

NUCLEOTIDE SEQUENCES OF THE FOUR SAMPLES WITH POLYMORPHISMS

>K13D7K13_WILD TYPE

1	ATG GAA GGA GAA AAA GTA AAA ACA AAA GCA AAT AGT ATC TCG AAT	45
1	Met Glu Gly Glu Lys Val Lys Thr Lys Ala Asn Ser Ile Ser Asn	15
46	TTT TCT ATG ACG TAT GAT AGG GAA TCT GGT GGT AAC AGC AAT AGT	90
16	Phe Ser Met Thr Tyr Asp Arg Glu Ser Gly Gly Asn Ser Asn Ser	30
91	GAT GAT AAA AGC GGA AGT AGT AGC GAG AAT GAT TCT AAT TCA TTT	135
31	Asp Asp Lys Ser Gly Ser Ser Ser Glu Asn Asp Ser Asn Ser Phe	45
136	ATG AAT CTA ACT AGT GAT AAA AAT GAG AAA ACG GAA AAT AAT AGT	180
46	Met Asn Leu Thr Ser Asp Lys Asn Glu Lys Thr Glu Asn Asn Ser	60
181	TTC CTT TTA AAT AAT AGT AGT TAT GGA AAT GTT AAA GAT AGC CTA	225
61	Phe Leu Leu Asn Asn Ser Ser Tyr Gly Asn Val Lys Asp Ser Leu	75
226	TTA GAA TCC ATT GAT ATG AGT GTA TTA GAT TCG AAC TTT GAT AGT	270
76	Leu Glu Ser Ile Asp Met Ser Val Leu Asp Ser Asn Phe Asp Ser	90
271	AAA AAA GAT TTT TTA CCA AGT AAT TTA TCA AGA ACA TTT AAT AAT	315
91	Lys Lys Asp Phe Leu Pro Ser Asn Leu Ser Arg Thr Phe Asn Asn	105
316	ATG TCT AAA GAT AAT ATA GGA AAT AAA TAT TTA AAT AAA TTG TTA	360
106	Met Ser Lys Asp Asn Ile Gly Asn Lys Tyr Leu Asn Lys Leu Leu	120
361	AAT AAA AAA AAA GAT ACT ATT ACA AAT GAA AAT AAT AAT ATT AAT	405
121	Asn Lys Lys Lys Asp Thr Ile Thr Asn Glu Asn Asn Asn Ile Asn	135
406	CAT AAT AAT AAT AAT AAT AAT CTG ACA GCA AAT AAT ATA ACT AAT	450
136	His Asn Asn Asn Asn Asn Asn Leu Thr Ala Asn Asn Ile Thr Asn	150
451	AAT CTT ATT AAT AAT AAT ATG AAT TCT CCA TCA ATT ATG AAT ACC	495
151	Asn Leu Ile Asn Asn Asn Met Asn Ser Pro Ser Ile Met Asn Thr	165
496	AAC AAA AAA GAG AAT TTT TTA GAT GCA GCA AAT CTT ATA AAT GAT	540
166	Asn Lys Lys Glu Asn Phe Leu Asp Ala Ala Asn Leu Ile Asn Asp	180
541	GAT TCT GGA TTA AAC AAT TTA AAA AAA TTT TCA ACT GTA AAT AAT	585
181	Asp Ser Gly Leu Asn Asn Leu Lys Lys Phe Ser Thr Val Asn Asn	195
586	GTA AAT GAT ACT TAT GAA AAG AAA ATT ATT GAA ACG GAA TTA AGT	630
196	Val Asn Asp Thr Tyr Glu Lys Lys Ile Ile Glu Thr Glu Leu Ser	210
631	GAT GCT AGT GAT TTT GAA AAT ATG GTA GGT GAT TTA AGA ATT ACA	675
211	Asp Ala Ser Asp Phe Glu Asn Met Val Gly Asp Leu Arg Ile Thr	225
676	TTT ATT AAT TGG TTA AAA AAG ACA CAA ATG AAT TTT ATT CGA GAA	720

