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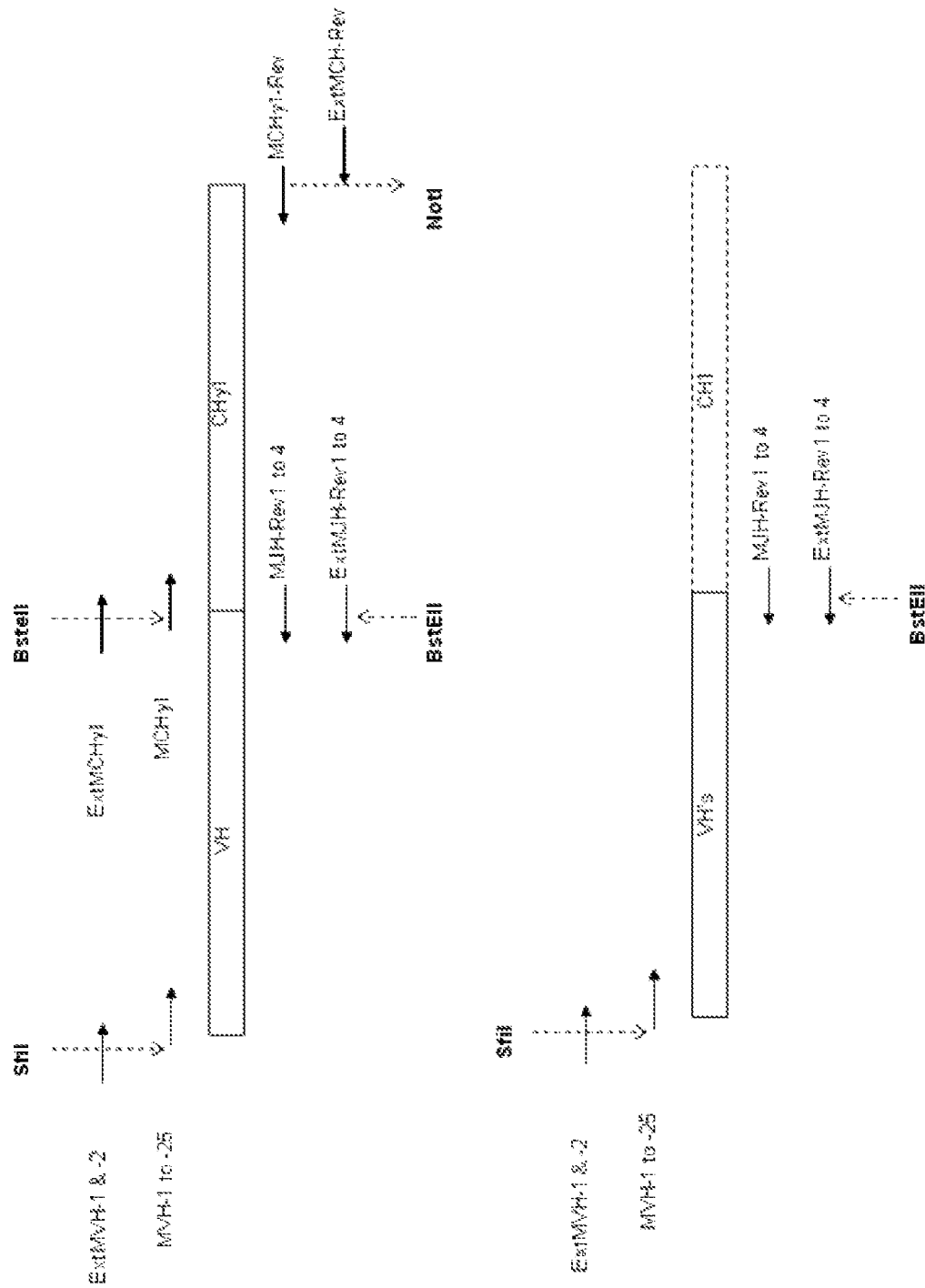


