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				▼ V _H		*		
CaIgG-A	MESVFCWVFL	VVILKGVOGE	VQLVESGGDL	VKPGGSLRLS	QVASGFTFSS		50	
CaIgG-B	----LF----	-T-----	-R-----T-	----K--	-----RR		50	
CaIgG-C	----LY----	-A-----D	-----	-----	-----		50	
CaIgG-D	----L-----	-S-----	-----	-----	-----D		50	
CaIgG-A	YMHVIRQAP	CKGLQVVAHI	RGDGRTHYA	DAMKGEFTIS	RDNAKNTLYE		100	
CaIgG-B	-S-D-V----	-S--W--G-	N---TG-S-S	QTV--	-----		100	
CaIgG-C	CA-S-V-S-	--P-W--T-	-Y--SDIY--	-----S-	-----V-		100	
CaIgG-D	-G-S-V-S-	---W--AV	SNR- D-Y--	-----	-----		100	
CaIgG-A	QMNSLTVEET	AIYYGVKDI	YYGVG D	YWGGGTLVTV	SSASTTAPSV		150	
CaIgG-B	-I---RA--S	V---A-S W	SRNG 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	VSGYFPEPVT	VSWNSGSLTS	GVHTFPFVLQ		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-----	PKRENGEVPR		250	
CaIgG-C	----Y-----	-----	-----A--	-T-----	AK--E-KC N		250	
CaIgG-D	----Y----T	-----	-----	-----	PK-ST-KCI		250	
CaIgG-A	PPCPVP	EPLGGPSVLI	FPPKPKDILR	ITRTPEVTCV	VLDLQREDPE		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	VQISWFVDGK	EVHTAKTQSR	EQQFNGITYRV	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	
CaIgG-A	VNHIDLPSPI	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	QSNQQOEPR	KHRMTPPQLD	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	GPSVLIFFPPKPKDILRI <u>TRTPEVTCVVLDL</u> GREDP <u>EVQISW</u> FVDGKEVHT
Canine. IgG.D	GPSVFIFPPKPKDILRI <u>TRTPEITCVVLDL</u> GREDP <u>EVQISW</u> FVDGKEVHT
Canine. IgG.B	GPSVFIFPPKPKD <u>TL</u> LIARTPEVTCVV <u>DLDPED</u> PEVQISW <u>FVDGKQM</u> QT
canine. IgG.C	GPSVFIFPPKPKDILV <u>TARTPTVTCVV</u> DLDPENPEVQISW <u>FVDSKQV</u> QT
	:** * :*** :****:*. * :*****. *:***
Canine. IgG.A	AKTQSREQQNGTYRVVSVLP <u>IEHQDWLTG</u> KEFKCRVNHIDLPSP <u>IE</u> TISKAR
Canine. IgG.D	AKTQPREQQNSTYRVVSVLP <u>IEHQDWLTG</u> KEFKCRVNHIGLSP <u>IE</u> TISKAR
Canine. IgG.B	AKTQPREEQNGTYRVVSVLP <u>IGHQDWLKG</u> QFTCKVNNKALSP <u>IE</u> TISKAR
Canine. IgG.C	ANTQPREEQNGTYRVVSVLP <u>IGHQDWLSG</u> KQFKCKVNNKALSP <u>IEE</u> IISKTP
	*:***. ***: * . ***** * :***. * :***. *****. ***:

FIG. 2

Canine. IgG.A	KPSVYVLPSPKELSSDTSITCLIKDFYPPDIDVEWQSNQGQPEPERKHRMTPPQLDED
Canine. IgG.D	QPSVYVLPSPKELSSDTSITCLIKDFFPPEIDVEWQSNQGQPEPEPKYHTTAPQLDED
Canine. IgG.B	QPSVYVLPSPREEL-SKNTVSLTCLIKDFFPDIDVEWQSNQGQPEPEPKYRTTTPPQLDED
Canine. IgG.C	QPNVYVLPSPRDEM-SKNTVTLTCLVKDFFPPEIDVEWQSNQGQPEPEPKYRMTTPPQLDED
	:* . ***** . *:*.**:****:****:***** ***: *.: * . *****
Canine. IgG.A	GSYFLYSKLSVDKSRWQQGDPFTCAVMHETLQNHNHYTDLSLSHSPGK
Canine. IgG.D	GSYFLYSKLSVDKSRWQQGDTFTCAVMHEALQNHNHYTDLSLSHSPGK
Canine. IgG.B	GSYFLYSKLSVDKSRWQRGDTFTCAVMHEALHNHNHYTQESLSHSPGK
Canine. IgG.C	GSYFLYSKLSVDKSRWQRGDTFTCAVMHEALHNHNHYTQISLSHSPGK
	*****:*** * *****:***:****: *****

FIG. 3

Canine. IgG.A	VPEPLGGPSVLIFFPPKPKDILRITRTPETVCVVDLGLREDPEVQISWFVDGKEVHT
Canine. IgG.D	VPESLGGPSVFIFFPPKPKDILRITRTPETVCVVDLGLREDPEVQISWFVDGKEVHT
Canine. IgG.B	APEMLGGPSVFIFFPPKPKDTLLIARTPEVTCVVVDLDPEDPEVQISWFVDGKQMQT
Canine. IgG.C	GCGLLGGPSVFIFFPPKPKDILVTARTPTVTTCVVVDLDPENPEVQISWFVDSKQVQT
	*****:***** * :*** :****:***. *:*****:****:*
Canine. IgG.A	AKTQSRREQFNGTYRVVSVLP ¹ IEHQDWLTGKEFKCRVNHIDLPSPIERTISKARGRAHKP
Canine. IgG.D	AKTQPREQQFNSTYRVVSVLP ¹ IEHQDWLTGKEFKCRVNHIGLPSPIERTISKARGQAHQP
Canine. IgG.B	AKTQPREEQFNGTYRVVSVLP ¹ IGHQDWLKGKQFTCKVNNKALPSPIERTISKARGQAHQP
Canine. IgG.C	ANTQPREEQSNGTYRVVSVLP ¹ IGHQDWLSGKQFKCKVNNKALPSPIEEIISKTPGQAHQP
	*:***.***:* *.***** *****.***:***: *****. ***: *:***:*
Canine. IgG.A	SVYVLPSPKELSSDTSITCLIKDFYPPDIDVEWQSNQEQEPERKHRMTPPQLDEDGS
Canine. IgG.D	SVYVLPSPKELSSDTSITCLIKDFFPPEIDVEWQSNQEQEPESKYHTTAPQLDEDGS
Canine. IgG.B	SVYVLPSPSREEL-SKNTVSLTCLIKDFFPDIDVEWQSNQEQEPESKYRTTTPPQLDEDGS
Canine. IgG.C	NVYVLPSPSRDEM-SKNTVTLTCLVKDFFPPEIDVEWQSNQEQEPESKYRMTTPPQLDEDGS
	.***** *.*:***:***:***:***** ***** *:* *.******
Canine. IgG.A	YFLYSKLSVDKSRWQQGDPFTCAVMHETLQNH ² YTDLSLSHSPGK
Canine. IgG.D	YFLYSKLSVDKSRWQQGDTFTCAVMHEALQNH ² YTDLSLSHSPGK
Canine. IgG.B	YFLYSKLSVDKSRWQRGDTFICAVMHEALHNHYTQESLSHSPGK
Canine. IgG.C	YFLYSKLSVDKSRWQRGDTFICAVMHEALHNHYTQISLSHSPGK
	*****:*****:***. * *****:***:****: *****

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	

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. 6 CONT)

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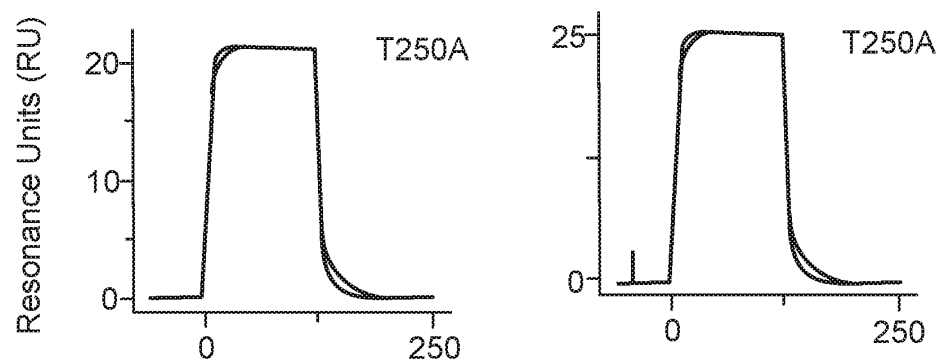