226	Phe	Ile	Asn	Trp	Leu	Lys	Lys	Thr	Gln	Met	Asn	Phe	Ile	Arg	Glu	240
721	AAA	GAT	AAA	TTA	TTT	AAA	GAT	AAG	AAA	GAA	CTA	GAA	ATG	GAA	AGA	765
241	Lys	Asp	Lys	Leu	Phe	Lys	Asp	Lys	Lys	Glu	Leu	Glu	Met	Glu	Arg	255
766	GTA	CGA	TTG	TAC	AAA	GAA	TTA	GAA	AAC	CGT	AAA	AAT	ATT	GAA	GAA	810
256	Val	Arg	Leu	Tyr	Lys	Glu	Leu	Glu	Asn	Arg	Lys	Asn	Ile	Glu	Glu	270
811	CAG	AAA	TTA	CAT	GAT	GAA	AGA	AAG	AAA	TTA	GAT	ATT	GAT	ATA	TCT	855
271	Gln	Lys	Leu	His	Asp	Glu	Arg	Lys	Lys	Leu	Asp	Ile	Asp	Ile	Ser	285
856	AAT	GGT	TAT	AAA	CAA	ATA	AAA	AAA	GAA	AAA	GAA	GAA	CAT	AGG	AAA	900
286	Asn	Gly	Tyr	Lys	Gln	Ile	Lys	Lys	Glu	Lys	Glu	Glu	His	Arg	Lys	300
901	CGA	TTT	GAT	GAA	GAA	AGA	TTA	AGA	TTT	TTA	CAA	GAA	ATC	GAT	AAA	945
301	Arg	Phe	Asp	Glu	Glu	Arg	Leu	Arg	Phe	Leu	Gln	Glu	Ile	Asp	Lys	315
946	ATT	AAA	TTA	GTA	TTA	TAT	TTA	GAA	AAA	GAA	AAA	TAT	TAT	CAA	GAA	990
316	Ile	Lys	Leu	Val	Leu	Tyr	Leu	Glu	Lys	Glu	Lys	Tyr	Tyr	Gln	Glu	330
991	TAT	AAA	AAT	TTT	GAG	AAT	GAT	AAA	AAA	AAA	ATT	GTT	GAT	GCA	AAT	1035
331	Tyr	Lys	Asn	Phe	Glu	Asn	Asp	Lys	Lys	Lys	Ile	Val	Asp	Ala	Asn	345
1036	ATT	GCT	ACT	GAA	ACT	ATG	ATT	GAT	ATT	AAT	GTT	GGT	GGA	GCT	ATT	1080
346	Ile	Ala	Thr	Glu	Thr	Met	Ile	Asp	Ile	Asn	Val	Gly	Gly	Ala	Ile	360
1081	TTT	GAA	ACA	TCT	AGA	CAT	ACC	TTA	ACA	CAA	CAA	AAA	GAT	TCA	TTT	1125
361	Phe	Glu	Thr	Ser	Arg	His	Thr	Leu	Thr	Gln	Gln	Lys	Asp	Ser	Phe	375
1126	ATA	GAG	AAA	TTA	TTA	AGT	GGA	AGA	CAT	CAT	GTA	ACC	AGA	GAT	AAA	1170
376	Ile	Glu	Lys	Leu	Leu	Ser	Gly	Arg	His	His	Val	Thr	Arg	Asp	Lys	390
1171	CAA	GGA	AGA	ATA	TTC	TTA	GAT	AGG	GAT	AGT	GAG	TTA	TTT	AGA	ATT	1215
391	Gln	Gly	Arg	Ile	Phe	Leu	Asp	Arg	Asp	Ser	Glu	Leu	Phe	Arg	Ile	405
1216	ATA	CTT	AAC	TTC	TTA	AGA	AAT	CCG	TTA	ACT	ATA	CCC	ATA	CCA	AAA	1260
406	Ile	Leu	Asn	Phe	Leu	Arg	Asn	Pro	Leu	Thr	Ile	Pro	Ile	Pro	Lys	420
1261	GAT	TTA	AGT	GAA	AGT	GAA	GCC	TTG	TTG	AAA	GAA	GCA	GAA	TTT	TAT	1305
421	Asp	Leu	Ser	Glu	Ser	Glu	Ala	Leu	Leu	Lys	Glu	Ala	Glu	Phe	Tyr	435
1306	GGT	ATT	AAA	TTT	TTA	CCA	TTC	CCA	TTA	GTA	TTT	TGT	ATA	GGT	GGA	1350
436	Gly	Ile	Lys	Phe	Leu	Pro	Phe	Pro	Leu	Val	Phe	Cys	Ile	Gly	Gly	450
1351	TTT	GAT	GGT	GTA	GAA	TAT	TTA	AAT	TCG	ATG	GAA	TTA	TTA	GAT	ATT	1395
451	Phe	Asp	Gly	Val	Glu	Tyr	Leu	Asn	Ser	Met	Glu	Leu	Leu	Asp	Ile	465
1396	AGT	CAA	CAA	TGC	TGG	CGT	ATG	TGT	ACA	CCT	ATG	TCT	ACC	AAA	AAA	1440
466	Ser	Gln	Gln	Cys	Trp	Arg	Met	Cys	Thr	Pro	Met	Ser	Thr	Lys	Lys	480
1441	GCT	TAT	TTT	GGA	AGT	GCT	GTA	TTG	AAT	AAT	TTC	TTA	TAC	GTT	TTT	1485
481	Ala	Tyr	Phe	Gly	Ser	Ala	Val	Leu	Asn	Asn	Phe	Leu	Tyr	Val	Phe	495