Figure 2

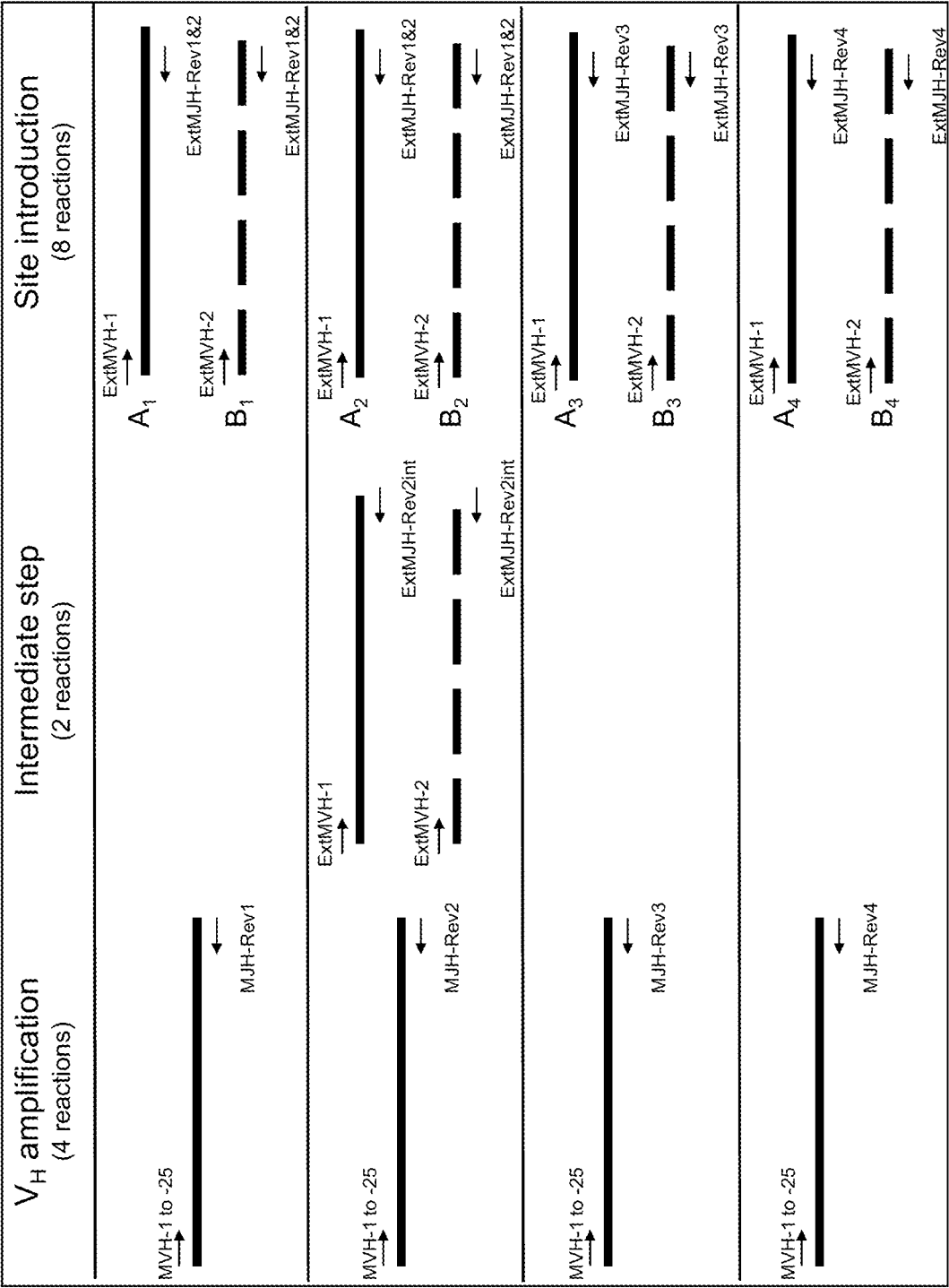


Figure 3

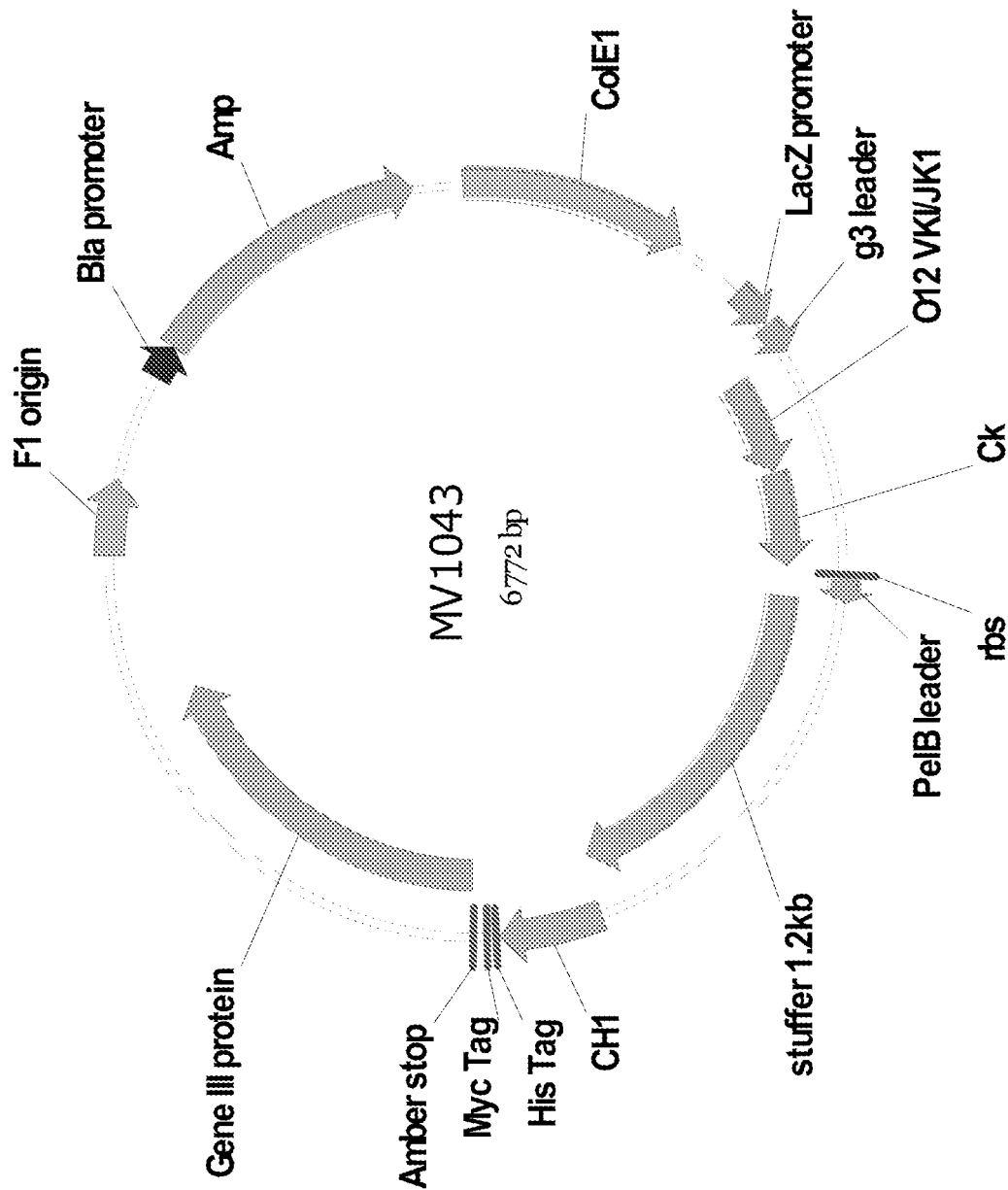


Figure 4

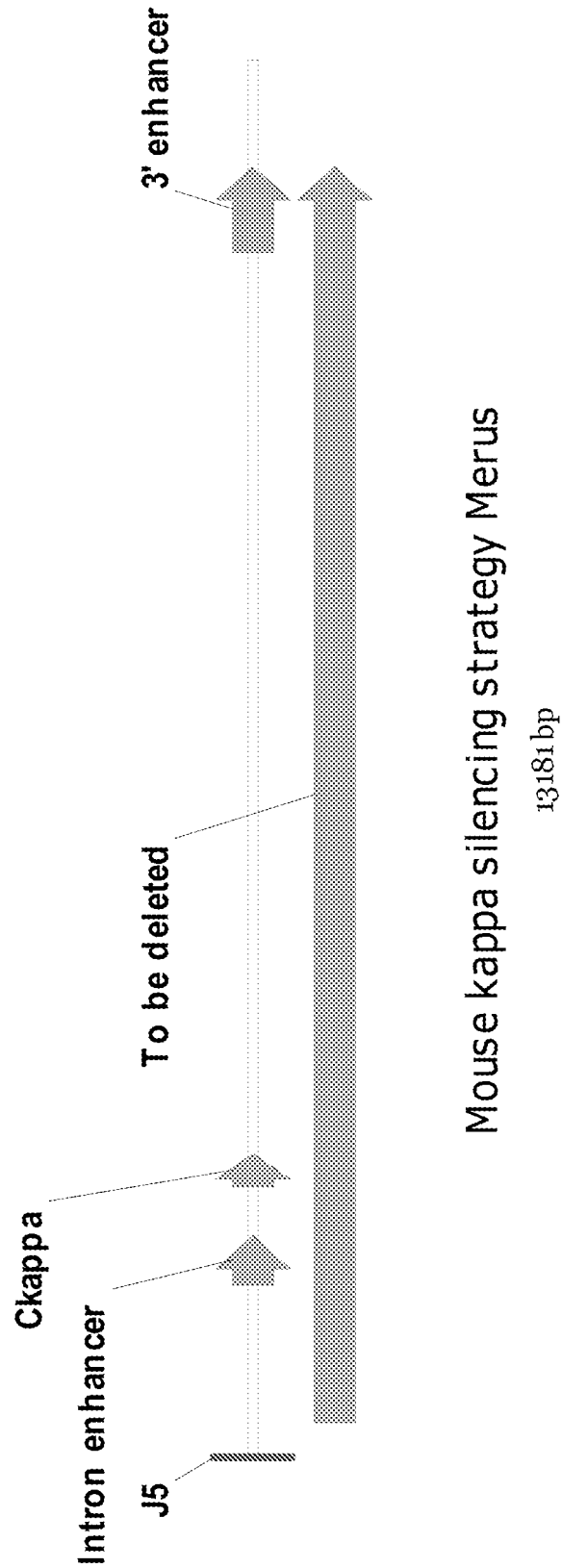


Figure 5

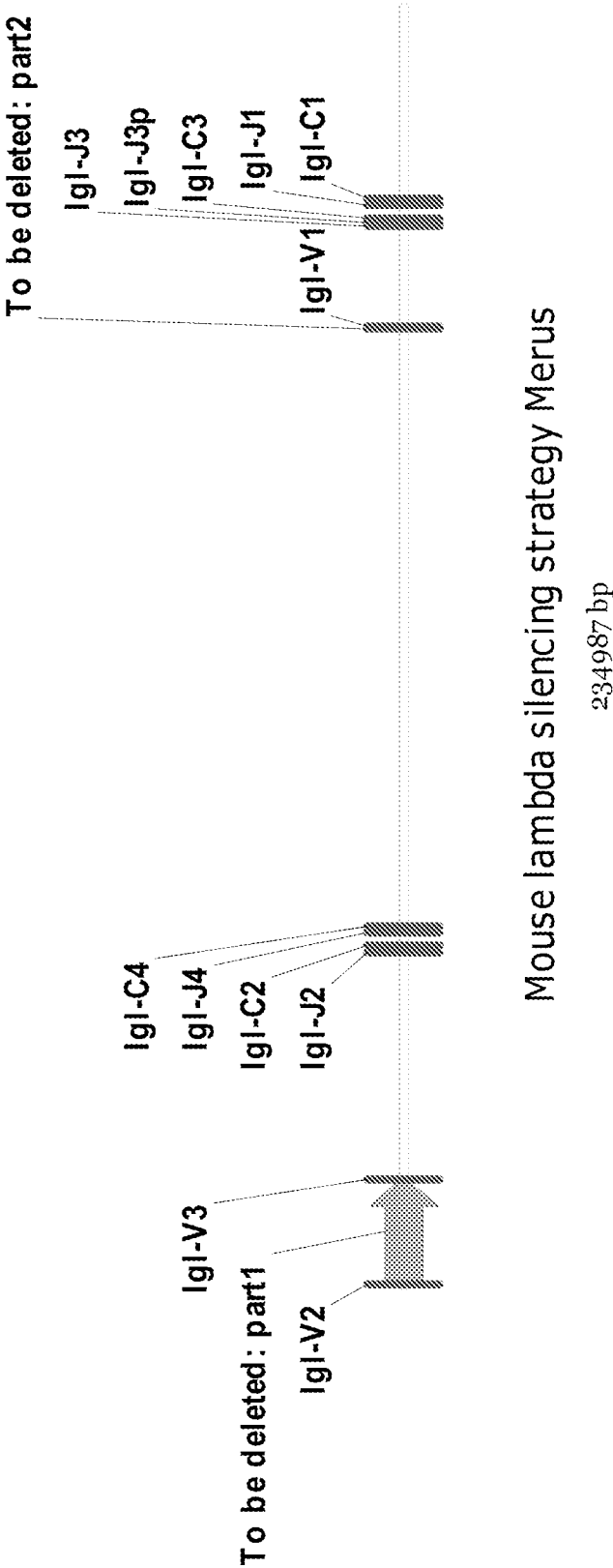


Figure 6

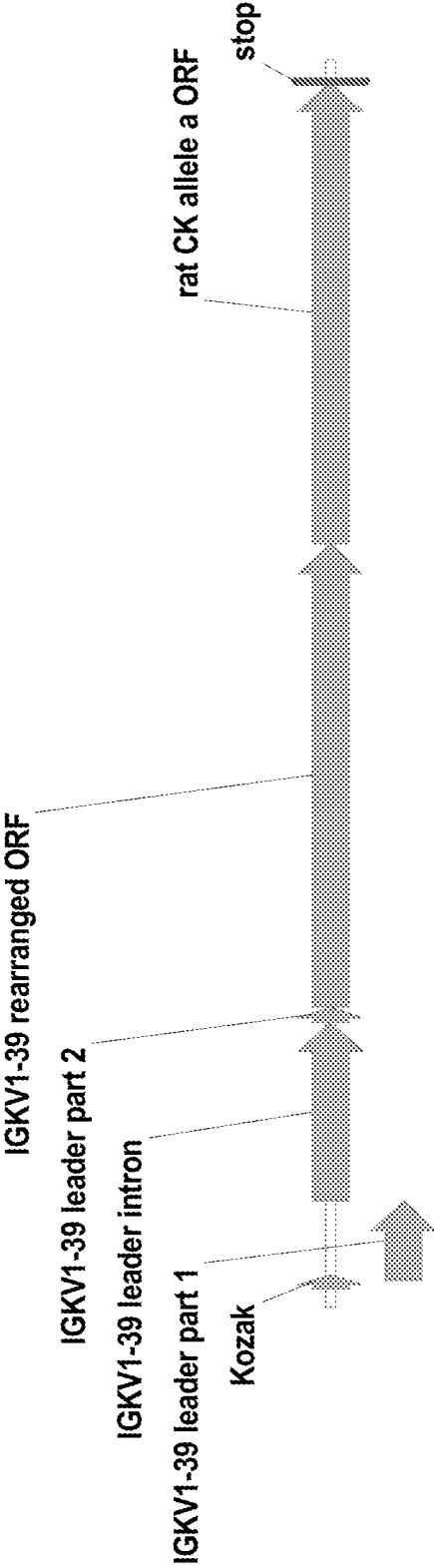


Figure 7

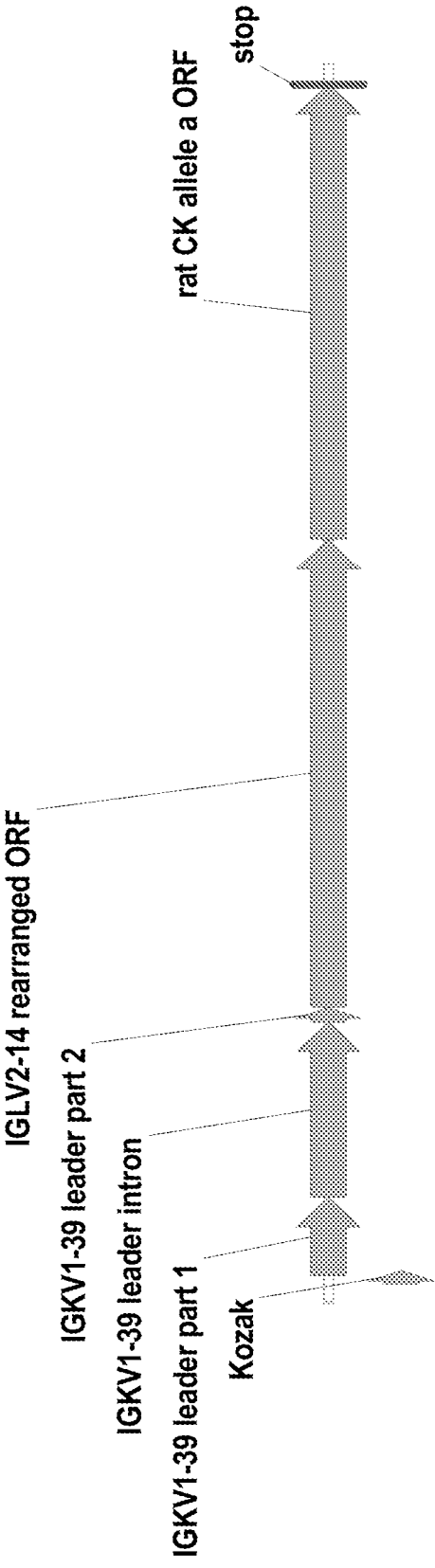


Figure 8

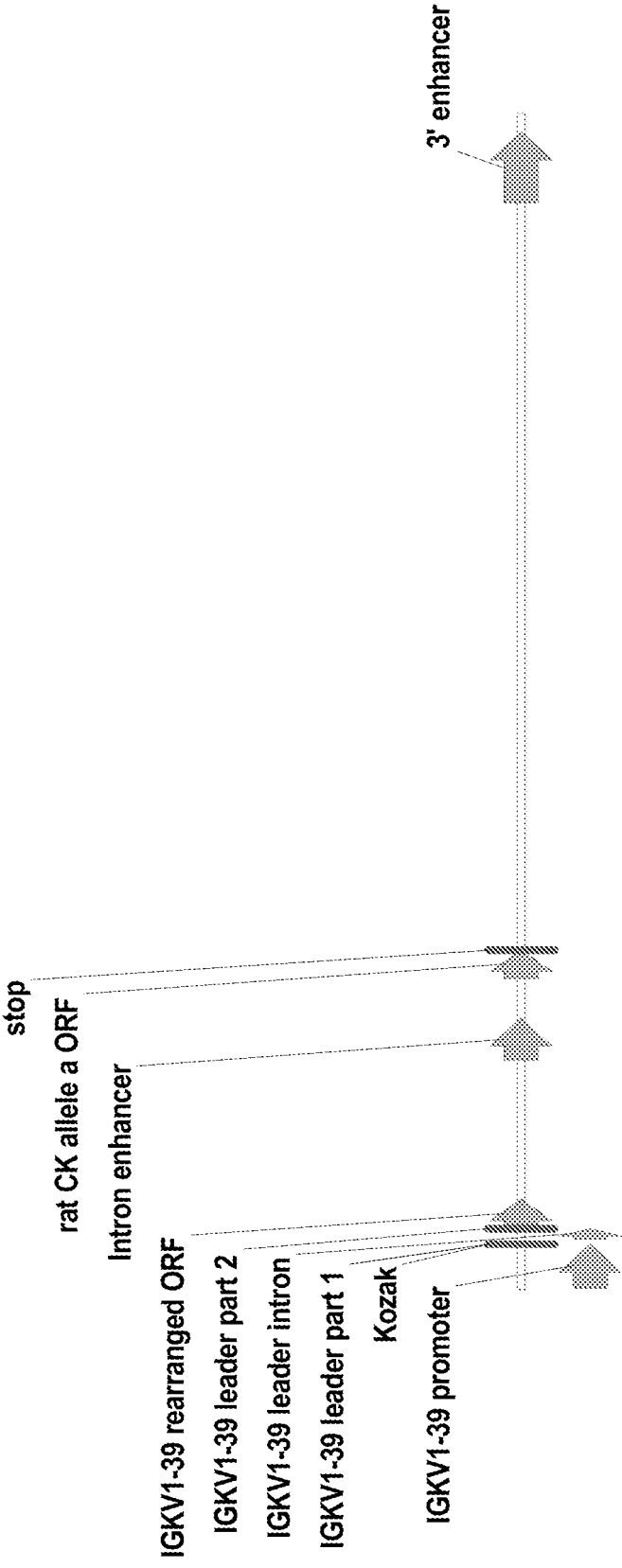


Figure 9

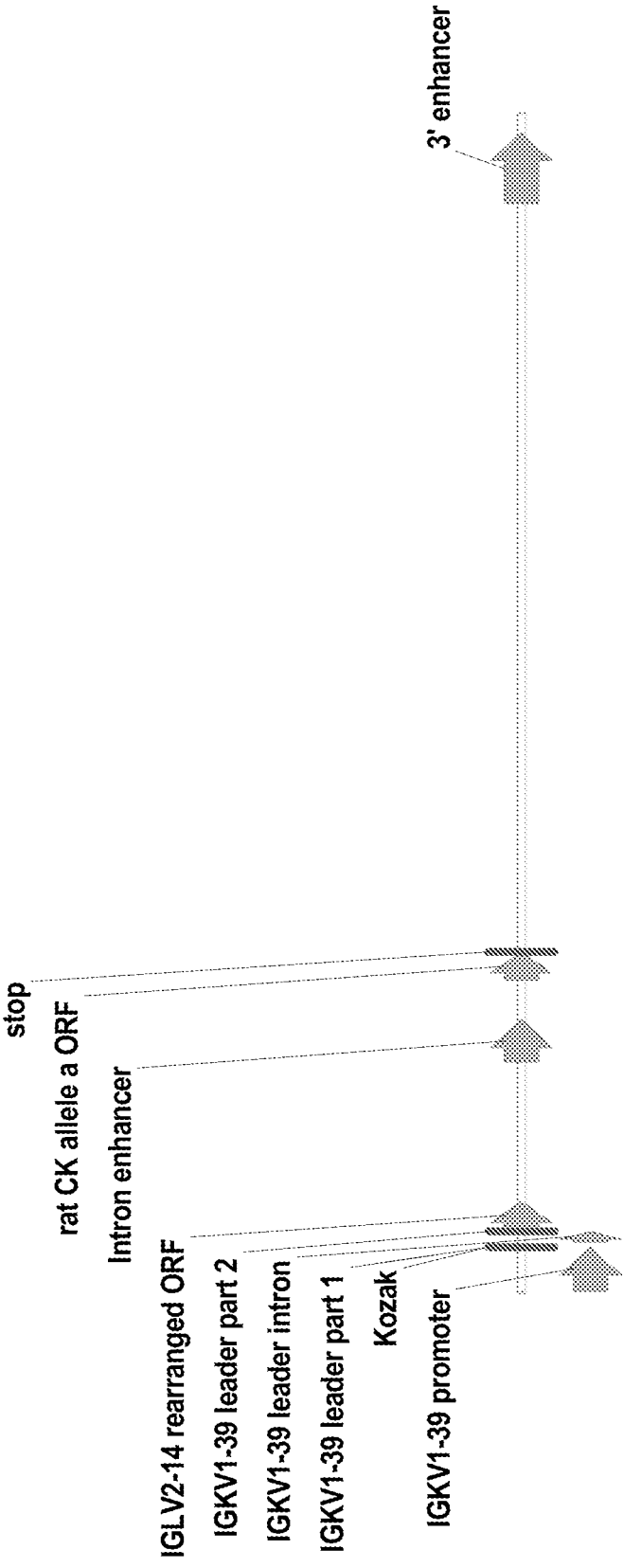


Figure 10

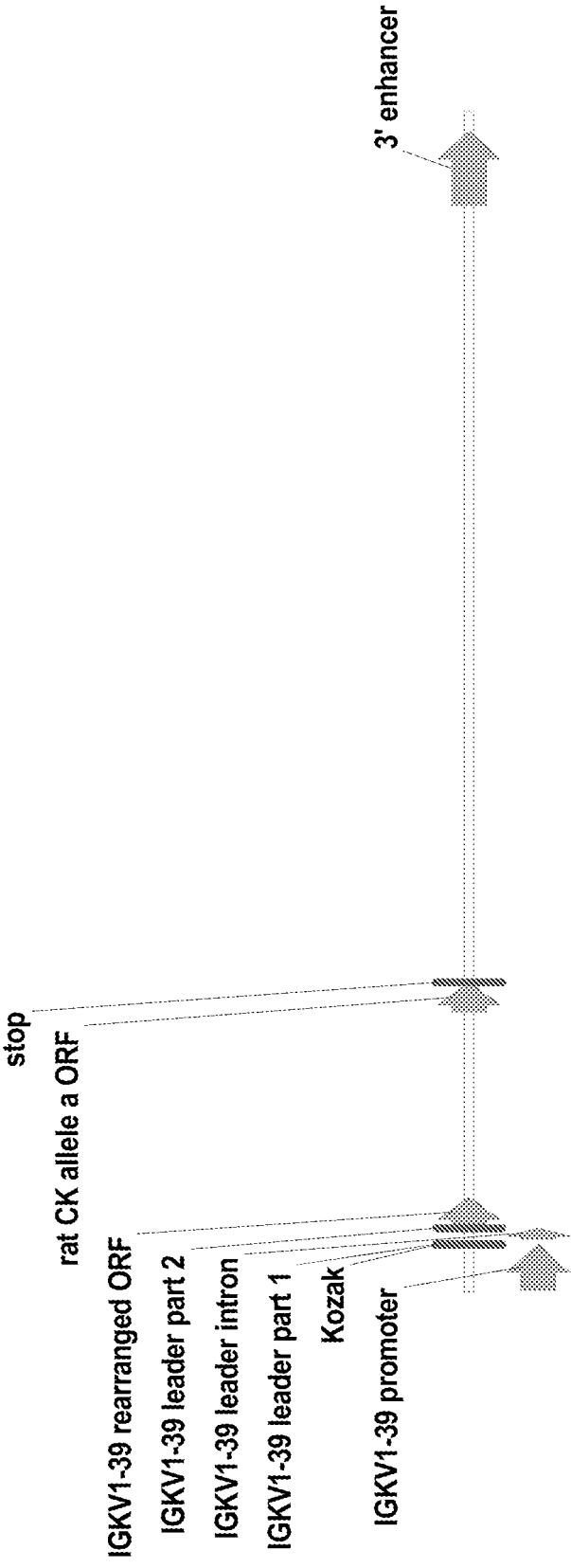


Figure 11

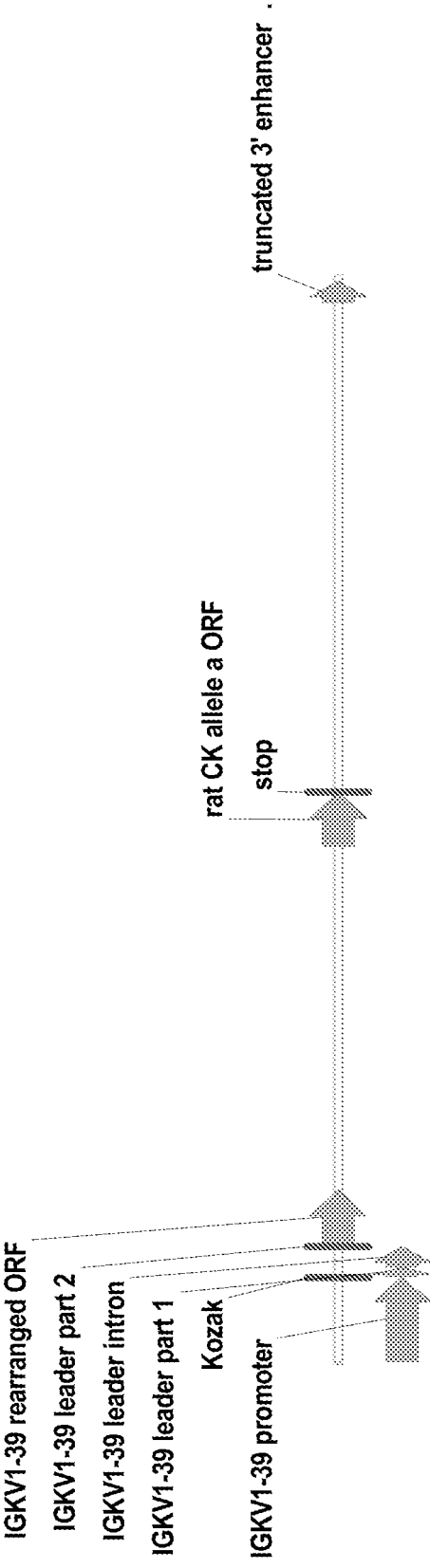


Figure 12

human germline IGKV1-39/J DNA	
1	GAC ATC CAG ATG ACC CAG AGC CCC AGC AGC CTG AGC GGC AGC GTG AGA GGC AGC AGC
79	CAG AGC ATC AGC AGC TAC TAC TGG TAT CAG CAG AAG CCC GGC AAG CTG CTG ATC TAC GCC AGC AGC
157	TCC CTG CAG AGC GGC GTG CCC AGC AGA TTC AGC GGC AGC TCC GGC ACC GAC TTC ACC CTG ACC ATC AGC AGC CTG
235	CAG CCC GAG GAC TTC GCC ACC TAC TAC TGC CAG CAG AGC TAC AGC ACC CCC ACC TTC GGC CAG GGC ACC AAG GTG
313	GAG ATC AAG
human germline IGKV1-39/J Protein	
1	DIQMTQSPSS LSASVGRVT ITCRASQSI SYLNWYQQKPKAPKLLIYA
51	ASSLQSGVES RFSGSGSDT FTLTISLQF EDFATYYCQQ SYSTPTFGQ
101	GTKVEIK
human germline IGLV2-14/J DNA	
1	CAG TCT GCC CTG ACC CAG CCC GCC TCT GTG TCT GGC AGC CCT GGC CAG AGC ATC ACC ATC AGC TGC ACC GGC ACC AGC
79	AGC GAC GTG GGC GGC TAC AAC TAC GTG TCC TGG TAT CAG CAG CAC CCC GGC AAG CCC AAG CTG ATG ATC TAC GAG
157	GTG TCC AAC AGA CCC AGC GGC GTG AGC AAC AGA TTC AGC GGC AGC AAG AGC GGC AAC ACC GCC CTG ACC ATC AGC
235	GGC CTC CAG GCT GAG GAC GAG GCC GAC TAC TGC AGC AGC TAC ACC AGC AGC TCC ACC CTG GTG TTT GGC GGC GGA
313	ACA AAG CTG ACC GTG CTG
human germline IGLV2-14/J Protein	
1	QSALTQPASV SGSPGQSITI SCTGTSSDVG GYNYVSWYQQ HPGRAPKLMI
51	YEVENRPSGV SNRFGSKSG NTASLTISGL QAEDEADYYC SSYTSSSTLV
101	FGGTFKLIVL
Rat IGCK allele a DNA	
1	AGA GCC GAC GCC GCT CCC ACC GTG TCC ATC TTC CCC CCC AGC ATG GAA CAG CTG ACC TCT GGC GGA GCC ACC GTG GTG
79	TGC TTC GTG AAC AAC TTC TAC CCC AGA GAC ATC ACC GTG AAG TGG AAG ATC GAC GGC AGC GAG AGG GAC GGC GTG
157	CTG GAC AGC GTG ACC GAC CAC AGC AAG GAC TCC ACC TAC AGC ATG AGC ACC CTG AGC CTG ACC AAG GTG GAG
235	TAC GAG AGG CAC AAC CTG TAC ACC TGC GAG GTG GTG CAC AAG ACC AGC TCC AGC CCC GTG GTC AAG TCC TTC AAC CGG
313	AAC GAG TGT
Rat IGCK allele a protein	
1	RADAAPTYSI FPSPMEQLTS GGATVVCFVN NFYPRDISVK WKIDGSEQRD
51	GVLDSDTDQD SKDSTYSMSS TSLSTKVEYE RHNLYTCEV HKTSSSPVVK
101	SFNRNEC

IGKV1-39/J-CK

IGLV2-14/J-Ck

VKP-IGKV1-39/J-CK

1	GGC	GGG	CCC	ACA	TGA	AAC	AAT	GGG	AAC	CAT	GTG	ACA	ATC	ACA	GAG	GTG	TTG	TTA	CTA	TAG	CAA	AAG	GGA	TTG	TTA	CTC
79	TCC	ACA	TCC	CTT	TAA	GTA	ACT	TGA	AGG	CCT	GAT	AGA	CCC	ACC	CTC	TAA	GAC	TTC	ATT	AGA	TCC	CTA	CGA	ATG	GTT	
157	ATA	CTC	TCC	TGT	ATA	CTA	CCA	ATA	CAA	CTC	TAA	AAT	ATA	TAT	TTT	ATT	ATA	GTC	CTT	AGG	TTT	GTA	TTA	AAG	TTT	
235	TTT	TTT	TCT	CTA	AAA	TAT	CTC	TTG	TCA	CAA	CAG	CGG	CTG	TAG	AGA	GAA	ATA	CTC	CTC	CAG	GCA	ATA	CTA	TTC	TGC	
313	GCT	GGT	CTG	ACC	TGG	GAC	CCT	GGG	GAC	ATT	GCC	CCT	GTG	CTG	AGT	TAC	TAA	GAT	GAG	CCA	GCC	CTG	CAG	CTG	TCA	
391	GCG	TGC	CCC	ATG	CCC	TGC	TGA	TTG	ATT	TGC	ATG	TTT	CTC	AGC	ACA	GCC	CCC	TGC	TTC	GAA	GAC	TTT	TTT	ATG	GCG	
469	TCC	CAC	CGT	CAG	GAG	TCA	GTG	CTC	TCA	GTC	AGA	AGC	CAC	CAT	GGA	CAT	GAG	GCT	GCC	CGA	GCT	GGG	GCT	CCT		
547	GCT	ACT	CTG	GCT	CCG	AGG	TAA	GGA	TGG	AGA	ACA	CTA	GGA	ATT	TAC	TCA	GCC	AGT	GTG	CTC	AGT	ACT	GAC	TGG		
625	AGG	GAA	GTT	CTC	TGA	TAA	CAT	GAT	TAA	TAG	TAA	GAA	TAT	TTG	TTT	TTA	TGT	TTT	CAA	TCT	CAG	GTG	CCA	GAT		
703	TCC	AGA	TGA	CCC	AGA	GCC	CCA	GCC	TGA	GCG	CCA	GCG	CTG	GCG	GCG	TGA	TGA	CCA	CTT	GCA	GAG	CCA	GCC	AGA		
781	GCA	TCA	GCA	GCT	ACC	TGA	ACT	GCT	ATC	AGC	AGA	CGC	GCA	AGG	CCC	CCA	AGC	TGC	TGA	TCT	ACG	CCG	CCA	CCC		
859	TGC	AGA	GCG	GCG	TGC	CCA	GCA	GAT	TCA	GCG	GCA	GCG	GCT	CCG	GCA	CCG	ACT	TCA	CCC	TGA	CCA	TCA	GCA	GCC		
937	TGC	AGG	ACT	TGG	CCA	GCT	ACT	ACT	GCC	AGC	AGA	GCT	ACA	CCC	CCA	CCC	CTT	TGG	AGG	GCA	AGA	AGG	TGG			
1015	TCA	AAC	GTA	AGT	ACA	CTT	TTT	CTA	TCT	TTT	TTT	ATG	TGT	AAG	ACA	CCC	AGT	TTT	ATG	TTA	GGA	GTT	AAA			
1093	GAA	AAT	CTT	GAG	AAA	ATG	GAG	AGG	GCT	CAT	TAT	CAG	TTG	ACG	TGG	CAT	ACA	GTG	TCA	GAT	TTT	CTG	TTT	AAT		

Figure 12 contd

1171 GTG AGA TTA GGG GCA AAA AGA GGC TTT AGT TGA GAG GAA AGT AAT TAA TAC TAT GGT CAC CAT CCA AGA GAT TGG ATC
 1249 GGA GAA TAA GCA TGA GTA GTT ATT GAG ATC TGG GTC TGA CTG CAG GTA GCG TGG TCT TCT AGA CGT TTA AGT GGG AGA
 1327 TTT GAG GGG GAT GAG AAG TGA AGG AAC TTA GAG AAT GGC CAG AGT CCA GTT CAG CTC CTA AAA TGG ATG TGG
 1405 GAG CAA ACT TTG AAG ATA AAC TGA ATC ACC CAG AGG ATG AAA GAG CGC AGA TCA AAG AGG GGC CTG GAG CTC TGA GAA
 1483 GAG AAG GAG ACT CAT CCG TGT TGA GTT TCC ACA AGT ACT GTC TTG AGT TTT GCA ATA AAA GTG GGA TAG CAG AGT TGA
 1561 GTG AGC CGT AGG CTG AGT TCT CTC TTT TGT CTC CTA AGT TTT TAT GAG TAC AAA AAT CAG TAG TAT GTC CTG AAA TAA
 1639 TCA TTA AGC TGT TTG AAA GTA TGA GTG CTT GCC ATG TTA ACA TGG CTT GAA TCA GAA GAG GTG TGA CTC
 1717 TTA TTC TAA AAT TTG TCA CAA AAT GTC AAA ATG AGA GAC TCT GTA GCG AGT CCT TGA CAG ACA GCT CAA GGG GTT
 1795 TTT TTC CTT TGT CTC ATT TCT ACA TGA AAG TAA AAT TGA AAT GAT CTT TTT TAT TAT AAG AGT AGA AAT ACA GTT GGG
 1873 TTT GAA CTA TAT GTT TTA ATG GGC AGT GTT TTG TAA GAC ATT TTG TCC TTT GTT TTC CCA GTT ATT ACT CGA TTG TAA
 1951 TTT TAT ATC GCC AGC AAT GGA CTG AAA CCG TCC GCA ACC TCT TCT TCA CAA CTG GGT GAC CTC GCG GTG CCA GGT
 2029 ATT TGG CGT TCA CCC TGC CGC TAA GGG CCA TGT GAA CCC CGG TTG TAG CAT CCC TTG CTC CGC GTG GAC CAC TTT CCT
 2107 GAG GCA CAG TGA TAG GAA CAG AGC CAC TAA TCT GAA GAG AAC AGA GAT GTG ACA GAC TAC ACT AAT GTG AGA AAA ACA
 2185 AGG AAA GGG TGA CTT ATT GGA GAT TTC AGA AAT AAA ATG CAT TTA TTA TAT TCC CTT ATT TTA ATT TTC TAT TAG
 2263 GGA ATT AGA AAG GGC ATA AAC TGC TTT ATC CAG TGT TAT ATT AAA AGC TTA ATG TAT ATA AIC TTT TAG AGG TAA AAT
 2341 CTA CAG CCA GCA AAA GTC ATG GTA AAT ATT CTT TGA CTG AAC TCT CAC TAA ACT CCT CTA AAT TAT ATG TCA TAT TAA
 2419 CTG GTT AAA TTA ATA TAA ATT TGT GAC ATG ACC TTA ACT GGT TAG GTA GGA TAT TTT TCT TCA TGC AAA AAT ATG ACT
 2497 AAT AAT AAT TTA GCA CAA AAA TAT TTC CCA ATA CTT TAA TTC TGT GAT AGA AAA ATG TTT AAC TCA GCT ACT ATA ATC
 2575 CCA TAA TTT TGA AAA CTA TTT ATT AGC TTT TGT TGA CCC TTC CTT AGC CAA AGG CAA CTA TTT AAG GAC CCT TTA
 2653 AAA CTC TTG AAA CTA CTT TAG AGT CAT TAA CCA CTT TTA ATT ACT TTA AAA TGA TGT CAA TTC CTT TTT
 2731 AAC TAT TAA TTT ATT TTA AGG GGG GAA AGG CTG CTC ATA ATT CTA TTG TTT TTC GTA AAG AAC TCT CAG TTT TCG
 2809 TTT TTA CTA CCT CTG TCA CCC AAG AGT TGG CAT CTC AAC AGA GGG GAC TTT CCG AGA GGC CAT CTG GCA GTT GCT TAA
 2887 GAT CAG AAG TGA AGT CTG CCA GTT CCT CCT AGG CAG GTG GCC CAG AAT ACA GTT GAC CTG TTC TGG TGT GGC TAA AAA
 2965 TTG TCC CAT GTG GTT ACA AAC CAT TAG ACC AGG GTC TGA TGA ATT GCT CAG AAT ATT TCT GGA CAC CCA AAT ACA GAC
 3043 CCT GGC TTA AGG CCC TGT CCA TAC AGT AGG TTT AGC TTG GCT ACA CCA AAG GAA GCC ATA CAG AGG CTA ATA TCA GAG
 3121 TAT TCT TGG AAG AGA CAG GAG AAA ATG AAA GCT AGT TTC TGC TCT TGA CTT ATG TGC TGT TCA GAC TCC CAA ACA
 3199 TCA GGA GTG TCA GAT AAA CAG CTG AGA ATA TCT TCA AAG GTT CAG ATG AAA AGA ATG TAG TTT CAG GGA AGA AAG
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 3355 AAT AAC TTA GAA ACA ACA AGA TTG TAT ATA TGT GCA TCC TGG CCC CAT TGT TCC TTA TCT GTA GGG ATA AGC GTG CTT
 3433 TTT TGT GTG TCT GTA TAT AAC ATA ACT GTT TAC ACA TAA TAC ACT GAA ATG GAG CCC TTC TCC CCC CCA GCA TGG AAC AGC TGA CCT
 3511 CCT CTG TGC TTC CTT CCT CAG GGG CCG ACG CTC CCA CGG TGT CCA TCT TCC CCC CCA GCA TGG AAC AGC TGA CCT
 3589 CTG GCG GAG CCA CCG TGG TCT GCT TCG TGA ACA ACT TCT ACC CCA GAG ACA GCA AGG ACT CCA CCT ACA TGA TCG ACG GCA
 3667 GCG AGC AGA GGG ACG TGG TGC TGG ACA GCG TGA CCG ACC AGG ACA GCA CCT CAG ACG CCA CCA GCT CCC CAG CTC CAT CCT
 3745 TGA GCC TGA CCA AGG TGG AGT ACG AGA GGC ACA ACC TGT ACA CCT GGT TGC GGT GCT CCA AAC CTC CTC CCC ACC
 3823 TGG TCA AGT CCT TCA ACC GGA ACG AGT GTT GAA GAC AAA GGT CCT GAG ACG CCA CCA GCT CCC CAG CTC CAT CCT
 3901 ATC TTC CCT TCT AAG GTC TTG GAG GCT TCC CCA CAA GCG ACC TAC CAC TGT TGC GGT GCT CCA AAC CTC CTC CCC ACC
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 4057 CAC TTG AGA TCT CTG TCT TTT TTA CTA AAT AGT AAT CAG TTG TTT TTC CAG TTA CCT GGG TTT TCG TTG TTA AGA
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 4369 CTG ATT CAA CCT ACC CAG TAA ACT TGG CGA AGC AAA GTA GAA TCA TTA TCA CAG GAA GCA ACC TAA ATG TGC
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 4603 ACA CAC ATA CAT CAA AAT TTG GGA AAA GTT CTA CCA AGC TGA GAG CTG ATC ACC CCA CTA GGT GCT TAT CTC TGT
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 4759 CAC CAA CAG TTA AAT TAT GAC ATG TTC ACA ATT GAG CTA TTA CTT AAT AAG GAG AAT TAA TAA AAT AAA ACT TAA GAG
 4837 CAT AGT TTA ATC TCA TAA ACA AGA TAA TAA GCA AAA CAA AAC ATT TTT TCA TCC ATG TAA GAT CAG GTA AAA

Figure 12 contd

8659 TCT GCC TCT GCC TCT GCC TCT GCC TCT GCC TCT GCC TCT GCC TCT GCC TCT GCC TCT GCC TCT GCC TCT GCC
8737 TCT GCC TCT GCC TCT GCC TCT GCC TCT GCC TCT GCC TCT GCC TCT GCC TCT GCC TCT GCC TCT GCC TCT GCC
8815 AAC TTT ATA TAT GTC TCA TTC TAT CAG ATA GCG TTG TGT TGT TTT TGT TGT TGT TGT TGT TGT TGT TGT TGT
8893 AGT AAT CGC AAG TTG TAT TGT TGT TGT TGT TGT TGT TGT TGT TGT TGT TGT TGT TGT TGT TGT TGT TGT
8971 TTG CTT TGC TTT GCG TTT GCG TTT GCG TTT GCG TTT GCG TTT GCG TTT GCG TTT GCG TTT GCG TTT GCG TTT
9049 GGG GAG GGA GGG TGG AGA AAG AAT CTT ACT ATC TGC CAA TGG CTG TGA CTG TGG GAA CTC ACT ATA TAG ATC AGG CTT GAT
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9205 TCC CAA GTT TTA GCA AAA GTT TCT AGA CTT GAC ATT AAT GAG ATA AAG GCA TGA ATT ACA CAA AGA ACT AAT GTG
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9517 TAC TTT CAA TAT TTT TAA TGT ATA TGT TTT TTA TTT CCA CTG ATT TTA TTT TTT ATT TTT AAC ATT TAT AAG AAA TAA
9595 ATG CAA TAA ACC AAA TAC ATG GAC AAA ATA CAA GAA TCA TAT GAT CAC CTC AAT GGA AGG AAA AAA GAA GAA AGA
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9829 GAG GCA TAT GAT CTT CAA AAA ACC AAG GGC CTC TCC TCT CAT TGG TGG CCG ACT AIT AGG CCA TCT TTT GGT ACA TAT
9907 GCA ACT AGA GAC ACA GCT CTG GGG GTT ACT GGT TAG TTC ATA TTG TTA GTC CTC CTA TAG AGT TGC AGA CCC CTT TAG
9985 CTC CTT GGA TAC TTT CTT TAG TTC TTT CAT TAG GGG CCC TGT GTC CCA TCC AAT AGA TGA CTG TGA GCA TCC ACT TCT
10063 GTA TTT GCC AGG CAC TGG CAT AGC CTC ACG AGA AAG AGA GAG CTA TGT CAG GAT CCT GTC AGT AAA ATC TTT CTG GCA
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12325 CTA GGA AGA CTG AGG CAG GAA GTC CTC GAG CTC AAA CCA GCT TAG GCT ACA CAG AGA AAC TAT CTA AAA AAT AAT TAC

[illegible]

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79	TCC	ACA	TCC	CTT	TAA	GTC	ACT	TGA	ACG	CCT	GAT	AGA	CCC	ACC	CTC	TAA	GAC	TTT	ATT	AGA	CAT	TCC	CTA	CGA	ATG	GTT	
157	ATA	CTC	TCC	TGT	ATA	CTC	CCA	ATA	ACA	CTC	TAA	AAT	ATA	TTA	TTT	ATA	GTC	CTT	CTT	AGT	TTT	GTA	TTA	AGA	TTT	GAC	
235	TTT	TTT	CTC	TAA	AAA	TAT	CTC	TTG	TCA	CRA	CGG	CTC	TAG	AGA	GAA	ATA	CTT	CTG	CTC	CAG	GCA	AAT	ATA	CTG	TGC	TGC	
313	GCT	GGT	CTG	ACC	TGG	GAC	CCT	GGG	GAC	ATT	GCC	CCT	GTG	CTG	AGT	TAC	TAA	GAT	GAG	CCA	GCC	CTG	CAG	CTG	TGC	TCA	
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547	GCT	ACT	CTG	CGT	CCG	AGG	TAA	GGA	TGG	AGA	CTA	GGA	ATT	TAC	TCA	GCC	AGT	GTG	CTC	AGT	ACT	GAC	TGG	AAC	TTT	CTC	
625	AGG	GAA	GTT	CTC	TGA	TAA	CAT	GAT	TAA	TAG	TAA	GAA	TAT	TTG	TTT	TTA	TGT	TTT	CAA	TCT	CAG	GTG	CCA	GAT	GTG	ACA	
703	TCC	AGA	TGA	CCT	AGA	GCC	CCA	GCA	GCC	TGA	CGC	CCA	CGC	TGG	GGC	GCA	GAG	TGA	CCA	TCA	CCT	GCA	GAG	CCA	GCC	AGA	
781	GCA	TCA	GCA	CCT	ACC	TGA	ACT	GGT	AGT	AGC	AGA	AGC	GCA	AGC	CGC	GCA	AGG	CCC	CCA	AGC	TGC	TCT	ACG	CGC	CCA	GCT	CCC
859	TGC	AGA	GCG	GCG	TGC	CCA	GCA	GAT	TCA	GCG	GCA	GCG	GCT	CCG	GCA	CCG	ACT	TGA	CCC	TGA	CCA	TCA	GCA	GCC	TGC	AGC	
937	CCG	AGG	ACT	TGC	CCA	CCT	ACT	ACT	GCC	AGC	AGA	GCT	ACA	GCA	CCC	CCC	CCA	CCT	TGC	GCC	AGG	GCA	CCA	AGG	TGC	AGA	
1015	TCA	AAC	GTA	AGT	ACA	CTT	TTT	TTT	TTT	TTT	ATG	TGT	AAG	AGA	CAG	GTT	ATG	TTA	GGA	ATT	AAA	GTC	ATT	AAA	GTC	ATT	CTA
1093	GTA	AAI	CTT	GAG	AAA	ATG	GAG	AGG	GCT	CAT	TAT	CAG	TTG	ACG	TGA	CAT	ACA	GTG	TCA	GAT	TTT	CTG	TTT	ATC	AAG	CTA	
1171	GTG	AGA	TTA	GGG	GCA	AAA	AGA	GGC	TTT	AGT	TGA	GAG	GAA	AGT	AAT	TAA	TAC	TAT	GGT	CAC	CAT	CCA	AGA	GAT	TGG	ATC	
1249	GGA	GAA	TAA	GCA	TGA	GTA	GTT	ATT	GAG	ATC	TGG	GTC	TGA	CTG	CAG	GTA	GCG	TGG	TCT	TCT	AGA	CGT	TTA	AGT	GGG	AGA	
1327	TTT	GGA	GGG	GAT	GAG	GAA	TGA	AGG	AAC	TTT	ACG	ATA	GAA	AGG	GGC	TGA	AGT	CAA	GTT	AGA	CTC	ATA	TGG	ATG	TGG	CTC	
1405	GAG	CAA	ACT	TTG	AAG	ATA	ATG	GAG	AGG	GCT	CAT	TAT	CAG	TTG	ACG	TGA	CAT	ACA	GTG	TCA	GAT	TTT	CTG	TTT	ATC	AAG	CTA
1483	GAG	AGA	GAC	ACT	CAT	CCG	TGT	TGA	GTT	TCC	ACA	AGT	ATG	CTC	TTG	AGT	TTT	GCA	ATA	AAA	GTG	GGA	TAG	CAG	AGT	TGA	
1561	GTG	AGC	CGT	AGG	CTG	AGT	TCT	CTC	TTT	TGT	CTC	CTA	AGT	TTT	TAT	GAC	TAC	AAA	AAT	CAG	TAG	TAT	GTC	CTG	AAA	TAA	
1639	TCA	TTA	AGC	TGT	TTG	TAA	GTA	TGA	CTG	CYT	GCC	ATG	TAG	ATA	CCA	TGG	CYT	GAA	TGA	TCA	GAA	GAG	GTG	GTG	GCA	CTC	
1717	TTA	TTT	CTT	TGT	TTG	ACA	CAA	AAI	GTG	AAA	ATG	AGA	GAT	AGA	TCT	GTA	GGA	ACG	AGT	CCCT	TGA	CAG	ACA	GCT	CAA	GGG	