FIG. 7A

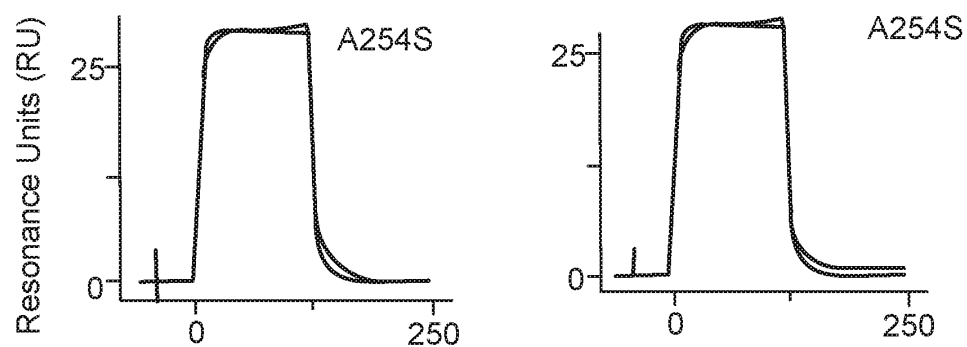
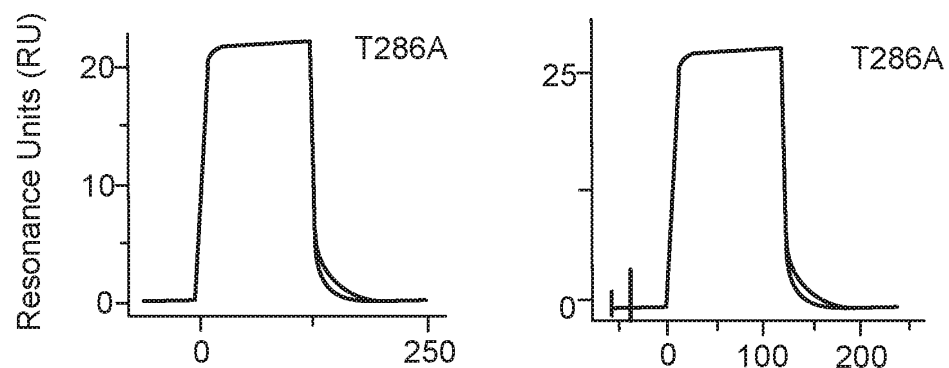


FIG. 7B



Time - sec

FIG. 7C

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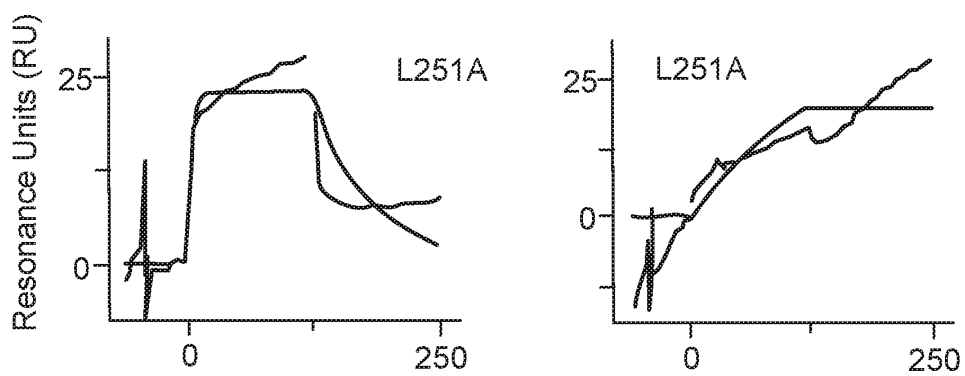


FIG. 7D

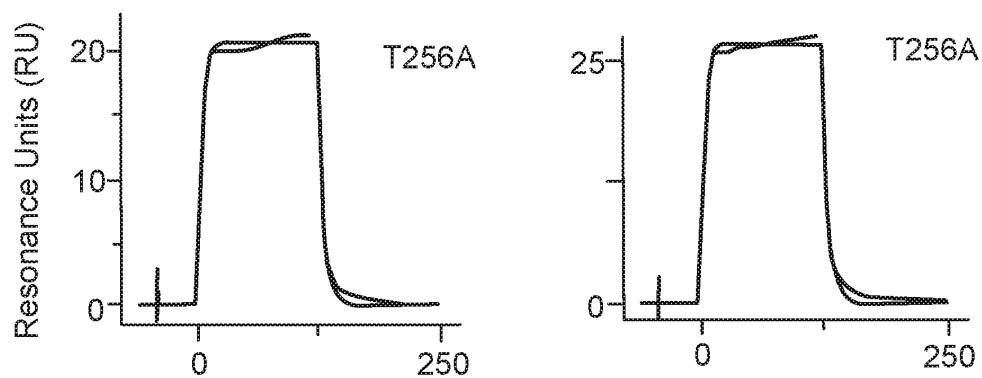


FIG. 7E

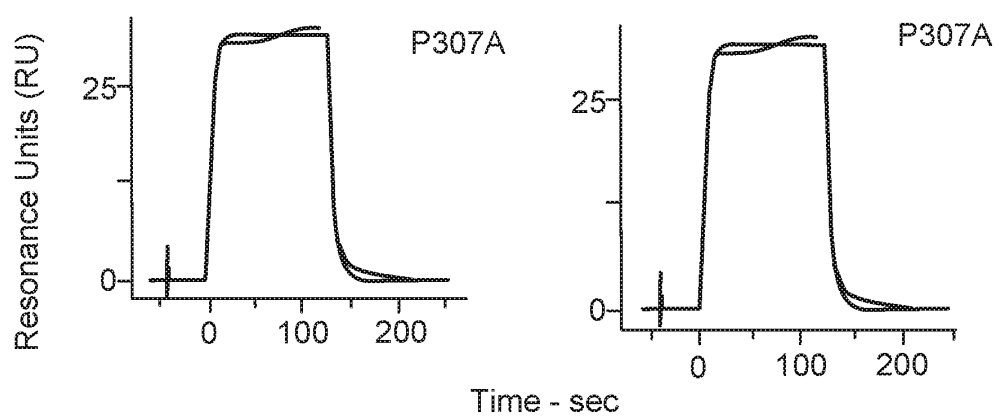


FIG. 7F

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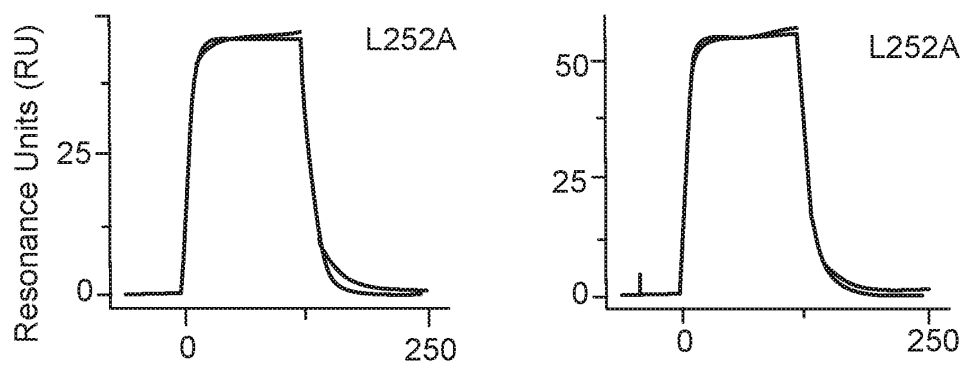