1486	GGT	GGT	AAT	AAC	TAT	GAT	TAT	AAG	GCT	TTA	TTT	GAA	ACT	GAG	GTG	1530
496	Gly	Gly	Asn	Asn	Tyr	Asp	Tyr	Lys	Ala	Leu	Phe	Glu	Thr	Glu	Val	510
1531	TAT	GAT	CGT	TTA	AGA	GAT	GTA	TGG	TAT	GTT	TCA	AGT	AAT	TTA	AAT	1575
511	Tyr	Asp	Arg	Leu	Arg	Asp	Val	Trp	Tyr	Val	Ser	Ser	Asn	Leu	Asn	525
1576	ATA	CCT	AGA	AGA	AAT	AAT	TGT	GGT	GTT	ACG	TCA	AAT	GGT	AGA	ATT	1620
526	Ile	Pro	Arg	Arg	Asn	Asn	Cys	Gly	Val	Thr	Ser	Asn	Gly	Arg	Ile	540
1621	TAT	TGT	ATT	GGG	GGA	TAT	GAT	GGC	TCT	TCT	ATT	ATA	CCG	AAT	GTA	1665
541	Tyr	Cys	Ile	Gly	Gly	Tyr	Asp	Gly	Ser	Ser	Ile	Ile	Pro	Asn	Val	555
1666	GAA	GCA	TAT	GAT	CAT	CGT	ATG	AAA	GCA	TGG	GTA	GAG	GTG	GCA	CCT	1710
556	Glu	Ala	Tyr	Asp	His	Arg	Met	Lys	Ala	Trp	Val	Glu	Val	Ala	Pro	570
1711	TTG	AAT	ACC	CCT	AGA	TCA	TCA	GCT	ATG	TGT	GTT	GCT	TTT	GAT	AAT	1755
571	Leu	Asn	Thr	Pro	Arg	Ser	Ser	Ala	Met	Cys	Val	Ala	Phe	Asp	Asn	585
1756	AAA	ATT	TAT	GTC	ATT	GGT	GGA	ACT	AAT	GGT	GAG	AGA	TTA	AAT	TCT	1800
586	Lys	Ile	Tyr	Val	Ile	Gly	Gly	Thr	Asn	Gly	Glu	Arg	Leu	Asn	Ser	600
1801	ATT	GAA	GTA	TAT	GAA	GAA	AAA	ATG	AAT	AAA	TGG	GAA	CAA	TTT	CCA	1845
601	Ile	Glu	Val	Tyr	Glu	Glu	Lys	Met	Asn	Lys	Trp	Glu	Gln	Phe	Pro	615
1846	TAT	GCC	TTA	TTA	GAA	GCT	AGA	AGT	TCA	GGA	GCA	GCT	TTT	AAT	TAC	1890
616	Tyr	Ala	Leu	Leu	Glu	Ala	Arg	Ser	Ser	Gly	Ala	Ala	Phe	Asn	Tyr	630
1891	CTT	AAT	CAA	ATA	TAT	GTT	GTT	GGA	GGT	ATT	GAT	AAT	GAA	CAT	AAC	1935
631	Leu	Asn	Gln	Ile	Tyr	Val	Val	Gly	Gly	Ile	Asp	Asn	Glu	His	Asn	645
1936	ATA	TTA	GAT	TCC	GTT	GAA	CAA	TAT	CAA	CCA	TTT	AAT	AAA	AGA	TGG	1980
646	Ile	Leu	Asp	Ser	Val	Glu	Gln	Tyr	Gln	Pro	Phe	Asn	Lys	Arg	Trp	660