Figure 12 contd

6241 ACA ACT GCT TCC CTC CTG GTG TGA TAT CTG TTT TGT AGC ATA ATA TTA TAA GGA ATG TTT GTG TGA ATA
 6319 AAC CAA ACA TAT TTT AAA AGC AAA TAT TGT ATG CAC ATC CTA ATT GCT AAA AAG TTT ACA GCT AAT AGT CCC ATG CTC
 6397 TCC ATG ATA CTG GAT CCA AAT AAG TCC TAA TTT CAA TGT TGG GCA TCT TTA CAG AGA GAA CAT TAA AAA TGA AGA
 6475 GAC ATG CAG AGA GTG CAC CAT GCC ATG CAG ACA GAT AET GAC ACA ACT GTT CAA AGA GGA TTA AGG ACT
 6553 TCC AGA AGC CAC CAA AGG AAG GAG GTA TGA AGT GGT TTC TCC CTC AGA GTA TCC AGA GGA CAC TAA ACC AAC CAA CAC
 6631 CTT TTT GCT TAA GAC TTC TTG CCT TCA GGA CTG TGA GAA GAT AGC AAA AGG ATA GCT GAG TTT TCC AGG CCC TTC CTT CTT
 6709 TTG TTA AGG TAG AGT CAA GAA ACC AAT AAA ATG CAG ACA GAC AAA AGG ATA GCT GAG TTT TCC AGG CCC TTC CTT CTT
 6787 ATT TTT GGT TTT GGT GGT GGT GGT GGT TTT TTT TTT TTT TTT TTT TTT TTT TTT TTT TTT TTT TTT TTT
 6865 GGG GTT TTT TTG GGT TTT GGT TTT GGT TTT TTT TTT TTT TTT TTT TTT TTT TTT TTT TTT TTT TTT TTT
 6943 TTT TTG TTT TTT TGA GAC AGT GTT TCT CTG TAT AGC CCT GCG TGT CCT GGA GTT CCT TCT AIC TCT AAT GTG TAC ATC
 7021 TCA GAG GGG ATC CTC TAA TTT CAA ATG AGC AGT AGC TCT TCA TTT TTA GCT CTT ATT TAT TCA TTT AAT TAC TTA CTT
 7099 ACT TAT TGT CTG TAG ATG AAA GAA TTT TGG AGT GGG AAA GGG TTC ATG AGC CCC CAG CAA CTA ATG AGG AGC TAC AGA
 7177 CAA TTG ATG TTT CTG GGG AAA GGA GAC TCA GTT TCT TTG AGA GTA TAG CTT CTG ATG GGT CAA CCA TGT TCC TGT GGC
 7255 TGA TGT CAC ACC CAG GAG TAT GCA GAC AAT TAA ATA CAG AAT CTG AAA GAA TTA ATA AAA AAG GGC ATG AAG
 7333 CTT GGG ATA GAA ATT AAG GAT AAA TAC AAT TAA ATA CAG AAT CTG AAA GAA TTA ATA AAA ACA TTT CTT TTT TTA
 7411 AAA AAA AAT CCA GAA TTA GCT ATG CTT CTT CAA AAT TGC TTC TEG AGA ACT TTA CAA GTT AAA TAA GTT ATA TTG TAG
 7489 AAA AGG TAG AGA GGA TAG TGG AAG AGA GAG ATA AGG AGA CTT CAA AAG GAG TGG AGG GAG ATA GAG GAG GAG AAA
 7567 GCA GAA GCA ATG GCT GAT AGA CAC AGG ATA AGA GGG AAC AGA AAG GAG AAA GAG GAG AAA GAG GAG GAG AAA
 7645 CCT ATC TGT GAC TTG CAC ATG GTC TTG GCA ATT ATT GAT GAG TTC AAG GCT TAA TTC TTT ACT TGT GGC AAC TCA ACA
 7723 GAG TCT TTC TTT CTT ATA ACC AGG CCC CCA GTA TGC TCA TGT ATG TAT CAG GTC TTA TCT CCT TAT AGC AAT CCT
 7801 GTT TAT AAC TGG GTA ACT TTG TGA AGG GAA GGA AGT GCA CAC TGA GAT GTG CTA CAA CTT TTT AAT ACA AAA TTT TGA
 7879 AGA GTT TGT ACA ATG TAT GTA TAA TTA ATA ATT AAT ATT ATG CAC TTT AGA TTT TGA TTT CAA CTC AAG ATA CTA ATT
 7957 CTA TAT ATA TGG GTT AAA TCA ATA TAT TAA TAA GTT TAA TTT CAC ATT CTT ATT TTT GTG CTT TTC GAG ACA GGG
 8035 TTT CTC TGT ATA GCC CTG GCT GTC GAA CCA ACT TTG TAG ACC AGG CTG GCC TCA AAC TCA GAA ACC TAC CTG CCT
 8113 CTG CCT CTG CCT CTG CCT CTG CCT CTG CCT CTG CCT CTG CCT CTG CCT CTG CCT CTG CCT CTG CCT CTG CCT
 8191 CTG CCT CTG CCT CTG CCT CTG CCT CTG CCT CTG CCT CTG CCT CTG CCT CTG CCT CTG CCT CTG CCT CTG CCT
 8269 CTG CCT CTG CCT CTG CCT CTG CCT CTG CCT CTG CCT CTG CCT CTG CCT CTG CCT CTG CCT CTG CCT CTG CCT
 8347 TCT CAT TCT ATT TCT ATC AGA TAG GAC TGT GTA GAC TGT GCT AAA CTA ATA AAT ATG CCC TCA AAA GTA ATC GCA AGT
 8425 TGT ATT GTT GTT TTG CTT TGC CTT TGT TGT TGT TGT TGT TGT TGT TGT TGT TGT TGT TGT TGT TGT TGT TGT TGT
 8503 CTT TGC TTT GCT TTG CTT TGC TTT GCT TTG CTT TGT TGT TGT TGT TGT TGT TGT TGT TGT TGT TGT TGT TGT TGT
 8581 GGA GAA AGA ATC TTA CTA TGA AGC TCT GAC TGA TGT TGT TGT TGT TGT TGT TGT TGT TGT TGT TGT TGT TGT TGT
 8659 ATC TGC CTT CTT CTG CTT CCC AAG TGC TGG GAA TAA AGG CAT ACA CCA CCA TTA CAC AAA GAA CTA ATG TGG AGT TTA CTT TAG
 8737 CAA AAG TTT CTA GAC TTG ACA TTA ATC GAT GAA TTA CAC AAA GAA CTA ATG TGG AGT TTA CTT GAA
 8815 TCA TAC TCT ATA CTT TAT CAG AGA TTA AAT TAA CAT TTA ATA ATC CAG TGC CAG GCT AGA GGC ACC ATT CAA TGG CAG
 8893 TGT TTG CCA TCA TGC ATA GGC TTA GTC TTC AGT GCT GAA AGG CAT TGG GGG CAA TAT TAC TCA TTA TAC AGA TGA GAA
 8971 ACT GGG AAA GAC TTG CTT CAG ATT CTC TAC TGA AAG GCT GAG TTT GTG GCT TCT AGA AAA TCT TTT ACT TTC AAT ATT
 9049 TTT AAT GTA TAA TTT TTT TAT TTT CAC TGA TTT TAT TTT TTA ACA TTT ATA AGA AAT AAA TGC AAT AAA CCA
 9127 AAT ACA TGG ACA AAA TAC AAG AAT CAT ATG ATC ACC TCA ATG GAA GGA AAA AAG AAA GAA AAA GTC TTT GAT
 9205 AAT AAT CAA CAT TCA TTC TTT TTT TAT TAG ATA TTT TCT TCA TTT CAA ATG CTA TCC CCA AAG CCC CTT ATA
 9283 CCT TCC CTT GOC CTG CTC CCC AAC CCA CCC ACT CCT GCT TTC TGG CCC TGG CAT TCC TCT GTA CTG AGG CAT ATG ATC
 9361 TTC AAA AAA CCA AGG GOC TCT CCT CTC ATT GGT GGC CTA TTA GGC CAT CTT TTG CTA CAT ATG CAA CTA GAG ACA
 9439 CAG CTC TGG GGG TTA CTG GTT AGT TCA TAT TGT TAG TCC TCC TAT AGC GAT CCC TTT AGC TCC TTG GAT ACT
 9517 TTC TCT AGT TCC TTC ATT AGG GGC CTT GTG TCC CAT CCA ATA GAT GAG TGT GAG CAT CCA CTT CTG TAT TTG CCA GGC
 9595 ACT GGC ATA GCC TCA CGA GAA AGA GAG AGC TAT GTC AGG ATC CTG TCA AAA TCT TTC TGG CAT ATG CAA TAG TAT
 9673 CTG GGT TTG GTG GTT GTA TAT GGG ATG GAT CCC CAA GTG GAG CAG TCT CTG AAT GGT CCT TCC TTC CAT CTC AGC TCC
 9751 AAA CTT TGT CTC TAT AAC TCC TTC CAT GGG TAT TTT GGT CCC CAT TCT AAG AAG TGA AGA ATC CAC ACT TTG GTC
 9829 TTC CTT CTT GAG TTT CAT ATG TTG CAT ATG TTG CAT ATG TTG CAT ATG TTG CAT ATG TTG CAT ATG TTG CAT ATG TTG
 9907 ATA TCA TGC GTG TTA TTT TGT GAT TAG TTT ACC TCA CTC AGG ATG ATA TCC TCC AGA TGC ATC CAT TTG CCT AAG AAT

Figure 12 contd

9985 TTC ATT AAT TCA CTG TTT TTA ATT GCT GAA TAG TAC TCC ATT GTG TAA ATG TAC CAC ATT TTC TGT ATC CAT TTC TCT
 10053 GTT GAG GGG CAT CTG GGT TCT TTC CAG CTT GCT GCT ATG AGC ATA GCG GAG CAT CAT GTG TCC
 10141 TTA TCA AGT TGG AAC ATC TTC TAG GTA GGA CAA GAA GGT TCC TAG TAC CAT CAA CAT GCA
 10219 TTT ATA ATA AAA GCC CTA GAA CTG TAG GAA ACA TAT TCC AAG ATA ATA GGT ATT ATG TAT GAC AAA CTC
 10297 ATG ACC AAT ATC ATC CTA AAT GAA TGA AAC CAT TAA TAA GCT CCA TTA AAA TCA GAG GAC TGC CCA CTA TCC CTA CTT
 10375 CTC ATC CAT AAT GAG ATT GAA GCA TTA GCT GGA CCA AAG CAA GAG TAC AAA TGG GAA AAT ATT AAG TCA
 10453 AAT TGT TTT CAA TTG AAG ATT ATA TGA TGC ACC ACA TCC TTA TGA CTT CAA ATT TTG ACT AGA AAA ATT GTA GAA ATT ATC
 10531 AAT AAT TTC AGC AAA GTG TTA TGA ATC TGC CTG CAC TCT TGT CTC AAG ACT GAG TGC AGC GTG TAA CTC TCC TGT GAC TGA
 10609 CTT CAT CCT TTC TGT CTT TCC ATC TGC CTG CAC TCT TGT CTC AAG ACT GAG TGC AGC GTG TAA CTC TCC TGT GAC TGA
 10687 GTA TCT CAC AAA ACG TTG TAC CTG CCA AAC CTG GAT GAG CCC TTT GTC TTT CTG AAG CTA TGA GGC TCT CTA CAT AGA
 10765 CTC AAG AAG GAA ATG ACA GGG AGG AGG TAA TAA TGA AGT GGG GAA GGC TGA CAT TAG CAT TGC TGT GTG GCT CTT
 10843 TAA TTT CTC ATA CTT CAC ACT GAG ATG TTA TTA ACT GTG CAT GAG TGA AGC CAG AGC TAA GGT TCT CAT ATT
 10921 TGA GTG TTA TAG AAT GAG TAG AGC AGT AGT TCT CAA ACT ATG GGT CAT GAC TCC TTT ATG GGT CAA ACT ACC CTT TCA
 10999 CAC AGG TTG CAT ATC AGA TAT CCT AAT TTT ATA TAC ATA TAT ATA TGT ATA TAT ATA TAT TTC ACA GTA
 11077 GGA AAA TTA TTT AGT AAT CAT TTT ATA GTT GTG GGT CAT GGC AAC ATG AGG AAC TGT ATT AAA GGG TTG CAG CAT TAG
 11155 GAA TGT TGA GAC CCA CTG TAA TAG AGA ATG AGG CTT AAG GCA GGG CTA TAA AGC CCA ATG GAC CAT GTG CTT TTT CCA
 11233 ACA TTT GCC ACA TGG TAA GCT CTG TAT AGA CTT TTT AAA GAA CAT TGG TTT GTA ATT TTA AAT GGA TAA GGG TCT TCA
 11311 CTG TCT ATC ACC CAT CTA TAT AAT AAA TAC ATA AGT TAT TCC ACC ATG GAT TCA AAT GCA AAA ATC CTC AAC CTA
 11389 AGA CAT AGC AGT GAA ACA TTA ATG ATG ACC AAA TAG GAA ATC CAT GTA GAG ACC TTC TAT TAT TGC CAT TTA GGC AAG
 11467 CCA TCT TGC AAC AGA GTT CTA CTT TGC TAC CAG TAA TGA ATA CAG TGT CTC AAC TCC TGC CAT TGA ATC TTC AGG AAG
 11545 CCC CTG AAA TGA CTT GTA CTA CAC CAT TTC TTA AAG ACA GAA AAG CTA AGA CTT AGA GGG AAT AAA TGT CAT GCC TGA
 11623 GAT CAT GCA ACC AAT TAA GTG CCA CTT GGC CTG ATC AAG AGG CAC AAT TCA AAA GCA ATG TTG TTT CAC TAG CTC
 11701 TTG TGT ATG GTT GCT GAT FCC GGA AGC AAA GTA TCA GTG AAT ATC CCT AGT GGG AAA ACA CTT GGA AAT CAA ATG TCT
 11779 CAT TTA ACA GAT TAG GAG ATG AAA CGG TAG ACT CTG TGT AGT TGT ACA CCC CTG TGA TCC CAT CGC TAG GAA GAC TGA
 11857 GGC AGG AAG TCC TCG AGC TCA AAC CAG CTT AGG CTA CAC AGA GAA ACT ATC TAA AAA ATA ATT ACT AAC TAC TTA ATA
 11935 GGA GAT TGG ATG TTA AGA TCT GGT CAC TAA GAG GCA GAA TTG AGA TTC GAA GCC AGT ATT TTC TAC CTG GTA TGT TTT
 12013 AAA TTG CAG TAA GGA TCT AAG TGT AGA TAT ATA ATA ATA TTC TAT TGA TCT TGA TCT CTG CAA CAA CAG AGA GTG TTA GAT
 12091 TTG TTT GGA AAA AAA TAT TAT CAG CCA ACA TCT TCT ACC ATT TCA GTA TAG CAC AGA GTA CCC ACC CAT ATC TCC CCA
 12159 CCC ATC CCC CAT ACC AGA CTG GTT ATT GAT TTT CAT GGT GAC TGG CCT GAG AAG ATT AAA AAA AGT AAT GCT ACC TTA
 12237 TTG GGA GTG TCC CAT GGA CCA AGA TAG CAA CTG TCA CCG TCA CAC TCC CCA CAC TCC TTT GAT CAA GAA GAC CCT TTG AGG
 12325 AAC TGA AAA CAG AAC CTT AGG CAC ATC TGT TGC TTT CCG TCC CAC ACA GCC TGG GTG GAC CCT TTG AGG
 12403 CCC TTT CAA GTT TCC AAA GCC TCA TAC ACC TGC TCC CTA CCC CAG CAC CTG GCC AAG GTC TTA TCC AGC ACT GGT ATG
 12481 AAA ATG ATA CCC CAC CTC CAT CTT GTT TGA TAT TAC TCT TCA AGC CCC AGG TTA GTC CCC AGT CCC AAT GCT TTT
 12559 GCA CAG TCA AAA CTC AAC TTG GAA TAA TCA TCC TTG AAG AGT TCT GAT ATG GTC ACT GGG CCC ATA TAC CAT GTA
 12637 AGA CAT GTG GAA AAG ATG TTT CAT GGG GCC CAG ACA CGT TCT AGA AGT ACC TGA GAG TGG CAA AAA ATA GTT GTG CTA
 12715 AAT AGT TTG GCC ATC TTT AGG CTG AGA GAC TAG GAA ATA CAG CGA TGG ACT ATA TCA GCA TTG CAG GAT AGT TGT CAG
 12793 TAA ACA CCC CAC AAC CCA TAA CAG AAG TAT TCT CTT ATA TCC CTT TTC CAT CCA TGT AGA TGG CTG TCT TCA
 12871 TAT TTG TTC TAG ACG GCC GGC C

Figure 12 contd

VKP-IGKV1-39/J-Ck-Δ2

1 GGC CGG CCC ACA TGA AAC AAT GGG AAC CAT GTG ACA ATC ACA GAG GTG TTG TTA CTA TAG CAA AAG GGA TTG TTA CTC
79 TCC ACA TCC CTT TAA GTA ACT TGA AGG CTT GAT AGA CCC ACC CTC TAA GAC TTC ATT AGA CAT TCC CTA CGA ATG GTT
157 ATA CTC TCC TGT ATA CTC CCA ATA CAA CTC TAA AAT ATA TTA TTC CAT ATA GAT TTT GAT TTA AAG TTT GAC
235 TTT TTT CTT TCA AAA TAT CTC TTG TCA CAA CAG CGG CTC TAG AGA GAA ATA CAT TCC CTC CAG GCA AAT CTA TGC TGC
313 GCT GGT CTG ACC TGG GAC CTT GGG GAC ATT GGG GAT TAC TAA GAT TAA GAT CCA GCC CTG CAG CTG TGC TCA
391 GCC TGC CCC ATG CCC TGC TGA TTG ATT TGC ATG TTC CAG AGC ACA GCC CCC TGC CTT GAA GAC TTT TTT ATG GGC TGG
469 TCG CAC CTT GTG CAG GAG TCA GTC TGA GTG AGC CAC CAT GAG AGT GCG CCA GCT CTT GGG GCT CCT
547 GCT ACT CTG GCT CCG AGG TAA GGA TGG AGA ACA CTA GGA ATT TAC TCA GCC AGT GTG CTC AGT ACT GAC TGG AAC TTC
625 AGG GAA GTT CTC TGA TAA CAT GAT TAA TAG TAA GAA TAT TTG TTT TTA TGT TTC CAA TCT CAG GTG CCA GAT GTG AGA
703 TCC AGA TGA CCC AGA GCC CCA GCA GCC TGA GCG CCA CCG TGG GCG ACA GAG TGA CCA TCA CCT GCA GAG CCA GCC AGA
781 GCA TCA GCA GCT ACC TGA ACT GGT ATC AGC AGA AGC CCG GCA AGG CCG CCA ACT TCA CCC TGA CCA TCA GCC TGC AGC
859 TGC AGA GCG GCG TGC CCA GCA GAT TCA GCG GCA GCG GCT CCG GCA CCG ACT TCA CCC TGA CCA TCA GCC TGC AGC
937 CCG AGG ACT TCG CCA CTT TTC TCA TCT TTT ATG TGT AAG ACA CAG GTT TTC ATG TTA GGA GTT AAA GTG AGT TCA
1015 TCA AAC GTA AGT ACA CTT TTC TCA TCT TTT TTT ATG TGT AAG ACA CAG GTT TTC ATG TTA GGA GTT AAA GTG AGT TCA
1093 GAA AAT CTT GAG AAA ATG GAG AGG GCT CAT TAT CAG TTG AGC TAA TAC TAT GGT CAC CAT CCA AGA GAT TGG ATC
1171 GTG ATA TTA GGG GCA AAA AGA GGC TTT AGT TGA GAG GAA AGT AAT TAA TAC TAT GGT CAC CAT CCA AGA GAT TGG ATC
1249 GGA TAA TGA GCA GTA GTT ATT GAG ATC TGG GTC TGA CTG GAG GTA GCG TGG TCT TCT AGA CGT TTA AGT GGG AGA
1327 TTT GGA GGG GAT GAG GAA TGA AGG AAC TTC AGG ATA GAA AAG GGC TGA AGT CAA GTT CAG CTC CTA AAA TGG ATG TGG
1405 GAG CAA ACT TTG AAG ATA AAC TGA ATG ACC CCA GAG AGG ATG AAA CAG CGC AGA TCA AAG AGG GGC CTG GAG CTC TGA GAA
1483 GAG AAG GAG ACT CAT CCG TGT TGA GTT TCC ACA AGT ACT GTC TTG AGT TTT GCA ATA AAA GTG CAG TAG CAG AGT TGA
1551 GTG AGC CGT AGG CTG AGT TCT CTC TTT TGT CTC CTA AGT TTT TAT GAC TAC AAA AAT CAG TAG TAT GTC CTG AAA TAA
1639 TCA TTA AGC TGT TTG AAA GTA TGA CTG CTT GCC ATG TAG ATA CCA TGG CTT GCT GAA TAA TCA GAA GAG GTG TGA GGC
1717 TTA TTC TAA AAT TTG TCA CAA AAT GTC AAA AGT AGA GCG TCT GTA AGC AGT CCA TGA CAG ACA GCT CAA GGG GTT
1795 TTT TCT TGT CTC ATT TCT ACA TGA AAT TGA AAT GAT CTT TTT TAT AAG AGT AGA AAT ACA GTT GGG
1873 TTT GAA CTA TAT GTT TTA ATG GGC AGC GTT TTG TAA GAC ATT TGG TCC TTT GTT TTC CCA GTT ATT ACT CGA TTG TAA
1951 TTT TAT ATC GCC AGC AAT GGA CTG AAA CCG TCC GCA ACC TCT TCT TTA CAA CTG GGT GAC CTC GCG GCT GTG CCA GCC
2029 ATT TGG CGT TCA CCC TGC CAG TAA GGG CCA TGT GAA CCC CCG GCG TAG CAT CCC TTG CTC CCG GTG GAC CAC TTT CCT
2107 GAG GCA CAG TGA TAG GAA CAG AGC CAC TAA TCT GAA GAG AAC AGA GAT GTG ACA GAC TAC ACT AAT GTG AGA AAA ACA
2185 AGG AAA GGG TGA CTT ATT GGA GAT TTC AGA AAT AAA ATG CAT TTA TTA TAT TCC CTT ATT TTA ATT TTC TAT TAG
2263 GGA ATT AGA AAG GGC ATA AAC TGC TTT ATT TGG CTA CAC CAA AGG AAG CCA TAC AGA GGC TAA TAT CAG AGT ATT CTT GGA AGA
2341 CTA CAG CCA GCA AAA GTC ATG GTA AAT ATT TGT GAC ATG ACC TTA ACT GGT TAG GTA GGA TAT TTT TCT TCA TGC AAA AAT ATG ACT
2419 CTG GTT AAA TTA ATA TAA ATT TGT GAT ATG ACC TTA ACT GGT TAG GTA GGA TAT TTT TCT TCA TGC AAA AAT ATG ACT
2497 AAT AAT AAT TTA GCA CAA AAA TAT TTC CCA ATA CTT TAA TTC TGT GAT AGA AAA ATG TTT AAC TCA GCT ACT ATA ATC
2575 CCA TAA TTT TGA AAA CTA TTT ATT TGG CTA CAC CAA AGG AAG CCA TAC AGA GGC TAA TAT CAG AGT ATT CTT GGA AGA
2653 GAC AGG AGA AAA TGA AAG CCA GTT TCT GCT CTT ACC TTA TGT GCT TGT GTT CAG ACT CCC AAA CAT CAG GAG TGT CAG
2731 ATA AAC TGG TCT GAA TCT CTG TCT TCA GCA TGG AAC TGA AAA GAA TGT AGT TTC AGG GAA GAA AGG CAA TAG AAG GAA
2809 GCC TGA GAA TAT CTT CAA AAG GTC AGA CTC AAT TTA CTT TCT AAA GAA GTA GCT AGG AAC TAG GGA ATA ACT TAG AAA
2887 CAA CAA GAT TGT ATA TAT GTG CAT CTT GGC CCC ATT CTT TAT TAG GGA TAA GCG TGC TTT TTT GTG TGT CTG
2965 TAT ATA ACA TAA CTG TTT ACA CAT AAT ACA CTG AAA TGG AGC CTT TCC TTG TTA CTT CAT ACC ATC CTC TGT GCT TCC
3043 TTC CTC AGG GGC CCA CCG CCG TCC CAC CAT CTT CAT CTT CCC CCG CAG ACA GAT CAC CTC TCG CCG AGC CAC
3121 CGT GGT CTG CTT CGT GAA CAA CTT CTA CCC CAG AGA CAT CAG CGT GAA GTG GAA GAT CGA CGG CAG CGA GAG GGA
3193 CGG GGT GGT GGA CAG CAG CGT GAC CCA GGA CAG CAA GGT CAC CTA CAG CAT GAG CAG CCG CCG GAG CCG GAC CAA
3277 GGT GGA GTA CGA GAG GCA CAA CCG GTA CAC CTG CCA CAA GAC CAG CTC CAG CCG CCG GGT CAA GTC CTT
3355 CAA CCG GAA CGA GTG TTG AAG ACA AAG GTC CTG AGA CCG CAG CTC CCC AGC TCC ATC CTA TCT TCC CTT CTA
3433 AGG TCT TGG AGG CTT CCC CAC AAG CGA CTT ACC ACT GTT GCG GTG CTC CAA ACC TCC CCA CCT CTT CCT CCT
3511 CCT CCC TTT CCT TGG CTT TTA TCA TGC TAA TAT TTG CAG AAA ATA TTC AAT AAA GTG AGT CTT TGC ACT TGA GAT CTC

Figure 12 contd

3583 TGT CTT TCT TAC TAA ATG GTA GTA ATC AGT TGT TTT TCC AGT TAC CTG GGT TTC TCT TCT AAA GAA GTT AAA TGT TTA
 3657 GTT GCC CTG AAA TCC ACC ACA CTT AAA GGA TAA ATA AAA CCC TCC ACT TGC CCT GGT TGG CTG TCC ACT ACA TGG CAG
 3745 TCT CTT ATA AGG TTC ACG AGT ACT AAT TCC AAG TCG TCA AAG TCT TGA AGG GGG ACA GTC TTT ATA CTC TCC TAG
 3823 TTT TCT TCC CCT AAG TCG TCA AAG TCT TGA AGG TCT TGA AGG CAA CCT AAA TGT GCA AGC AAT AGG AAA
 3901 CCC AGT AAA CTT GGC GAA GCA AAG TAG AAT CAT TAT CAC AGG AAG CAA AGG CAA CCT AAA TGT GCA AGC AAT AGG AAA
 3979 ATG TGG AAG CCC ATC ATA GTA CTT GCA CTT CAT CTG CTT TGC CTT CAC TAA GTT TTT AAA CAT GAG CTG GCT CCT
 4057 ATC TGC CAT TGG CAA GGC TGG GCA CTA CCC GAT TAC ACC ACC CTG AGA TTA CAC CAG ACA TAC ATC
 4135 AAA ATT TGG GAA AAG TTC TAC CAA GCT GAG AGC TGA TCA CCC CAC TCT TAG GTG CTT ATC TCT TTA CAC CAG AAA CCT
 4213 TAA GAA GCA ACC AGT ATT GAG AGA CTC ATT TAT GAA AGT CTA AAA CTG GAT ACA ACC AAA ATG TCC ACC AAC AGT TAA
 4291 ATT ATG ACA TGT TCA CAA TTG AGC TAT TAC TTA ATA AGG AGA ATT AAA ATA AAA CTT AAG AGC ATA GTT TAA TCT
 4369 CAT AAA CAA GAT AAT AAG CAA AAC AAA ACA TTT TTT CAT CCA TGT AAG TTT AAA AGC TAA AAT TTA AAA TTA AGA
 4447 GAG ACA TAA GTT TTG AGG TAG CAA GAT GGA AAC TCT GGG GCT TGG GGA ATG TTC TGT CTC TCT GTA TGG GAT GTG AAA
 4525 GTT ACT ATT GTG GAA TTG GGA TCT ATG TTC CTG TAT ATA TTG TAT ACT TCA TAA TAA CTT CAC CTA AAG AAA TAT
 4603 CTA ATA CCC AGT GCA TAC AUA AAA GAG GAT ACA AGG AAT GAA TCA TAC TCC CCT TCC AGA GCT CAA AGT ACA AAA CAC ATA ATT
 4681 ATC CAG GAT CAA ATC TCC CAC AAC CTT GAG CTT TCT ACT ATT CTG CCT TCC AGA GCT CAA AGT ACA AAA CAC ATA ATT
 4759 CAA ACA CAT GAT CCC TCC TTG GGG TCT CTT CTT TCA TGC ATC GAA TTA GAA ATA GCC ATG TAT AAA ATG AGA TAG AAG
 4837 AGA CCT TCA TCA ACA GGT CAA AGA ATA TAG GTA ATT TTG TCT GGG TAT GAA GAG CCC ACG TAT CAA AGG TTA CAT TAG
 4915 GGA AGG AAG AGG ACA CTA ACA GTG ACT TTC ATT CTC CCC CTC TTC CTG GAG GCC CCT GCA TTT AGT CCC TCG TGG GCT
 4993 CAT CCA CTC AGC ACA CAT TTA CTA AGC ATC TTC TCA GCC TAC ACT CTG AAG GCA GTG CAG AAT AAT GTT AGT GTG CCT
 5071 TCC CCC AGT TAA TAT GCA GTC CAG TTT CCC TGC TCC TCT TTC TCA GTC CAC ATA AGG ATG ATG AGA AAG GAC AGT
 5149 CAC CAA ATA GGA GAG GGC AAC CCT TTG CCT TCC TAC CTC TTG AGA ATG TAC ATT ATT ATC CAC TTT TTG AAA CTT CTT
 5227 TTA ATT GCT TTT TTT TAA TTT GTC TTT TCA AAT AGC ATA CCT CTT TTT TCA AAT ATA TAT GTT CGA GTC TTA TCT AAA ACA GAA
 5305 AAC AGT GCC TCT AAT CTG GCT ATT AAT ACA AAA ATG CCA TAA TTA TTA TTT TGA GCA ACC TTG TGC TTT GTG AAA AAA ATA
 5383 CCC ACA ATA AAA AAG AAG AAA GAA TAC TAA GCA TTT ATG TTA TTT TGA GCA ACC TTG TGC TTT GTG AAA AAA ATA
 5461 TAA TCT AAT GTC ACA TGC TGT ATT CTT TTT TTT TAA CAC TGG TGA AAT TAT ACC ATT AGA GAG AAA GAG GAC AGA TCA
 5539 CTG ATC CTA GGA TCT AGG GAT GTT ACA GAT AAG AAA AAT GTG ACA AAG AGC TGT CAC AAG GAG GAT CTT CAA GGT
 5617 CAC AGA ATC ACT GTC TTG ATT TCA GTG GTG GTT ACA TAC ATT TAA ATA TGT GAT AAA TGT TGG AAC TAT ATT CAT
 5695 ATA TTG TAC CAA TGT CAA ATG CTT AAT TTT GGC TCT ATA GTA TAA TTA TGC ACT AAA TAA CTA TTT GGA CAA AGA AAA
 5773 TGA TGT TTA CAT CAA AGG TGA GGC CAT ATT TGT TAG GAA CMT AAC TTA AAA ACC ATT TTG GAT AAC TAA TGA AAA GCC
 5851 ATT TTG TGT GGC TTG GCA TAT CAT GCC TAA GCT GTC ACC AGA TAG ATC TAA TAA GAC CTA AGC CTC AGA AGC AAG CCC
 5929 CTG CCC AGC AAG CAG GCA CAG ATA AGA GCT AAA CCC AGG ACA GGC CAT GAT ATG CTA ATG AAC TAC CTT CAA GGT
 6007 GGT GTT GCT GAC CTA GTG AAC CAG CCC CAA GCT GTG AGC CCC AAT AGC ACA AAG CTA CTG CCC AAA GAA ATT ATA CAA
 6085 AAA TTG GAA CTT TGG GAA TGG TGT GCA GGA TCG CTC TGT ATG CCT GGA ACA CAG CTT CTC TAT GTT TTG TAT TGA
 6163 TAC CAG TCT AGA AGC TTC CAA AAC TTT CTC ACT GAA GAA GAT TCC CCA TGT GGG ACC CCT ACA GAC TCT TTT GCC CAA
 6241 ACA ACT GCT TCC CTC CTG GTG TGA TCA TGG ACC AAG ATA GCA ACT GTC ATA GCT ACC GTC ACA CTG CTT TGA TCA AGA
 6319 AGA CCC TTT GAG GAA CTG AAA ACA GAA CCT TAG GCA CAT CTG TTG CTT TCG CTC CCA TCC TCC AAC AGC ATG GCT
 6397 GTC TTC ATA TTT GTT CTA GAC GGC CGG CC