FIG. 7G

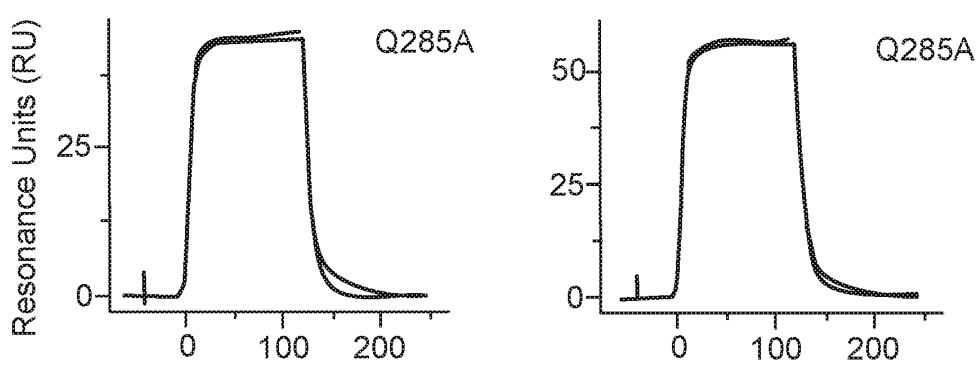


FIG. 7H

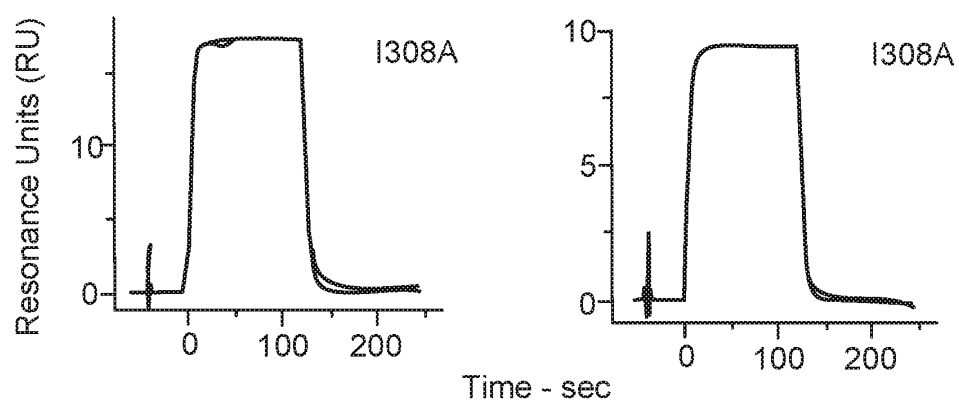


FIG. 7I

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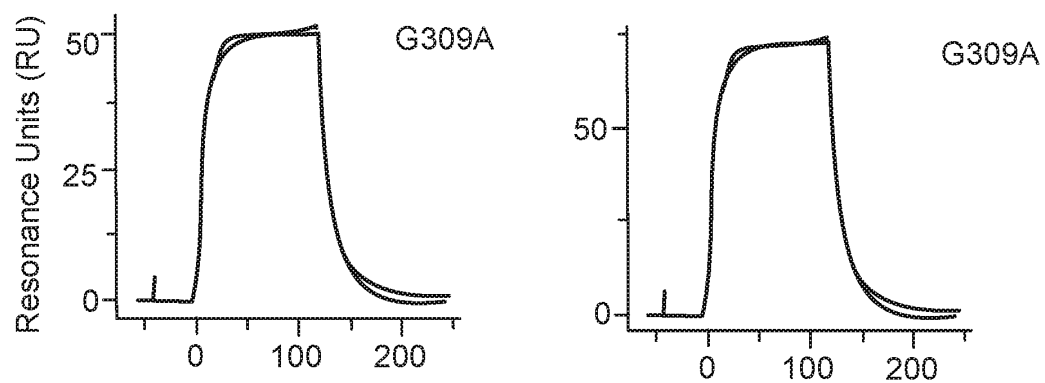


FIG. 7J

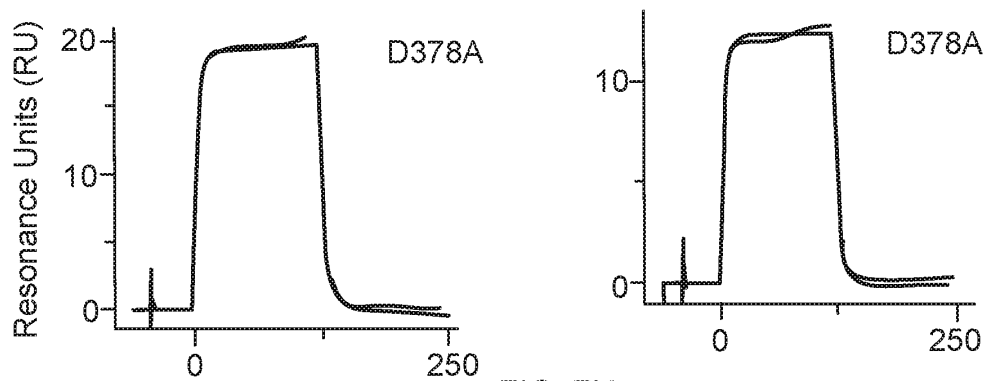
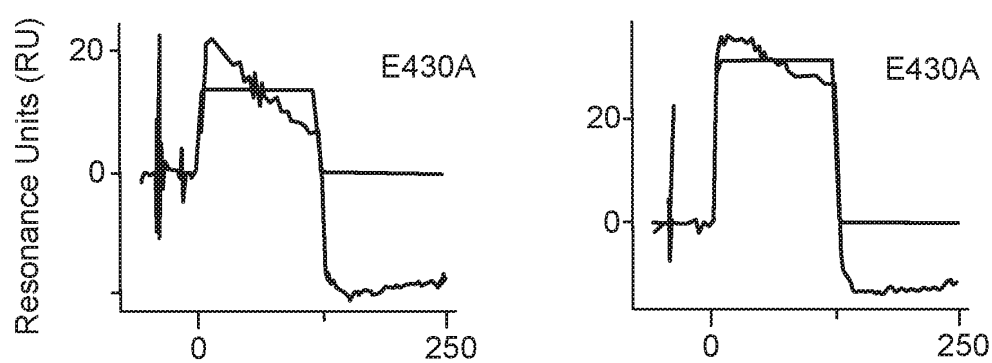


FIG. 7K



Time - sec

FIG. 7L

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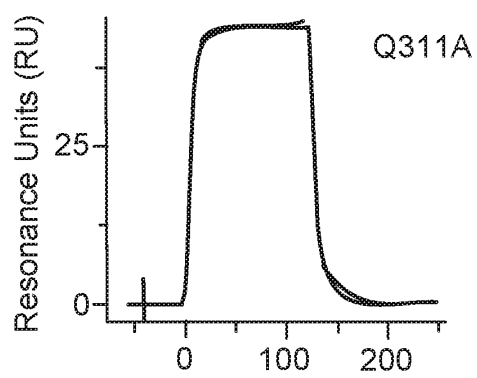


FIG. 7M

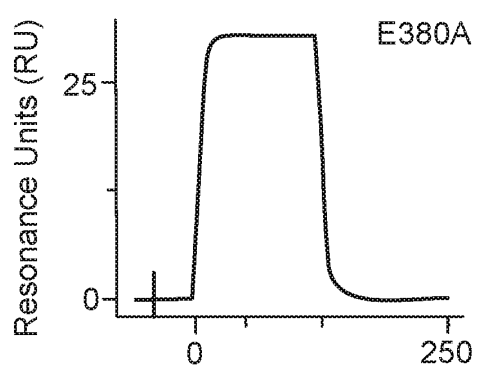
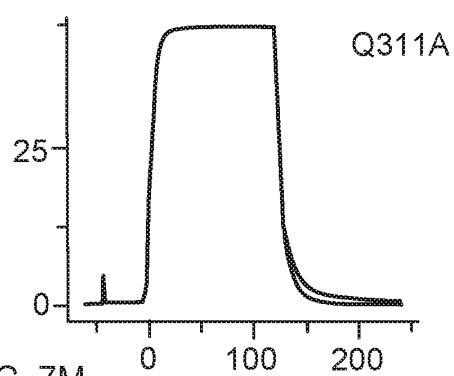
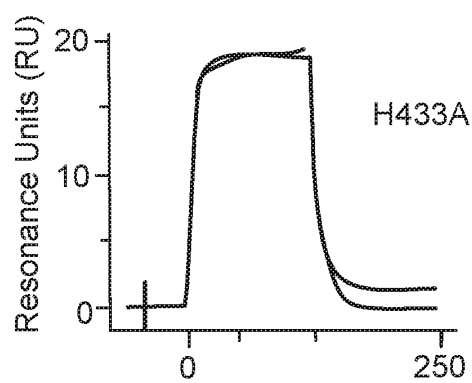
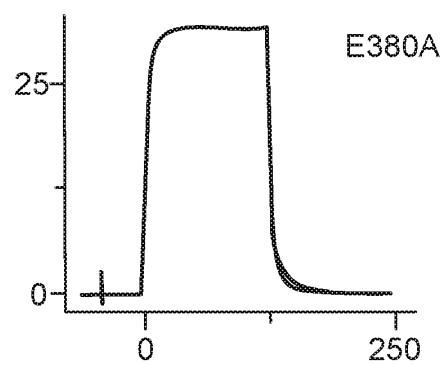
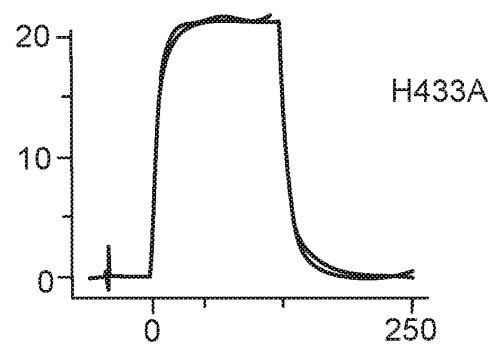


