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			▼ V _H		*		
CaIgG-A	MESVFCWVFL	VVILKGVQGE	VQLVESGGDL	VKPSGSLRLS	CVASGFTFSS	50	
CaIgG-B	---LF---	-T-----	-R-----T-	-----K--	-----RR	50	
CaIgG-C	---LY---	-A-----D	-----	-----	-----	50	
CaIgG-D	---L---	-S-----	-----	-----	-----D	50	
CaIgG-A	YYMHWIRQAP	QKGLQRVVAHI	RGDGRTHHYA	DAMKGRFTIS	RDNAKNTLYL	100	
CaIgG-B	-S-D-V---	-S---W---G-	N---TG-S-S	QTV---	-----	100	
CaIgG-C	CA-S-V---	---P-W---T-	-Y---SDIY--	-----S--	-----V--	100	
CaIgG-D	-G-S-V---	---W---AV	SNR- D-Y--	-----	-----	100	
				▼ C _{H1}			
CaIgG-A	QMNSLTVENT	AIYCYVKDI	YYGVG D	YWGQGTLLTV	SSASTTAPSV	150	
CaIgG-B	-I---RA---	-V---A-S W	SENG DL-	-----	-----	150	
CaIgG-C	---RA---	-V---A-A P	PYDS-HY-M-	---P--SLF-	-----	150	
CaIgG-D	--S--KA---	-I-H-VTGVW	PRH---M -	H--N--SLF-	-----	150	
CaIgG-A	FPLAPSCGST	SGSTVALACL	VSGYPPEPVT	VSWNSGSLTS	GVNTFPFVLQ	200	
CaIgG-B	-----	-----	-----	-----	-----	200	
CaIgG-C	-----Q	-----	---I-----	---V-----	-----	200	
CaIgG-D	-----	-----	-----	-----	-----	200	
CaIgG-A	SSGLHSLSSM	VTVPSSRWPS	ETFTCNVVHP	ASNTKVDKPV	FNECRCTDT	250	
CaIgG-B	---Y-----	-----	-----A--	P-K-----	PKRENGEVFR	250	
CaIgG-C	---Y-----	-----	-----A--	-T-----	AK--E-KC N	250	
CaIgG-D	---Y---T	-----	-----	-----	PK-ST-KCI	250	
		▼ C _{H2}		*			
CaIgG-A	FPCPVP	EPLGGPSVLI	FPPKPKDILR	ITRTPEVTCV	VLDLGREDPE	300	
CaIgG-B	PPDC-K--A-	-M-----F-	-----TLL	-A-----	-V--DP----	300	
CaIgG-C	CNNC- --GC	GL-----F-	-----V	TA---T----	-V--DP-N--	300	
CaIgG-D	SP----	ES-----F-	-----	-----I--	-----	300	
CaIgG-A	VQISWFDGK	EVHTAKTQSR	EQQNGTYRV	VSVLPIDHQD	WLTGKEFKCR	350	
CaIgG-B	-----	QMQ-----P-	-E-----	-----G--	--K--Q-T-K	350	
CaIgG-C	-----S-	Q-Q--N--P-	-E-S-----	-----G--	--S--Q--K	350	
CaIgG-D	-----	-----P-	-----S-	-----	-----	350	
		▼ C _{H3}		*			
CaIgG-A	VNHIDLPSPF	ERTISKARGE	AHKPSVYVLP	PSPKELSSSD	TVSITCLIKD	400	
CaIgG-B	--NKA-----	-----Q	--Q-----	--RE--K N	---L-----	400	
CaIgG-C	--NKA-----	-EI---TP-Q	--Q-N-----	--RD-M-K N	--TL---V--	400	
CaIgG-D	---G-----	-----Q	--Q-----	-----	--TL-----	400	
CaIgG-A	FYPFDIDVEW	QSNQOEPPER	KHRMTTPQLD	EDGSYFLYSK	LSVDKSRWQQ	450	
CaIgG-B	-F-----	-----S	-Y-T-----	-----	-----R	450	
CaIgG-C	-F--E-----	-----S	-Y-M-----	-----	-----R	450	
CaIgG-D	-F--E-----	-----F--S	-YHT-A----	-----	-----	450	
CaIgG-A	GDPPTCAVMH	ETLQNHYTDL	SLSHSPGK			500	
CaIgG-B	--T-I-----	-A-H----QE	-----			500	
CaIgG-C	--T-I-----	-A-H----QI	-----			500	
CaIgG-D	--T-----	-A-----	-----			500	

FIG. 1

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Canine. IgG.A	GPSVLIFPPKPKDIL <u>TRTR</u> PEVTCVVDLGLREDPEVQISWFDGKEVHT
Canine. IgG.D	GPSVFIFFPPKPKDIL <u>TRTR</u> PEITCVVDLGLREDPEVQISWFDGKEVHT
Canine. IgG.B	GPSVFIFFPPKPKDTLLIARTPEVTCVVDLDPEDPEVQISWFDGKQMQT
canine. IgG.C	GPSVFIFFPPKPKDIL <u>VTARTPT</u> VCVVDLDPENPEVQISWFDGSKQVQT
	:** * :*** :***:***. *:***** **.:**:
Canine. IgG.A	AKTQSREQQFNSTYRVVSVLP <u>IEHQDW</u> LTGKEFKCRVNHIDLPSPERTISKAR
Canine. IgG.D	AKTQPREQQFNSTYRVVSVLP <u>IEHQDW</u> LTGKEFKCRVNHIGLSPERTISKAR
Canine. IgG.B	AKTQPREEQFNSTYRVVSVLP <u>IGHQDW</u> LKGKQFTCKVNNKALPSPERTISKAR
Canine. IgG.C	ANTQPREEQSNSTYRVVSVLP <u>IGHQDW</u> LSGKQFKCKVNNKALPSPIEEII SKTP
	*:***.***: * .***** ** * :***:***. *****. ***:

FIG. 2

[illegible]

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Canine. IgG. A GSYFLYSKLSVDKSRWQQGDPFTCAVMHETLQNHYTDLSLSHSPGK
Canine. IgG. D GSYFLYSKLSVDKSRWQQGDTFTCAVMHEALQNHYTDLSLSHSPGK
Canine. IgG. B GSYFLYSKLSVDKSRWQRGDTFTCAVMHEALHNHYTQESLSHSPGK
Canine. IgG. C GSYFLYSKLSVDKSRWQRGDTFTCAVMHEALHNHYTQISLSHSPGK

Canine. IgG.A	VPEPLGGPSVLIFFPPKPKDILRI <u>TRTPEVTCVVDL</u> GREDP <u>EVQISWFVDGKEVHT</u>
Canine. IgG.D	VPESLGGPSVFIFFPPKPKDILRI <u>TRTPEITCVVDL</u> GREDP <u>EVQISWFVDGKEVHT</u>
Canine. IgG.B	APEMLGGPSVFIFFPPKPKD <u>TLLIARTPEVTCVVDL</u> DPED <u>EVQISWFVDGKQMQT</u>
Canine. IgG.C	GCGLLGGPSVFIFFPPKPKDILV <u>TARTTPTVTCVVDL</u> DPEN <u>EVQISWFVDSKQVQT</u>
	*****;***** * :*** :****;***. *;*****;*****.***;*
Canine. IgG.A	AKTQREQQFNGTYRVVSVLP <u>IEHQDWLTGKEFKCRVNHIDLP</u> SP <u>IER</u> TISKARGRAHKP
Canine. IgG.D	AKTQPREQQFNSTYRVVSVLP <u>IEHQDWLTGKEFKCRVNHIGL</u> PS <u>PIERT</u> ISKARGQAHQP
Canine. IgG.B	AKTQPREEQFNGTYRVVSVLP <u>IGHQDWLKGKQFTCKVNNKALP</u> SP <u>IER</u> TISKARGQAHQP
Canine. IgG.C	ANTQPREEQSNGTYRVVSVLP <u>IGHQDWLSGKQFKCKVNNKALP</u> SP <u>IEEI</u> ISKTPGQAHQP
	*;***.*** * .***** ***** *****.***;***: *****.***: *;***;*
Canine. IgG.A	SVYVLPSPKELSSSDTVSITCLIKDEYPPDID <u>VEWQ</u> SN <u>GQ</u> EP <u>ERK</u> HRMTPPQLDE <u>DGS</u>
Canine. IgG.D	SVYVLPSPKELSSSDTVTLTCLIKDFFPPEID <u>VEWQ</u> SN <u>GQ</u> EP <u>ESKY</u> HTTAPQLDE <u>DGS</u>
Canine. IgG.B	SVYVLPSPSREEL-SKNTVSLTCLIKDFFPPEID <u>VEWQ</u> SN <u>GQ</u> EP <u>ESKY</u> RTTTPPQLDE <u>DGS</u>
Canine. IgG.C	NVYVLPSPSRDEM-SKNTVTLTCLVKDFFPPEID <u>VEWQ</u> SN <u>GQ</u> EP <u>ESKY</u> RMTPPQLDE <u>DGS</u>
	.***** .*: *;***;****;***;****;***** ***** *;*: *;*****
Canine. IgG.A	YFLYSKLSVDKSRWQQGDPFTCAVMHETL <u>QNH</u> YTDLSLSHSPGK
Canine. IgG.D	YFLYSKLSVDKSRWQQGDTFTCAVMHEAL <u>QNH</u> YTDLSLSHSPGK
Canine. IgG.B	YFLYSKLSVDKSRWQRGDTFICAVMHEAL <u>HNHY</u> TQESLSHSPGK
Canine. IgG.C	YFLYSKLSVDKSRWQRGDTFICAVMHEAL <u>HNHY</u> TIQLSLSHSPGK
	*****;*****;***. * *****;*: *;****; *****; *****

FIG. 4

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CH2 DOMAIN							
	EU	hlgG1	clgG.A	clgG.B	clgG.C	clgG.D	SM
A-strand	237	G	G	G	G	G	
	238	P	P	P	P	P	
	239	S	S	S	S	S	
	240	V	V	V	V	V	
	241	F	L	F	F	F	
	242	L	I	I	I	I	
	243	F	F	F	F	F	
	244	P	P	P	P	P	
	245	P	P	P	P	P	
	246	K	K	K	K	K	
	247	P	P	P	P	P	
	248	K	K	K	K	K	
	249	D	D	D	D	D	
	250	T	I	T	I	I	E or Q
	251	L	L	L	L	L	D or E
AB-turn	252	M	R	L	V	R	Y
	253	I	I	I	T	I	
B-strand	254	S	T	A	A	T	T
	255	R	R	R	R	R	
	256	T	T	T	T	T	D, E, or F
	257	P	P	P	P	P	
	258	E	E	E	T	E	
	259	V	V	V	V	I	
	260	T	T	T	T	T	
	261	C	C	C	C	C	
	262	V	V	V	V	V	
	263	V	V	V	V	V	
	264	V	L	V	V	L	
BC-loop	265	D	D	D	D	D	
	266	V	L	L	L	L	
	267	S	G	D	D	G	
	268	H	R	P	P	R	
	269	E	E	E	E	E	
	270	D	D	D	N	D	
	271	P	P	P	P	P	
	272	E	E	E	E	E	
	273	V	V	V	V	V	

FIG. 5

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	274	K	Q	Q	Q	Q	
C-strand	275	F	I	I	I	I	
	276	N	S	S	S	S	
	277	W	W	W	W	W	
	278	Y	F	F	F	F	
	279	V	V	V	V	V	
	280	D	D	D	D	D	
	281	G	G	G	S	G	
CD-loop	282	V	K	K	K	K	
	283	E	E	Q	Q	E	
	284	V	V	M	V	V	
	285	H	H	Q	Q	H	N,D
	-	-	-	-	-	-	
	-	-	-	-	-	-	
	-	-	-	-	-	-	
D-strand	286	N	T	T	T	T	D
	287	A	A	A	A	A	
	288	K	K	K	N	K	
	289	T	T	T	T	T	
	290	K	Q	Q	Q	Q	
	291	P	S	P	P	P	
	292	R	R	R	R	R	
	293	E	E	E	E	E	
DE-turn	294	E	Q	E	E	Q	
	295	Q	Q	Q	Q	Q	
	296	Y	F	F	S	F	
	297	N	N	N	N	N	
	298	S	G	G	G	S	
	299	T	T	T	T	T	
	300	Y	Y	Y	Y	Y	
	301	R	R	R	R	R	
E-strand	302	V	V	V	V	V	
	303	V	V	V	V	V	
	304	S	S	S	S	S	
	305	V	V	V	V	V	
	306	L	L	L	L	L	
	307	T	P	P	P	P	R,Q,A
	308	V	I	I	I	I	P
	309	L	E	G	G	E	P
	310	H	H	H	H	H	
	311	Q	Q	Q	Q	Q	V