VKP-IGLV2-14/J-CK

1 GGC CGG CCC ACA TGA AAC AAT GGG AAC CAT GTG ACA ATC ACA GAG GTG TTG TTA CTA TAG CAA AAG GGA TTG TTA CTC
 73 TCC ACA TCC CTT TAA GTA ACT TGA AGG CCT GAT AGA CCC ACC CTC TAA GAC TTC ATT AGA CAT TCC CTA CGA ATG GTT
 157 ATA CTC TCC TGT ATA CTC CCA ATA CAA CTC TAA AAT ATA TTA TTIC CAT ATA GTC CTT AGG TTT GTA TTA AAG TTT GAC
 235 TTT TTT CTT TCA AAA TAT CTC TTG TGA CAG GGT CTC TAG AGA GAA ATA TCC CTC CAG GCA AAT CTA TGC TGC
 313 GCT GGT CTG ACC TGG GAC CCT GGG GAC ATT GCC CTT GTG CTG AGT TAC TAA GAT GAG CCA GCC CTG CAG CTG TGC TCA
 391 GCC TGC CCC ATG CCC TGC TGA TTG ATT TGC ATG TTC CAG AGC ACA GCC TGC CCT GAA GAC TTT TTT ATG GGC TGG
 469 TCG CAC CTT GTG CAG GAG TCA GTC TCA TGG ACC CAC CAT GGA CAT GAG AGT GCC CCA GCT CCT GGG GCT CCT
 547 GCT ACT CTG GCT CCG AGG TAA GGA TGG AGA ACA CTA GGA ATT TAC TCA GCC AGT GTG CTC AGT ACT GAC TGG AAC TTC

625	AGG	GAA	GTT	CTC	TGA	TAA	CAT	GAT	TAA	TAG	TAA	GAA	TAT	TTG	TTT	TTA	TGT	TTT	CAA	TCT	CAG	GTG	CCA	GAT	GTC	AGT
793	CTG	CCC	TGA	CCC	AGC	ACC	CTG	TGT	CTG	GCA	GCC	CTG	GCC	AGA	CTA	CCA	TCA	GCT	GCA	CCG	GCA	CCA	GCA	GCA	GCG	
781	ACG	TGG	GCG	GCT	ACA	ACT	ACG	TGT	CTT	GGT	ATC	AGC	ACC	CGA	AGC	CCC	CCA	AGC	TGA	TCT	ACG	AGA	GCG	TGT		
859	CCA	ACA	GAC	GCA	GCG	TGA	GCA	GAT	TCA	GCG	GCA	ACC	GCA	GCG	GCA	CCG	CCA	GCC	TGA	CCA	TCA	ACG	GCG	GCT		
937	TCC	AGG	CTG	AGG	ACG	AGG	CCG	ACT	ACT	GCA	GCA	GCT	ACA	CCA	GCA	GCT	CCA	CCC	TGG	TGT	TTG	GCG	GAA	CAA		
11015	AGC	TGA	CCG	TGC	TGT	ACT	ACA	CTT	TTT	ATG	TTC	AAG	ACA	CTG	TTT	ATG	TTC	AAG	CAG	CAT	ATG	TTA	GGA	GTT		
11032	ATC	AAG	CTA	GTC	AGA	TTA	GCG	GCA	AAA	AGA	GCG	TTT	AGT	TGA	GAG	GAA	AGT	AAT	TAA	TAC	TAT	GAT	CAT	CCA	AGA	
11249	GAT	TGG	ATC	GGA	GAA	TAA	GCA	TGA	GTA	GTT	ATT	GAG	ATC	TGG	GTC	TGA	CTG	CAG	GTA	GCG	TGG	TCT	TCT	AGA	CGT	
11337	AGT	GCG	AGA	TTT	GGA	GCG	GAT	GAG	GAA	TGA	AGC	AAC	TTC	AGG	ATA	GAA	AAG	GCG	TGA	AGC	CAA	GTT	CAG	CTC	ATA	
11495	TGG	ATG	TGG	GAG	CAA	ACT	TTG	AAG	ATA	AAC	TGA	ATG	ACC	CAG	AGG	ATA	AAA	CAG	CGC	AGA	TCA	AAG	GCG	CTG	GAG	
11483	CTC	TGA	GAA	GAG	AAG	GAG	ACT	CAT	CCG	TGT	TGA	GTT	TCC	ACA	AGT	ACT	GTC	TTG	AGT	TTT	GCA	ATA	AAA	GTG	GGA	
11561	CAG	AGT	TGA	GTG	AGC	CGT	AGG	CTG	AGT	TCT	CTC	TTT	TGT	TGT	CTC	CTA	AGT	TTT	TAT	GAC	TAC	AAA	AAT	CAG	TAT	
11639	CTG	AAA	TAA	TCA	TTA	AGC	TGT	TTG	AAA	GTA	TGA	CTG	CTT	GCC	ATG	TAG	ATA	GTA	GGA	ACG	AGT	CTT	TGA	CAG	ACA	
11717	CAA	GCG	GTT	TTT	TTT	CTC	TAT	TCT	ATC	ATT	TCT	ACA	TGA	AAG	TAA	ATT	TGA	AAT	GAT	CTT	TTT	TAT	TAT	AGA	AAT	
11795	ACA	GTT	GCG	TTT	GAA	CTA	TAT	GTT	TTA	ATG	GCC	ACG	GTT	TTG	TAA	GAC	AAT	TGG	TCC	TTT	GTT	GTT	CTC	GAT	ATT	
11873	CGA	TTG	TAA	TTT	TAT	ATC	GCC	AGC	AAT	GGA	CTG	AAA	CGG	TCC	GCA	ACC	TCT	TTA	CAA	CTG	AGT	GAT	CTC	GCG	GCT	
12029	GTC	CAA	GCC	ATT	TGG	CGT	TCA	CCC	TGC	TAA	GSG	CCA	TGT	GAA	CCC	CCG	CCG	GAG	TAT	CCC	TTG	CTC	CGC	GTG	GAC	
12077	CAC	TTT	CAG	GCA	CAG	TGA	TAG	GAA	CAG	CAC	TAA	TCT	GAA	GAG	AAC	GAT	GAT	ACA	GAC	TAC	ACT	AAT	GTG	ACA	GAT	
12198	AGA	AAA	ACA	AGG	AAA	GCG	TGA	CTT	ATT	GGA	GAT	TTT	CCA	AGA	AAT	AAA	ATG	CAT	TTA	TTA	TAT	TCC	CTT	ATT	TTA	
12283	TTT	TAT	TAG	GGA	ATT	AGA	AAG	GGC	ATA	AAC	TGC	TTT	ATC	CAG	TGT	TAT	ATT	AAA	AGC	TTA	ATG	TAT	ATA	ATT	TTT	
12341	AGG	TAA	AAT	CTA	CTG	ACA	GCA	AAA	GTC	ATG	GTA	AAT	ATT	CTT	TGA	CTG	AAC	TCT	CAC	TAA	ACT	CTT	ATA	ATT	TAG	
12419	TCA	TAT	TAA	GTT	AAA	TTA	ATA	TAA	ATT	TGT	GAC	ATG	ACC	TTA	ATT	GGT	GTA	GGA	TAT	TTT	TCT	TCA	TGC	AAA		
12457	AAT	ATG	ACT	AAT	AAT	AAT	TTA	GCA	CAA	AAA	TAT	TTT	CCA	ATA	CTT	TAA	TTT	TGT	GAT	AGA	AAA	ATG	TTT	AAC	TCA	
12575	ACT	ATA	ATC	CCA	TAA	TTT	TGA	AAA	CTA	TTT	ATG	AGC	TTT	TGT	GTT	TGA	CCC	TCT	AGC	CAA	AGG	CAA	CTA	TTT	AAG	
12731	GAC	CCT																								

TTC	TGT	AAT	CTG	ATT	CAA	CCT	ACC	CAG	TAA	ACT	TGG	CGA	AGC	AAA	GTA	GAA	TCA	TTA	TCA	CAG	GAA	GCA	AAG	GCA	ACC
TAA	ATG	TGC	BAG	CRA	TAG	GAA	NAT	GTG	GAA	GCC	CAT	AGT	AGT	GGC	ACT	TGG	ACT	TCA	TCT	TTT	GTG	CCT	TCA	AGT	
TTT	TAA	ACT	TGA	GCT	GGC	TCC	TAT	CTG	CCA	TTT	TGG	GCA	AGG	CTG	GGC	ACT	ACC	GAC	ACT	CAA	CTA	CTT	CAG	CTT	
CCT	TGA	ACA	CAC	ACA	CAT	CAA	AAT	TTG	TGG	AAA	GTT	CTA	CCA	AGC	TGA	CTG	ATC	ACC	CAA	CCT	CTA	TTA	GGT	GCT	
TAT	CTC	TGT	ACA	CCA	GAA	ACC	TTA	AGA	AGC	AAC	CAG	TAT	TGA	GAG	ACT	CAT	TTA	TGA	AAG	TCT	AAA	ACT	GGA	TAC	
CAA	AAT	GTC	CAC	CAA	CAG	TTA	AAT	TAT	GAC	ATG	TTT	ACA	ATT	GAG	CTA	TTA	CTT	AAT	AAG	GAG	AAT	TAA	AAT	AAA	
ACT	TBA	GAG	CAT	AGT	TTA	ATC	TGA	TAA	ACA	TAA	TAA	GCA	AAA	CAA	AAC	AAT	TTT	TCA	TCC	ATG	TAA	GTT	TAA	AAG	
CAG	GTA	AAA	TTT	AAA	ATT	AAA	AGC	ATA	AGT	TTT	GGA	GTA	GCA	ATG	AAA	CTC	TGG	GGC	TTG	GGG	AAT	GTT	CTG	CTG	
TCT	CTC	TGT	ATG	GGA	TGT	GAA	AGT	TAC	TAT	TGT	GGA	ATT	GGG	ATC	TAT	GTT	CTT	CTT	GTA	TAT	ATT	GTA	TAC	TTA	
ATA	ACT	TCA	CCT	AAA	GAA	ATA	TCT	AAT	ACC	GAT	TGC	ATA	CAI	AAA	AGA	GGA	TAC	AAA	TGA	ATC	ATA	CCT	CAA	GGC	
CAG	AAA	GAT	AAA	GTA	GGG	GAT	CCA	GGA	TCA	ACT	CCA	CTC	CTC	CCA	AAA	GCT	TGA	TCC	TAT	TCT	GGC	TTT	CAG	AGC	
TCA	AAG	TAC	AAA	ACA	CAT	AAT	TCA	AAC	TGA	TCC	CTT	GGG	GCT	TCT	GGG	GCT	TCT	CCC	TTT	ACA	ATT	AGA	AAT	AGC	
CAT	GTA	TAA	AAT	GAG	ATA	GAA	GAG	ACC	TTT	ATC	AAC	AGG	TCA	ABG	AAT	ATA	GGT	AAT	TTT	GTC	TGG	GTA	TGA	AGC	
CAC	GTA	TCA	AGG	GTT	ACA	TTA	GGG	AGG	GAA	GAC	AAT	AAC	AGT	GAC	TTT	CAT	TCT	CCC	CTT	CCT	GGA	GGC	CCC	CCC	
TGC	AIT	TAG	TCC	CTG	TGC	TCA	TCC	ACT	GAG	CAC	ACA	TTT	ACT	ABG	CAT	CTT	CTC	AGC	CTA	CAC	TCT	GAA	GGC	AGT	
GCA	GAA	TBA	TGT	TAG	TGT	CCC	TTT	CCC	CAG	TTA	ATA	TGC	AGT	CCA	GTT	TCC	CTT	CCC	CTT	CCC	TTT	CTC	AGT	CCA	CAT
AAG	GAT	GAT	GGG	AAA	GGA	CAG	TCA	CCA	AAT	AGG	AGA	GGG	CAA	CCC	TTT	GCC	TTT	CTA	CCT	CTT	GAG	AAT	GTA	CAT	
TAT	CCA	CTT	TTT	GAA	ACT	TCT	TTT	AAT	TGC	TTT	TTT	ATA	ATT	TGT	CTT	TTT	AAA	TAG	CAT	AAC	CTT	GTT	CAT	TTA	
CTG	GGA	CTT	AAA	TTT	ATC	AAT	CAA	CAG	TGC	TCA	TCT	GGC	TAT	TAA	TAC	AAA	AAT	AAA	AAT	GCC	TCC	TCA	AAT	TAT	
TCG	AGT	CTT	ATA	TAA	AAC	AGA	ACC	AAT	AAA	AAA	GAA	GAA	AGA	ATA	CAA	CAT	ATA	AGC	ATT	TAT	ATA	ATT	CTG	AGC	
CTT	GTG	CTT	TGT	GAA	AAA	AAT	ATA	ATC	TAA	TGT	CAC	ATG	CTG	TAT	TCT	TTT	TAT	TTA	ACA	CTG	GTG	AAA	TTA		
TAG	AGA	GAA	GGA	GGA	AGC	ATC	ACT	GAT	CCT	AGT	ATC	TAG	GGA	TGT	TAG	AGA	TAA	GAA	AAA	TGT	GAC	AAA	GGA		
TCA	CAA	GGA	GGA	TCT	TCA	AGG	TCA	AGT	CAAT	CAC	TGT	GTT	GAT	TTT	CTC	AGT	GGT	TAC	ATA	CAT	ATA	ATT	ATG		
AAT	GTT	GTT	GAA	CTA	TAT	TCA	TAT	ATG	ATA	CTA	AAT	GCT	TAA	TTT	TGG	CTT	TAT	AGT	ATA	ATT	ATG	CAC	TAA		
ATA	ACT	ATT	TGG	ACA	AAG	AAA	ATG	ATG	TTT	ACA	TCA	AAG	GTG	AGG	CCA	TAT	TTG	TTA	GGA	ACA	TAA	CTT	AAA		
TTT	GGA	TAA	CTA	ATG	AAA	AGC	CAT	TTT	GTG	TGC	CTT	GGC													

Figure 12 contd

8113 AGC CAG GAT GGG TAT TTC TTT GCC TAT CTG TGA CTT GCA CAT GGT CTT GGC AAT TAT TGA TGA GGT CAA GGC TTA ATT
 8131 CTT CAC TTG TGC CAA CTC AAC AGA GTC TTT CTT TGT TTA TAG CAA TCC TGT TTA TAG AGA TTT GAT AAG GAA AGG AAG TGC ACA CTG AAT TGA GGT CCT
 8263 ACT ATC TCC TTA TAC AAA ATG TTG AAG AGT TTG TAC AAT GTA TGT ATA ATG AAT TAA TAT TAT GCA CTT TAG ACT TTG
 8347 ACT TTT TAA TAC AAA ATG TTG AAG AGT TTG TAC AAT GTA TGT ATA ATG AAT TAA TAT TAT GCA CTT TAG ACT TTG
 8425 ATT TCA ACT CAA GAT ACT AAT TCT ATG AAT TAT ATG GGT TAA ATC AAT ATA TTA ATA AGT TTA ATT TCA CAT GCT TAT TTT
 8503 TAT TGT GGT TTT CGA GAC AGG GTT CTT CTG TAT AGC CCT GGC TGT COT COT GGC ACC CAC TTT GTA GAC CAG GCT GGC CTC
 9581 AAA CTT AGA AAC CTA CCT GCC TCT GCC TCT GCC TCT GCC TCT GCC TCT GCC TCT GCC TCT GCC TCT GCC TCT GCC TCT
 8659 GGC TCT GCC TCT GCC TCT GCC TCT GCC TCT GCC TCT GCC TCT GCC TCT GCC TCT GCC TCT GCC TCT GCC TCT GCC TCT
 9737 GCC TCT GCC TCT GCC TCT GCC TCT GCC TCT GCC TCT GCC TCT GCC TCT GCC TCT GCC TCT GCC TCT GCC TCT GCC TCT
 8815 AAA TTT TTA AAC TTT ATA TAT GTG TCA TTT TAT TAT CAG ATA GGA CTG TGT AGA CTG TGC TAA ACT AAT AAA TGT
 8893 GCC CTC AAA AGT AAT CGC AAG TTG TAT TGT TGT TGT TGT TGT TGT TGT TGT TGT TGT TGT TGT TGT TGT TGT TGT TGT
 8971 TGC TTT GCT TTG CTT TGC TTT GCT TTG CTT TGC TTT GCT TTG CTT TGC TTT GCT TTG CTT TGC TTT TGT TGT TGT TGT
 9049 TTT TTT CCG GGG GAG GGA GGG TGG AGA AAG AAT CTT ACT ATG AAG CTC TGA CTG TCC TGG GAA CTC ACT ATA TAG ATC
 9127 AGG CTT GAT TCA ACT CAT AGA GAT CTG CCT TCT TCT GCC TCC CAA GTG CTG GGA ATA AAG GCA TAC ACC TCC ATG CCG
 9205 AGA TAG TGA TCC CAA GTT TTA GCA AAA GTT TCT AGA CTT GCA ATT AAT CGA TGG AGA TAG ACA TGA ATT ACA CAA AGA
 9283 ACT AAT GTG GAG TTT ACC TGA AIC ATA CTC TAT ACT TTA TCA GAG ATT AAA TTA ACA TTT AAT AAT CCA GTG CCA GGC
 9361 TAG AGG CAC CAT TCA ATG GCA GTG TTT GCC ATC ATG CAT AGG CTT AGT CTT CAG TGC TGA AAG GCA TTG GGG GCA ATA
 9439 TTA CTC ATT ATA CAG ATG AGA AAC TGG GAA AGA CTT GCC TCA GAT TCT CTA CTG AAA GGC TGA GTT TGT GGC TTC TAG
 9517 AAA ATC TTT TAC TTT CAA TAT TTT TAA TGT ATA ATT TTT TTA TTT CCA CTG ATT TTA TTT TTT TTT TTT AAC ATT TAT
 9595 AAG AAA TAA ATG CAA TAA ACC AAA TAC ATG GAC AAA AAA ATA CAA GAA TCA TAT GAT CAC CTC AAT GGA AGG AAA AAA
 9673 AAA GAA AGA AAA AGT CTT TGA TAA GAT TCA ACA TTT CTT TTT TTA TTA GAT ATT TTC TTT TTT TTT TTT TTT TTT TTT
 9751 GCT ATC CCC AAA GCC COT TAT ACC TTT TGA TAA GAT TCA ACA TTT CTT TTT TTT TTT TTT TTT TTT TTT TTT TTT
 9829 CTC TGT ACT GAG GCA TAT GAT CTT CAA AAA ACC AAG GGC CTC TCC TCT CAT TGG TGG CCG ACT ATT AGG CCA TCT TTT
 9907 GCT ACA TAT GCA ACT AGA GAC ACA GCT CTG GGT ATT ACT GGT TAG TAT ATA TTG TTA CTC CTC CTA TAG AGT TGC AGA
 9985 CCC CTT TAG CTC CTT GGA TAC TTT CTC TAG TTT CTC TAG TTT CTC CAT TAG GGG CCC TGT GTC CCA TCC AAT AGA TGA CTG TGA GCA
 10063 TCC ACT TCT GTA TTT GCC AGG CAC TGG CAT AGC AGG CAA AAG AGA GAG CTA TGT CAG GAT CCT GTC AGT AAA AIC
 10141 TTT CTG GCA TAT GCA ATA GTA TCT GGG TTT GGT TGT ATA TGG GAT GGA TCC CCA AGT GGA GCA GTC TCT GAA TGG
 10219 TCC TTC CTT CCA TCT CAG CTC CAA ATT TTG CTT CTA TAA CTC CTT CCA TGG GTA TTT TGT TCC CCA TTC TAA GAA GGA
 10397 GTG AAG AAT CCA CAC TTT GGT CTT CTT TCT TCT TGA GTT TCA TAT GTT GCA TCT TGT TGA ATA TTC TAA GTT TCT GGG TTA
 10375 ATA TCC ACG TAT CAG TGA GTG CAT ATC ATG CGT GGT TGT ATA TGG GAT GGA TCC CCA AGT GGA GCA GTC TCT GAA TGG
 10453 ATG CAT CCA TTT GCC TAA GAA TTT CAT TAA TTC ACT GTT TTT TTT TTT TTT TTT TTT TTT TTT TTT TTT TTT TTT
 10531 CAT TTT CTG TAT CCA TTT CAG CTC CAT ATC ATG CGT GGT TGT TGA TTA GTT TTT CCA GCT TCT GGC TAT TAT AAA TAA GGC TGC TAT
 10609 GAG CAT AGC GGA GCA TGT GTC CTT ATC AAG TTG GAA CAT CTT CTA GGT ATA TGC CCA GGA GAG TTTG CTG GAT CTT
 10687 CCG GTA GTA CCA TCA ACA TGC ATT CTT AAT AAA AGC CCT AGA ACA AGG ACT GTA GGA AAC ATA TTC CAA CAT AAT
 10765 AAA GGT TAT GTA TGA CAA ACT CAT GAC CAA TAT CAT CCT AAA TGA ATG AAA AGT TGG AGC AAT AAG GCA GAA GGG ATA
 10843 GGA CTG CCC ACT ATC CCT ACT TCT CAT CCA TAA TGA GAT TGA AGC ATT AGC TGG AGC AAT AAG GCA GAA GGG ATA
 10921 CAA ATG GGA AAA TAT TAA GTG CAA TTG TTT TCA ATT GAA GAT TAT ATT ATC TTA TAC CCA ATG ACC TCA AAT TTT GAC
 10999 TAG AAA AAT TGT AGA AAT TAT CAA TTT TCA TTT TTT TTT TTT TTT TTT TTT TTT TTT TTT TTT TTT TTT TTT TTT
 11077 TGC TTG CTT CTC TCT TGT TGC TCT TCA TCC TTT CTG TCC TTT GAT CAC CTT COT COT GCA CTC TTG CAA GAC TGA GTG CAG
 11155 CGT GTA ACT CTC CTG TGA CTG AGT ATC CAA AAC GTT CTA CCT GGC GAG GAT ATA ATG AAG TGG GGA AGG CTG ACA TTA
 11233 GCT ATG AGG CTC TCT ACA TAG ACT CAA GAA AAT GAC GAG GAT GTA ATG AAG TGG GGA AGG CTG ACA TTA
 11311 GCA TTG CTC CTG TGT GGC TCC TTA TTT TCT CAT ACT TCA CAC TGA GAT GTT AAT TGT GAC TCA TAG GTG AAG AAG
 11389 CCA GAG CTA AGG TTC TCA TAT TTG AGT GTT ATA GAA TGA GTA GAG CAG TAG TTT TCA AAC TAT GGG TCA TGA CTC CTT
 11467 TAT GGG TCA AAC TAC CCT TTC ACA CAG GTT GCA TAT CAG ATA TCC TAA TTT TAT ATA CAT ATA TAT ATG CAT ATG TAT
 11545 ATA TAT ATA TTT CAC AAC AGT AGG AAA ATT ATG TAG TAA TTA TTT TAT AGT TGT GGG TCA TGG CAA CAT GAG GAA CTG
 11623 TAT TAA AGG GTT GCA GCA TTA GGA ATG TTG AGA CCC ACT GAT ATA GAG AAT GAG GCT TAA GGC GCT ATA AAG CCC
 11701 AAT GGA CCA TGT TTT TCC AAC ATG TGC CAC ATG GTA AGC TCT GTA TAG ACT TTT TAA AGA ACA TTG GTT TGT AAT
 11779 TTT AAA TGG ATA AGG GTC TTC ACT GTC TAT CAC CCA TCT ATA TAA TAA CAT AAG TTT TGA TTC CAC CAT GGA TTC

Figure 12 contd

1951 AGT TTA AGA TAT AGT GTA TTT TCC CAA GGT TTG AAC TAG CTC TTC ATT TCT TTA TGT TTT AAA TGC ACT GAC CTC CCA
 2029 CAT TCC CTT TTT AGT AAA ATA TTC AGA AAT AAT TTA AAT ACA TCA TTA TTT CAA TGA AAA TAA ATG TTT TTT ATT AGG CAG
 2107 AAT CCA GAT GCT CAA GGC CTT TCA TAA TAT CCC CCA GTT TAG TAG TTT AGC GAT TTC TCG ACT CAT TCC TTT GCC CTA GGA GTG CTG GCG CGT CGG
 2185 AAT TGG ACA GCA AGA AAG CGA GCT TCT AGC CAG CCA TCG GTC CAG ACG GCG GGT CTT CTG CGG GCG ATT TGT GTA CGC CCG
 2263 TTT CCA CTA TCG GCG AGT ACT TCT ACA CAG CCA TCG GTC CAG ACG GCG GGT CTT CTG CGG GCG ATT TGT GTA CGC CCG
 2341 ACA GTC CCG GCT CCG GAT CCG AGT ATT GCG TCG GAT ACA CCG GCG CCA TCG AAA TTT CCG TCA ACC
 2419 AAG CTC TGA TAG AGT TGG TCA AGA CCG AGC ATA TAC GCG CCG AGC GCG GAT CCG GCA AGC TCC GGA TGC
 2497 CTC CGC TCG AAG TAG CGC GTC TGC TCC ATA CAA GCC CAC CAC GGT ATT GTC TCC TCG AGG ATG TTG GCG ACC TCG TAT
 2575 TGG GAA TCC CCG AAC ATC GCC TCG CTC CAG TCA ATG ACC GGT GTT ATG CGG CCA TTG TCC GTC AGG ACA TTG TTG GAG
 2653 CCG AAA TCC GCG TGC ACG AGG TGC CGC ACT TCG GGG CAG TCC TCG GCG CAA AGC ATC TCG AGA TCG AGC GCG TGC GCG
 2731 ACG GAC GCA CTG ACG GTG TCG TCC ATC ACA GTT TGC CAG TGA TAC ACA TGG GGA TCA GCA ATC GCG CAT ATG AAA TCA
 2809 CGC CAT GTA GTG TAT TGA CCG ATT CTT TGC GGT CCG AAT GGG CCG AAC CCG CTC TGC TGG CTA AGA TCG GCG GCA GCG
 2887 ATC GCA TCC ATG AGC TCC GCG ACG GGT TGC AGA ACA GCG GCG AGT TCG GTT TCA GGC AGG TCT TGC AAC GTG ACA CCC
 2965 TGT GCA CCG GCG GAG ATG CAA TAG GTC AGG CTC TCG CTG AAT TCC CCA ATG TCA AGC ACT TCC GGA ATC GGG AGC GCG
 3043 GCC GAT GCA AAG TGC CGA TAA ACA TAA CGA TCT TTG TAG AAA CCA TCG GCG CAG CTA TTT ACC GCG AGG ACA TAT CCA
 3121 CGC CCT CTT ACA TCG AAG CTG AAA GCA CGA GAT TCT TCG CCC TCG GAG AGC TGC ATC AGG TCG GAG ACG CTG TCG AAC
 3199 TTT TCG ATC AGA AAC TTC TCG ACA GAC GTC GCG GTG AGT TCA GGC TTT TTC ATG ATG GCC CTC CTA TAG TGA GTG GTA
 3277 TTA TAC TAT GCC GAT ATA CTA TGC CGA TGA TTA ATT GTC TAA ACA GCG TGG ATG GCG TCT CCA GCT TAT CTG ACG GTT
 3355 CAC TAA ACG AGC TCT GCT TAT ATA GAC CTC CCA CCG TAC ACG CCT ACC GCG CAT TTG CGT CAA TGG GGC GGA GTT GTT
 3433 ACG ACA TTT TGG AAA GTC CCG TTG ATT TAC TAG TCA AAA CAA ACT CCC ATT GAC GTC AAT GGG GTG GAG ACT TGG AAA
 3511 TCC CCG TGA GTC AAA CCG CTA TCC ACG CCC ATT GAT GTA CTG CCA AAA CCG CAT CAT CAT GGT AAT AGC GAT GAC TAA
 3589 TAC GTA GAT GTA CTG CCA AGT AGG AAA GTC CCA TAA GAT CTA TGG GCG ATA ATG GCG CCA GTT ACC GTC
 3667 ATT GAC GTC AAT AGG GCG CGT ACT TCG CAT ATG ATA CAG TTG ATG TGC CAA GTG GCG AGT TTA CCG TAA ATA CTC
 3745 CAC CCA TTG ACG TCA ATG GAA AGT GCT TAT TGG AAT TAC TAG TCG AAC ATA CGT CAT TAT TGA CGT CAA TTG GCG GCG
 3823 GTC GTT GGG CCG TCA GCC ACG GCG GCC ATT TAC CGT AAG TTA TGT AAC GCC TGC AGG TTA ATT AAG AAC ATG TGA GCA
 3901 AAA GGC CAG CAA AAG GCG ACG AAC CGT AAA AAG GCG TTG CCG GTG CCG TTT TTC CAT AGG CTC CGC CCC CCT GAC GAG
 3979 CAT CCA AAA AAT CCA CCG TCA AGT CCA AGT AGG TGG CGA AAC CCG ACA GGA CTA TAA AGA TAC CAG CCG TTT CCC CCT GGA
 4057 AGC TCC CTC GTG CCG TCT CTT GTT CCG ACC CCG CCG TCG TAG TCG GCG TTT CTC CCT TCG GCG AGC GTG
 4135 GCG CTT TCT CAT AGC TCA CCG TGT AGG TAT CTC AGT TCG GTG TAG GTC GGT CCG TCC AAG CTG GCG TGT GTG CAC GAA
 4213 CCC CCC GTT CAG CCC GAC CCG TGC GCC TTA TCC GGT AAC TAT CGT CTT GAG TCC AAC CCG GTA AGA CAC GAC TTA TCG
 4291 CCA CTG GCA GCA GCG ACT GGT AAC AGG ATT AGC AGA CCG AGG TAT GTA GGC GGT GCT ACA GAG TTC TTG AAG TGG TGG
 4369 CCT AAC TAC GGC TAC ACT AGA AGA ACA GTA TTT GGT ATC TGC GCT CTT GAA CTG CCG CCG TCT AGG TAA GTT
 4447 GGT AGC TCT TGA TCC GCG AAA CAA ACC ACC GCT GGT AGC GGT TTT TTT GTT TGC AAG CAG CAG ATT ACG CCG AGA
 4525 AAA AAA GGA TCT CAA GAA GAT CCT TTG ATC TTT TCT ACG GGG TCT GAC GCT CAG TGG AAC GAA AAC TCA CGT TAA GGG
 4603 ATT TTG GTC ATG GCT AGT TAA TTA ACA TTT AAA TCA

