat	CAKQEPERNECFLQHKDDNPSP-LP-PFQPEAEAMCTSFQENPTSFGLHYLHEVARRHPYF	173
Dog	CEKQEPDRNECFLAHKDDNPGFP-PLVAPEPDALCAAFQDNEQLFLGKLYEIAARRHPYF	173
Cat	CEKKEPERNECFLQHKDDNPGFG-QLVTPEADAMCTAFHENEQRFLGKLYEIAARRHPYF	173
Human	CAKQEPERNECFLQHKDDNPSP-LP-RLVRPEVDVMCTAFHDNEETFLKLYEIAARRHPYF	173
Cow	CEKQEPERNECFLSHKDDSPDLP-CLK-PDPNTLCDEFKADEKKFWGKLYEIAARRHPYF	172
Sheep	CEKQEPERNECFLNHKDDSPDLP-CLK-PEPDTLCAEFKADEKKFWGKLYEIVARRHPYF	172
Pig	CEKEEPERNECFLQHKNDNPDI-P-CLK-PDPVALCADFQEDQKFWGKLYEIAARRHPYF	172
Horse	CEKQEPERNECFLTHKDDHPSP-LP-CLK-PEPDAQCAAFQEDPDKFLGKLYEIVARRHPYF	172
Rabbit	CEKKEPERNECFLHHKDDKPDLP-PFARPEADVLCFAFHDDDEKAFFGHYLHEVARRHPYF	173

Mouse	YAPELLYYAEQYNEILTQCCAEADKESCLTPKLDGVKEKALVSSVRQRMKCSSMQKFGER	233
Rat	YAPELLYYAEKYNEVLTQCCTESDKAACLTTPKLDVKEKALVAVRQRMKCSSMQRFGER	233
Dog	YAPELLYYAQQYKGVFAECCQAADKAACLGPKIEALREKVLLSSAKERFKCASLQKFGDR	233
Cat	YAPELLYYAEYKGVFTECCQAADKAACLTTPKVDALREKVLASSAKERLKCASLQKFGDR	233
Human	YAPELLFFAKRYKAAFTECCQAADKAACLLPKLDELDEGKASSAQRLKCASLQKFGGER	233
Cow	YAPELLYYANKYNGVFQECQAEDKGACLLPKIETMREKVLTSSARQRLRCASIQKFGGER	232
Sheep	YAPELLYYANKYNGVFQECQAEDKGACLLPKIDAMREKVLASSARQRLRCASIQKFGGER	232
Pig	YAPELLYYAIYKDVSECCQAADKAACLLPKIEHLREKVLTSAKQRLKCAISIQKFGGER	232
Horse	YGPPELLFHAEYKADFTECCPADDKLACLIPKLDALKERILLSSAKERLKCSSFQNFGER	232
Rabbit	YAPELLYYAQYKAILTECCQAADKGACLTTPKLDALLEGKSLISAAQERLRCASIQKFGDR	233

Mouse	AFKAWAVARLSQTFPNADFAEITKLATDLTKVNKECCHGDLLECADDRAELAKYMCENQA	293
Rat	AFKAWAVARMSQRFPNADFAEITKLATDLTKINKECCHGDLLECADDRAELAKYMCENQA	293
Dog	AFKAWSVARLSQRFPKADFAEISKVVTDLTKVHKECCHGDLLECADDRAELAKYMCENQD	293
Cat	AFKAWSVARLSQKFPKAEFAEISKLVTDLAKIHKECCHGDLLECADDRAELAKYICENQD	293
Human	AFKAWAVARLSQRFPKAEFAEVSKLVTDLTKVHTECCHGDLLECADDRAELAKYICENQD	293
Cow	ALKAWSVARLSQKFPKAEFVEVTKLVTDLTKVHKECCHGDLLECADDRAELAKYICDNQD	292
Sheep	ALKAWSVARLSQKFPKADFDTVTIKIVTDLTKVHKECCHGDLLECADDRAELAKYICDHQD	292
Pig	AFKAWSLARLSQRFPKADFTEISKIVTDLAKVHKECCHGDLLECADDRAELAKYICENQD	292
Horse	AVKAWSVARLSQKFPKADFESKIVTDLTKVHKECCHGDLLECADDRAELAKYICEHQD	292
Rabbit	AYKAWALVRLSQRFPKADFDTISKIVTDLTKVHKECCHGDLLECADDRAELAKYMCEHQE	293