FIG. 5 (CONT)

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	312	D	D	D	D	D	
	313	W	W	W	W	W	
EF-turn	-	-	-	-	-	-	
	-	-	-	-	-	-	
F-strand	314	L	L	L	L	L	
	315	N	T	K	S	T	D
	316	G	G	G	G	G	
	317	K	K	K	K	K	
	318	E	E	Q	Q	E	
	319	Y	F	F	F	F	
	320	K	K	T	K	K	
	321	C	C	C	C	C	
FG-loop	322	K	R	K	K	R	
	323	V	V	V	V	V	
	324	S	N	N	N	N	
	325	N	H	N	N	H	
	326	K	I	K	K	I	
	327	A	D	A	A	G	
	-	-	-	-	-	-	
	328	L	L	L	L	L	
	329	P	P	P	P	P	
	330	A	S	S	S	S	
	331	P	P	P	P	P	
	332	I	I	I	I	I	
G-strand	333	E	E	E	E	E	
	334	K	R	R	E	R	
	335	T	T	T	I	T	
	336	I	I	I	I	I	
	337	S	S	S	S	S	
	338	K	K	K	K	K	
	339	A	A	A	T	A	
	340	K	R	R	P	R	

hIgG1 = human IgG1; clgGA = canine IgG.A; clgGB = canine IgG.B; clgGC = canine IgG.C; clgGD = canine IgG.D; SM= mutations that can extent antibody half-life

FIG. 5 (CONT)

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CH3 DOMAIN							
	EU	hlgG1	clgG.A	clgG.B	clgG.C	clgG.D	SM
A-strand	345	E	K	Q	Q	Q	
	346	P	P	P	P	P	
	347	Q	S	S	N	S	
	348	V	V	V	V	V	
	349	Y	Y	Y	Y	Y	
	350	T	V	V	V	V	
	351	L	L	L	L	L	
	352	P	P	P	P	P	
	353	P	P	P	P	P	
	354	S	S	S	S	S	
	355	R	P	R	R	P	
	356	D	K	E	D	K	
	357	E	E	E	E	E	
	358	L	L	L	M	L	
	359	T	S	S	S	S	
AB-turn	-	-	-	-	-	-	
	-	-	S	-	-	S	
B-strand	360	K	S	K	K	S	
	361	N	D	N	N	D	
	362	Q	T	T	T	T	
	363	V	V	V	V	V	
	364	S	S	S	T	T	
	365	L	I	L	L	L	
	366	T	T	T	T	T	
	367	C	C	C	C	C	
	368	L	L	L	L	L	
	369	V	I	I	V	I	
	370	K	K	K	K	K	
BC-loop	371	G	D	D	D	D	
	372	F	F	F	F	F	
	373	Y	Y	F	F	F	
	374	P	P	P	P	P	
	-	-	-	-	-	-	
	-	-	-	-	-	-	
	375	S	P	P	P	P	
	376	D	D	D	E	E	
	377	I	I	I	I	I	

FIG. 6

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	378	A	D	D	D	D	V
C-strand	379	V	V	V	V	V	
	380	E	E	E	E	E	A
	381	W	W	W	W	W	
	382	E	Q	Q	Q	Q	
	383	S	S	S	S	S	
	384	N	N	N	N	N	
	385	G	G	G	G	G	
CD-loop	386	Q	Q	Q	Q	Q	
	387	P	Q	Q	Q	P	
	388	E	E	E	E	E	
	389	N	P	P	P	P	
	-	-	E	E	E	E	
	-	-	R	S	S	S	
D-strand	390	N	K	K	K	K	
	391	Y	H	Y	Y	Y	
	392	K	R	R	R	H	
	393	T	M	T	M	T	
	394	T	T	T	T	T	
	395	P	P	P	P	A	
	396	P	P	P	P	P	
	397	V	Q	Q	Q	Q	
DE-turn	398	L	L	L	L	L	
	399	D	D	D	D	D	
	400	S	E	E	E	E	
	401	D	D	D	D	D	
	402	G	G	G	G	G	
	403	S	S	S	S	S	
	404	F	Y	Y	Y	Y	
	405	F	F	F	F	F	
E-strand	406	L	L	L	L	L	
	407	Y	Y	Y	Y	Y	
	408	S	S	S	S	S	
	409	K	K	K	K	K	
	410	L	L	L	L	L	
	411	T	S	S	S	S	
	412	V	V	V	V	V	
	413	D	D	D	D	D	
	414	K	K	K	K	K	
	415	S	S	S	S	S	

FIG. 6 (CONT)

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	416	R	R	R	R	R	
	417	W	W	W	W	W	
EF-turn	-	-	-	-	-	-	
	-	-	-	-	-	-	
F-strand	418	Q	Q	Q	Q	Q	
	419	Q	Q	R	R	Q	
	420	G	G	G	G	G	
	421	N	D	D	D	D	
	422	V	P	T	T	T	
	423	F	F	F	F	F	
	424	S	T	I	I	T	
	425	C	C	C	C	C	
FG-loop	426	S	A	A	A	A	
	427	V	V	V	V	V	
	428	M	M	M	M	M	L
	429	H	H	H	H	H	
	430	E	E	E	E	E	A, K
	431	A	T	A	A	A	
	432	L	L	L	L	L	
	433	H	Q	H	H	Q	K
	434	N	N	N	N	N	S, A, F
	435	H	H	H	H	H	Y
	436	Y	Y	Y	Y	Y	H
	437	T	T	T	T	T	
G-strand	438	Q	D	Q	Q	D	
	439	K	L	E	I	L	
	440	S	S	S	S	S	
	441	L	L	L	L	L	
	442	S	S	S	S	S	
	443	L	H	H	H	H	
	444	S	S	S	S	S	
	445	P	P	P	P	P	
tail	446	G	G	G	G	G	
	447	K	K	K	K	K	

hlgG1 = human IgG1; clgGA = canine IgG.A; clgGB = canine IgG.B; clgGC = canine IgG.C; clgGD = canine IgG.D; SM= mutations that can extent antibody half-life

FIG. 6 CONT)

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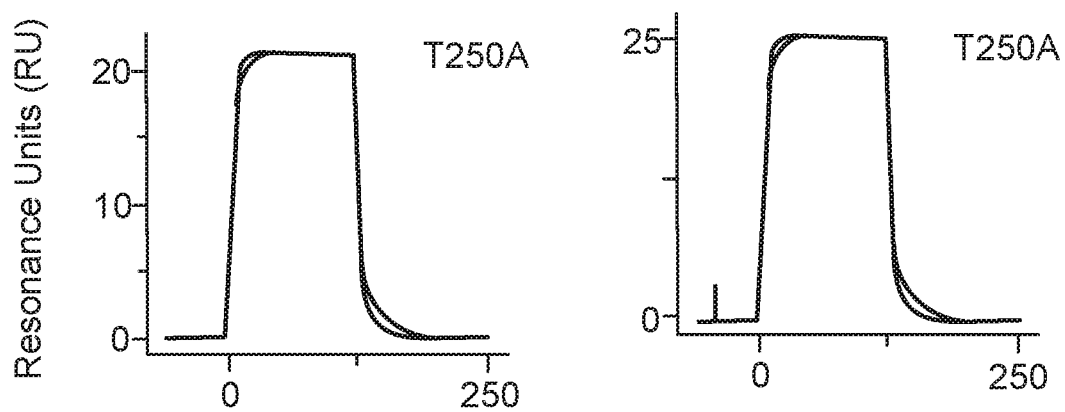


FIG. 7A

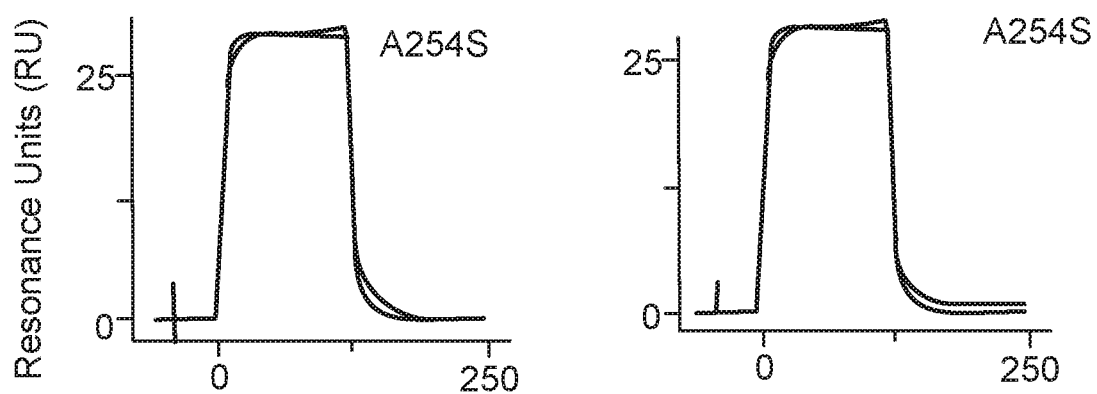


FIG. 7B

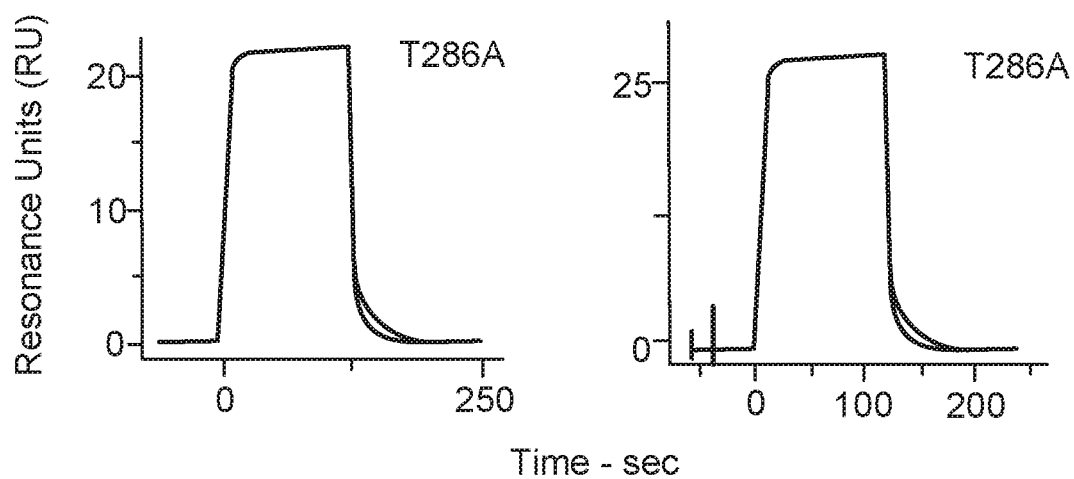


FIG. 7C

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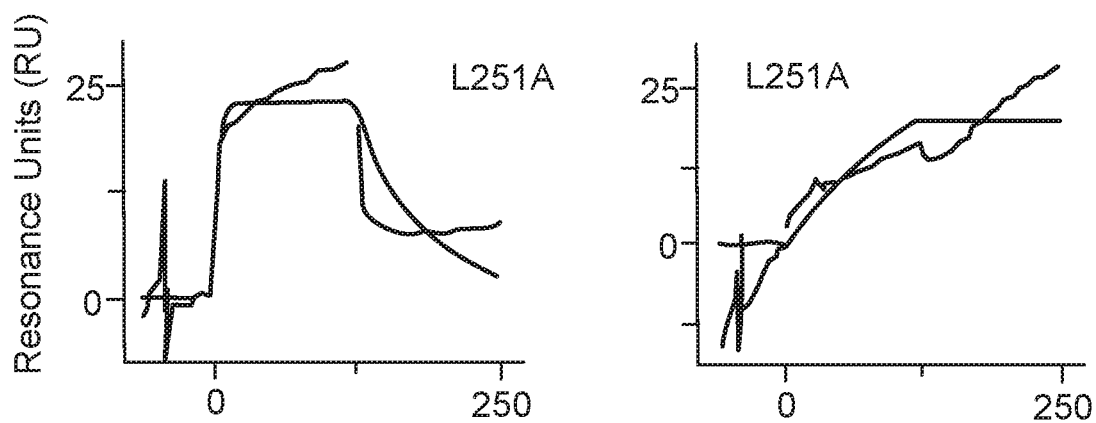