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1 GCG GCC GCA ATA AAA TAT CTT TAT TTT CAT TAC ATC TGT GTG TTG GTT TTT TGT GTG AAT CGT AAC TAA CAT ACG CTC
 79 TCC ATC AAA ACA AAA CGA AAC AAA ACA AAC TAG CAA AAT AGG CTG TCC CCA GTG CAA GTG CAG GTG CCA GAA CAT TTC
 157 TCT ATC GAA GGA TCT GCG ATC CCG GTG CCC GTC CCG CAG AGC GCA CAT CCG CCA CAG TCC CCG AGA AGT TGG
 235 GGG GAG GGG TCG GCA ATT GAA CCG GTG CCT AGA GAA GGT GCG GCG GAG TAA ACT GGG AAA GTG ATG TCG TGT ACT GGC
 313 TCC GCC TTT TTC CCG AGG GTG GGG GAG AAC ACT ATA TAA GTG CAG TAG TCG CCG TGA ACG TTC TTT TTC GCA ACG GGT
 391 TTG CCG CCA GAA CAC AGC TGA AGC TTC GAG GGG CTC GCA TCT CTC CAC GCG CCC GCG CTA CCT GAG GCG GCC
 469 AIC CAC GCC GGT TGA GTC GCG TTC TGC CCG CTC CCG CTT GTC GTC CTT CTT GAA CTG CCG CCG TCT AGG TAA GTT
 547 TAA AGC TCA GGT CGA GAC CCG GCC TTT TTT GTG CCG TCC CTT GGA GCT TAC CTA GAC TCA GCC GCG TCT CCA CGC TTT
 625 GCC TGA CCC TGC TTG CTC AAC TCT TTT CTG TTG TGC GCG GTT ACA GAT CCA AGC TGT GAC CCG
 703 CCG CTA CCT GAG ATC ACC GCG GTG TCG ACG CCA CCA TGG ACA TGA GAG TGC CCG CCC AGC TCC TGG GCG TCC TGC TAC

Figure 12 contd

781 TCT GGC TCC GAG GTA AGG ATG GAG AAC ACT AGG AAT TTA CTC AGC CAG TGT CCA ATC TCA GGT GGC TGA CTG GAA CTT CAG GGA
 853 AGT TCT CTG ATA ACA TGA TTA ATA GTA AGA ATA TTT GTT TTT ATG TTT CCA ATC TCA GGT GGC AGA TGT CAG TCT GCC
 937 CTG ACC CAG CCC GCT TCT GCG TCC TGG TAT CAG CAC CAC CCC GGC AAG GCC ACC AAG CTG ATG ATC TAC GAG GTG TCC AAC
 1015 AGA CCC AGC GGC GTG AGC AAC AGA TTC AGC GGC AGC AAG AAG AGC GGC AAC ACC ACC AGC CTG ACC ATC AGC GGC CTC CAG
 11093 GCT GAG GAC GAG GCC GAC TAC TAC TCC AGC AGC TAC ACC AGC AGC TCC ACC CTG GTG TTT GGC GGC AGA ACA AAG CTG
 1171 ACC GTG CTG AGA GCC GAC GCT GCT ACC ACC GTG TCC ATC TTC CCC ACC AGC AGT GAA CAG CTG ACC TCT GGC GGA GCC
 1243 ACC GTG GTG TGC TTC GTG AAC AAT TTC TAC CCC AGA GAC ATC AGC GTG AAG TGG AAG ATC GAC GGC AGC GAG CAG AGG
 1405 GAC GGC GTG CTG GAC AGC GTG ACC GAC CAG AAC AAG GAC TCC ACC TAC AGC ATG AGC AGC ACC CTG AGC CTG ACC
 1483 AAG GTG GAG TAC GAG AGG CAC AAC CTG TAC ACC TGC GAG GTG GAG CAC AAG AAG ATG AGC TCC AGC CCC GTG GTC AAG TCC
 1561 TTC AAC CGG AAC GAG TGT TGA GCT AGT TGC GCT GGA CAG ATG ATA AGA TAT ATT GAT GAG TTT GGA CAA ACC ACA ACT AGA
 937 CTG ACT CAG CCT GCC TCC GTG TCT GGT TCT GGT TCT GGT TCT GGT TCT GGT TCT GGT TCT GGT TCT GGT TCT GGT TCT GGT
 1015 GGT GGT TAT AAC TAT GTG TCC TGG TAC CAA CAG CAC CCA GGC AAA GGC CCC AAA CTC ATG ATT TAT GAG GTG AGT AAT
 1093 CGG CCC TCA GGG GTT TCT AAT CGC TCT GGT TCT GGT TCT GGT TCT GGT TCT GGT TCT GGT TCT GGT TCT GGT TCT GGT
 1171 ACC GTG CTA CGG GCT GAT GAT TAT TAC TGC AGC TCA TAT ACA AGC AGC ACT CTC GTA TTC GGC GGA GGC ACC AAG CTG
 1249 ACA GTG GTG TGC TTC GTG AAC TAT TAT TAT TAT TAT TAT TAT TAT TAT TAT TAT TAT TAT TAT TAT TAT TAT TAT TAT
 1327 AAG GTT GAA TAT GAA AGG CAT AAT ACT GAT CAG AAC TAT ACC TGT GAG GTT GTT CAT AAG ACA TCA TCC TCA CCC GTG AAG AGC
 1405 TTC AAC AGG AAT GAG TGT TAG GCT AGC TGG CCA GAC ATG ATA AGA TAT ATT GAT GAG TTT GGA CAA ACC ACA ACT AGA
 1483 ATG CAG TGA AAA TGC TTT ATT TGT GAA ATT TGT GAT GCT ATT GTT TTA TTT GTA ACC ATT ATA AGC TGC AAT AAA
 1639 CAA GTT AAC AAC AAC AAT TGC ATT CAT TTT ATG TTT CAG GGT CAG GGC AAG TGG AAG ATT GAT GGC AAT GAA CAA CGA
 1755 TCC TTT TCT GAG GGA TGA ATA AGG CAT AAG CAT CAG GGC CTG TTG CCA ATG TAT GAG TTT GGA CAA ACC ACA ACT AGA
 1951 CTT TCA TGG AGT TTA AGA TAT AGT GTA TTT TCC CAA GGT TTG AAC TAG CTC TTC ATT TCT TTA TGT TTT AAA TGC ACT
 2029 GAC CTG CCA CAT TCC CTT TTT AGT AAA ATA TTC AGA AAT AAT TTA AAT ACA TGA TTG CAA TGA AAA TAA ATG TTT TTT
 2107 ATT AGG CAG AAT CCA GAT GCT CAA GGC CCT TCA TAA TAT CCC CCA GTT TAG TAG TTG TGA GGC AAC AAA GGA ACC
 2185 TTT AAT AGA AAT TGG ACA GCA AGA AGC CGA GCT TCT AGC GAA TTC TCG ACT CAT TCC TTT GCC CTC GGA CGA GTG CTG
 2263 GGG CGT CGG TTT CCA CTA TCG CGG AGT ACT TCT ACA CAG CCA TCG GTG CAG ACG GCC CCG CTT CTG CGG GCG AIT TGT
 2341 GTA CGC CCG ACA GTC CCG GCT CCG GAT CCG AGT TCG TCA AGA CCA ATG CGG AGC ATA TAC GCC CGG GAT CTT GCA AGC
 2419 CCG TCA ACC AAG CTC TGA TAG AGT TGG TCA AGA CCA ATG CGG AGC ATA TAC GCC CGG AGC CAG AAC AAG AAG TTG
 2497 TCC GGA TGC CTC CGC TCG AAG TAG CGC GTC TGC TGC TCC AFA CAA GCC AAC CAC GGC CTC CAG AAG AAG ATG TTG GCG
 2575 ACC TCG TAT TGG GAA TCC CCG AAC ATC GCC TCG CTC CAG TCA ATG ACC GCT GTT ATG CGG CCA TTG TCC GTC AGG ACA
 2653 TTG TTG GAG CCG AAA TCC GCG TGC ACG AGG TGC CGG ACT TCG GGG CAG TCC TCG GCC CAA AGC ATC AGC TCA TCG AGA
 2731 GGC TGC GCG ACG GAC GCA CTG ACG GTG TCG TCC ATC ACA GTT TGC CAG TGA TAC ACA TGG GGA TCA GCA ATC GCG CAT
 2809 ATG AAA TCA CGC CAT GTA GTG TAT TGA CGG AAT CCG AAT GGG CCG AAC CCG CTC GTG TGG CTA AGA TCG
 2887 GCC GCA CGG ATC GCA TCC ATG AGC TCC GCG AGT TGC AGA ACA CGG GGC AGT TCG GTT TCA GGC AGC TCT TGC AAC
 2965 GTG ACA CCC TGT GCA CGG CCG GAG ATG CAA TAG GTG CTC TCG GTG TAG AAT TCC CCA ATG TCA AGC ACT TCC GGA ATC
 3043 GGG AGC CCG CCG GAT GCA AAG TGC CGA TAA ACA TAA CGA TCT TTG TAG AAA CCA TCG CCG CAG CTA TTT ACC CGC AGG
 3121 ACA TAT CCA CGC CCT CCT ACA TCG AAG CTG AAA GCA GGA TCT TCT CCG GAG AGC TGC ATC AGG TCG GAG ACG
 3199 CTG TCG AAC TTT TCG ATC AGA AAC TTC TCG ACA GAC GTC GAG GTT TCA GGC TTT TTC ATG ATG GGC CTC CTA TAG
 3277 TGA GTC GTA TTA TAC TAT GGC GAT ATA CTA TGC CGA TGA TTA ATT GTT AAA ACA GCG TGG ATG GCG TCT CCA GGT TAT
 3355 CTG AGC GTT CAC TAA ACG AGC TCT GTT TAT ATA GAC CTC CCA CGG TAC ACG TAC ACC GCT CCA TTT GCG GGC
 3433 GGA GTT GTT ACG ACA TTT TGG AAA GTC CCG TTG ATT TAC TAG TCA AAA CAA ACT CCC ATT GAC GTC AAT GGG GTG GAG
 3511 ACT TGG AAA TCC CCG TGA GTC AAA CCG CTA TCC ACG CCC ATT GAT GTG CCA AAA CCG CAT CAT CAT AAT AGC
 3589 GAT GAC TAA TAC GAT GTA CTG CCA AGT AGG AAA GTC CCA TAA GGT CAT GTA CTG GGC ATA ATG CCA GGC GGC CCA
 3667 TTT ACC GTC ATT GAC GTC AAT AGG GGG CGT ACT TGG CAT ATG ATA CAG TTG TGC CAA GTG GGC AGT TTA CCG
 3745 TAA ATA CTC CAC CCA TTTG ACG TCA ATG GAA AGT CCC TAT TGG CGT TAC TAT GGG AAC ATA CGT CAT TAT TGA CGT CAA

Figure 12 contd

3823 TGG GCG GGG GTC GTT GGG CGG TCA GCC AGG CGG GCC ATT TAC CGT AAG TTA TGT AAC GCC TGC AGG TTA ATT AAG AAC
 3901 ATG TGA GCA AAA GGC CAG CAA AAG GCG AGG AAC CGT AAA AAG GCG GTG TTG CAT AAG TTA ATT AAG CTC CGC CCC
 3979 CCT GAT GAG CAT CAC AAA AAT CGA CGC TCA AAT GAG AGG TCG CGA AAC CCG ACA GGA CTA TAA AGA TAC CAG GCG TTT
 4057 CCC CTT GGA AGC TCC CTC GTG CGC TCT CTT CCG ACC CTG CCG CTT ACC GGA TAC TCC GGC TTT CTC CCT TCG
 4135 GGA AGC GTG GCG CTT TCT CAT AGC TCA CGC TGT AGG TAT CTC AGT TCG GTG TAG GTC GTT CGC TCC AAG CTG GGC TGT
 4213 GTG CAC GAA CCC CCC GTT CAG CCC GAC CGC TGC GGC TTA TCC GGT AAC TAT CGT CTT GAG TCC AAC CCG GTA AGA CAC
 4291 GAC TTA TCG CCA CTG GCA GCC ACT GGT AAC AGG ATT AGC AGA GGC TAT GTA GGC GGT GCT ACA GAG TTC TTG
 4369 AAG TGG TGG CCT AAC TAC GGC TAC ACT AGA ACA GTA TTT GGT ATC TGC CTG AAG CCA GTT ACC TTC GGA
 4447 AAA AGA GTT GGT AGC TCT TGA TCC GGC AAA CAA ACC ACC GGT AGC GGT TTT TTT GTT TGC AAG CAG CAG ATT
 4525 ACG CGC AGA AAA AAG GGA TCT CAA GAA GAT CTT TTG ATC TTT TCT ACG GGG TCT GAC GCT CAG TGG AAC GAA AAC TCA
 4603 CGT TAA GGG ATT TTG GTC ATG GCT AGT TAA TTA ACA TTT AAA TCA

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1 CTT GAT TTG GGT GAT GGT TCA CGT AGT GGG CCA TCG CCC TGA TAG ACG GTT TTT CGC CCT TTG ACG TTG GAG TCC ACG
 79 TTC TTT AAT AGT GGA CTC TTG TTC CAA ACT GGA ACA ACA CTC AAC TCT ATC TCG GGC TAT TCT TTT GAT TTA TAA GGG
 157 ATT TTG CCG ATT TCG GTC TAT TGG TTA AAA AAT GAG CTG ATT TAA CAA AAA TTT AAC GCG AAT TTT AAC AAA ATA TTA
 235 ACG TTT ACA ATT TTA TGG TGC AGT CTC AGT ACA ATC TGT GAT GGC GCA TAG TTA AGC CAG CCC CGA CAC CCG CCA
 313 ACA CCC GCT GAC GCG CCC TGA CCG GCT TGT CTC CCG GCA TCC GCT TAC AGA CAA GCT GTG ACC GTC TCC GGG AGC
 391 TGC ATG TGT CAG AGG TTT TCA CCG TCA TCA CCG AAA CGC AGA CGA AGG GGC CTC GTG ATA CGC CTA TTT TTA TAG
 459 GTT AAT GTC ATG ATA ATA ATG GTT TCT TAG ACG TCA GGT GGC ACT TTT CGG GGA AAT GTG CGC GGA ACC CCT ATT TGT
 547 TTA TTT TTC TAA ATA CAT TCA AAT ATG TAT CCG CTC ATG AGA CAA TTA CCC TGA TAA ATG CTT CAA TAA TAT TGA AAA
 625 AGG AAG AGT ATG AGT ATT CAA CAT TTC CGT GTC CCC CTT ATT CCC TTT TTT CGG GCA TTT TGC CTT CTT GTT TTT GCT
 703 CAC CCA GAA ACG CTG GTG AAA GTA AAT GAT GAT CAG TTG GGT GGC CGA GTG TAC ATC GAA CTG GAA CTG GAT CTC
 781 AAC AGC GGT AAG ATC CTT GAG AGT TTT CGC CCC GAA GAA CGT TTT CCA ATG ATG AGC ACT TTT AAA GTT CTG CTA TGT
 859 GGC GCG GTA TTA TCC CGT ATT GAC GCG GGG CAA GAG CAA CTG GGT GGT GGC ATG CAC TAT TCT CAG AAT GAC TTG GTT
 937 GAG TAC TCA CCA GTC ACA GAA AAG CAT CTT ACG GAT GGC ATG ACA GTA AGA GAA TTA TGC AGT GCT GCT ATA ACC ATG
 1015 AGT GAT AAC ACT GCG GCC AAC TTA CTT CTG ACA ACG ATG GGA CCG AAG GAG CTA ACC GCT TTT TTG CAC AAC ATG
 1093 GGG GAT CAT GTA ACT CGC CTT GAT GAT TGG GAA CCG GAG CTG AAT GAA GCC ATA CCA AAC GAC GGT GAC ACC ACG
 1171 ATG CCT GTA GCA ATG GCA ACA ACG TTG CCG AAA CTA TTA ACT GGC GAA CTA TTT ACT CTA GCT TCC CGG CAA CAA TTA
 1249 ATA GAC TGG ATG GAG GCG GAT AAA GTT GCA CCA CTT CTG GCG TCG GGC CCA GAT GGT AAG CCC TCC CGT ATC GTA
 1327 AAA TCT GGA GCC GGT GAG CGT GGG TCT CGC GGT ATC ATT GCA GCA ACT AGA CAG ATC GCT GGT GAT GCT TCA CTG ATT
 1405 GTT ATC TAC ACG ACG GCG AGT CAG GCA ACT ATG GAT GAA CCA AAT AGA CAG ATC GCT GAG ATA GGT GCT TCA CTG ATT
 1483 AAG CAT TGG TAA CTG TCA GAC CAA GTT TAC TCA TAT ATA CTT TAG ATT GAT TTA AAA CTT CAT TTT TAA TTT AAA AGG
 1561 ATC TAG GTG AAG ATC CTT TTT GAT AAT CTC ATG ACC AAA ATC CCT TAA CGT GAG TTT TCG TTC CAC TGA GCG TCA GAC
 1639 CCC GTA GAA AAG ATC AAA GGA TCT TCT TGA GAT CCT TTT CTG CCG GTA ATC TGC TGC TTG CAA ACA AAA CCA
 1717 CCG CTA CCA GCG GTG GTT TGT TTG CCG GAT CAA GAG CTA CCA ACT CTT TTT CCG AAG GTA ACT GCG TTC AGC AGA GCG
 1795 CAG ATA CCA AAT ACT GTT CTT CTA GTG TAG CCG TAG TTA GGC CAC CAC TTT CCG AAC TCT GTA GCA CCG CCT ACA TAC
 1873 CTC CTT CTG CTA ATC CTG TTA CCA GTG GCT GCT GCC GAT AAG TCG TGT AAT CAG CCC AGC AGG TGA TCA AGA CCA
 1951 TAG TTA CCG GAT AAG GCG CAG CCG TCG GGC TGA ACG GGG GGT TCG ATA CAG CCC AGC AGC TTG GAG CGA ACC TAC
 2029 ACC GAA CTG AGA TAC CTA CAG CGT GAG CTA TGA GAA ACG CCG CTT CCC GAA GGG AGA AAG CCG GAC AGG TAT CCG
 2107 GTA AGC GCG AGG GTC GGA ACA GGA GAG CGC ACG AGG GAG CTT CCA GGG GGA AAC GGC TAT AGT CCT GTC
 2185 GGG TTT CGC CAC CTC TGA CTT GAG CCG GTT TTT TTT TGA TGC TCG TCA GGG GCG AGC CTA TGG AAA AAC GCG AGC
 2263 AAC GCG GCC TTT TTA CCG TTC CTG GCC TTT TGT GGT CAC ATG TTC CCT GCG TTA TCC CCT GAT TCT
 2341 GTG GAT AAC CGT ATT ACC GCC TTT GAG TGA GAT GAT ACC GCT CCG AGC CAG ACC CAG CCG AGC TCA GTG
 2419 AGC GAG GAA CCG GAA GAG CGC CCA ATA CGC AAA CCG CCT CTC CCG AGT ATT CAT TAA TGC AGC TCG CAC
 2497 GAC AGG TTT CCG GAC TGG AAA GCG GGC AGT GAG CAC AAT GTG ATG TAG CAT TAG GCA CCC CAG
 2575 GCT TTA CAC TTT ATG CTT CCG GCT ATG TTG TGT GGA ATT GTG AGC GGA TAA CAA TTT CAC ACA GGA AAC AGC TAT

GAC	CAT	GAT	TAC	GCC	AAG	CTT	TGG	AGC	CTT	TTT	TGT	GGA	GAT	TTT	CAA	CGT	GAA	AAA	AAT	ATT	ATT	CGC	AAT	TCC	TGT	TTT
AGT	TGT	TCC	TTT	CTA	TTC	TCA	CAG	TGC	ACA	GAT	CCA	AAT	GAC	CCA	TTC	TCC	ATC	CTC	CCT	GTC	TAT	TGT	AGG	AGA	AGC	
CAG	AGT	CAT	CAT	CTA	TTG	CCG	GGC	AAT	TCA	CAG	CTA	TTG	GTA	TCA	GCA	GAA	ACC	AGG	GAA	AGC	AGC	AGC	GAA	AGC	AGC	
CCC	TAA	GCT	GAT	CTG	TGC	ATC	CAG	TTT	GCA	AAG	TGG	GCT	CCC	ATC	GAT	GTT	GTA	CTG	TCA	GCA	TAT	TAT	TAT	TAT	TAT	
AGA	TTT	CAC	TCT	CAC	CAT	CAG	CAG	TCT	GCA	ACC	TGA	AGA	TTT	TGC	AAC	TTA	CTA	CTG	TCA	ACA	GAG	TTA	CAG	TAC	CCC	
TCC	AAC	GTT	CGG	CCA	AGG	GAC	CAA	GCT	CAG	ACC	TAC	CAA	ACC	TAC	TGT	GGC	TGC	ATC	CTT	CTT	CCC	GCC	ATC	ATC		
TGA	TGA	GCA	GCT	GAA	ATC	TGG	AAC	TGC	CTC	TGT	TGT	GTG	CTT	GCT	GAT	TAA	CTT	CTA	TCC	CAG	AGA	GAG	AGT	ACA		
GTG	GAA	GCT	GGA	TAA	CGC	CCT	CCA	ATC	GGG	TAA	CTC	CCA	GGA	GAG	TGT	GAT	GCA	GCA	GGA	CAG	CAA	GGA	CAG	CTA		
CAG	CCT	CAG	CAG	CAC	CCT	GAC	GCT	GAG	CAA	AGC	AGA	CTA	CGA	AAA	CAA	CAA	AGT	CTA	CGC	CTG	CGA	AGT	CAC	TCA		
GGG	CCT	GAG	TCT	GCC	CGT	CAC	AAA	GAG	CTT	CAA	CAG	GGG	AGA	GTG	TAA	AGG	CGC	GCC	AAT	TCT	ATT	TCA	AGG	AGA		
CAG	TCA	TAA	TGA	AAT	ACC	TAT	TGC	CTA	CGG	CCG	TAT	TGC	TGA	AGA	GCT	TGG	CGG	CGA	ATG	GGC	TGA	COG	CTT	CGT		
CTG	CTT	GCC	GAA	TAT	CAT	GCT	GGA	AAA	TGG	CCG	CTT	TTC	TGG	ATT	CAT	TAC	TGG	CGG	GCT	GGT	TGG	CGG	GGA	CCG		
CTA	TCA	GGA	CAT	AGC	GTT	GGC	TAC	CCG	TGA	TAT	TGC	TGA	AGA	GCT	TGC	TCT	TGA	CGA	GTT	CTT	CTG	AGC	GGA	CTG		
TTA	CGG	TAT	CGC	CGC	TCC	CGA	TTT	GCA	GCG	CAA	CTC	CTT	CTA	TGC	CTT	TCT	TGA	CGA	GTT	CTT	CTG	AGC	GGA	CTG		
GGG	TTT	GCT	GCT	ACG	AGA	TTT	GCA	TTT	CAC	CGC	CTT	CTA	TGA	AGA	GTT	GGG	CTT	GGG	AAT	GGT	TTT	CCG	GGA	CGC		
CCG	CTG	GAT	GAT	CCT	CCA	CGG	GGA	TCT	CAT	GCT	GGA	GTT	CTT	CGC	CCA	CAA	CTT	GTT	TAT	TTC	AGC	GGA	CTA	TAA		
TOG	TTA	CAA	ATA	AAG	CAA	TAG	CAT	CAC	AAA	TTT	CAC	AAA	TAA	AGA	AGC	ATT	TTT	TTC	ACT	GCA	TTT	TAG	TGG	TTT		
CNA	ACT	CAT	CAA	TGT	ATC	TTA	TCA	TGT	CTG	TAT	ACC	GTC	CAC	CTC	TAG	CTA	GAG	CTT	GGC	GTA	ATG	ATG	GTA	GCT		
TGC	CTA	ATG	AGT	GAG	CTA	ACT	ATA	GCA	TAA	ATT	TGC	GTT	CGC	CTC	ACT	GCC	CGC	TTT	CCA	GTG	GGA	AAA	CTT	GTC		
GNA	TTG	CAT	GAA	GAA	TCT	GCT	TAG	GCT	TAG	CGG	TTT	TGC	GCT	GCT	TCG	CTA	GGT	GCT	CAA	TAT	TGG	CCA	TTA	GCC		
TTA	TTT	ATT	GGT	TAT	ATA	GCA	TAA	ATT	AAAT	GGC	TAT	GGC	TAT	TGG	CTA	ITG	CAT	ACT	AGT	TAT	CCA	TAT	CAAT	ATG		
ATT	TAT	ATT	GTC	TCA	TGT	CCA	ACA	TTA	CCG	CCA	TGT	TGA	TGA	TTA	TTG	ACT	AGT	TAT	TAA	TAG	TAA	TCA	ATC			
GGG	TTA	GTT	GTT	CAT	AGC	CCA	TAT	ATG	GAG	TTT	CGC	GTT	ACA	TAA	CTT	ACG	GTA	AAAT	GGC	COG	CTT	GSC	TGA	CCC		
AAC	GAC	CCC	CGC	CCA	TTG	ACG	TCA	ATA	ATG	ACG	TAT	GTT	CCC	ATA	GTA	ACG	CCA	ATA	GGG	ACT	TTT	CAT	TGA	CGT		
TGG	GTG	GAG	TAT	TTA	CGG	TAA	ACT	GCC	CAC	TTG	GCA	GTA	CAT	CAA	GTG	TAT	CAA	AGT	ACG	CCC	CCT	ATT	GAC	CAA</		