>18_K13_Sample 1

1	ATG	GAA	GGA	GAA	AAA	GTA	AAA	ACA	AAA	GCA	AAT	AGT	ATC	TCG	AAT	45
1	Met	Glu	Gly	Glu	Lys	Val	Lys	Thr	Lys	Ala	Asn	Ser	Ile	Ser	Asn	15
46	TTT	TCT	ATG	ACG	TAT	GAT	AGG	GAA	TCT	GGT	GGT	AAC	AGC	AAT	AGT	90
16	Phe	Ser	Met	Thr	Tyr	Asp	Arg	Glu	Ser	Gly	Gly	Asn	Ser	Asn	Ser	30
91	GAT	GAT	AAA	AGC	GGA	AGT	AGT	AGC	GAG	AAT	GAT	TCT	AAT	TCA	TTT	135
31	Asp	Asp	Lys	Ser	Gly	Ser	Ser	Ser	Glu	Asn	Asp	Ser	Asn	Ser	Phe	45
136	ATG	AAT	CTA	ACT	AGT	GAT	AAA	AAT	GAG	AAA	ACG	GAA	AAT	AAT	AGT	180
46	Met	Asn	Leu	Thr	Ser	Asp	Lys	Asn	Glu	Lys	Thr	Glu	Asn	Asn	Ser	60
181	TTC	CTT	TTA	AAT	AAT	AGT	AGT	TAT	GGA	AAT	GTT	AAA	GAT	AGC	CTA	225
61	Phe	Leu	Leu	Asn	Asn	Ser	Ser	Tyr	Gly	Asn	Val	Lys	Asp	Ser	Leu	75
226	TTA	GAA	TCC	ATT	GAT	ATG	AGT	GTA	TTA	GAT	TCG	AAC	TTT	GAT	AGT	270
76	Leu	Glu	Ser	Ile	Asp	Met	Ser	Val	Leu	Asp	Ser	Asn	Phe	Asp	Ser	90