FIG. 7D

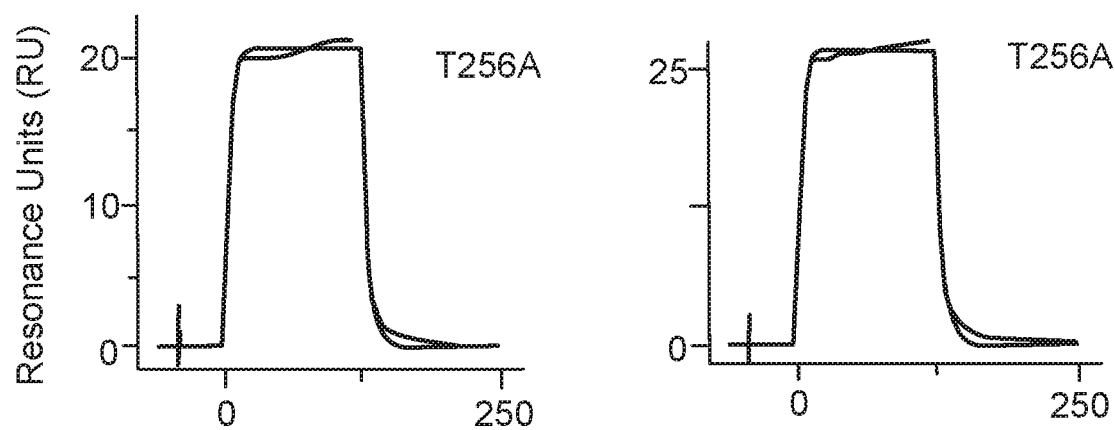


FIG. 7E

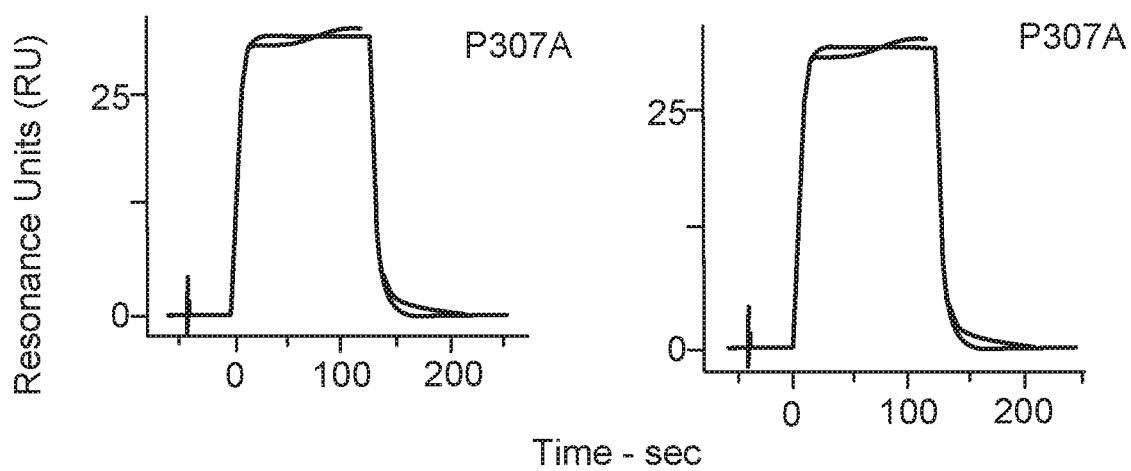


FIG. 7F

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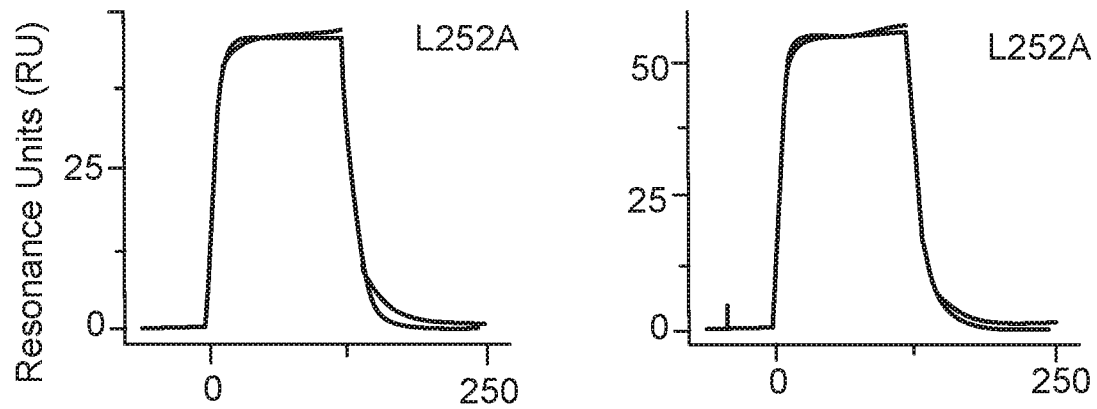


FIG. 7G

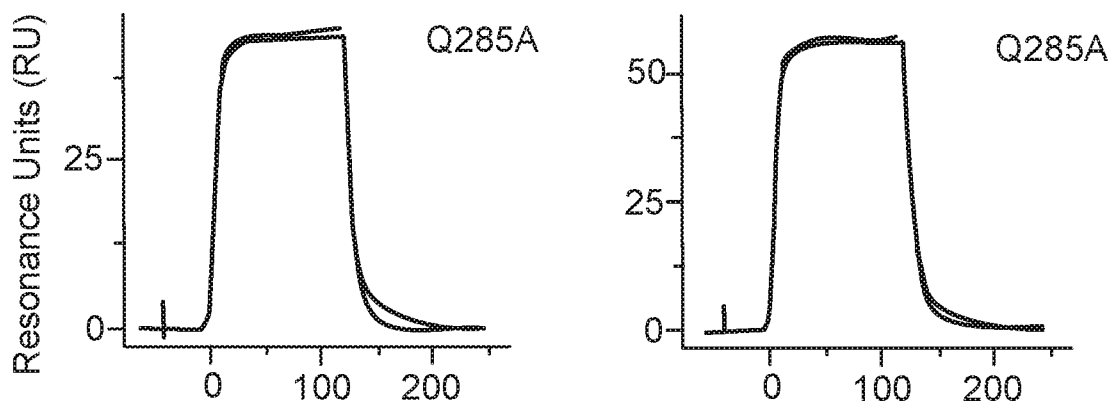


FIG. 7H

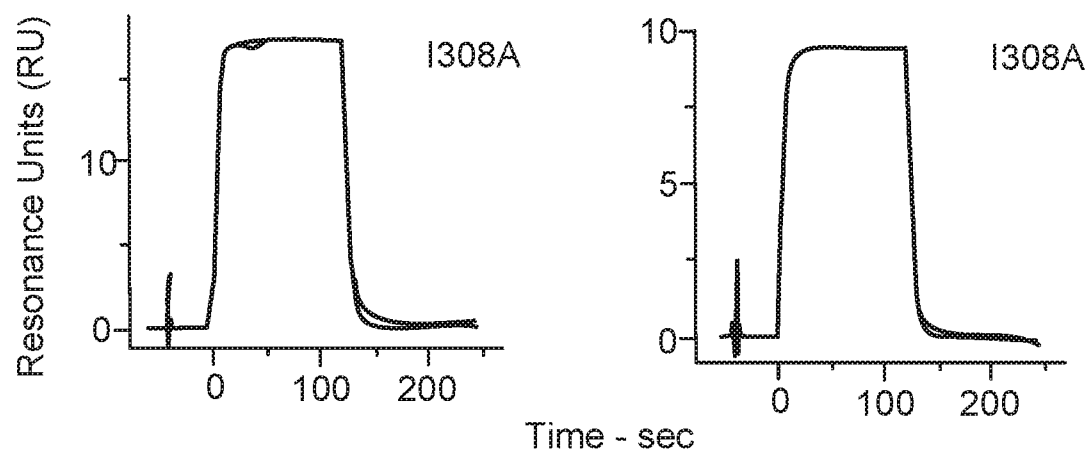


FIG. 7I

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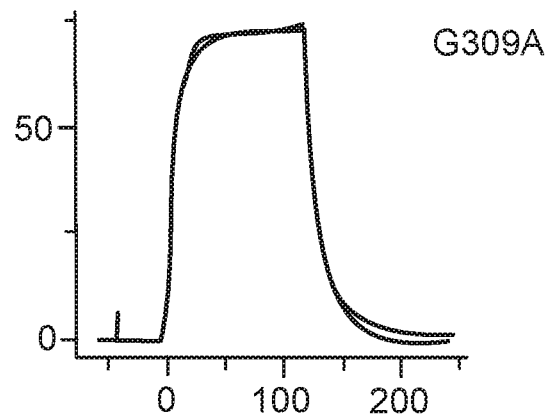
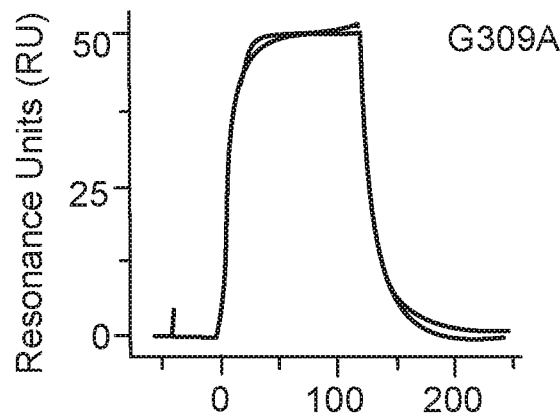


FIG. 7J

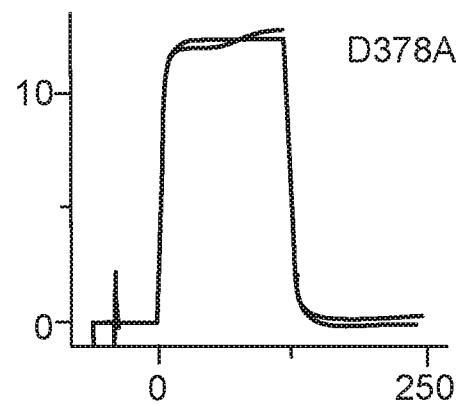
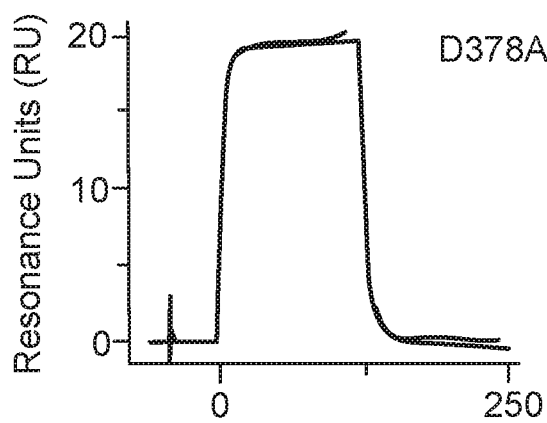
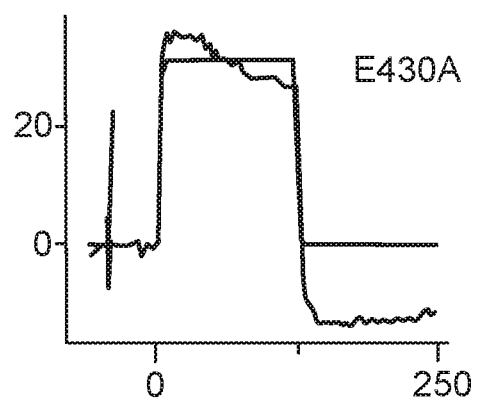
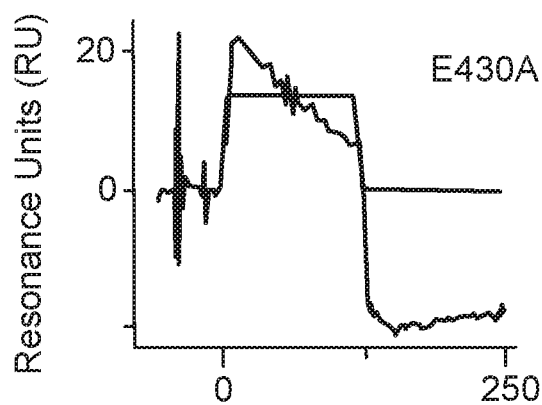