Figure 12 contd

6397 TTG CAG CAC ATC CCC CTT TCG CCA GCT GGC GTA ATA GCG AAG AGG CCC GCA CCG ATC GCC CTT CCC AAC AGT TGC GCA
 6475 GCC TGA ATG GCG AAT GGC GCC TGA TGC GGT ATT TTC TCC TTA CEC ATC TGT GCG GTA TTT CAC ACC GCA TAC GTC AAA
 6553 TGC ACC ATA GTA CGC CTG TAG CCG GGT ATT AAG GGC GGC TGT GGT TAC GCG CAG GGT CAC CCG TAC ACT
 6631 TGT GGA GGT CGC TGA GTA GTG CGC GAT TAT TTT CCG TTT CCG TTT CCG CAG GTT CCG CGG CTT TCC CCG TCA AGC
 6709 TCT AAA TCG GCG GCT CCC TTT AGG GTT CCG ATT TAG TGC TTT ACG GCA CCT CGA CCC CAA AAA A

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1 TAC TCT TCC TTT TTC AAT ATT ATT GAA GCA TTT ATC AGG GTT ATT GTC TCA TGA GCG GAT ACA TAT TTG AAT GTA TTT
 73 AGA AAA ATA AAC AAA TAG GGG TTC CGC GCA CAT TTC CCC GCA AAG TGC CAC CTG AGC TCG AGT GAT CGG GAG ATC TCC
 157 CGA TCC CCT ATG GTG CAC TGT CAG TAC AAT CTG CTC TGA TGC CGC ATA GTT AAG CCA GTA TCT GCT CCC TGC TTG TGT
 235 GTT GGA GGT CGC TGA GTA GTG CGC GAT TAT TTA AGC TAC AAC AAG GCA AGG CTT GAC CGA CAA TTG CAT GAA GAA
 313 TCT GCT TAG GGT TAG GCG TTT TGC GCT GCT TCG CTA GGT GGT CAA TAT TGG CCA TTA GCC ATA TTA TTC ATT GGT TAT
 391 ATA GCA TAA ATC AAT ATT GGC TAT TGG CCA TAT TGG CCA TAT TAA TAG TCA ATT ACG GGG TCA TTA GTT CAT
 469 TGT CCA ACA TTA CCG CCA TGT TGA CAT TGA TTA TTG ACT AGT TAT TAA TAG TCA ATT ACG GGG TCA TTA GTT CAT
 547 AGC CCA TAT ATG GAG TTC CGC GTT ACA TAA CTT ACG GTA AAT GGC CCG CCT GGC TGA CCG CCC AAC GAC CCC CGC CCA
 625 TTG ACG TCA ATA ATG ACG TAT GTT CCC ATA GTA ACG CCA ATA GGG ACT TTC CAT TGA CGT CAA TGG GTG GAG TAT TTA
 703 CGG TAA ACT GCC CAC TTG GCA GTA CAT CAA GTG TAT CAT ATG CCA AGT ACG CCC CTT GAC GTC AAT GAC GGT AAA
 781 TGG CCC GCC TGG CAT TAT GCC CAG TAC ATG ACC TTA TGG GAC TTT CCT ACT TGG CAG TAC ATC TAC GTA TTA GTC ATC
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 1015 GCC CCA TTG ACG CAA ATG GGC GGT AGC CAT CCA CGC TGT TTT GAC CTC CAG TGG GAG TAT ATA AGA GCT CGT TTA GTG AAC CGT CAG
 1093 ATC GCC TGG AGA CCC CAT CCA CGC TGT TTT GAC CTC CAT AGA GAC CAC CGG GAC CCA TCC AGC CTC GCG CGG GAA
 1171 CCG TGC ATT GGA AGC TTG GTA CCG GTT AAT TGG CGC GCC GCG CAT CCG GAT ATC CCG ACC GAC GCG TTC GCG
 1249 AGA GGC CGC AAT TCC CTA GCC ACC ATG GGA TGG AGC TGT ATC CTC TTC TTG GTA CTG CTG GCG CAG CGG GAT TAG GGT TGC TGA
 1327 ATG GGG CGG AGA ATG GGC GGA ACT GAG CCG AGT TAG GCG CGG GAT TAG GCG AGT TAG GCG GAC TAT GGT TGC TGA
 1405 CTA ATT GAG ATG CCG ATC CCG TGG CAC GAC AGG TTT CCC GAC TGG AAA GCG GGC AGT GAG CGC AAC GCA ATT AAT GTG
 1483 AGT TAG CTC ACT CAT TAG GCA CCC CAG GCT TTA CAC TTT ATG CTT CCG GCT CGT ATG TTG TGT GGA ATT GTG AGC GGA
 1561 TAA CAA TTT CAC ACA GGA AAC AGC TAT GAC CAT GAT TAC GTC AAG CTT GGG CTG CAG GTT CTT TCC GCC TCA GAA GCC
 1639 ATA GAG CCC ACC GCA TCC CCA CTA CTC AGA CAA TGC GAT GCA ATT TCC TCA TTT TAT TAG GAA AGG ACA GTG GAG GTG GCA
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 1795 CCT TCC AGG GTC AAG GAA GGC ACG GGG GAG GCG CAA ACA GAT GGC TGG CAA CTA GAA GGC ACA GTC GAG GGT GAT
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 1951 GGC ACC GGG CTT GCG GGT CAT GCA CCA GGT GCG GGT TCC GGT GCG CAC CTC GAC GTC GCG GGT GAC GGT GAA GCC GAG
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 2263 CAT CCG CGG GCC GAT CTC GGC GAA CAC CGC CCC GAT GTC GAG CCG GAT GAG GAA GAG TTC TTG CAG CTC GAT CAC CGT CTC
 2341 GTC GTC CCG GAC CCA CAC CTT GGC CAC GTC GAG CCG GAC GGT CAC GAG CAC CTC CAA GAG CAC CTC TGG GGG CAC AGC GCG CCT
 2419 CAG TGC TAG CAC CAA GGG CCC ATC GGT CTT CCC CCG ACC CTC CAA GAG CAC CTC TGG GGG CAC AGC GCG CCT
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 2809 AGG GCA GCA AGG CAG GGC CCG TCT TCA CCC GGA GCG CTC TGC CCG CCC CAC TCA TGC TCA GGG AGA GGG TCT
 2887 TCT GCG TTT TTC CCC AGG CTC TGG CCA GGC ACA GGC TAG GTG CCC CTA ACC CAG GCC CTC CAC AAG GGG CAG GTG
 2965 CTG GGC TCA GAC CTC CCA AGA GGC ATA TCC GGG AGG ACC CTG CCC ACC TAA GGC CAC CCC AAA GCG CAA ACT CTC
 3043 CAC TCC CTC AGC TCG GAC ACC TTC TCT CCT CCC AGA TTC CAG TAA CTC CCA ATC CTC TCT CTG CAG AGC CCA AAT CTT

Figure 12 contd

6865 AGC GGT TTG ACT CAC GGG GAT TTC CAA GTC TCC ACC CCA TTG ACG TCA ATG GGA GTT TGT TTT GGC ACC AAA ATC AAC
 6943 GGG ACT TTC CAA AAT GTC GTA ACA ACT CCG CCC CAT TGA CGC AAA TGG GCG GTA GGC GTG TAC GGT GGG AGG TCT ATA
 7021 TAA GCA GAG CTC GTT TAG TGA ACC ATC AGA TCG CCT TAG TGA ACC GAT CAC CAT GTT TTG AGG TCC ATA GAA GAC ACC
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 7489 GGG ACA GAT TTC ACT CTC ACC ATC AGC AGT CTG CAA CCT GAA GAT TTT GCA ACT TAC TGT CAA CAG AGT TAC AGT
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 7801 TCT TTC CTC AGG AAC TGT GGC TGC ACC ATC TGT CTT CCC GGC ATC TGA TGA GCA GTT GAA ATC TGG AAC TGC
 7879 CTC TGT TGT GTG CTT GGT GAA TAA CTT CTA TCC CAG AGA GGC CAA AGT ACA GTG GAA GGT GGA TAA CGC CCT CCA ATC
 7957 GGG TAA CTC CCA GAG TGT CAC AGA GCA GGA CAG CAA GAG CAC CTA CAG CCA CCA CCA CCA CCA CCA CCA CCA CCA CCA
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 8191 ACT GTG CTT TCT AGT TGC CAG CCA TCT GTT GTC TCC CCG GTC TGT AGT AGG TGT CAT TCT ATT CTG GGG GGT GGG GTG
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 9361 CCT AGA TCC TTT TAA ATT AAA AAT GAA GTT TTA AAT CAA TCT AAA GTA TAT ATG AGT AAA CTT GGT CTG ACA GTT ACC
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 10141 CGC TGT TGA GAT CCA GTT CGA TGT AAG CCA ACT GAT CTT CAG CAT CTT TTA CTT TCA CCA GCG TTT
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Figure 13

A

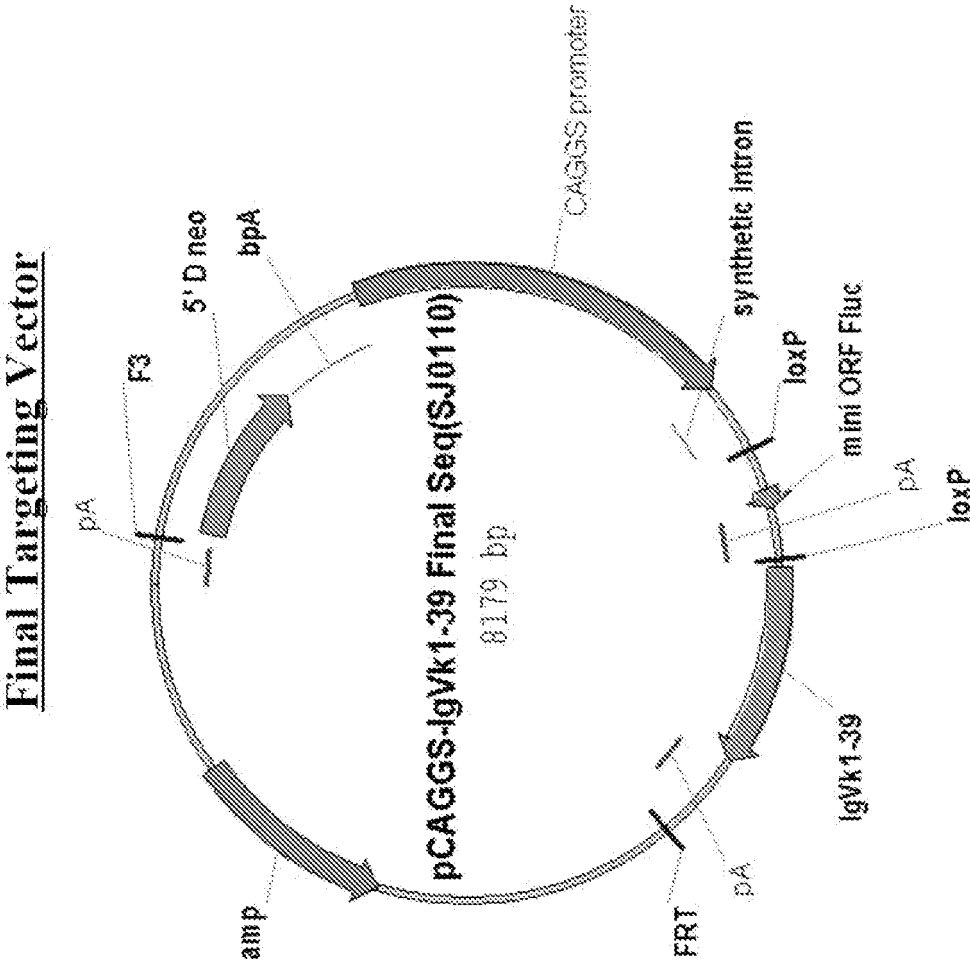


Figure 13 contd

B

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121  aatgaccttg  ggggaggggg  aggcagaat  gaccttgggg  gagggggagg  ccagaatgag
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Figure 13 contd

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Figure 13 contd

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3361 ggcttgagat ctggccatac acttgagtga cattgacatc cactttgcct ttctctccac
3421 aggtgtccac tcccagggcg gcctccggag cgtatgcgga tccgcctagg caattgttta
3481 aatcgccgg ccataacttc gtataatgta tgctatacga agttatggat cctcacagta
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Figure 13 contd

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Figure 13 contd

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Figure 13 contd

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Figure 13 contd

C

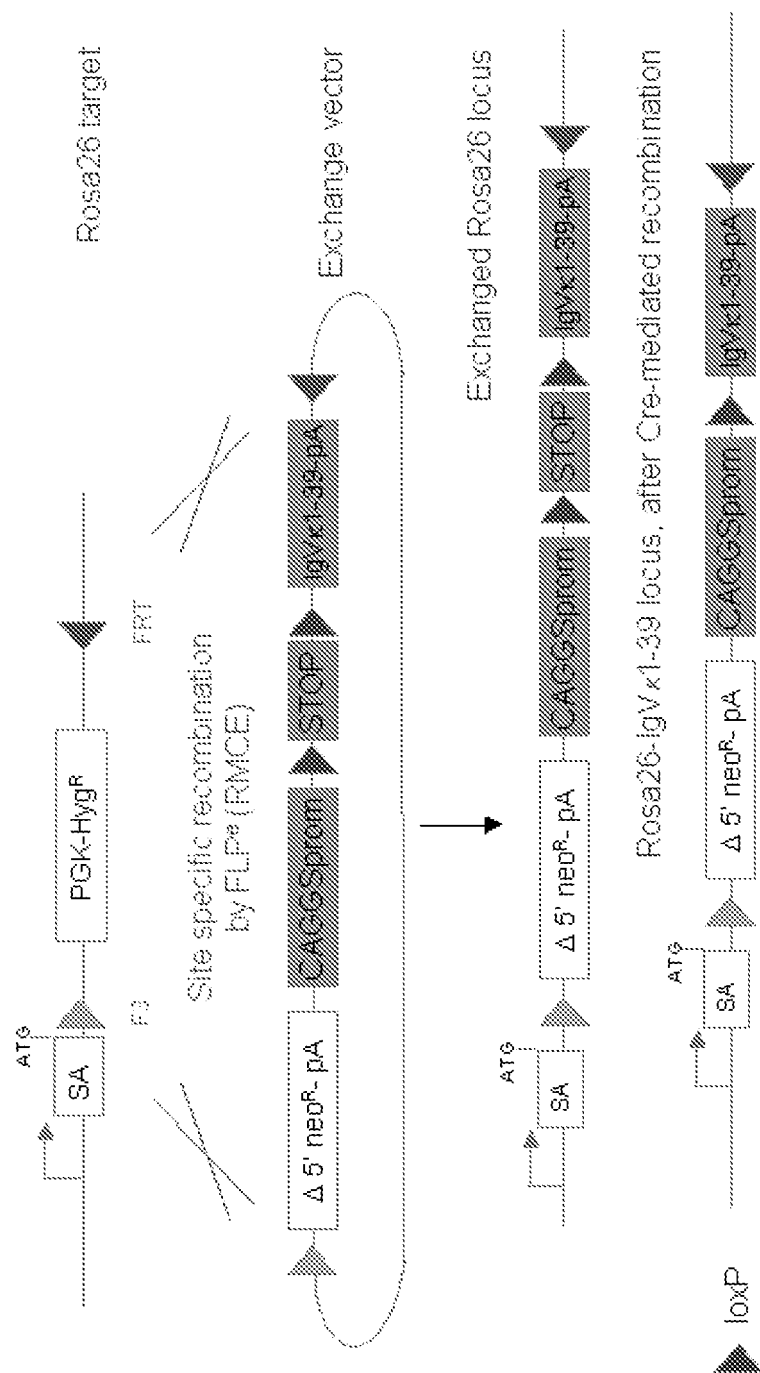
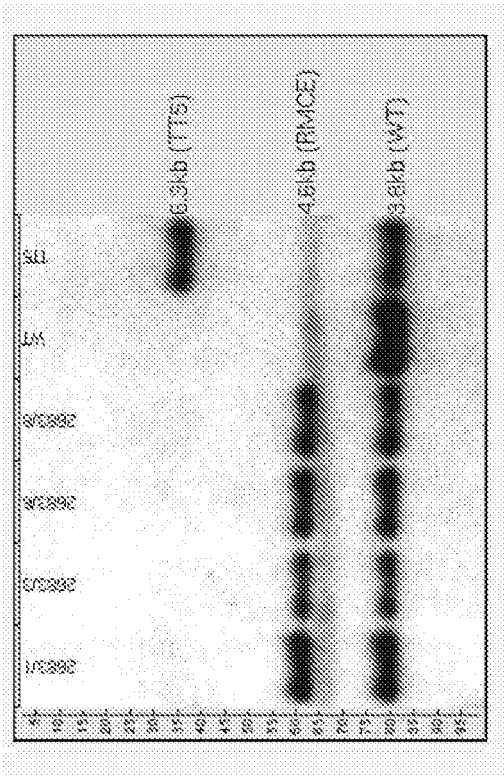


Figure 14

A



B

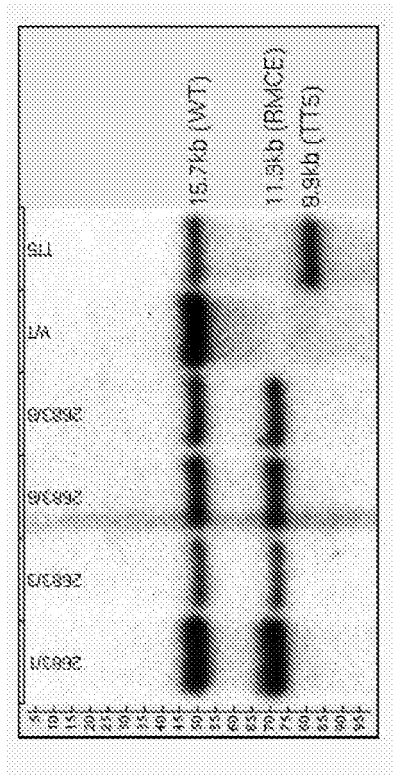


Figure 14 contd

C

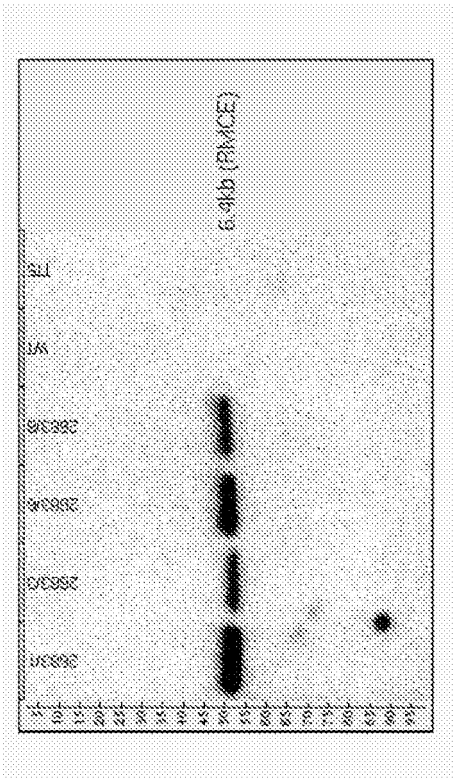


Figure 15

A

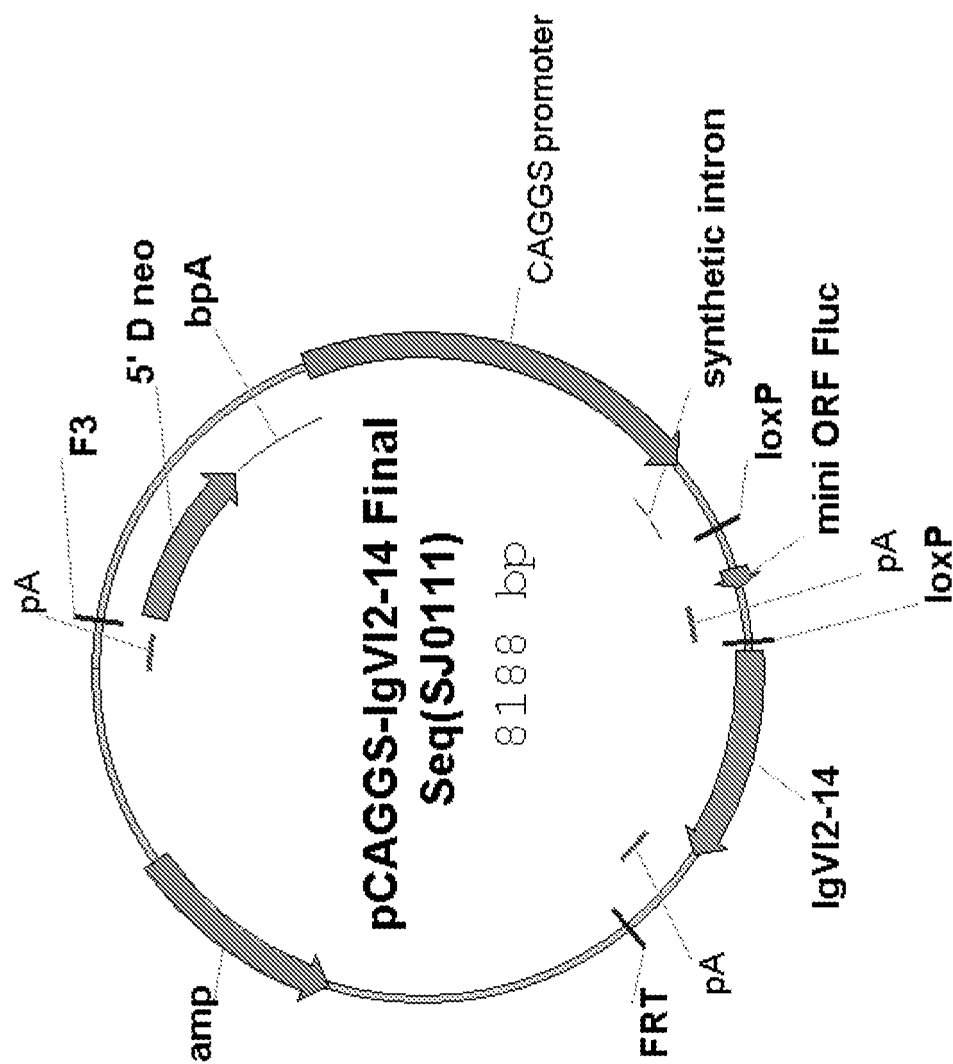


Figure 15 contd

B

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Figure 15 contd

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Figure 15 contd

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Figure 15 contd

48/72

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Figure 15 contd **49/72**

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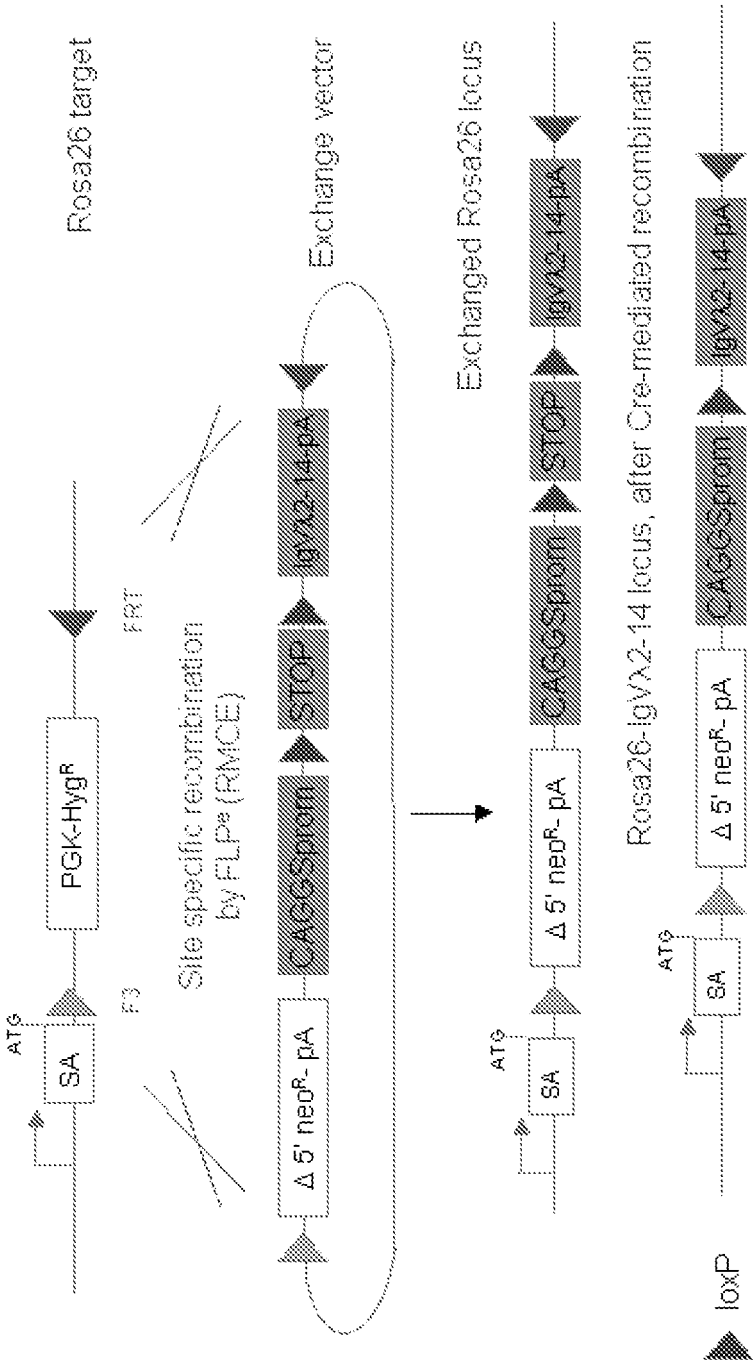
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Figure 15 contd