271	AAA	AAA	GAT	TTT	TTA	CCA	AGT	AAT	TTA	TCA	AGA	ACA	TTT	AAT	AAT	315
91	Lys	Lys	Asp	Phe	Leu	Pro	Ser	Asn	Leu	Ser	Arg	Thr	Phe	Asn	Asn	105
316	ATG	TCT	AAA	GAT	AAT	ATA	GGA	AAT	AAA	TAT	TTA	AAT	AAA	TTG	TTA	360
106	Met	Ser	Lys	Asp	Asn	Ile	Gly	Asn	Lys	Tyr	Leu	Asn	Lys	Leu	Leu	120
361	AAT	AAA	AAA	AAA	GAT	ACT	ATT	ACA	AAT	GAA	AAT	AAT	AAT	ATT	AAT	405
121	Asn	Lys	Lys	Lys	Asp	Thr	Ile	Thr	Asn	Glu	Asn	Asn	Asn	Ile	Asn	135
406	CAT	AAT	AAT	AAT	AAT	AAT	AAT	CTG	ACA	GCA	AAT	AAT	ATA	ACT	AAT	450
136	His	Asn	Asn	Asn	Asn	Asn	Asn	Leu	Thr	Ala	Asn	Asn	Ile	Thr	Asn	150
451	AAT	CTT	ATT	AAT	AAT	AAT	ATG	AAT	TCT	CCA	TCA	ATT	ATG	AAT	ACC	495
151	Asn	Leu	Ile	Asn	Asn	Asn	Met	Asn	Ser	Pro	Ser	Ile	Met	Asn	Thr	165
496	AAC	AAA	AAA	GAG	AAT	TTT	TTA	GAT	GCA	GCA	AAT	CTT	ATA	AAT	GAT	540
166	Asn	Lys	Lys	Glu	Asn	Phe	Leu	Asp	Ala	Ala	Asn	Leu	Ile	Asn	Asp	180
541	GAT	TCT	GGA	TTA	AAC	AAT	TTA	AAA	AAA	TTT	TCA	ACT	GTA	AAT	AAT	585
181	Asp	Ser	Gly	Leu	Asn	Asn	Leu	Lys	Lys	Phe	Ser	Thr	Val	Asn	Asn	195
586	GTA	AAT	GAT	ACT	TAT	GAA	AAG	AAA	ATT	ATT	GAA	ACG	GAA	TTA	AGT	630
196	Val	Asn	Asp	Thr	Tyr	Glu	Lys	Lys	Ile	Ile	Glu	Thr	Glu	Leu	Ser	210
631	GAT	GCT	AGT	GAT	TTT	GAA	AAT	ATG	GTA	GGT	GAT	TTA	AGA	ATT	ACA	675
211	Asp	Ala	Ser	Asp	Phe	Glu	Asn	Met	Val	Gly	Asp	Leu	Arg	Ile	Thr	225
676	TTT	ATT	AAT	TGG	TTA	AAA	AAG	ACA	CAA	ATG	AAT	TTT	ATT	CGA	GAA	720
226	Phe	Ile	Asn	Trp	Leu	Lys	Lys	Thr	Gln	Met	Asn	Phe	Ile	Arg	Glu	240
721	AAA	GAT	AAA	TTA	TTT	AAA	GAT	AAG	AAA	GAA	CTA	GAA	ATG	GAA	AGA	765
241	Lys	Asp	Lys	Leu	Phe	Lys	Asp	Lys	Lys	Glu	Leu	Glu	Met	Glu	Arg	255
766	GTA	CGA	TTG	TAC	AAA	GAA	TTA	GAA	AAC	CGT	AAA	AAT	ATT	GAA	GAA	810
256	Val	Arg	Leu	Tyr	Lys	Glu	Leu	Glu	Asn	Arg	Lys	Asn	Ile	Glu	Glu	270
811	CAG	AAA	TTA	CAT	GAT	GAA	AGA	AAG	AAA	TTA	GAT	ATT	GAT	ATA	TCT	855
271	Gln	Lys	Leu	His	Asp	Glu	Arg	Lys	Lys	Leu	Asp	Ile	Asp	Ile	Ser	285
856	AAT	GGT	TAT	AAA	CAA	ATA	AAA	AAA	GAA	AAA	GAA	GAA	CAT	AGG	AAA	900
286	Asn	Gly	Tyr	Lys	Gln	Ile	Lys	Lys	Glu	Lys	Glu	Glu	His	Arg	Lys	300
901	CGA	TTT	GAT	GAA	GAA	AGA	TTA	AGA	TTT	TTA	CAA	GAA	ATC	GAT	AAA	945
301	Arg	Phe	Asp	Glu	Glu	Arg	Leu	Arg	Phe	Leu	Gln	Glu	Ile	Asp	Lys	315
946	ATT	AAA	TTA	GTA	TTA	TAT	TTA	GAA	AAA	GAA	AAA	TAT	TAT	CAA	GAA	990
316	Ile	Lys	Leu	Val	Leu	Tyr	Leu	Glu	Lys	Glu	Lys	Tyr	Tyr	Gln	Glu	330
991	TAT	AAA	AAT	TTT	GAG	AAT	GAT	AAA	AAA	AAA	ATT	GTT	GAT	GCA	AAT	1035
331	Tyr	Lys	Asn	Phe	Glu	Asn	Asp	Lys	Lys	Lys	Ile	Val	Asp	Ala	Asn	345
1036	ATT	GCT	ACT	GAA	ACT	ATG	ATT	GAT	ATT	AAT	GTT	GGT	GGA	GCT	ATT	1080
346	Ile	Ala	Thr	Glu	Thr	Met	Ile	Asp	Ile	Asn	Val	Gly	Gly	Ala	Ile	360