FIG. 7K



Time - sec

FIG. 7L

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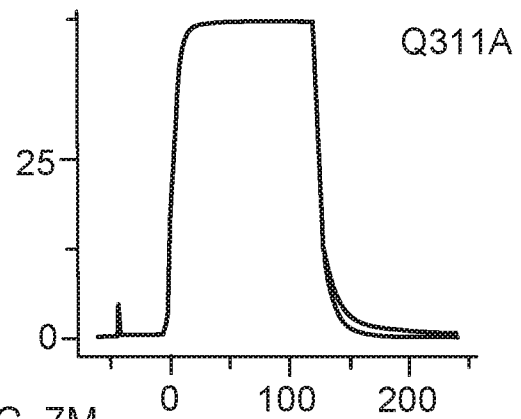
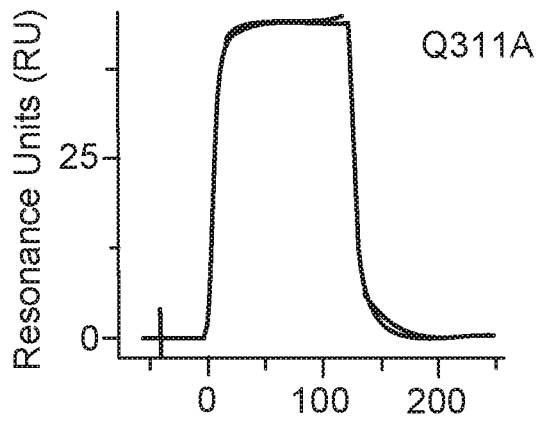


FIG. 7M

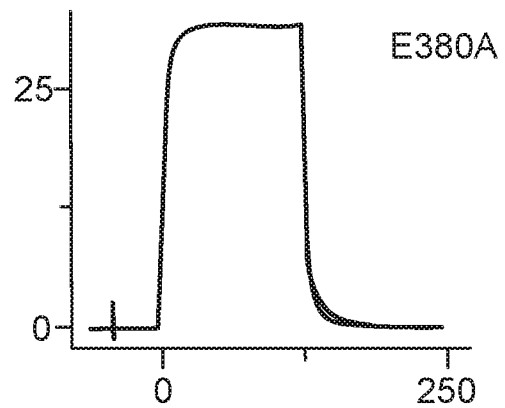
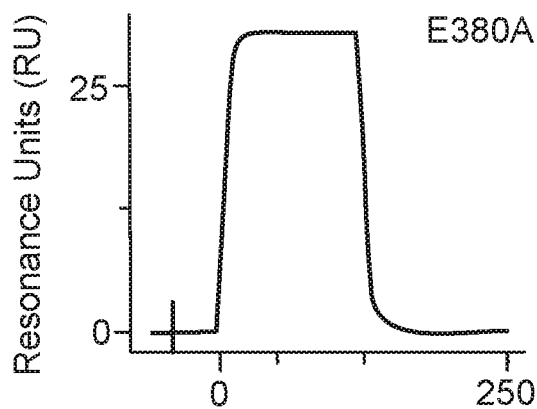
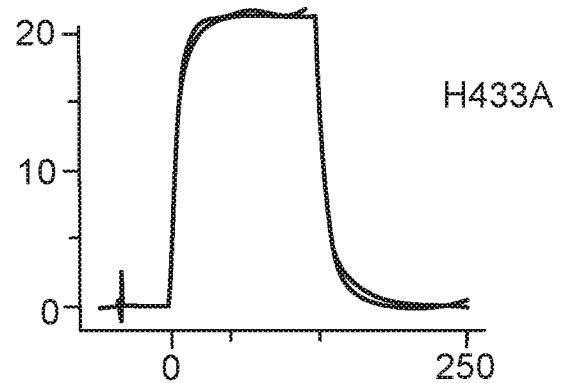
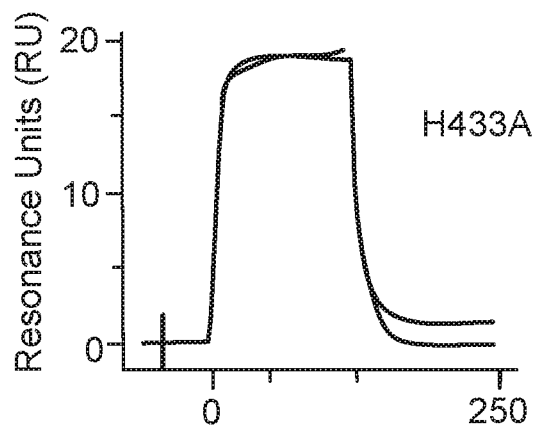


FIG. 7N



Time - sec

FIG. 7O

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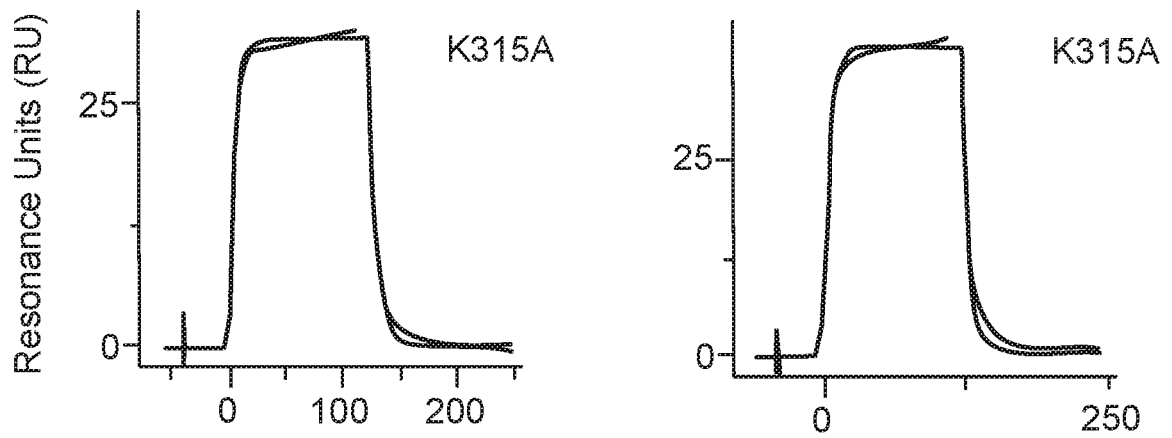


FIG. 7P

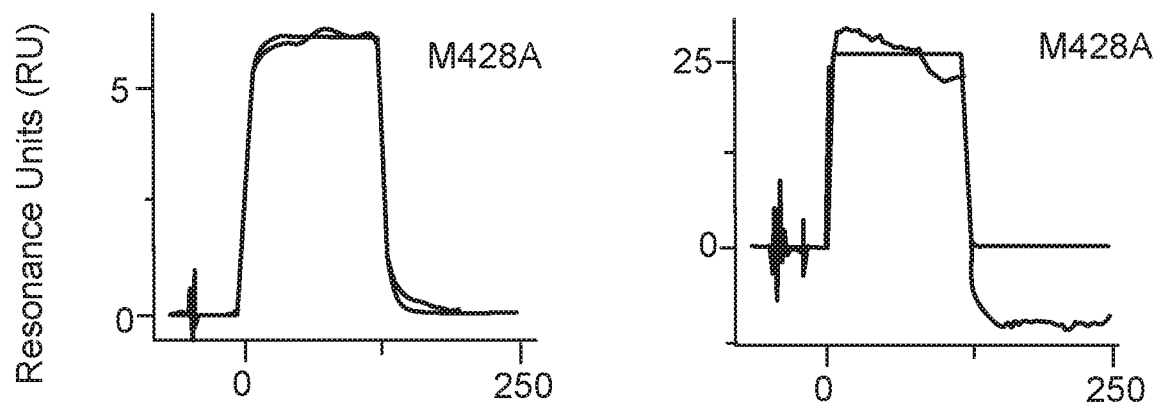
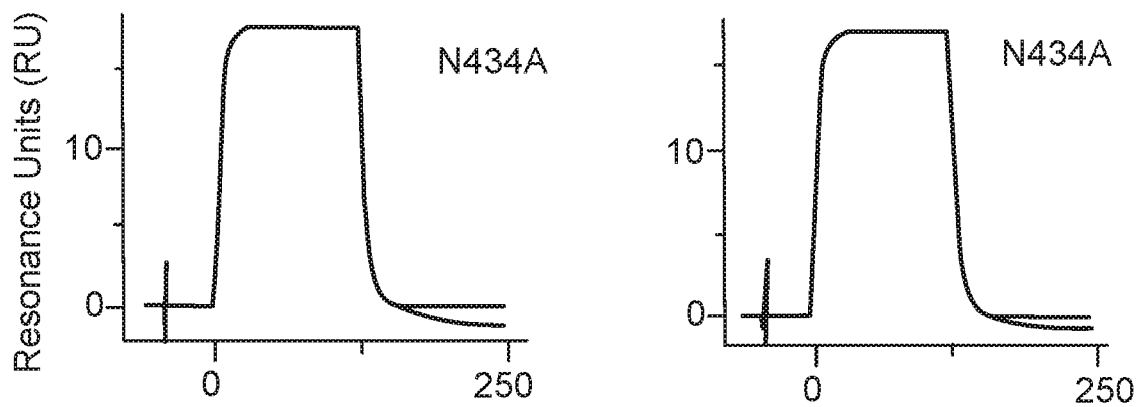


FIG. 7Q



Time - sec

FIG. 7R

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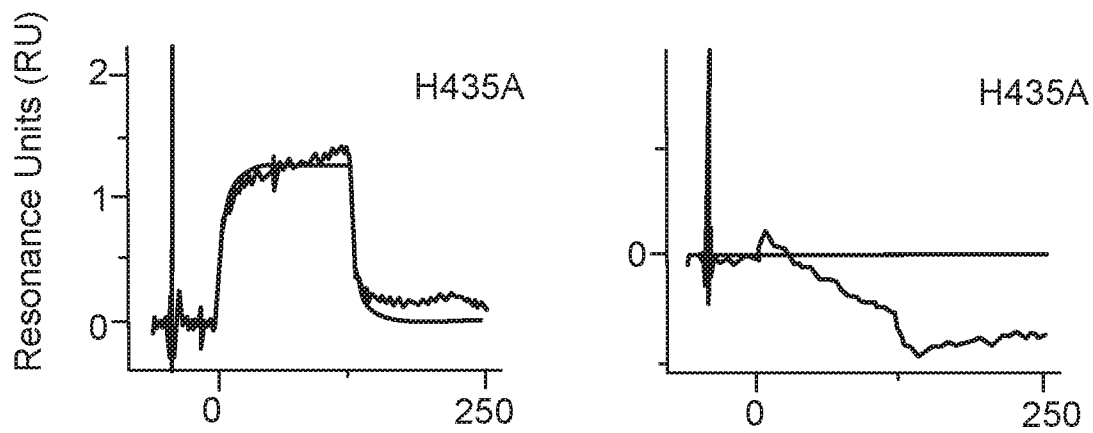