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Figure 16

A

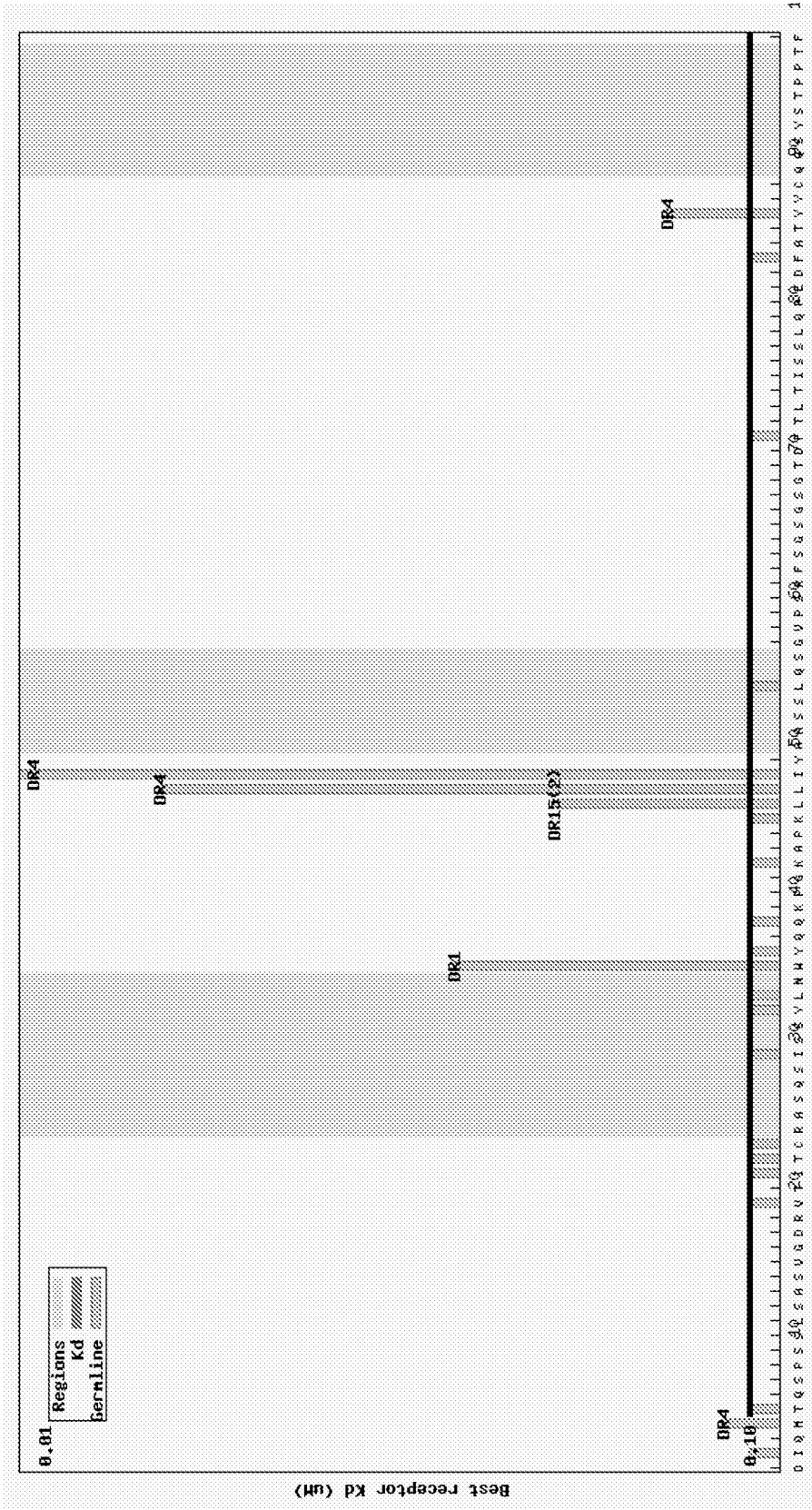


Figure 16 contd

C

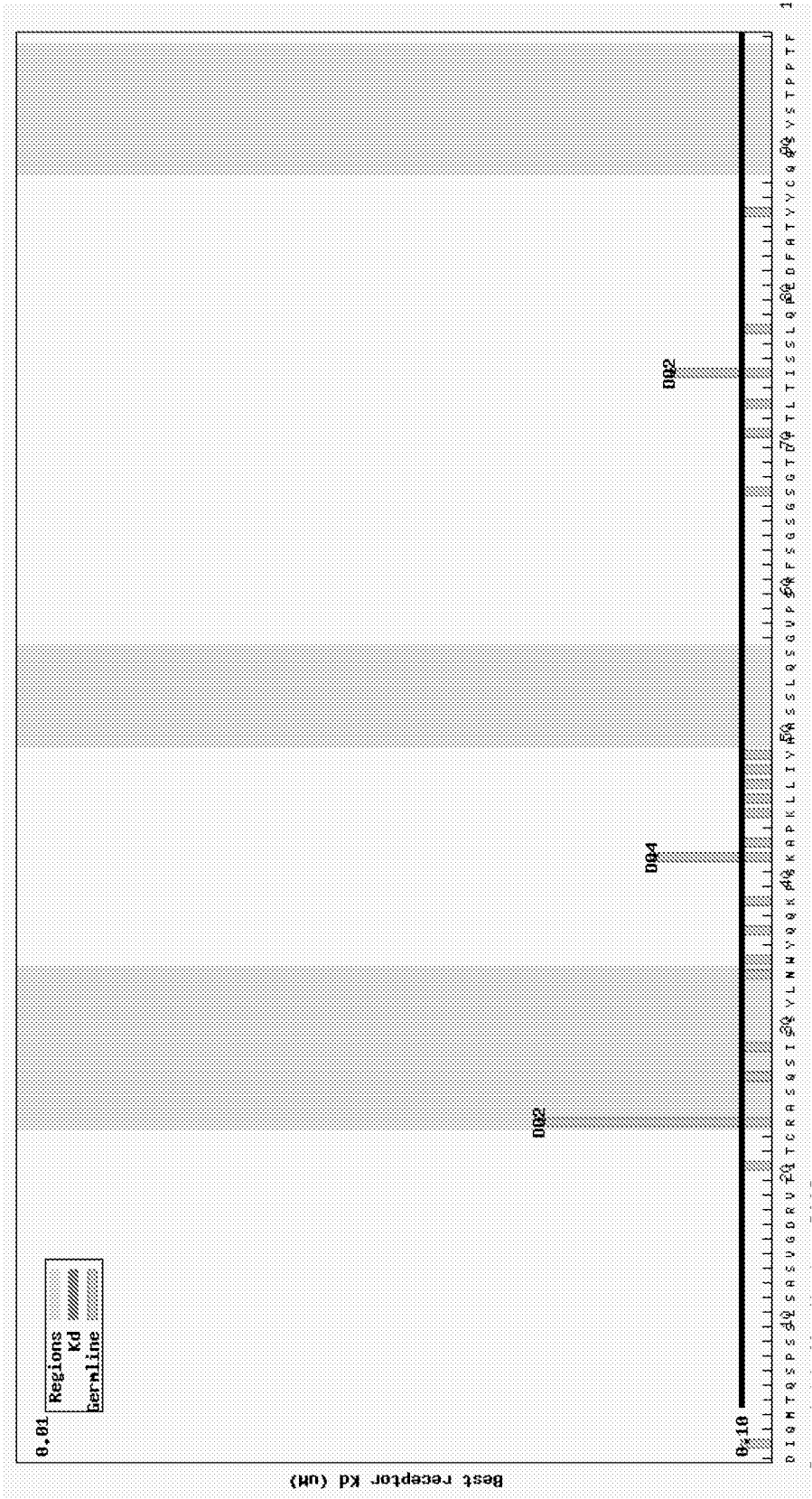
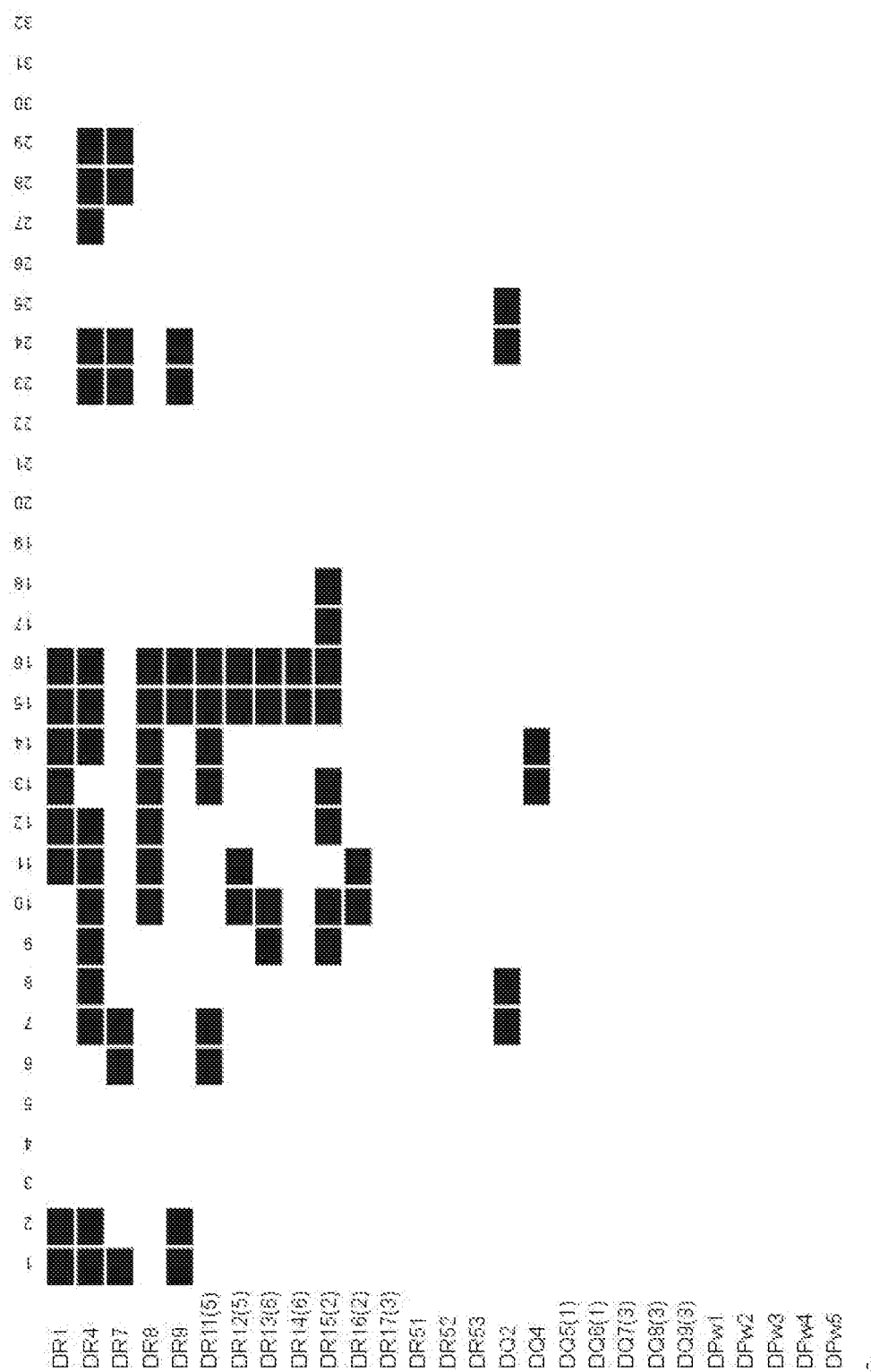


Figure 17

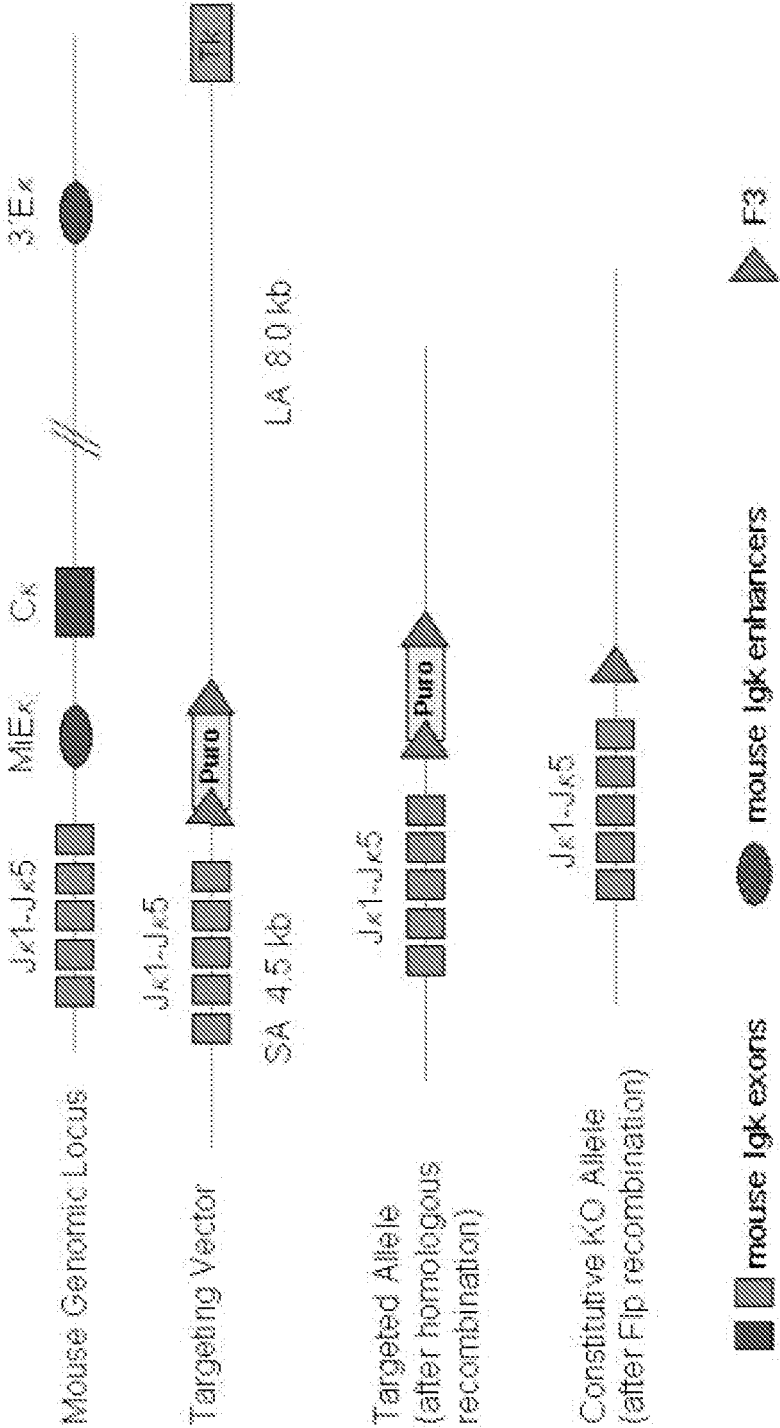
55/72



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Figure 18

A



57/72

Figure 18 contd

B

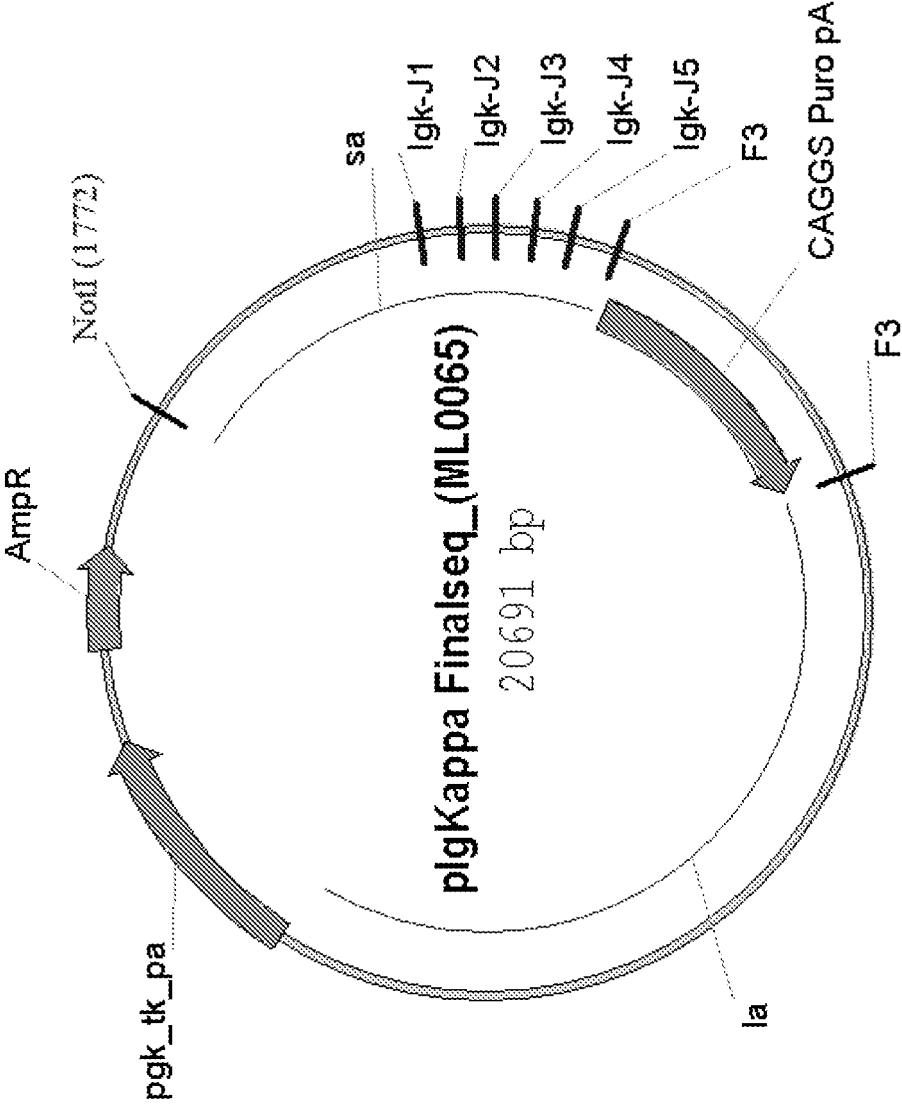


Figure 19

A

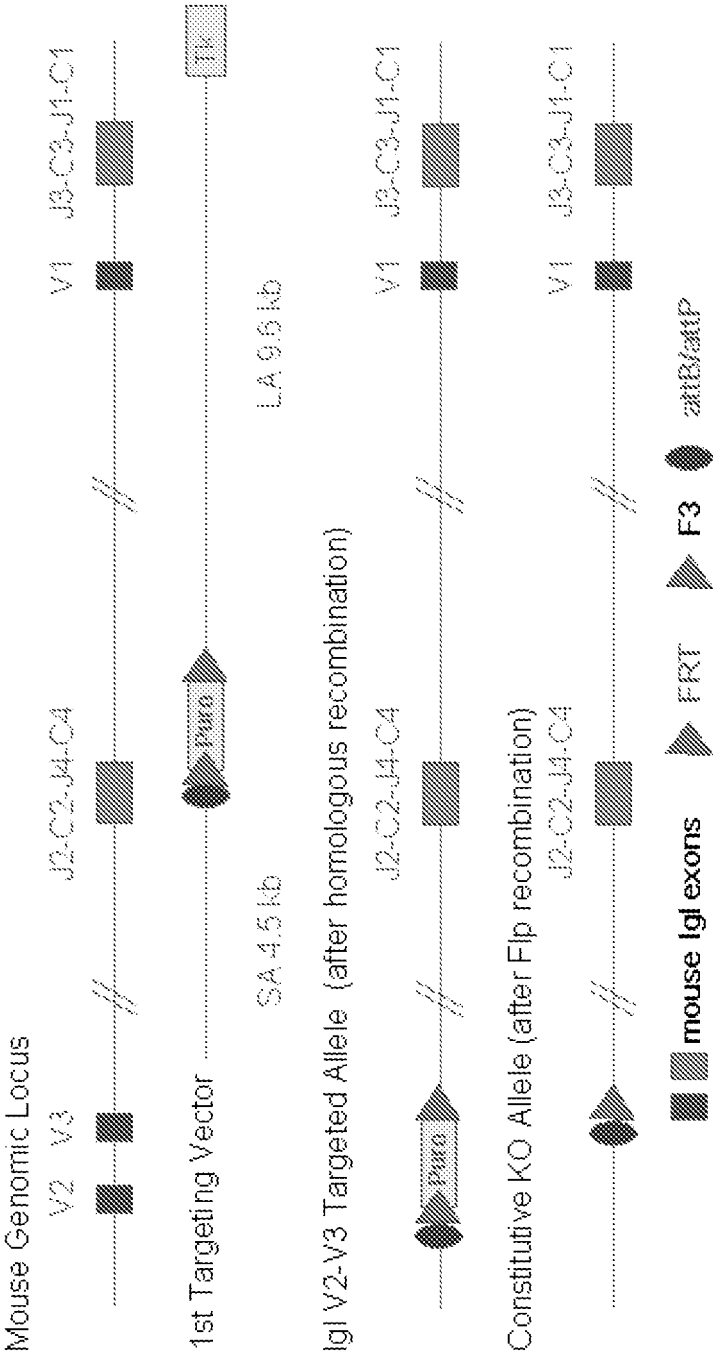


Figure 19 contd 59/72

B

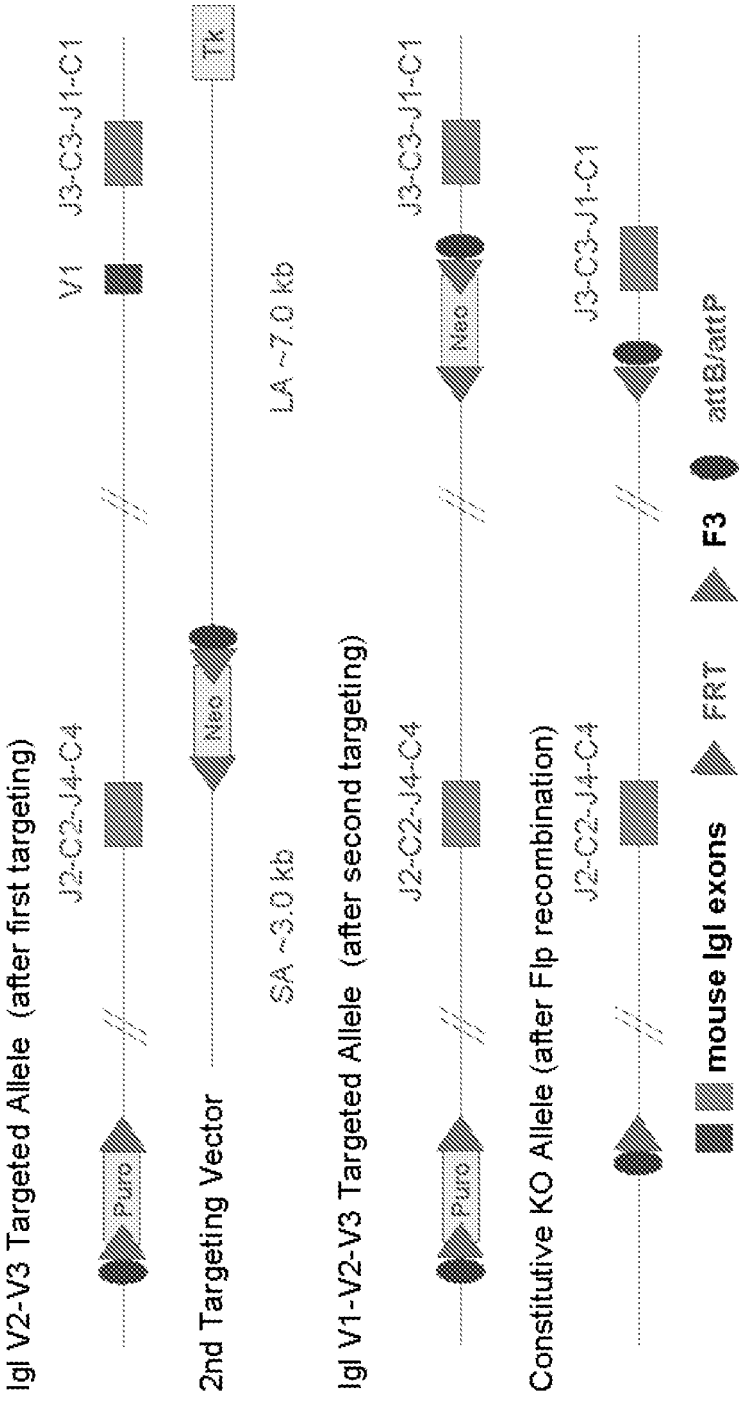


Figure 20

A

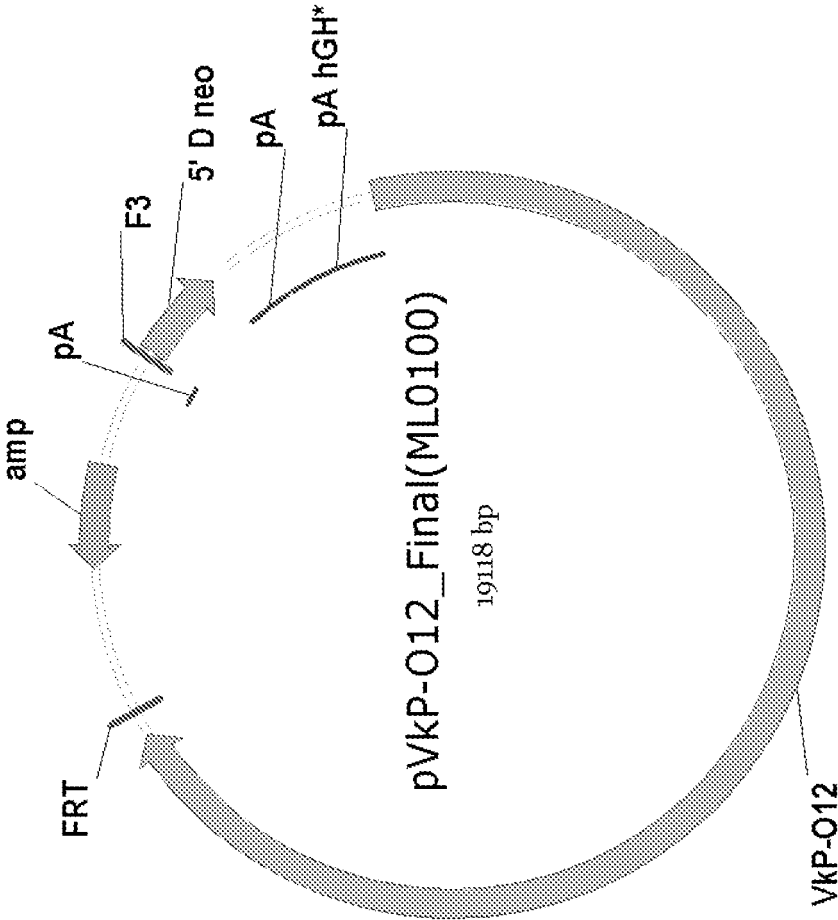


Figure 20 contd

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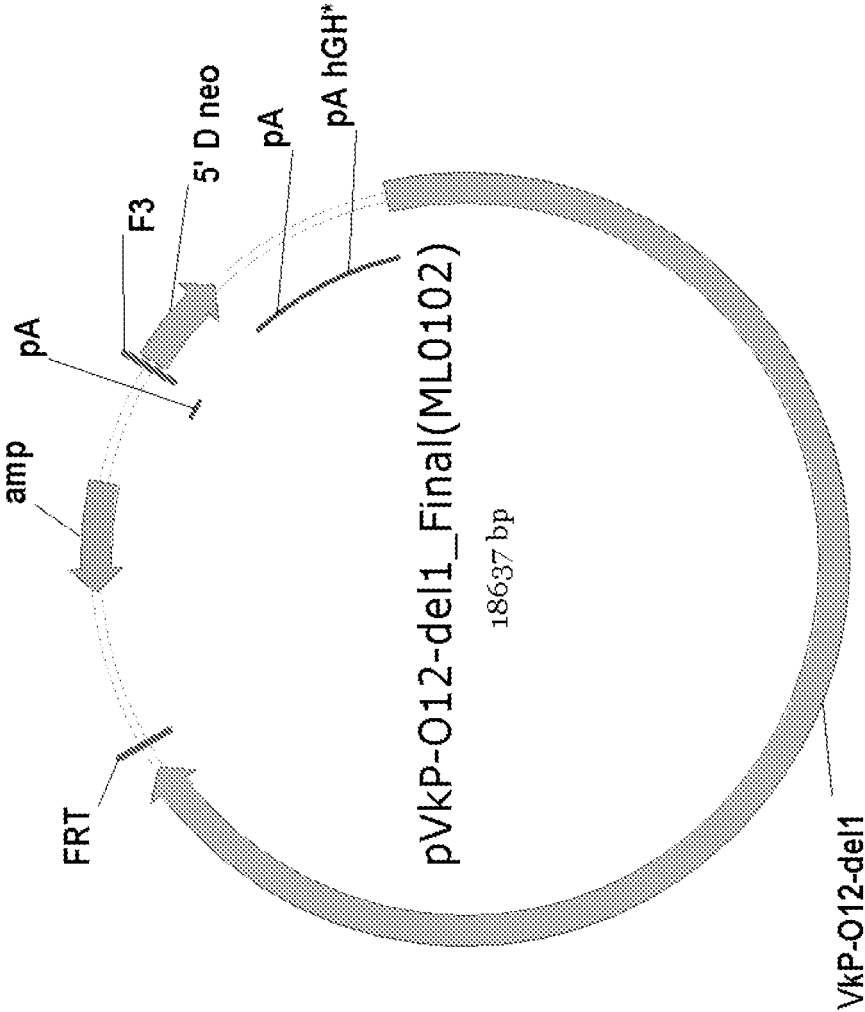