FIG. 7N



Time - sec

FIG. 7O



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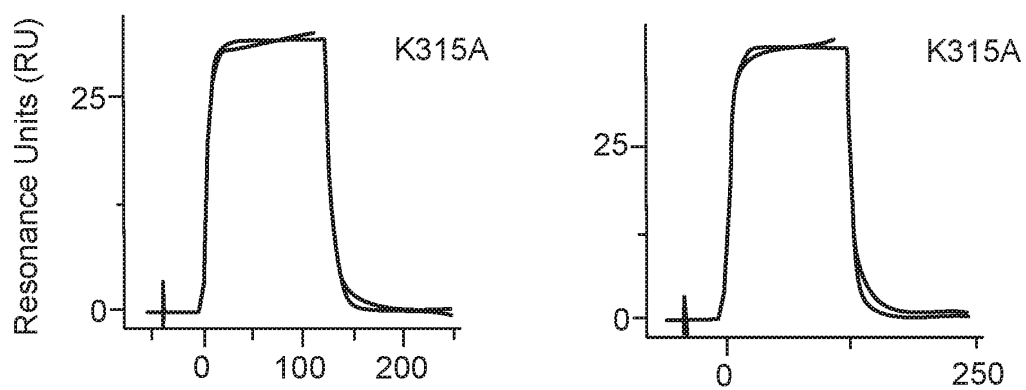


FIG. 7P

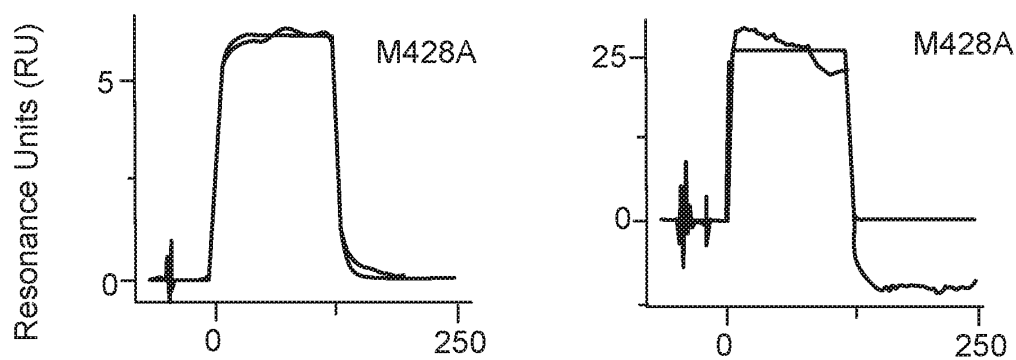
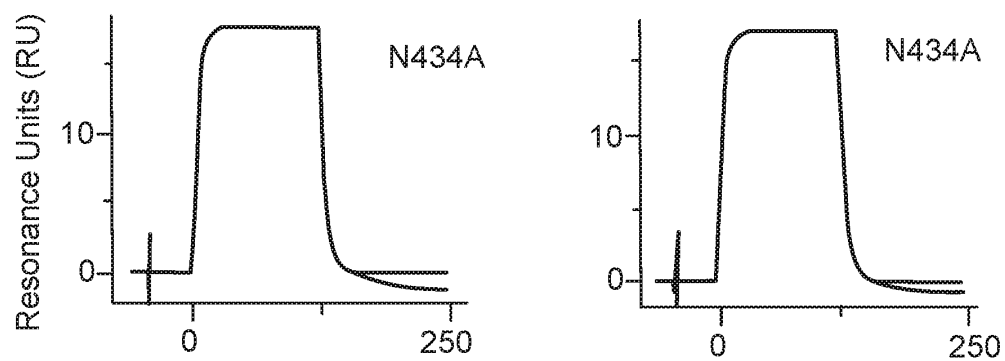


FIG. 7Q



Time - sec

FIG. 7R

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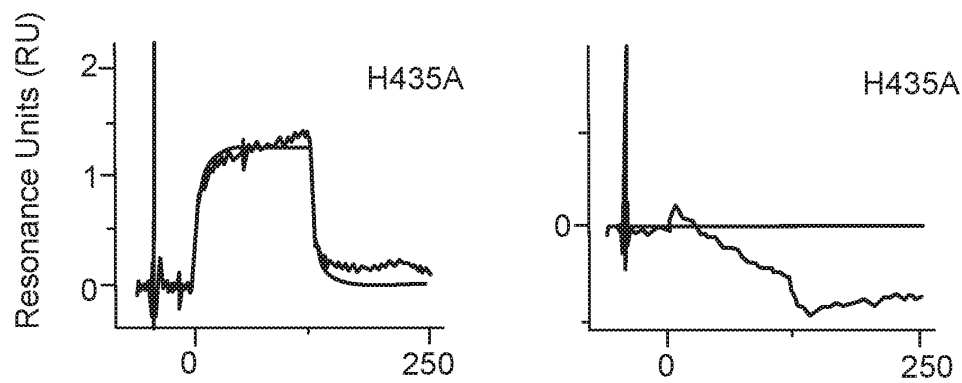