FIG. 7S

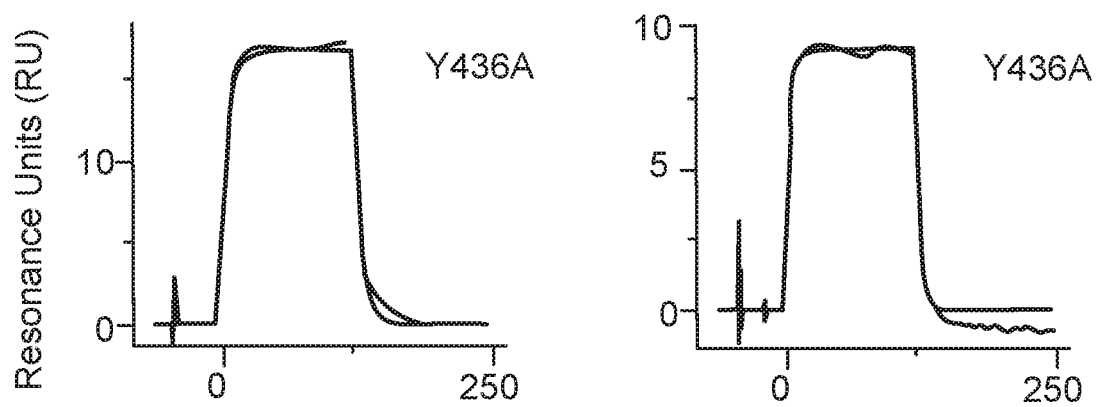
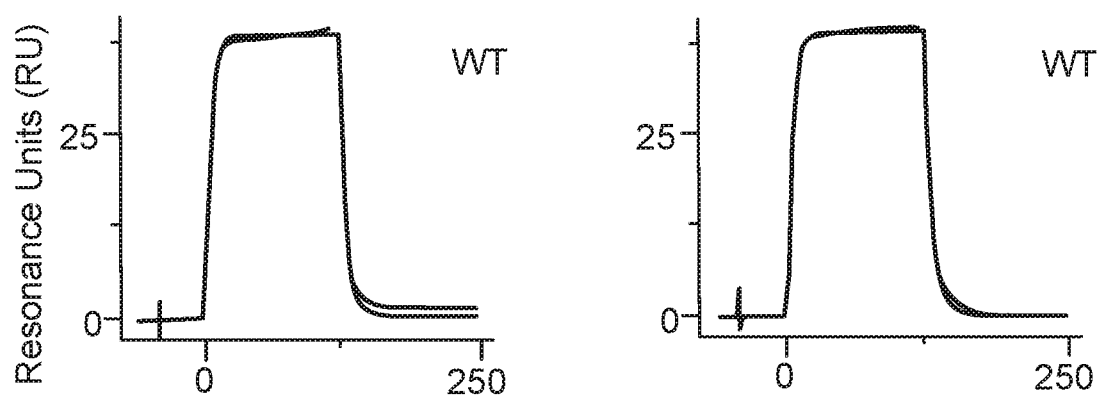


FIG. 7T



Time - sec

FIG. 7U

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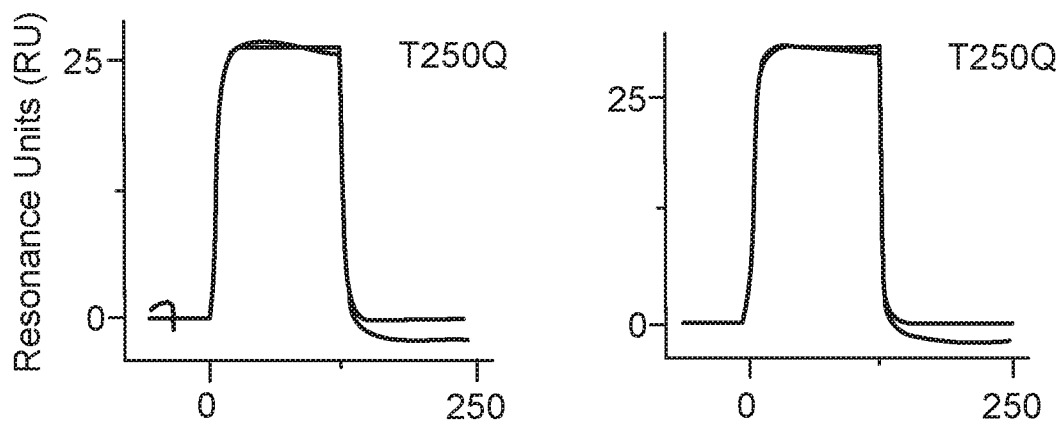


FIG. 8A

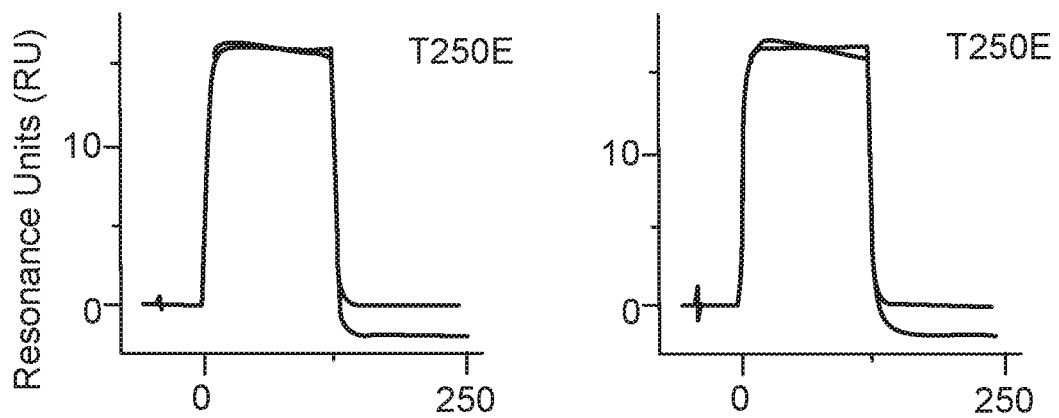
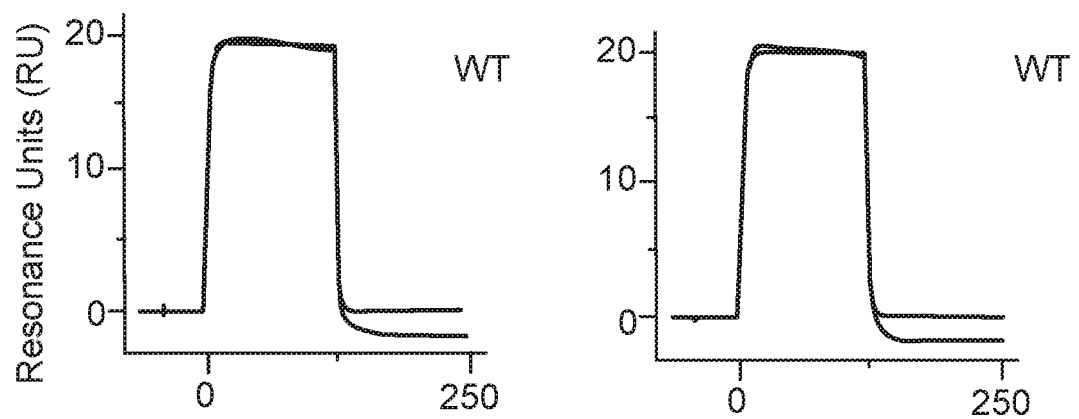


FIG. 8A



Time - sec

FIG. 8C

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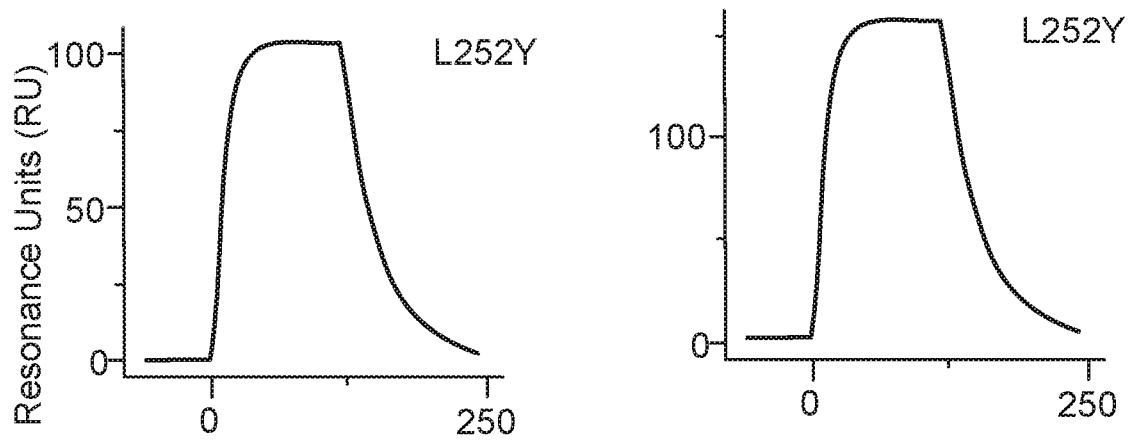


FIG. 9A

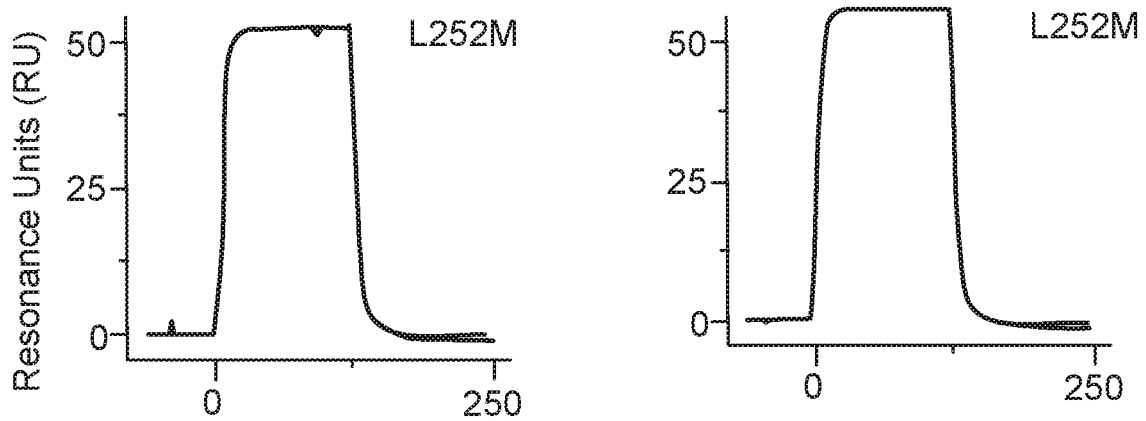
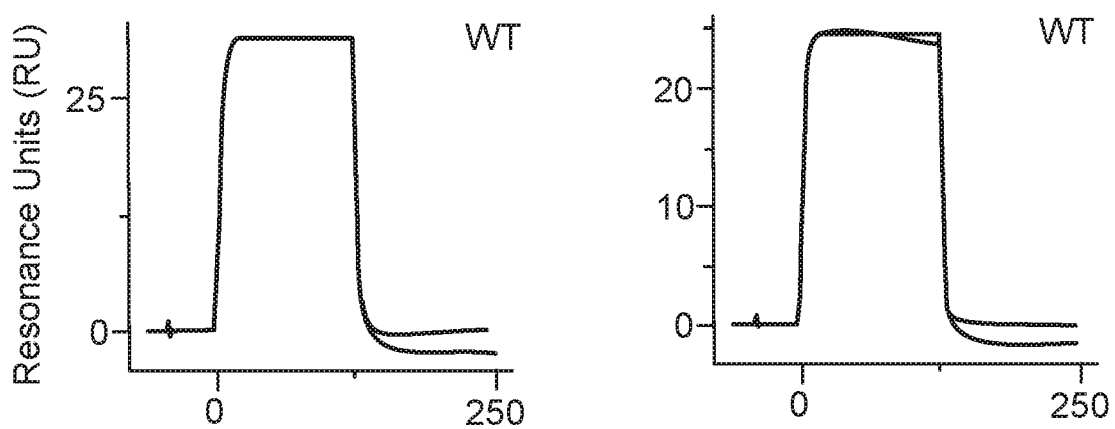