Figure 20 contd

C

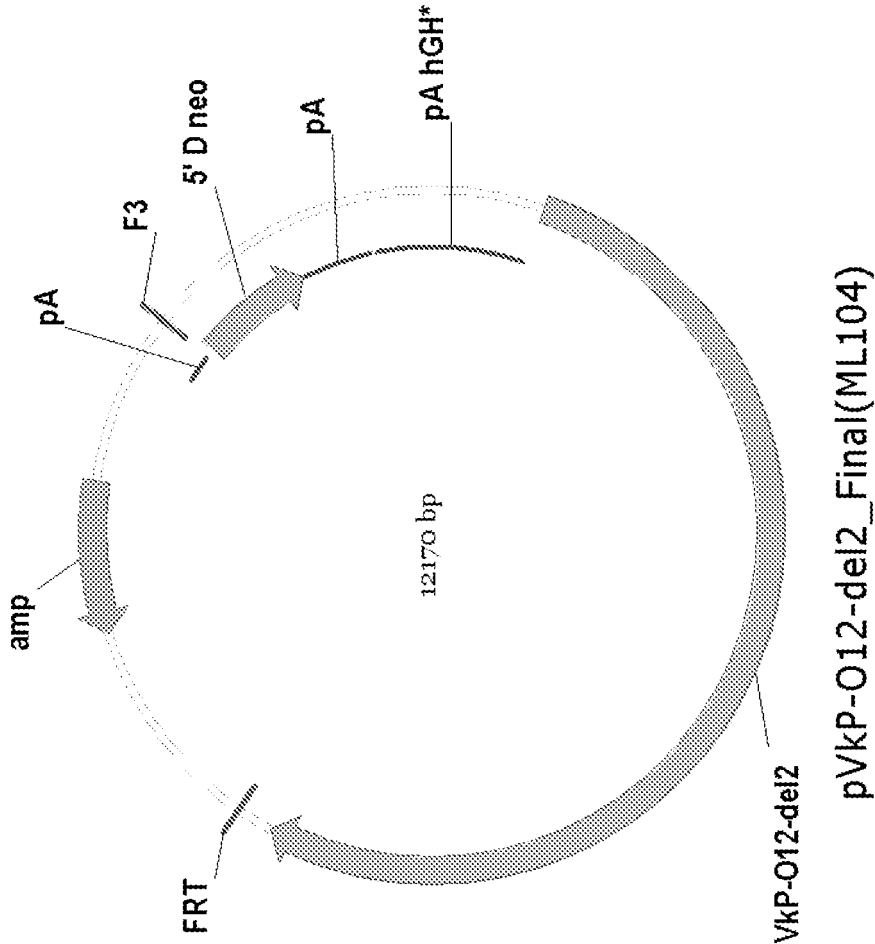


Figure 21

A

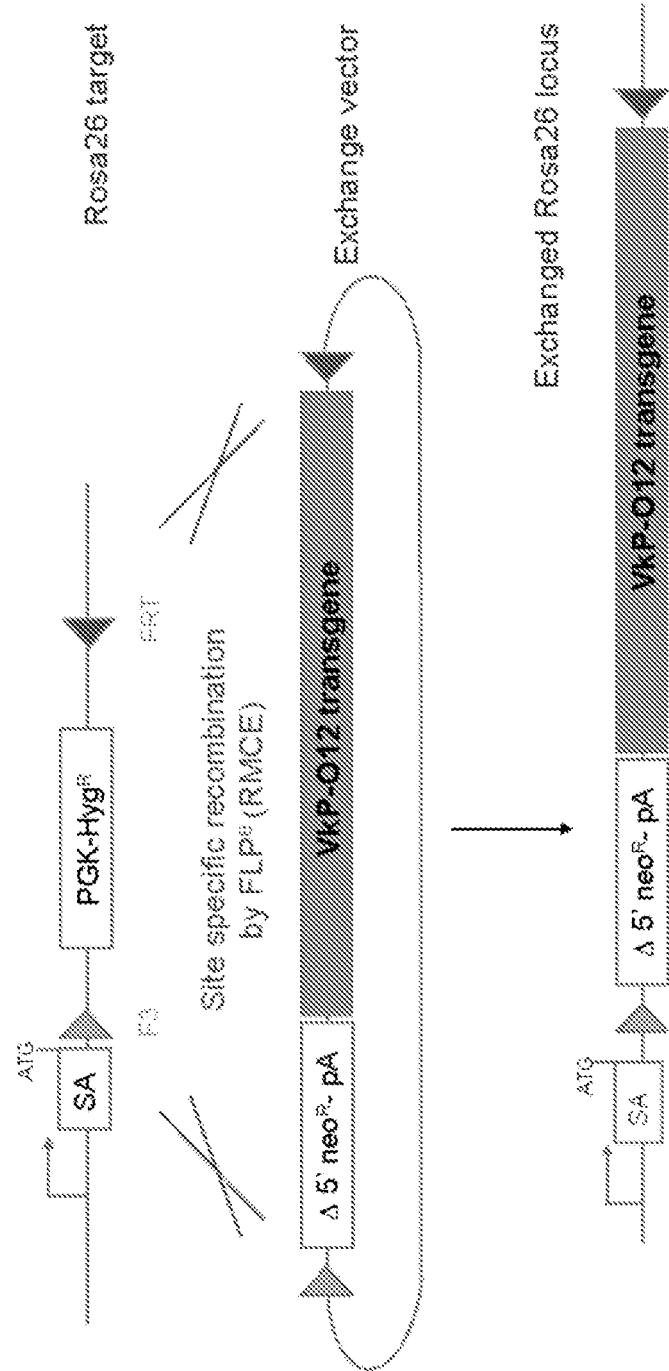


Figure 21 contd

B

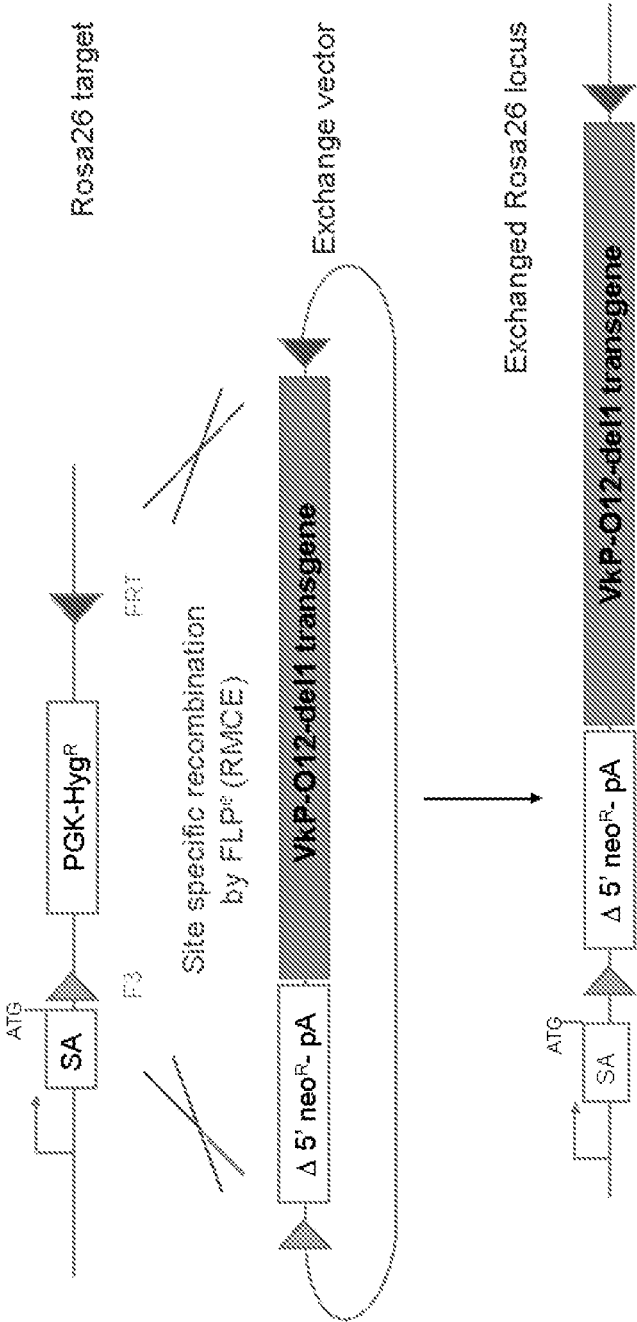


Figure 21 contd

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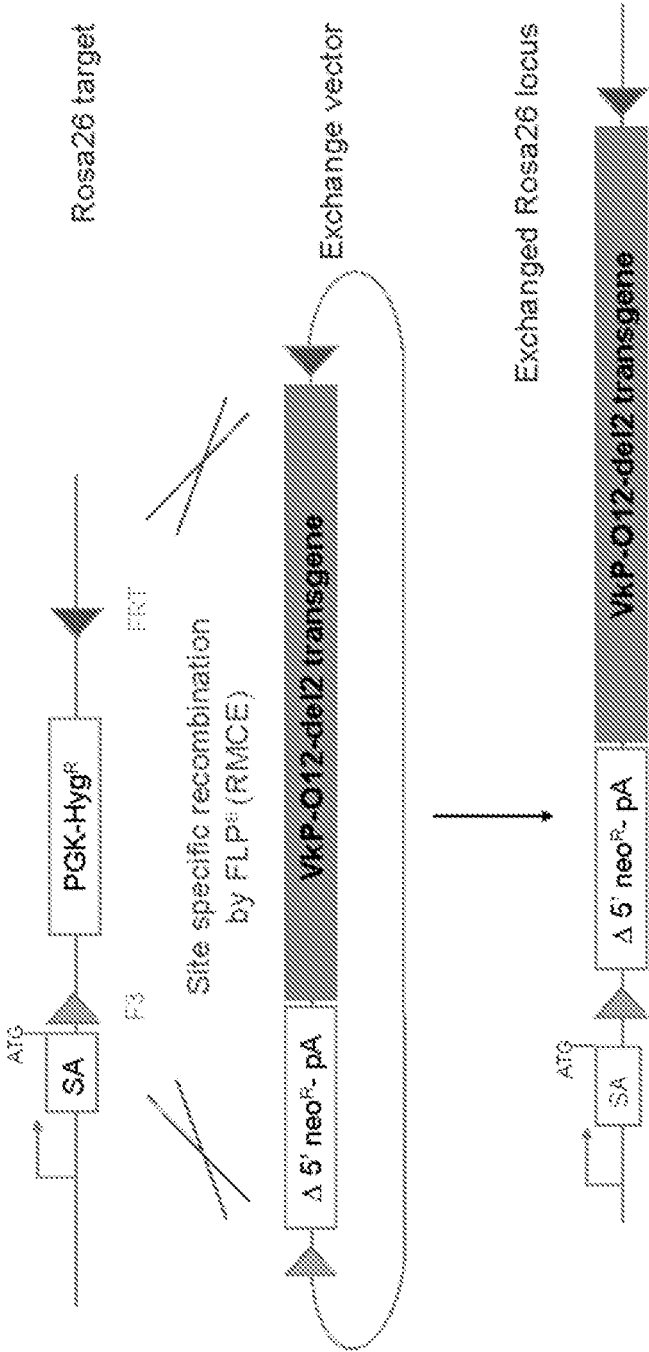


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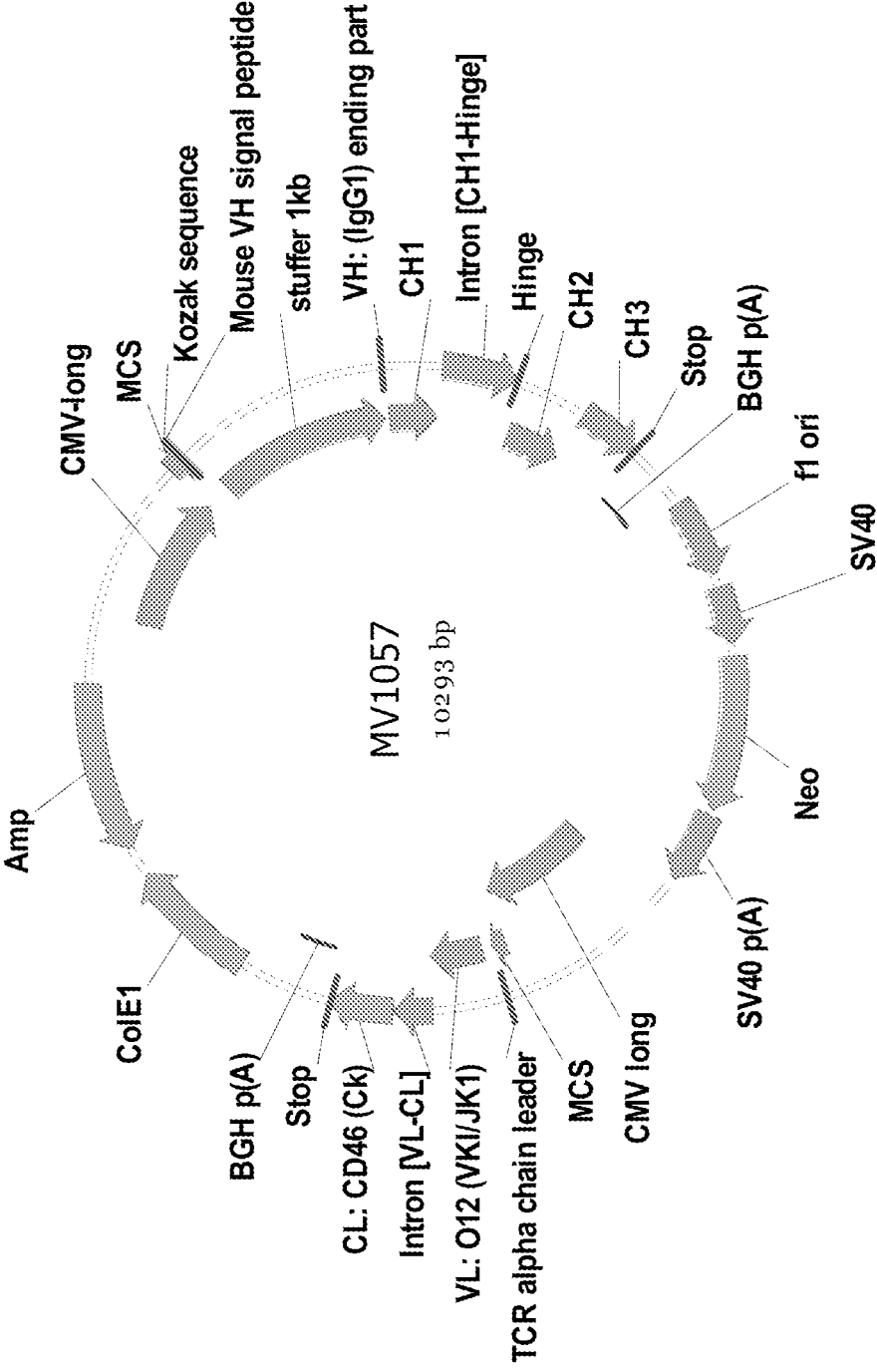


Figure 23

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Mice

Cell populations

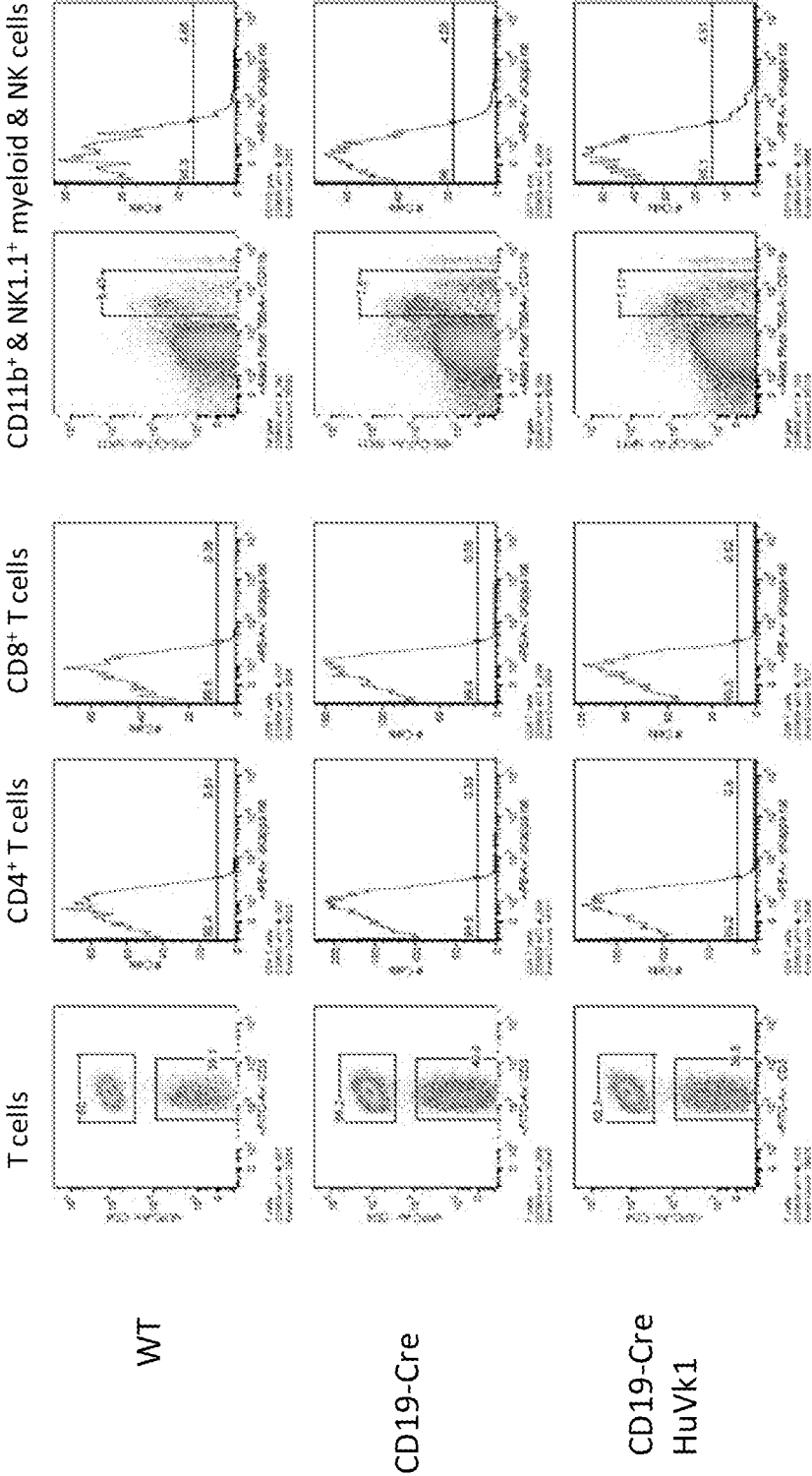


Figure 24

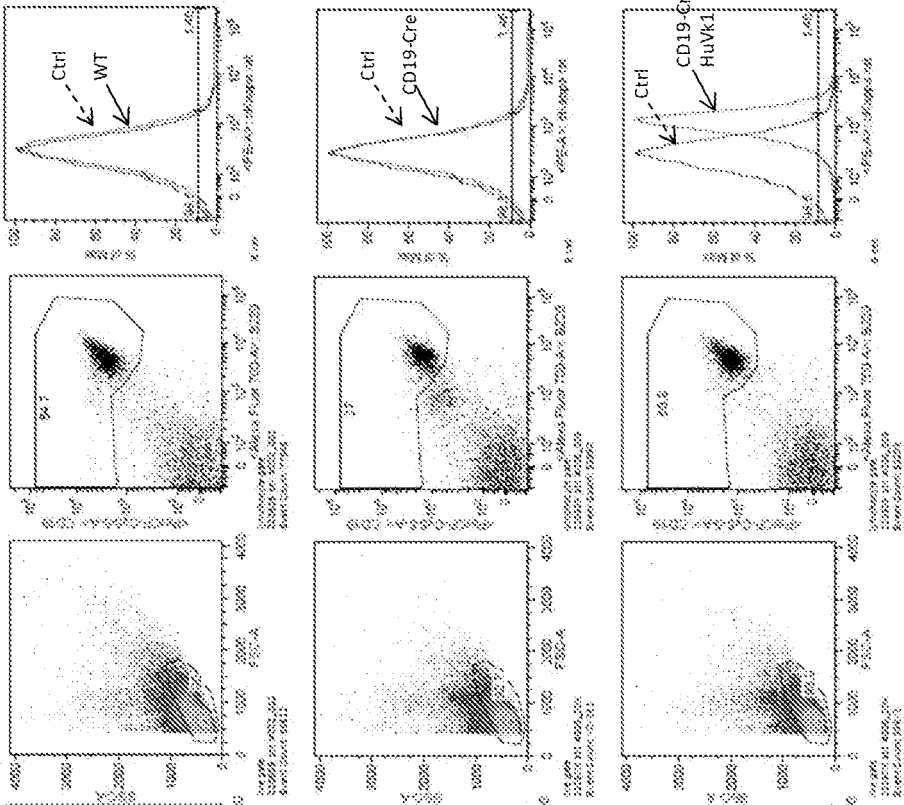
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Mice

Cell populations

Spleen lymphocytes

B220⁺/CD19⁺ B cells



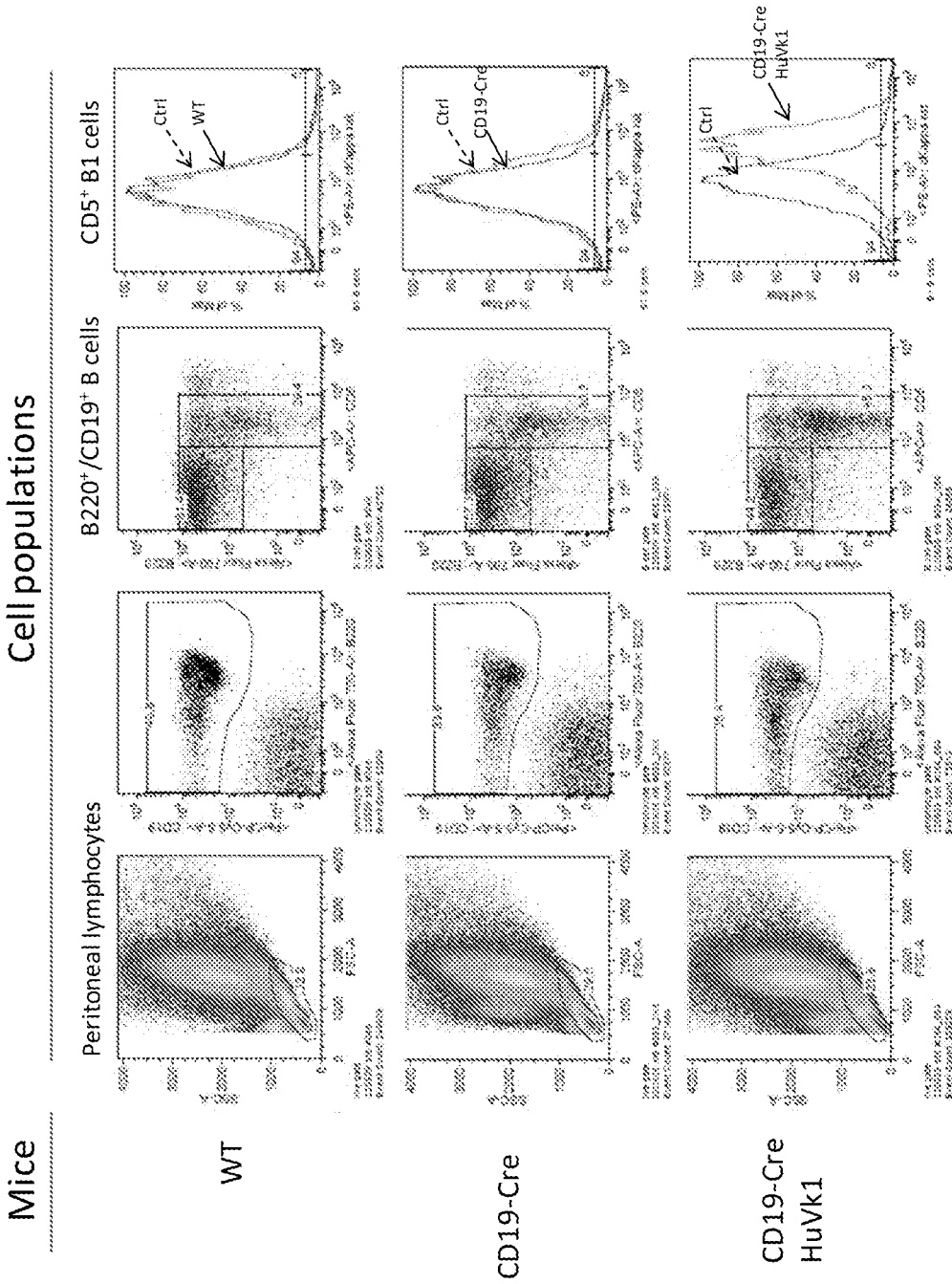
WT

CD19-Cre

CD19-Cre
HuVκ1

Figure 25

69/72



70/72

Figure 26

A

Mice

Cell populations

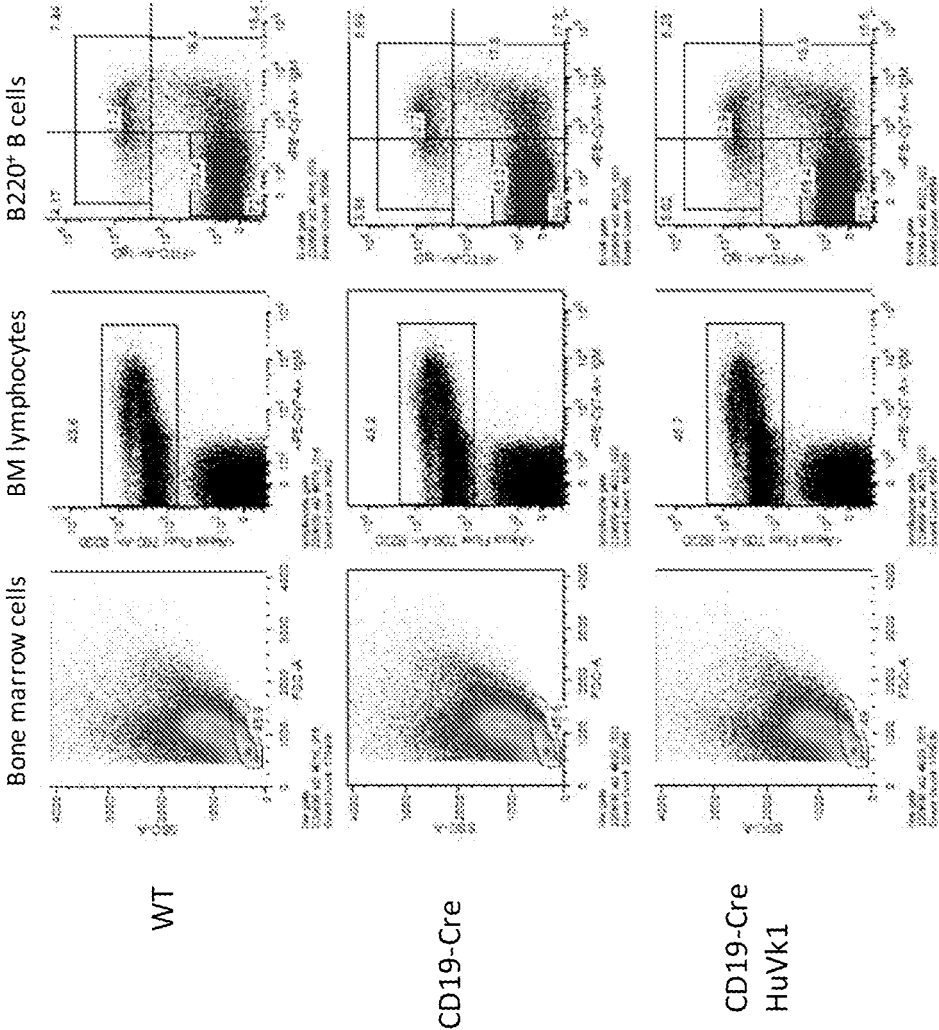


Figure 26 CONTD 71/72

B

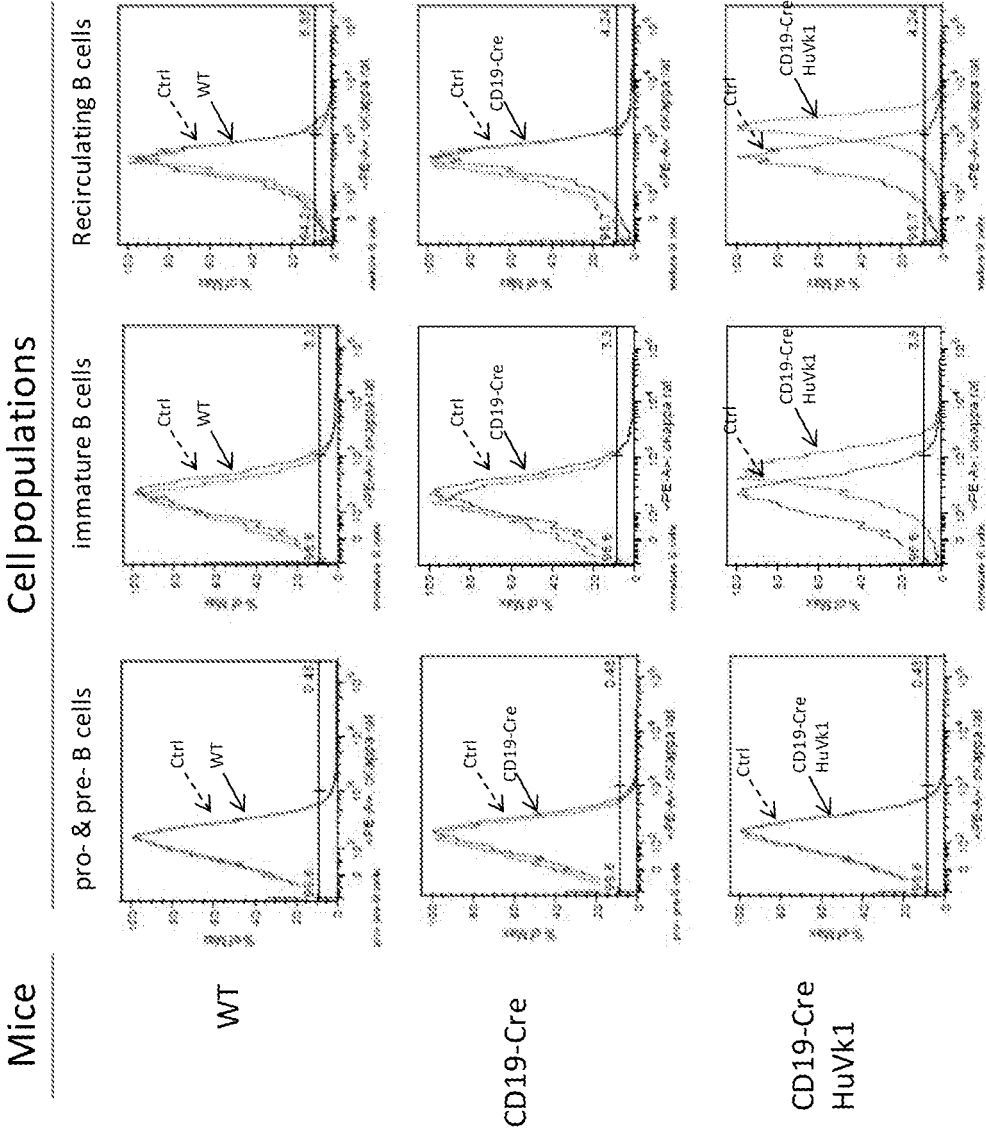


Figure 27

72/72

Mice

Cell populations