FIG. 7S

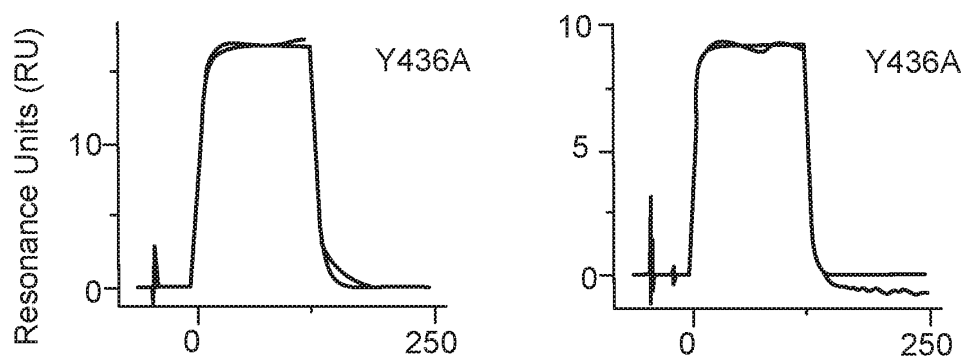
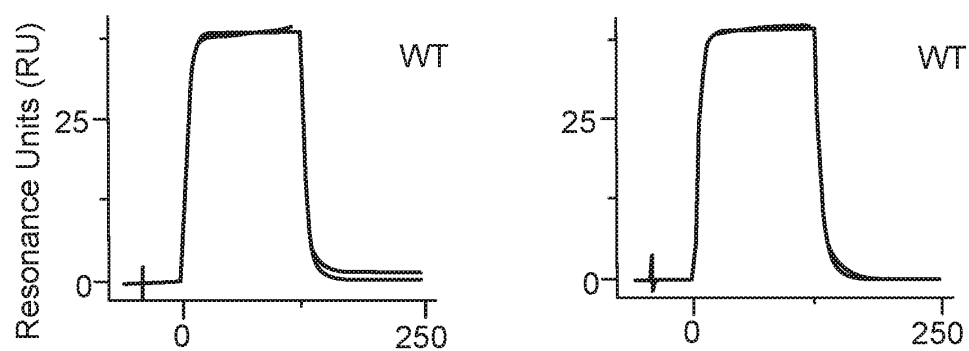
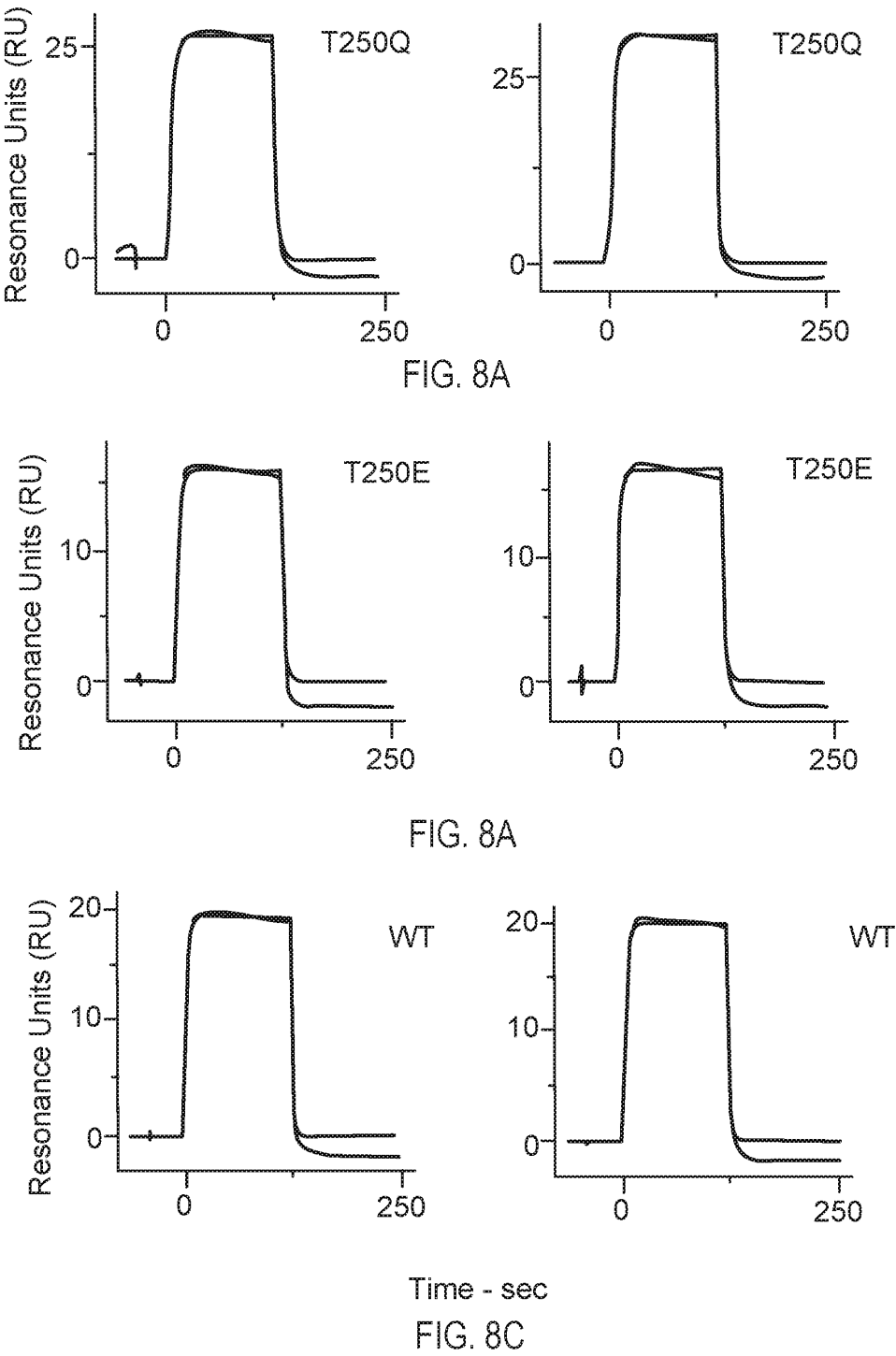


FIG. 7T



Time - sec

FIG. 7U



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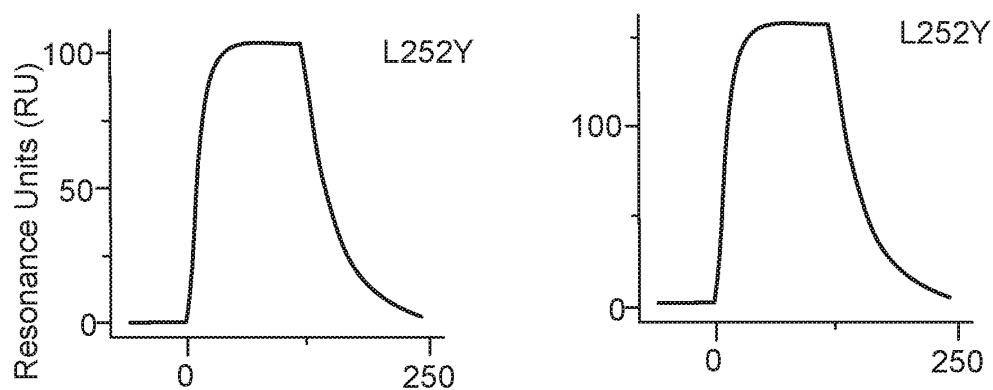


FIG. 9A

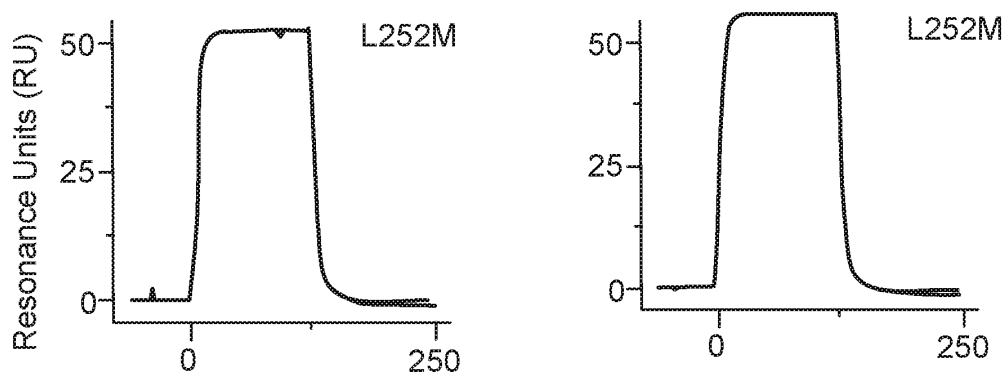
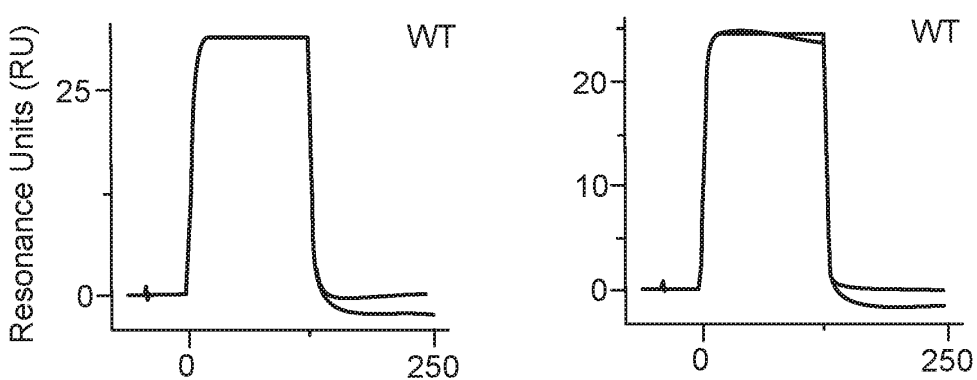