FIG. 9B



Time - sec

FIG. 9B

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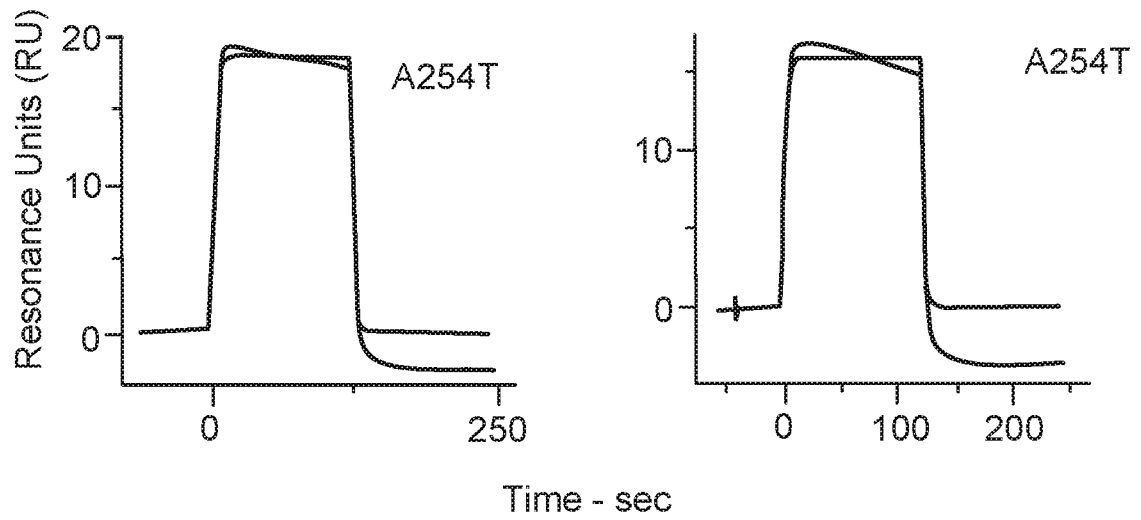


FIG. 10A

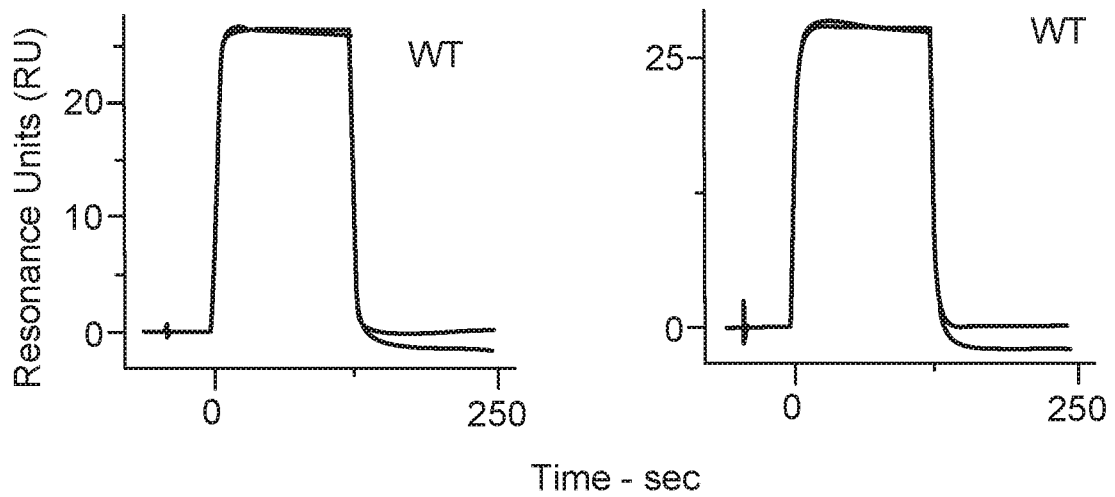


FIG. 10B

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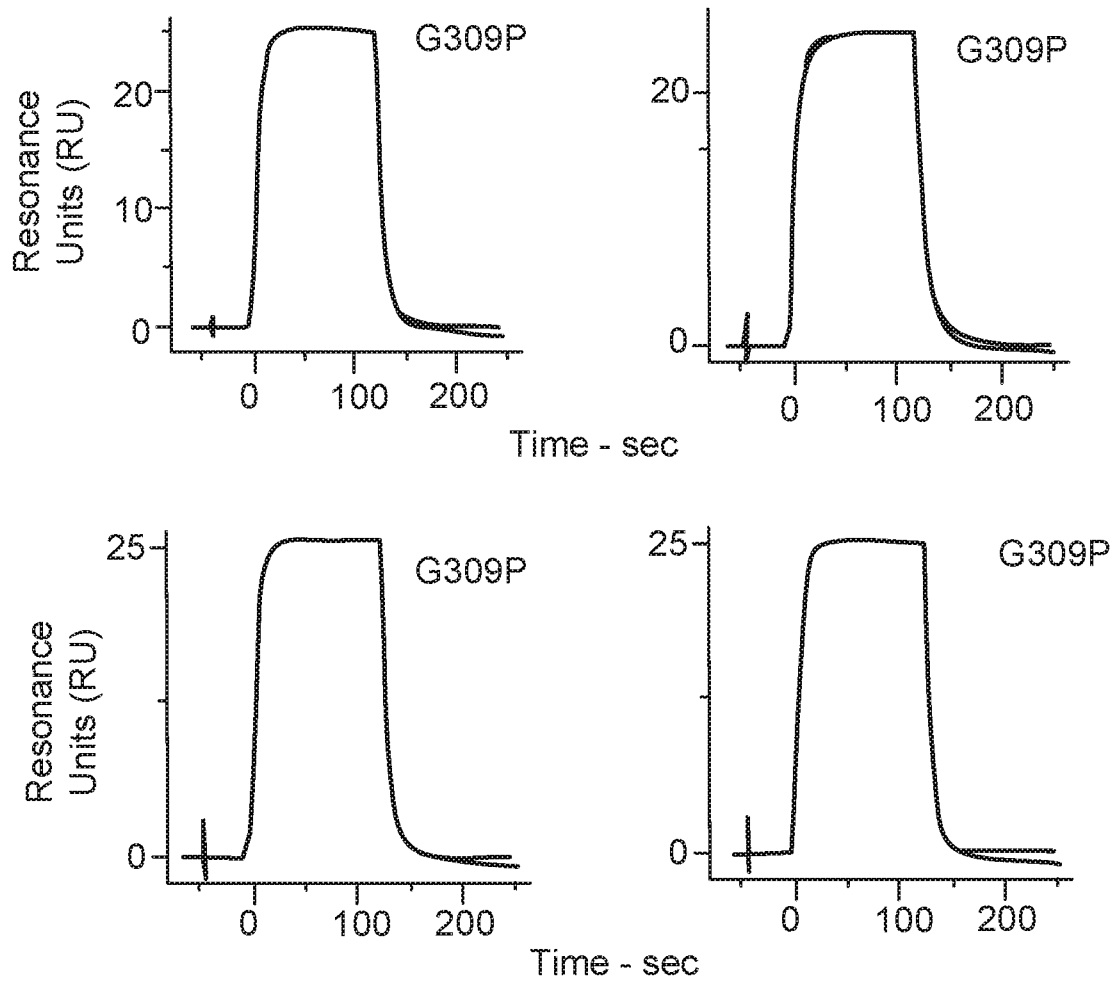


FIG. 11A

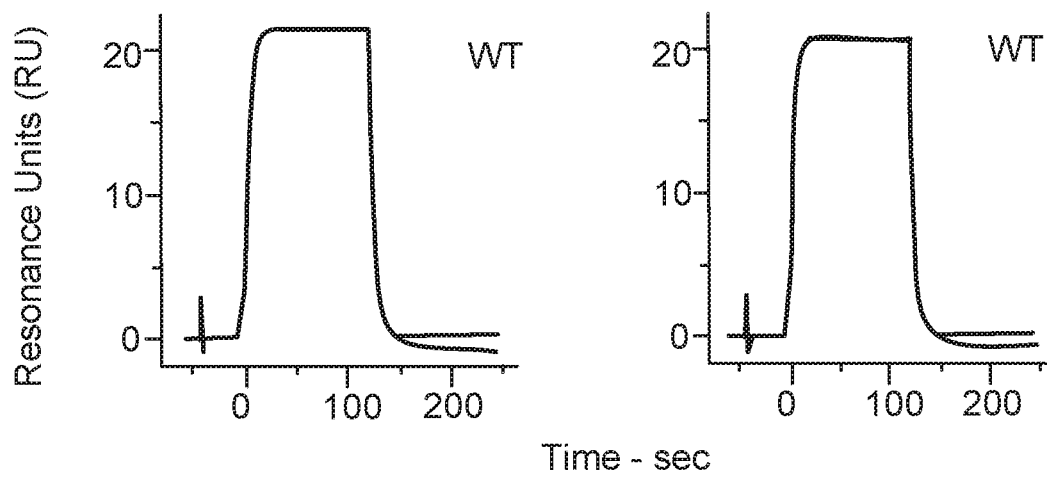


FIG. 11B

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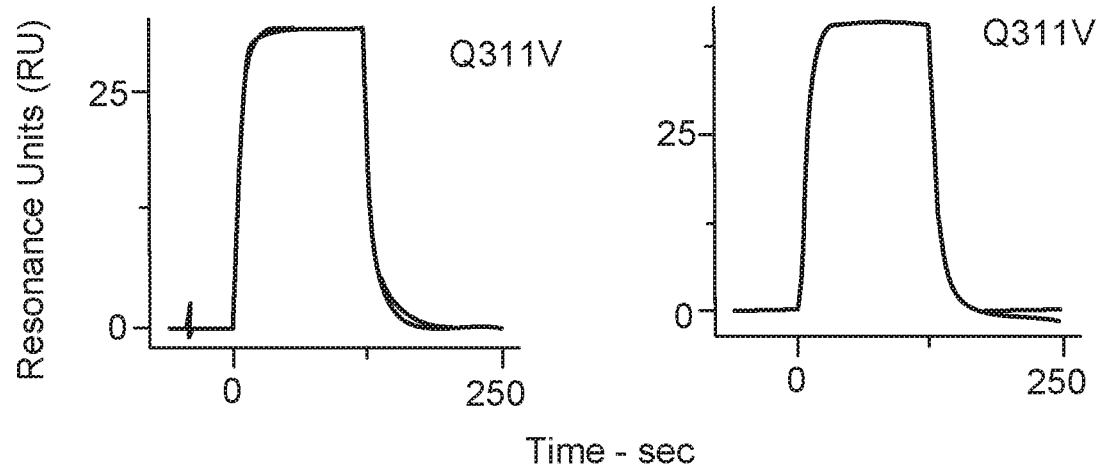