1081	TTT	GAA	ACA	TCT	AGA	CAT	ACC	TTA	ACA	CAA	CAA	AAA	GAT	TCA	TTT	1125
361	Phe	Glu	Thr	Ser	Arg	His	Thr	Leu	Thr	Gln	Gln	Lys	Asp	Ser	Phe	375
1126	ATA	GAG	AAA	TTA	TTA	AGT	GGA	AGA	CAT	CAT	GTA	ACC	AGA	GAT	AAA	1170
376	Ile	Glu	Lys	Leu	Leu	Ser	Gly	Arg	His	His	Val	Thr	Arg	Asp	Lys	390
1171	CAA	GGA	AGA	ATA	TTC	TTA	GAT	AGG	GAT	AGT	GAG	TTA	TTT	AGA	ATT	1215
391	Gln	Gly	Arg	Ile	Phe	Leu	Asp	Arg	Asp	Ser	Glu	Leu	Phe	Arg	Ile	405
1216	ATA	CTT	AAC	TTC	TTA	AGA	AAT	CCG	TTA	ACT	ATA	CCC	ATA	CCA	AAA	1260
406	Ile	Leu	Asn	Phe	Leu	Arg	Asn	Pro	Leu	Thr	Ile	Pro	Ile	Pro	Lys	420
1261	GAT	TTA	AGT	GAA	AGT	GAA	GCC	TTG	TTG	AAA	GAA	GCA	GAA	TTT	TAT	1305
421	Asp	Leu	Ser	Glu	Ser	Glu	Ala	Leu	Leu	Lys	Glu	Ala	Glu	Phe	Tyr	435
1306	GGT	ATT	AAA	TTT	TTA	CCA	TTC	CCA	TTA	GTA	TTT	TGT	ATA	GGT	GGA	1350
436	Gly	Ile	Lys	Phe	Leu	Pro	Phe	Pro	Leu	Val	Phe	Cys	Ile	Gly	Gly	450
1351	TTT	GAT	GGT	GTA	GAA	TAT	TTA	AAT	TCG	ATG	GAA	TTA	TTA	GAT	ATT	1395
451	Phe	Asp	Gly	Val	Glu	Tyr	Leu	Asn	Ser	Met	Glu	Leu	Leu	Asp	Ile	465
1396	AGT	CAA	CAA	TGC	TGG	CGT	ATG	TGT	ACA	CCT	ATG	TCT	ACC	AAA	AAA	1440
466	Ser	Gln	Gln	Cys	Trp	Arg	Met	Cys	Thr	Pro	Met	Ser	Thr	Lys	Lys	480
1441	GCT	TAT	TTT	GGA	AGT	GCT	GTA	TTG	AAT	AAT	TTC	TTA	TAC	GTT	TTT	1485
481	Ala	Tyr	Phe	Gly	Ser	Ala	Val	Leu	Asn	Asn	Phe	Leu	Tyr	Val	Phe	495
1486	GGT	GGT	AAT	AAC	TAT	GAT	TAT	AAG	GCT	TTA	TTT	GAA	ACT	GAA	GTG	1530
496	Gly	Gly	Asn	Asn	Tyr	Asp	Tyr	Lys	Ala	Leu	Phe	Glu	Thr	Glu	Val	510
1531	TAT	GAT	CGT	TTA	AGA	GAT	GTA	TGG	TAT	GTT	TCA	AGT	AAT	TTA	AAT	1575
511	Tyr	Asp	Arg	Leu	Arg	Asp	Val	Trp	Tyr	Val	Ser	Ser	Asn	Leu	Asn	525
1576	ATA	CCT	AGA	AGA	AAT	AAT	TGT	GGT	GTT	ACG	TCA	AAT	GGT	AGA	ATT	1620
526	Ile	Pro	Arg	Arg	Asn	Asn	Cys	Gly	Val	Thr	Ser	Asn	Gly	Arg	Ile	540
1621	TAT	TGT	ATT	GGG	GGA	TAT	GAT	GGC	TCT	TCT	ATT	ATA	CCG	AAT	GTA	1665
541	Tyr	Cys	Ile	Gly	Gly	Tyr	Asp	Gly	Ser	Ser	Ile	Ile	Pro	Asn	Val	555
1666	GAA	GCA	TAT	GAT	CAT	CGT	ATG	AAA	GCA	TGG	GTA	GAG	GTG	GCA	CCT	1710
556	Glu	Ala	Tyr	Asp	His	Arg	Met	Lys	Ala	Trp	Val	Glu	Val	Ala	Pro	570
1711	TTG	AAT	ACC	CCT	AGA	TCA	TCA	GCT	ATG	TGT	GTT	GCT	TTT	GAT	AAT	1755
571	Leu	Asn	Thr	Pro	Arg	Ser	Ser	Ala	Met	Cys	Val	Ala	Phe	Asp	Asn	585
1756	AAA	ATT	TAT	GTC	ATT	GGT	GGA	ACT	AAT	GGT	GAG	AGG	TTA	AAT	TCT	1800
586	Lys	Ile	Tyr	Val	Ile	Gly	Gly	Thr	Asn	Gly	Glu	Arg	Leu	Asn	Ser	600
1801	ATT	GAA	GTA	TAA	GAA	GAA	AAA	ATG	AAT	AAA	TGG	GAA	CAA	TTT	CCA	1845
601	Ile	Glu	Val	End	Glu	Glu	Lys	Met	Asn	Lys	Trp	Glu	Gln	Phe	Pro	615
1846	TAT	GCC	TTA	TTA	GAA	GCT	AGA	AGT	TCA	GGA	GCA	GCT	TTT	AAT	TAC	1890