FIG. 9B



Time - sec

FIG. 9B

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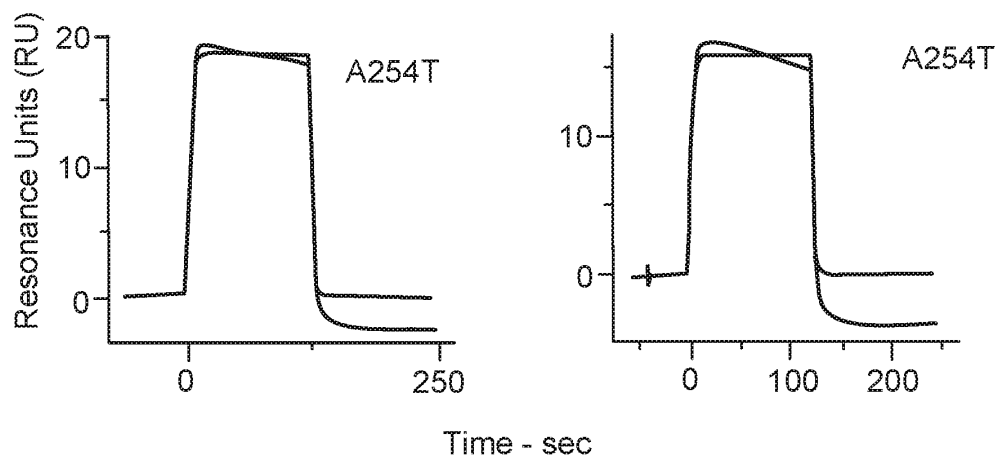


FIG. 10A

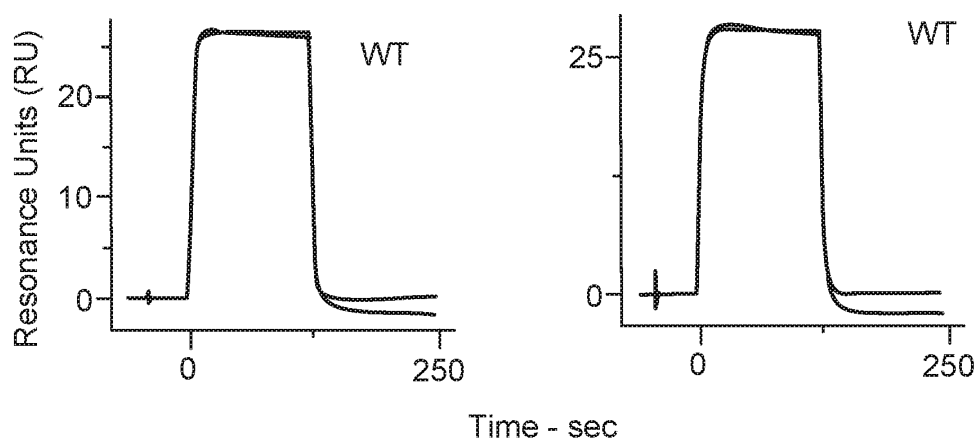


FIG. 10B

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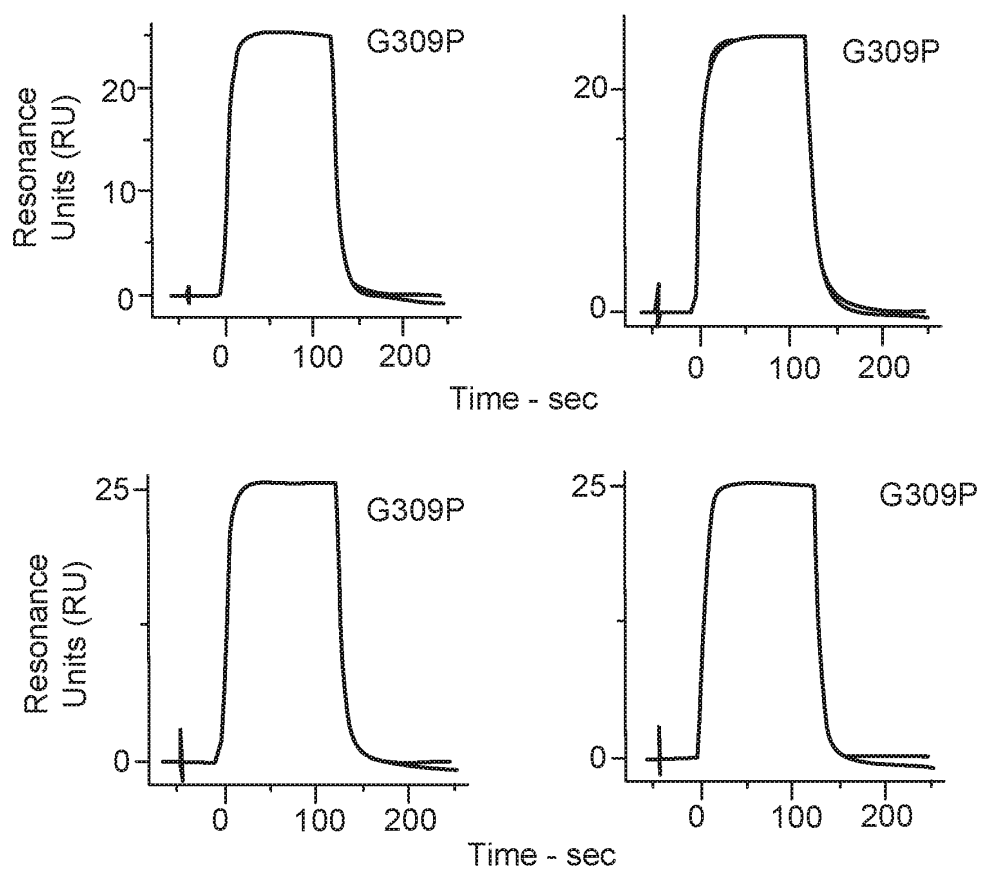


FIG. 11A

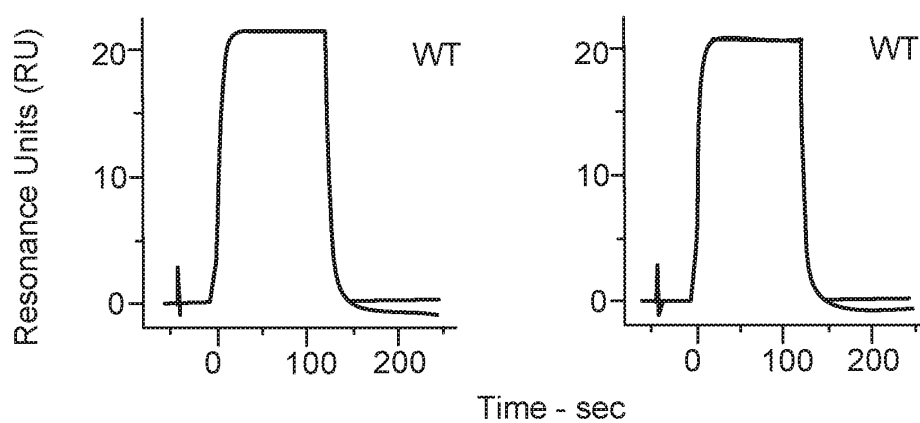


FIG. 11B

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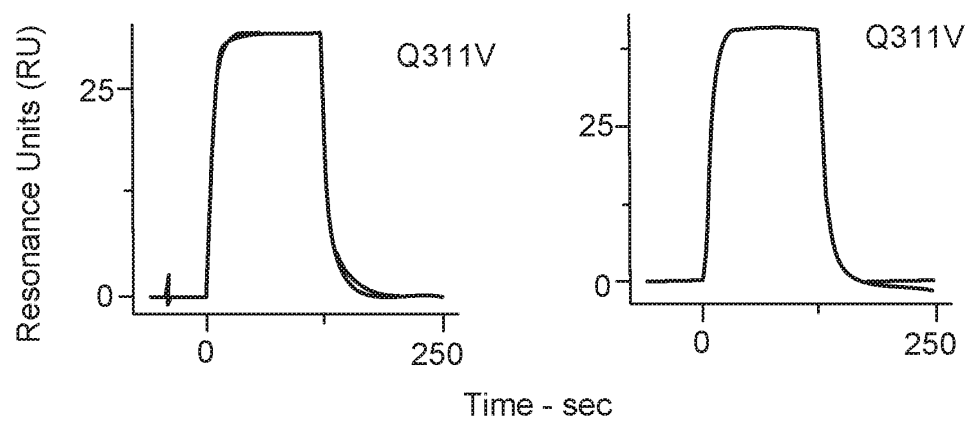