FIG. 12A

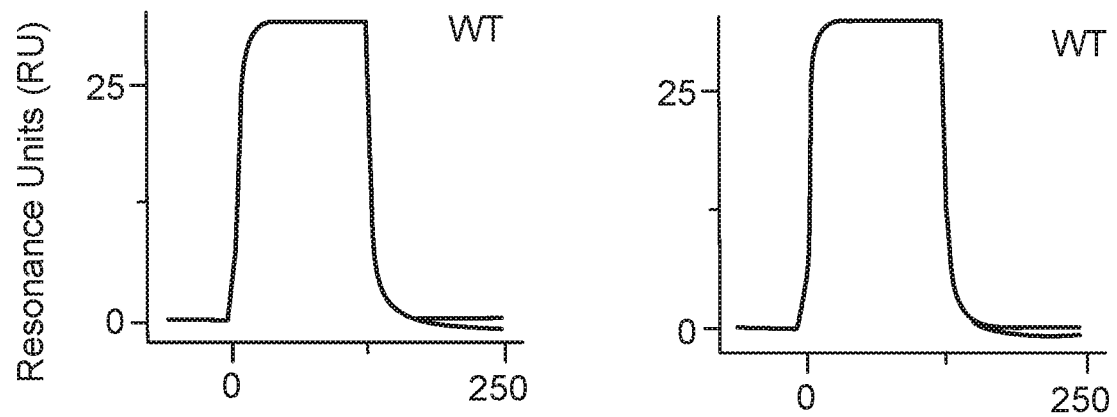
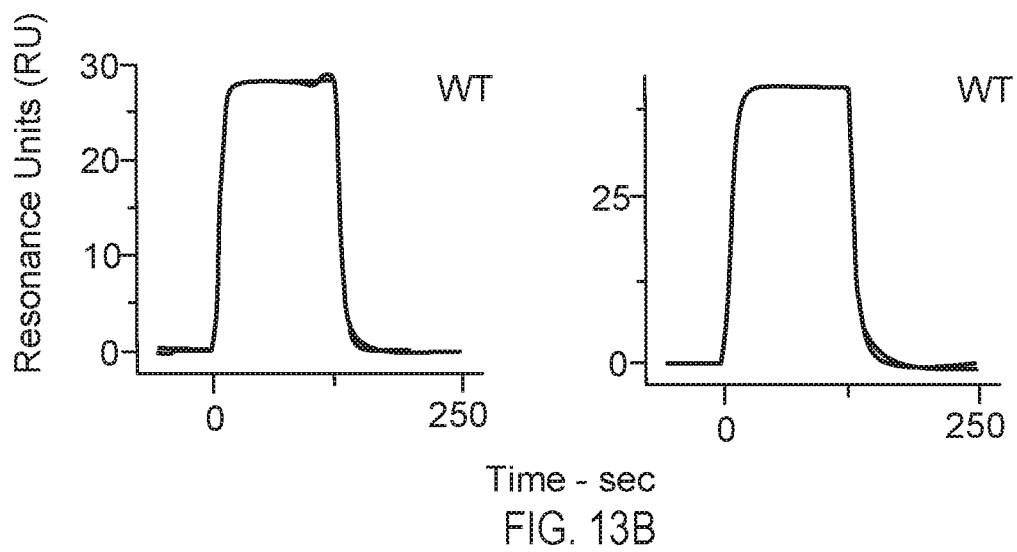
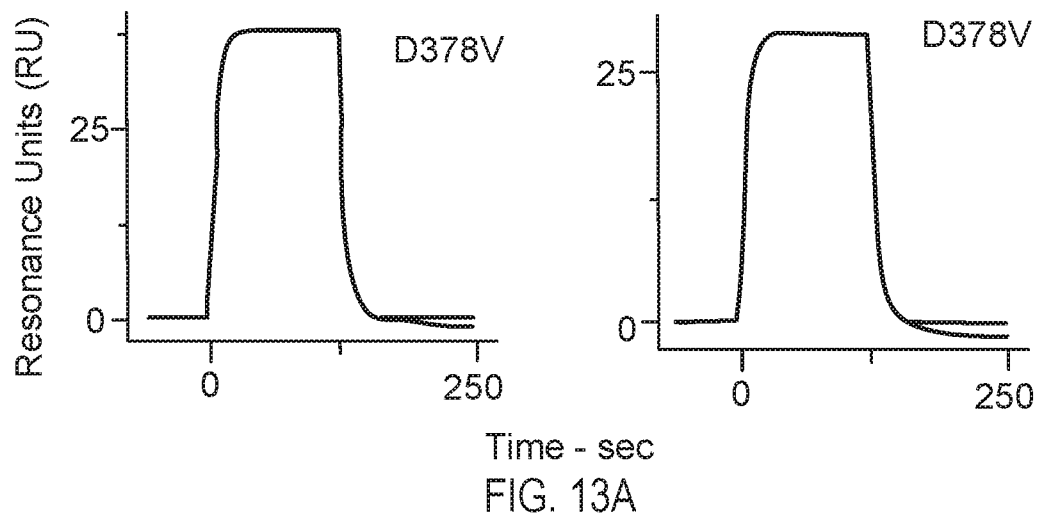
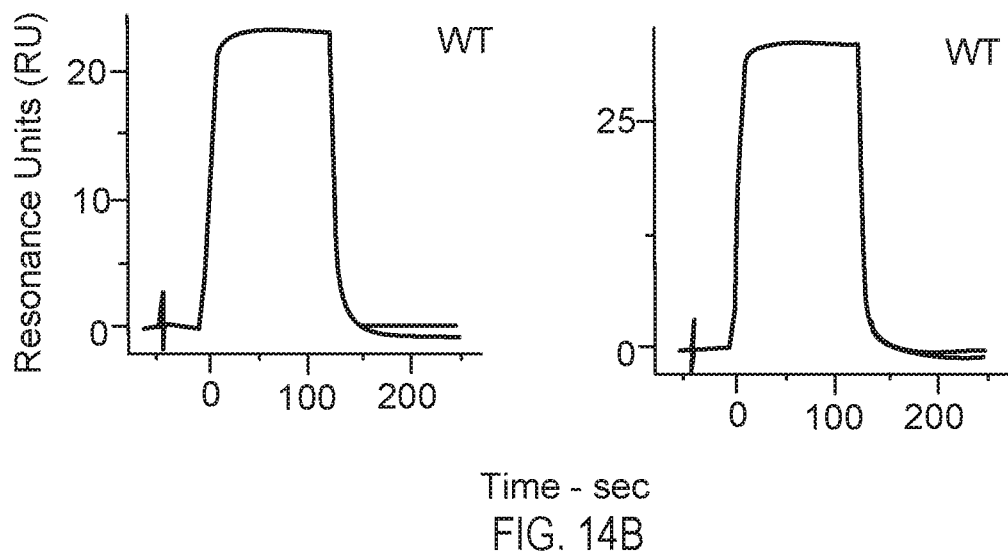
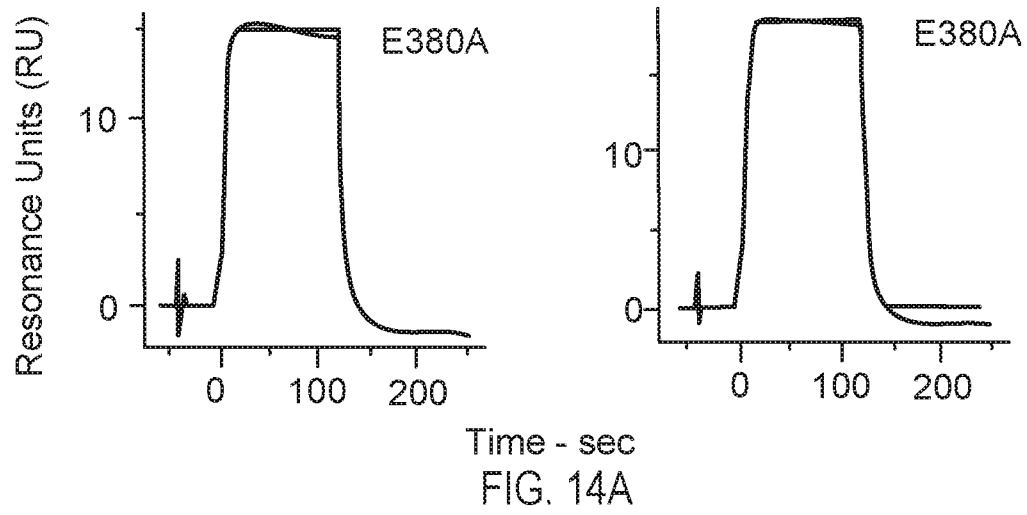


FIG. 12B

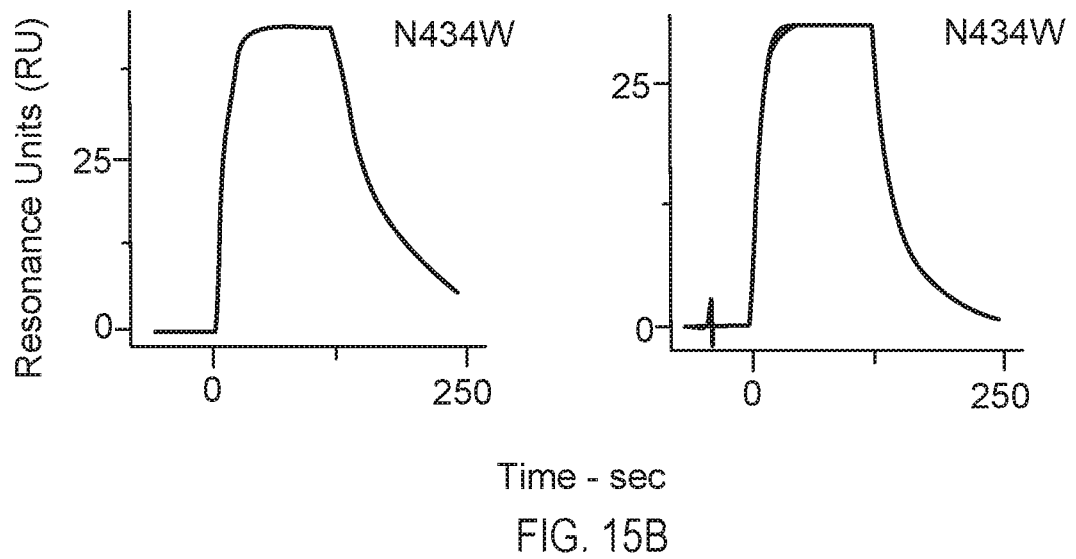
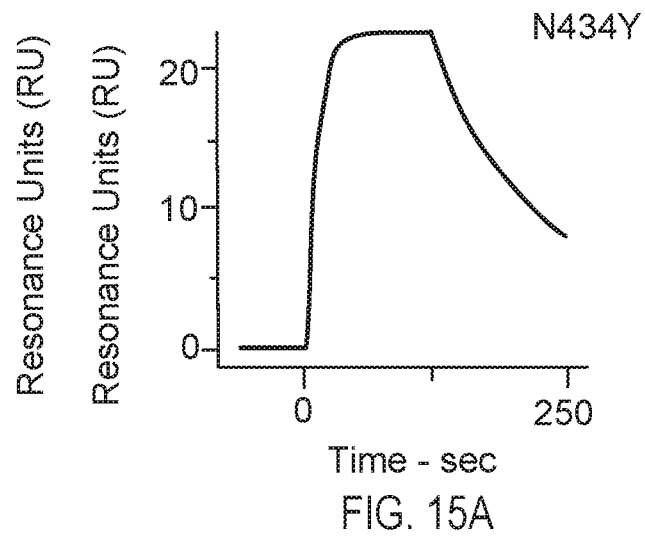
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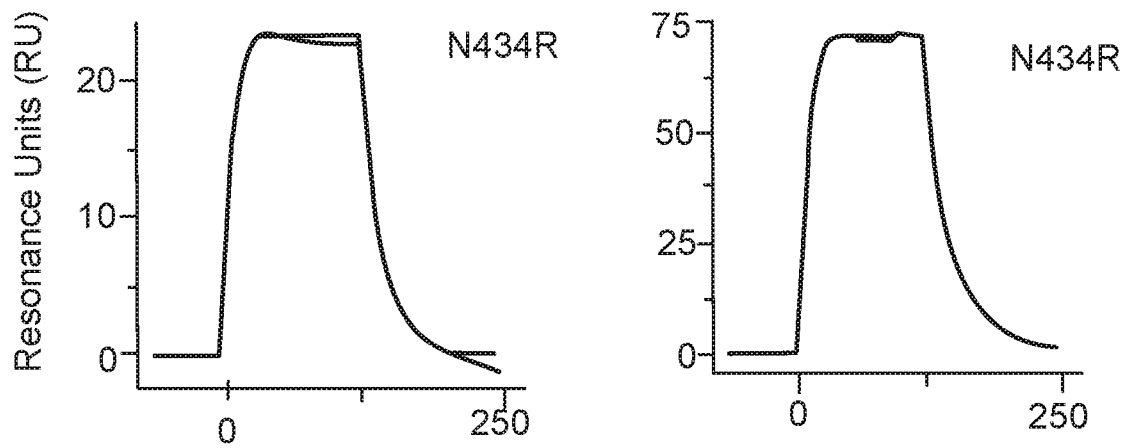
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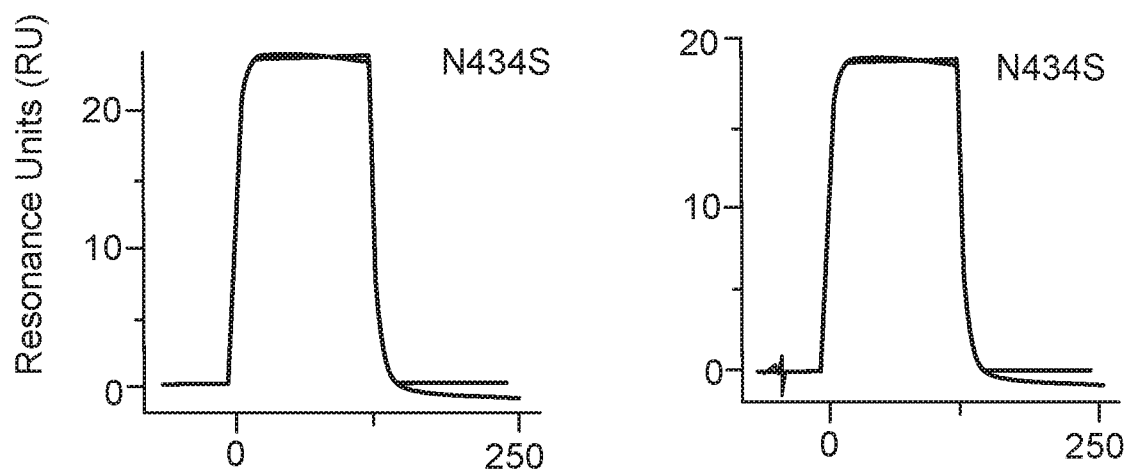