Figure 5 (continued)

Mouse	TISSKLQTCDDKPLLKKAHCLSEVEHDTMPADLPAIAADFVEDQEVCKNYAEAKDVFLGT	353
Rat	TISSKLQACCDKPVLEKSQCLAEIEHDNI PADLPSIAADFVEDKEVCKNYAEAKDVFLGT	353
Dog	SISTKLKECCDKPVLEKSQCLAEVERDELPGDLPSLAADFVEDKEVCKNYQEAKDVFLGT	353
Cat	SISTKLKECCGKPVLEKSHCISEVERDEL PADLPPLAVDFVEDKEVCKNYQEAKDVFLGT	353
Human	SISSKLKECCEKPLLEKSHCIAEVENDEMPADLPSLAADFVESKDVCKNYAEAKDVFLGM	353
Cow	TISSKLKECCDKPLLEKSHCIAEVEKDAIPENLPPLTADFAEDKDVCKNYQEAKDAFLGS	352
Sheep	ALSSKLKECCDKPVLEKSHCIAEVDKDAVPENLPPLTADFAEDKEVCKNYQEAKDVFLGS	352
Pig	TISTKLKECCDKPLLEKSHCIAEAKRDEL PADLNPLEHDFVEDKEVCKNYEAKHVFLGT	352
Horse	SISGKLKACCDKPLLQKSHCIAEVKEDDLPSDLPALAADFAEDKEICKHYKDAKDVFLGT	352
Rabbit	TISSHLKECCDKPILEKAHCIIYGLHNDET PAGLPAVAEEFVEDKDVCKNYEEAKDLFLGK	353

Mouse	FLYEYSRRHPDYSVSLLLRLAKKYEATLEKCCAEANPPACYGTVLAEFQPLVEEPKNLVK	413
Rat	FLYEYSRRHPDYSVSLLLRLAKKYEATLEKCCAEGDPPACYGTVLAEFQPLVEEPKNLVK	413
Dog	FLYEYARRHPEYSVSLLLRLAKEYEATLEKCCATDDPPTCYAKVLDEFKPLVDEPQNLVK	413
Cat	FLYEYSRRHPEYSVSLLLRLAKEYEATLEKCCATDDPPACYAHVFDEFKPLVEEPHNLVK	413
Human	FLYEYARRHPDYSVLLRLAKTYETTLEKCCAAADPHECYAKVFDEFKPLVEEPQNLIK	413
Cow	FLYEYSRRHPEYAVSVLLRLAKEYEATLEECCKADDPHACYSTVFDKCLKHLVDEPQNLIK	412
Sheep	FLYEYSRRHPEYAVSVLLRLAKEYEATLEDCCAKEDPHACYATVFDKCLKHLVDEPQNLIK	412
Pig	FLYEYSRRHPDYSVSLLLRIAKIYEATLEDCCAKEDPPACYATVFDKQPLVDEPKNLIK	412
Horse	FLYEYSRRHPDYSVSLLLRIAKTYEATLEKCCAEADPPACYRTVFDQFTPLVEEPKSLVK	412
Rabbit	FLYEYSRRHPDYSVLLRLGKAYEATLKKCCATDDPHACYAKVLDEFQPLVDEPKNLVK	413