FIG. 12A

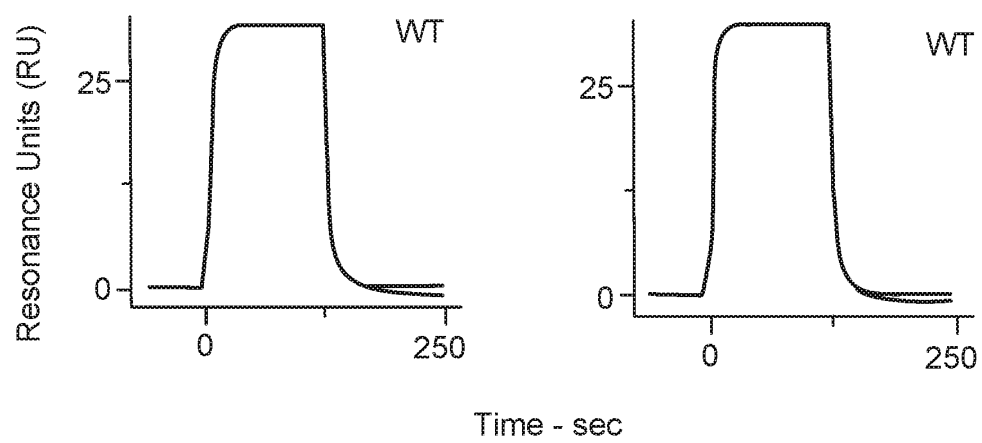
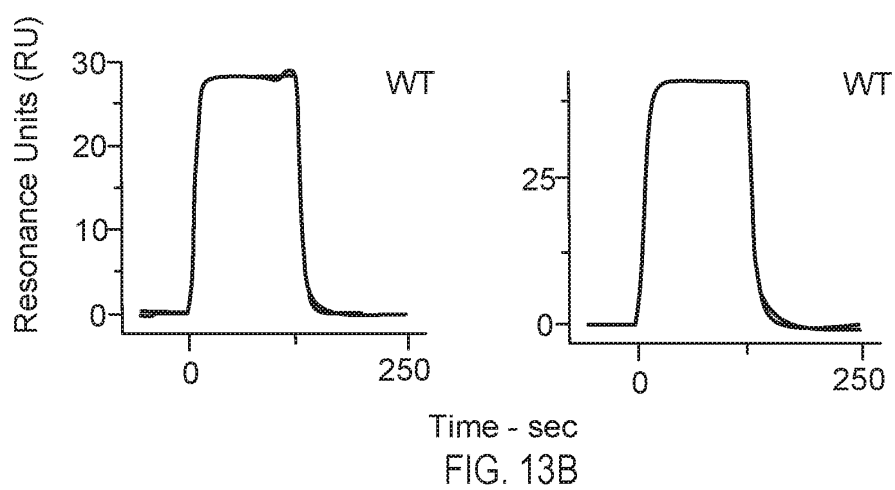
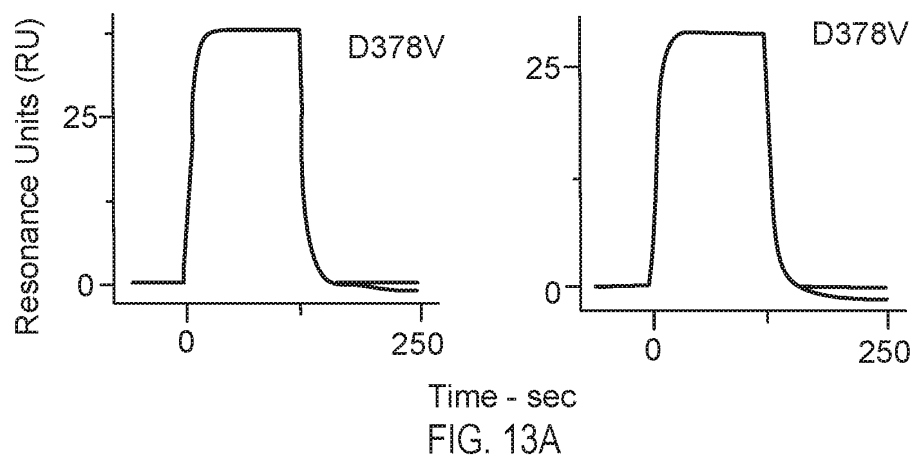
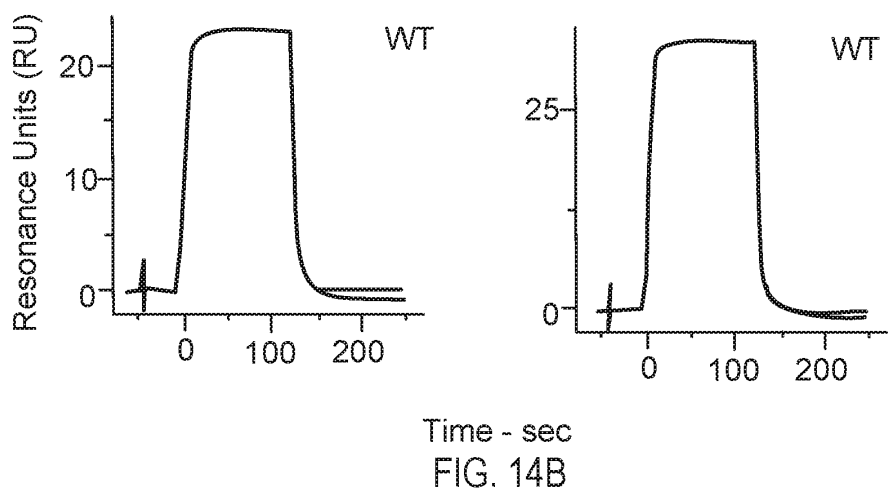
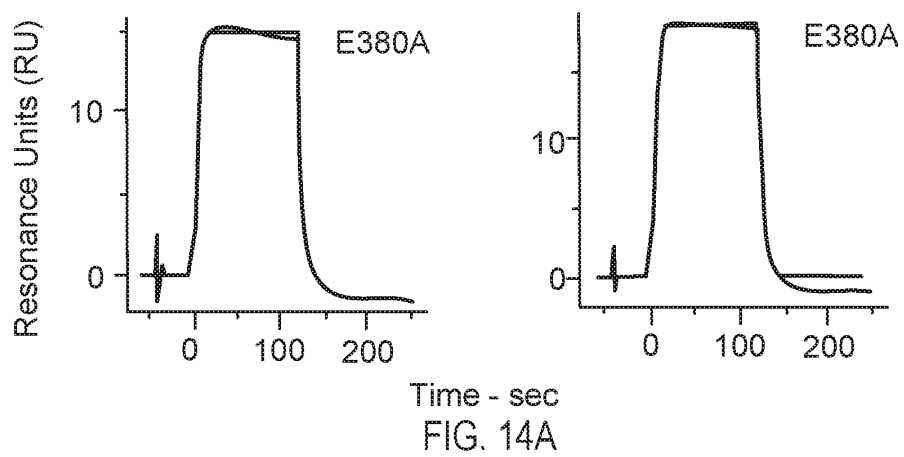