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Time - sec

FIG. 15C



Time - sec

FIG. 15D

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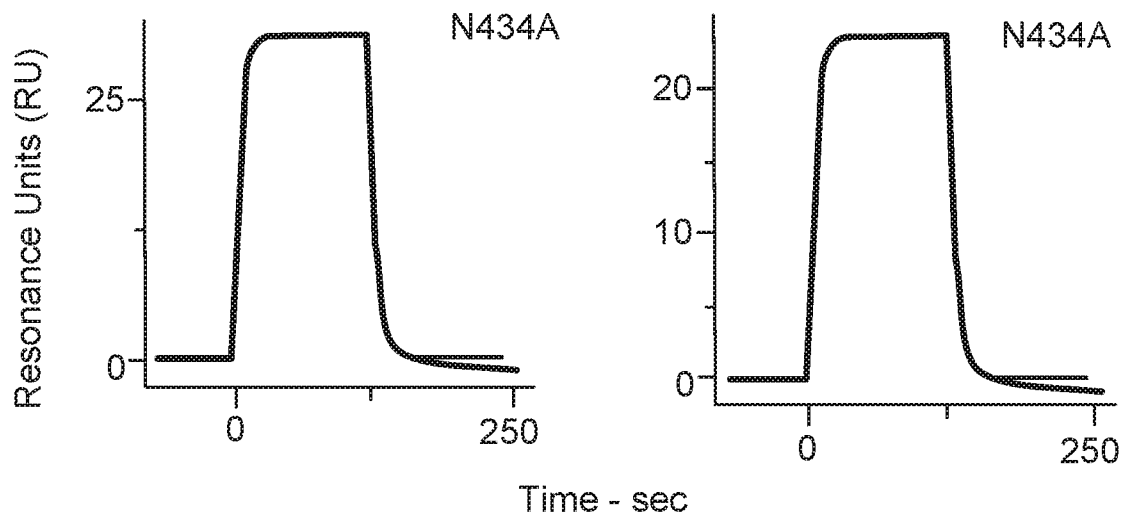


FIG. 15E

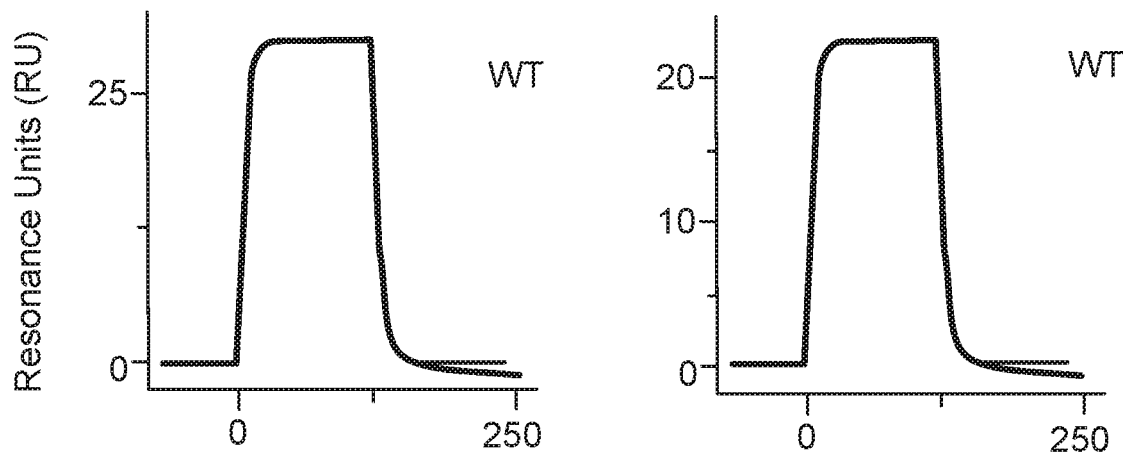


FIG. 15F

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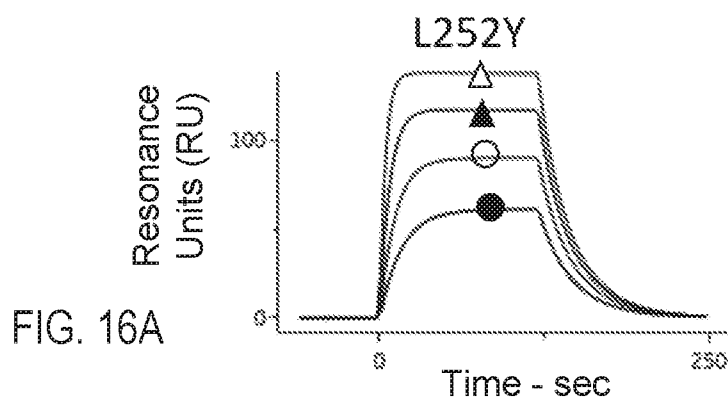


FIG. 16A

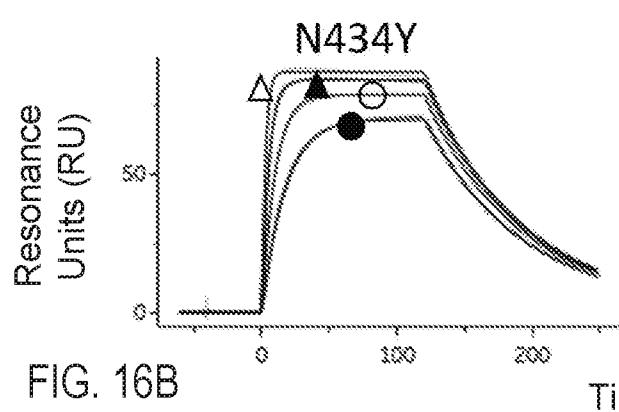


FIG. 16B

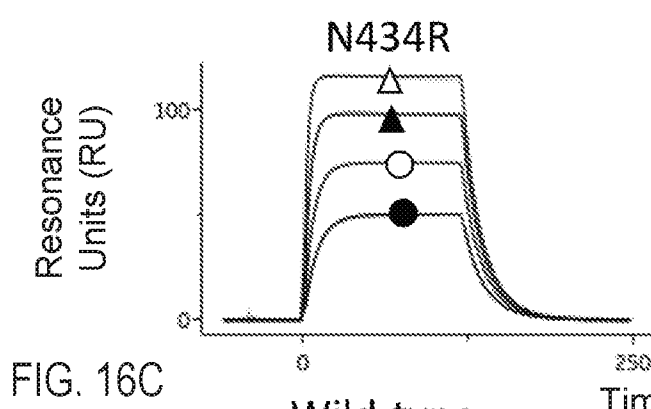
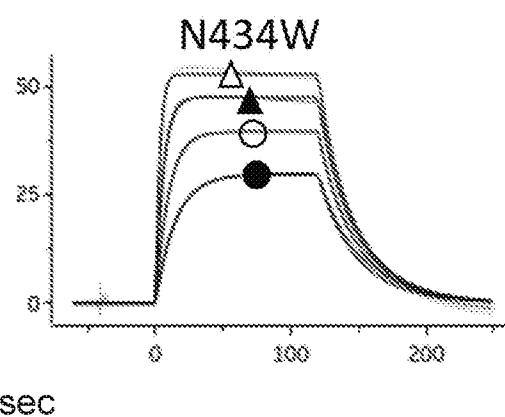


FIG. 16C

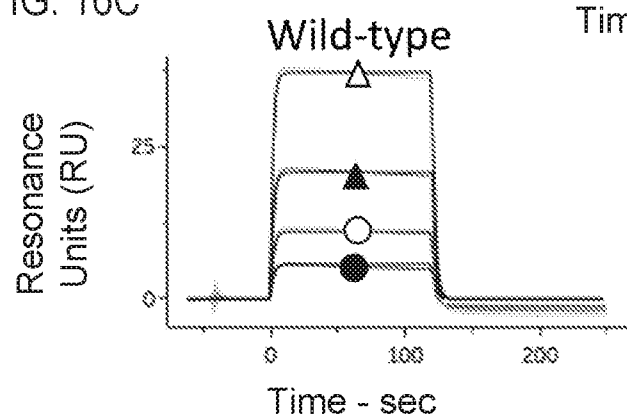
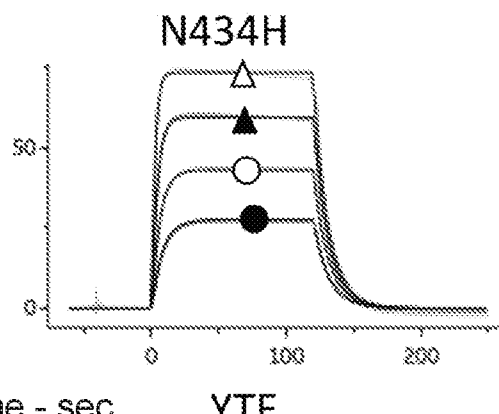


FIG. 16D

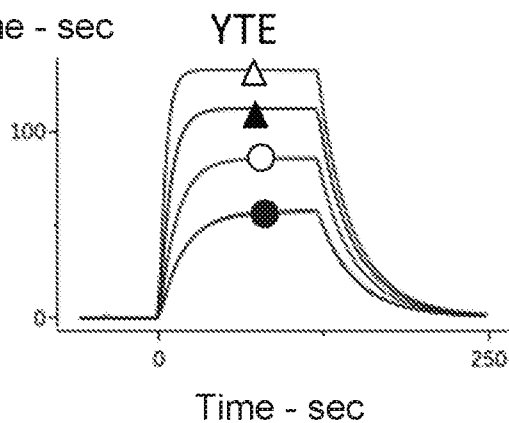


FIG. 16E