Mouse	TNCDLYEKLGEYGFQNAIILVRYTQKAPQVSTPTLVEAARNLGRVGT KCCTLPEDQRLPCV	473
Rat	TNCELYEKLGEYGFQNAIILVRYTQKAPQVSTPTLVEAARNLGRVGT KCCTLPEAQRLPCV	473
Dog	TNCELFEKLGEYGFQNALLVRYTKKAPQVSTPTLVEVSRKLGKVGTKCCKKPESERMSCA	473
Cat	TNCELFEKLGEYGFQNALLVRYTKKVPQVSTPTLVEVSRSLGKVGSKCCTHPEAERLSCA	473
Human	QNCLEFEKLGEYKFQNALLVRYTKKVPQVSTPTLVEVSRNLGKVGSKCCKHPEAKRMPCA	473
Cow	QNCDDQFEKLGEYGFQNALIVRYTRKVPQVSTPTLVEVSRSLGKVGTRCCTKPESERMPCT	472
Sheep	KNCLEFEKHGEYGFQNALIVRYTRKAPQVSTPTLVEISRS LGKVGTKCCAKPESERMPCT	472
Pig	QNCLEFEKLGEYGFQNALIVRYTKKVPQVSTPTLVEVARKLGLVGSRCCKRPEEERLSCA	472
Horse	KNCDLFEEVGEYDFQNALIVRYTKKAPQVSTPTLVEIGRTL GKVGSRCCCKLPESERLPCS	472
Rabbit	QNCLELYEQLGDYNFQNALLVRYTKKVPQVSTPTLVEISRS LGKVGSKCCKHPEAERLPCV	473

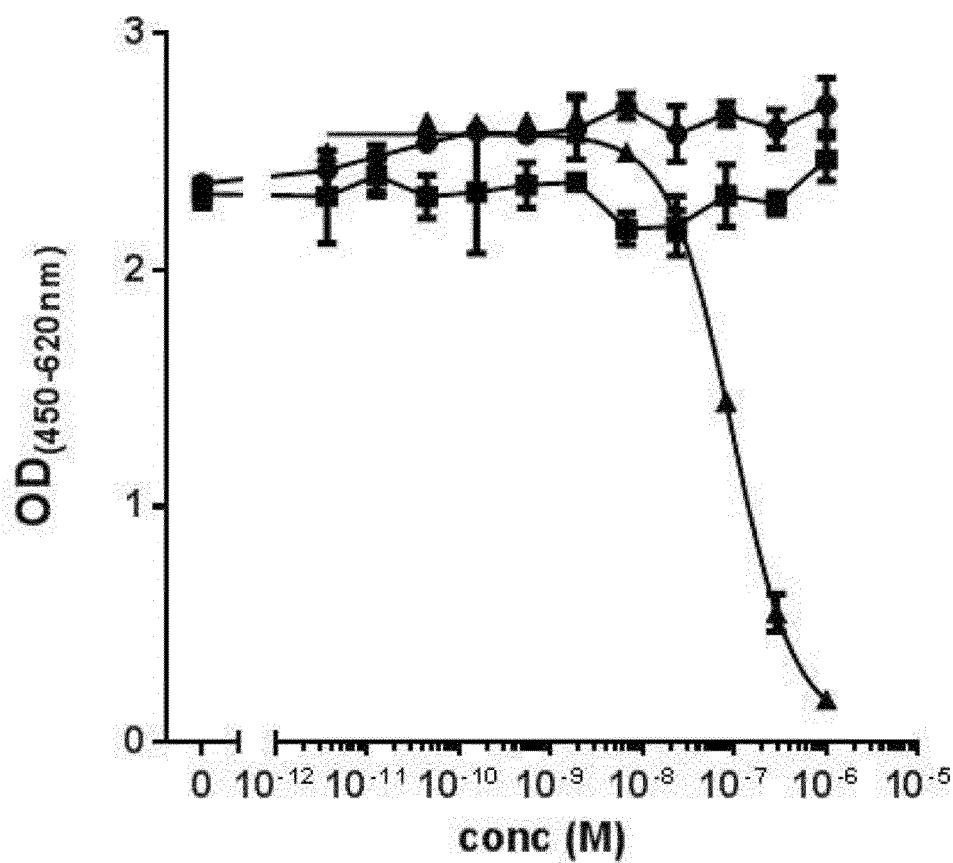
Mouse	EDYLSAILNRVCLLHEKTPVSEHVTKCCSGSLVERRPCFSALTVDETYVPKEFKAETFTF	533
Rat	EDYLSAILNRLCVLHEKTPVSEKVT KCSSGSLVERRPCFSALTVDETYVPKEFKAETFTF	533
Dog	EDFLSVVLNRLCVLHEKTPVSEKVT KCCTESLVNRRPCFSALQVDETYVPKEFKAETFTF	533
Cat	EDYLSVVLNRLCVLHEKTPVSEKVT KCCTESLVNRRPCFSALQVDETYVPKEFKAETFTF	533
Human	EDYLSVVLNQLCVLHEKTPVSDRVTKCTESLVNRRPCFSALQVDETYVPKEFKAETFTF	533
Cow	EDYLSLILNRLCVLHEKTPVSEKVT KCCTESLVNRRPCFSALTVDETYVPKAFDEKLFTF	532
Sheep	EDYLSLILNRLCVLHEKTPVSEKVT KCCTESLVNRRPCFSDLTLDETYVPKPFDEKFTF	532
Pig	EDYLSLVLNRLCVLHEKTPVSEKVT KCCTESLVNRRPCFSALTVDETYVPKPFVEGTFTF	532
Horse	ENHLALALNRLCVLHEKTPVSEKIT KCCTDSLAEERRPCFSALDELDEGYVPKEFKAETFTF	532
Rabbit	EDYLSVVLNRLCVLHEKTPVSEKVT KCCTESLVDRRPCFSALGPDETYVPKEFKAETFTF	533