FIG. 12B

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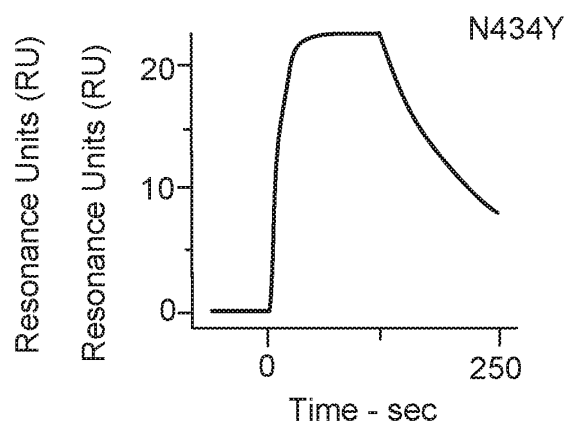
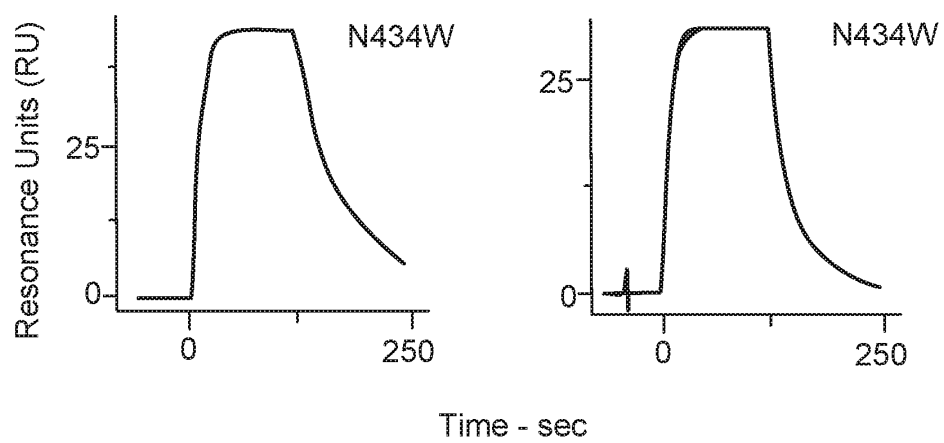


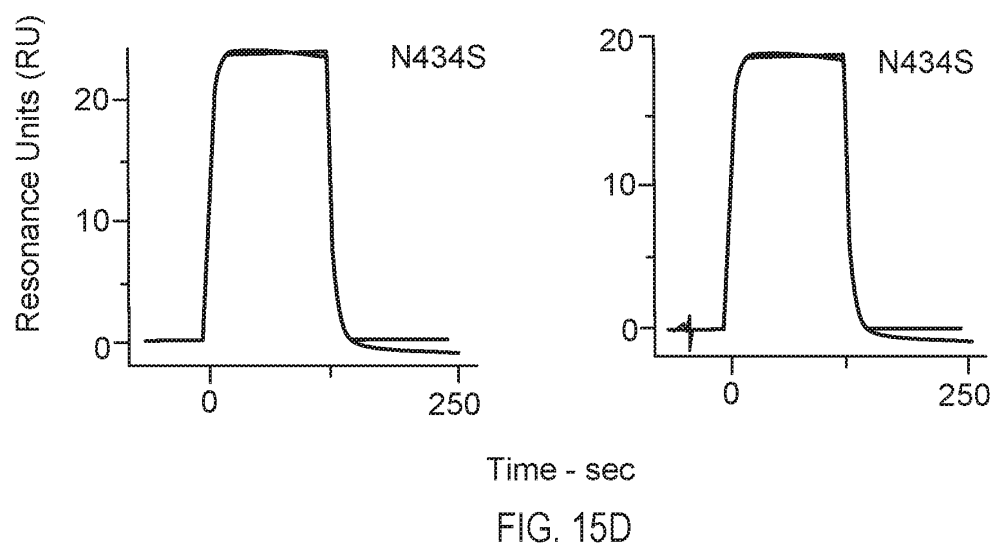
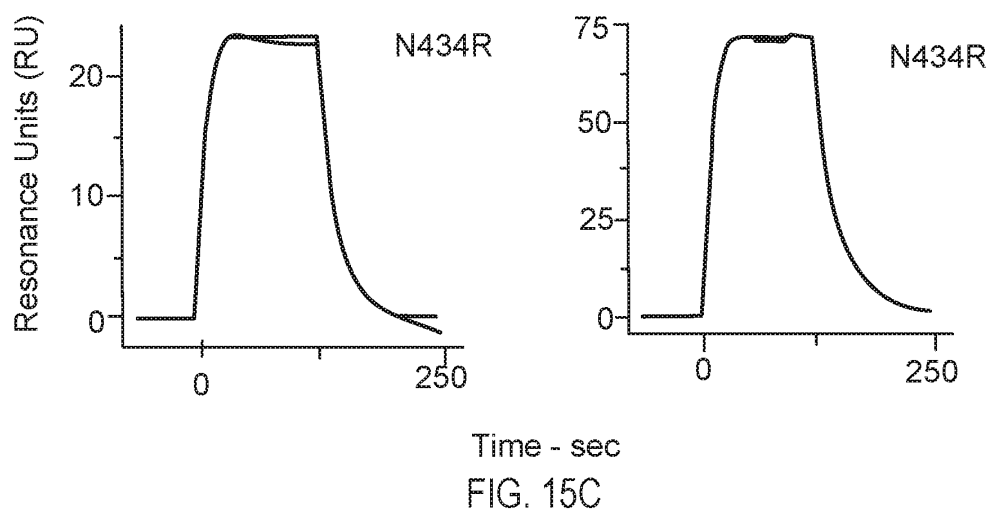
FIG. 15A



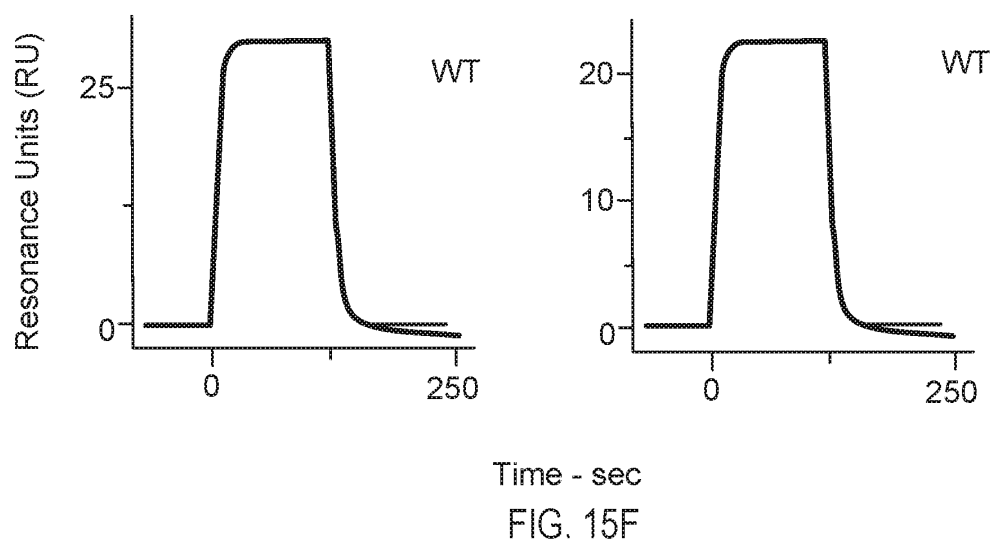
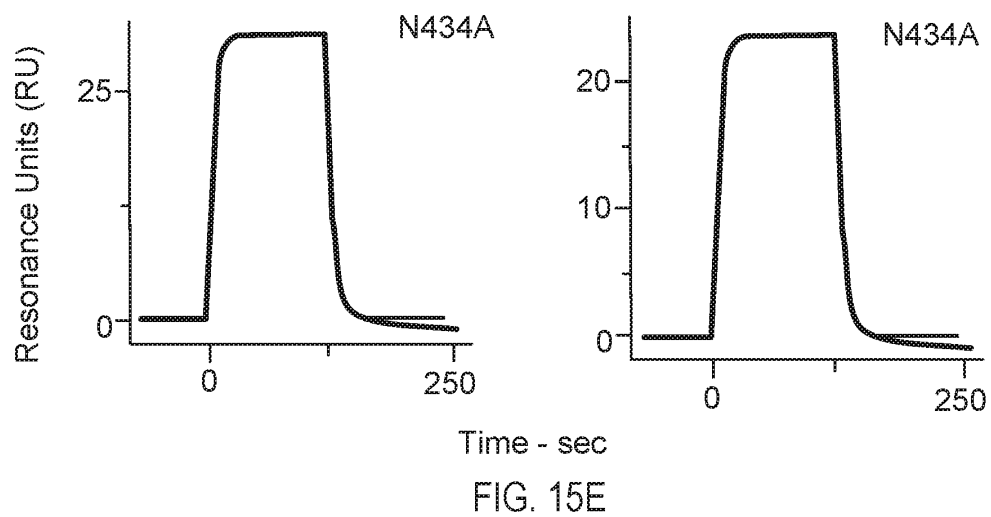
Time - sec

FIG. 15B

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