616 Tyr Ala Leu Leu Glu Ala Arg Ser Ser Gly Ala Ala Phe Asn Tyr 630

1891 CTT AAT CAA ATA TAT GTT GTT GGA GGT ATT 1920

631 Leu Asn Gln Ile Tyr Val Val Gly Gly Ile 640

>19_K13_Sample 2

1 ATG GAA GGA GAA AAA GTA AAA ACA AAA GCA AAT AGT ATC TCG AAT 45

1 Met Glu Gly Glu Lys Val Lys Thr Lys Ala Asn Ser Ile Ser Asn 15

46 TTT TCT ATG ACG TAT GAT AGG GAA TCT GGT GGT AAC AGC AAT AGT 90

16 Phe Ser Met Thr Tyr Asp Arg Glu Ser Gly Gly Asn Ser Asn Ser 30

91 GAT GAT AAA AGC GGA AGT AGT AGC GAG AAT GAT TCT AAT TCA TTT 135

31 Asp Asp Lys Ser Gly Ser Ser Ser Glu Asn Asp Ser Asn Ser Phe 45

136 ATG AAT CTA ACT AGT GAT AAA AAT GAG AAA ACG GAA AAT AAT AGT 180

46 Met Asn Leu Thr Ser Asp Lys Asn Glu Lys Thr Glu Asn Asn Ser 60

181 TTC CTT TTA AAT AAT AGT AGT TAT GGA AAT GTT AAA GAT AGC CTA 225

61 Phe Leu Leu Asn Asn Ser Ser Tyr Gly Asn Val Lys Asp Ser Leu 75

226 TTA GAA TCC ATT GAT ATG AGT GTA TTA GAT TCG AAC TTT GAT AGT 270

76 Leu Glu Ser Ile Asp Met Ser Val Leu Asp Ser Asn Phe Asp Ser 90

271 AAA AAA GAT TTT TTA CCA AGT AAT TTA TCA AGA ACA TTT AAT AAT 315

91 Lys Lys Asp Phe Leu Pro Ser Asn Leu Ser Arg Thr Phe Asn Asn 105

316 ATG TCT AAA GAT AAT ATA GGA AAT AAA TAT TTA AAT AAA TTG TTA 360

106 Met Ser Lys Asp Asn Ile Gly Asn Lys Tyr Leu Asn Lys Leu Leu 120

361 AAT AAA AAA AAA GAT ACT ATT ACA AAT GAA AAT AAT AAT ATT AAT 405

121 Asn Lys Lys Lys Asp Thr Ile Thr Asn Glu Asn Asn Asn Ile Asn 135

406 CAT AAT AAT AAT AAT AAT AAT CTG ACA GCA AAT AAT ATA ACT AAT 450

136 His Asn Asn Asn Asn Asn Asn Leu Thr Ala Asn Asn Ile Thr Asn 150

451 AAT CTT ATT AAT AAT AAT ATG AAT TCT CCA TCA ATT ATG AAT ACC 495

151 Asn Leu Ile Asn Asn Asn Met Asn Ser Pro Ser Ile Met Asn Thr 165

496 AAC AAA AAA GAG AAT TTT TTA GAT GCA GCA AAT CTT ATA AAT GAT 540

166 Asn Lys Lys Glu Asn Phe Leu Asp Ala Ala Asn Leu Ile Asn Asp 180