Mouse	HSDICTLPEKEKQIKKQTALAELVKHKPKATAEQLKTVMD DFAQFLDTCCKAADKDT CFS	593
Rat	HSDICTLPDKEKQIKKQTALAELVKHKPKATEDQLKTVMG DFAQFVDKCCAADKDNCF	593
Dog	HADLCTLPEAEKQVKKQTALVELLKHKPKATDEQLKTVMG DFAFVEKCCAAENKEGCFS	593
Cat	HADLCTLPEAEKQIKKQSALVELLKHKPKATDEQLKTVMG DFGSFVDKCCAADKEACFA	593
Human	HADICTLSEKERQIKKQTALVELVKHKPKATKEQLKAVMD DFAFVEKCCKADDKETCFA	593
Cow	HADICTLPDTEKQIKKQTALVELLKHKPKATDEQLKTVME NFVAFVDKCCAADDEACFA	592
Sheep	HADICTLPDTEKQIKKQTALVELLKHKPKATDEQLKTVME NFVAFVDKCCAADDEACFA	592
Pig	HADLCTLPEDEKQIKKQTALVELLKHKPKATDEQLKTVLGN FAFVQKCCAPDHEACFA	592
Horse	HADICTLPDEKQIKKQSALAELVKHKPKATKEQLKTVLGN FAFVAKCCREDKEACFA	592
Rabbit	HADICTLPETERKIKKQTALVELVKHKPHATNDQLKTVVG EFTALLDKCCSAEDKEACFA	593

Figure 5 (continued)

Mouse	TEGPNLVTRCKDTLA---	608
Rat	TEGPNLVARSKAALA---	608
Dog	EEGPKLVAAAQAALV---	608
Cat	EEGPKLVAAAQAALA---	608
Human	EEGKKLVAASQAALGL--	609
Cow	VEGPKLVVSTQTALA---	607
Sheep	LEGPKLVASTQAALA---	607
Pig	VEGPKFVIEIRGILA---	607
Horse	EEGPKLVASSQLALA---	607
Rabbit	VEGPKLVESKATLG---	608

Figure 6



▲ = His6Flag3-SEQ ID NO:1

■ = Flag3His6- SEQ ID NO:19

● = cAbllys3-Flag3His6 ()

Figure 7