541 GAT TCT GGA TTA AAC AAT TTA AAA AAA TTT TCA ACT GTA AAT AAT 585

181 Asp Ser Gly Leu Asn Asn Leu Lys Lys Phe Ser Thr Val Asn Asn 195

586 GTA AAT GAT ACT TAT GAA AAG AAA ATT ATT GAA ACG GAA TTA AGT 630

196 Val Asn Asp Thr Tyr Glu Lys Lys Ile Ile Glu Thr Glu Leu Ser 210

631 GAT GCT AGT GAT TTT GAA AAT ATG GTA GGT GAT TTA AGA ATT ACA 675

211 Asp Ala Ser Asp Phe Glu Asn Met Val Gly Asp Leu Arg Ile Thr 225

676 TTT ATT AAT TGG TTA AAA AAG ACA CAA ATG AAT TTT ATT CGA GAA 720

226	Phe	Ile	Asn	Trp	Leu	Lys	Lys	Thr	Gln	Met	Asn	Phe	Ile	Arg	Glu	240
721	AAA	GAT	AAA	TTA	TTT	AAA	GAT	AAG	AAA	GAA	CTA	GAA	ATG	GAA	AGA	765
241	Lys	Asp	Lys	Leu	Phe	Lys	Asp	Lys	Lys	Glu	Leu	Glu	Met	Glu	Arg	255
766	GTA	CGA	TTG	TAC	AAA	GAA	TTA	GAA	AAC	CGT	AAA	AAT	ATT	GAA	GAA	810
256	Val	Arg	Leu	Tyr	Lys	Glu	Leu	Glu	Asn	Arg	Lys	Asn	Ile	Glu	Glu	270
811	CAG	AAA	TTA	CAT	GAT	GAA	AGA	AAG	AAA	TTA	GAT	ATT	GAT	ATA	TCT	855
271	Gln	Lys	Leu	His	Asp	Glu	Arg	Lys	Lys	Leu	Asp	Ile	Asp	Ile	Ser	285
856	AAT	GGT	TAT	AAA	CAA	ATA	AAA	AAA	GAA	AAA	GAA	GAA	CAT	AGG	AAA	900
286	Asn	Gly	Tyr	Lys	Gln	Ile	Lys	Lys	Glu	Lys	Glu	Glu	His	Arg	Lys	300
901	CGA	TTT	GAT	GAA	GAA	AGA	TTA	AGA	TTT	TTA	CAA	GAA	ATC	GAT	AAA	945
301	Arg	Phe	Asp	Glu	Glu	Arg	Leu	Arg	Phe	Leu	Gln	Glu	Ile	Asp	Lys	315
946	ATT	AAA	TTA	GTA	TTA	TAT	TTA	GAA	AAA	GAA	AAA	TAT	TAT	CAA	GAA	990
316	Ile	Lys	Leu	Val	Leu	Tyr	Leu	Glu	Lys	Glu	Lys	Tyr	Tyr	Gln	Glu	330
991	TAT	AAA	AAT	TTT	GAG	AAT	GAT	AAA	AAA	AAA	ATT	GTT	GAT	GCA	AAT	1035
331	Tyr	Lys	Asn	Phe	Glu	Asn	Asp	Lys	Lys	Lys	Ile	Val	Asp	Ala	Asn	345
1036	ATT	GCT	ACT	GAA	ACT	ATG	ATT	GAT	ATT	AAT	GTT	GGT	GGA	GCT	ATT	1080
346	Ile	Ala	Thr	Glu	Thr	Met	Ile	Asp	Ile	Asn	Val	Gly	Gly	Ala	Ile	360
1081	TTT	GAA	ACA	TCT	AGA	CAT	ACC	TTA	ACA	CAA	CAA	AAA	GAT	TCA	TTT	1125
361	Phe	Glu	Thr	Ser	Arg	His	Thr	Leu	Thr	Gln	Gln	Lys	Asp	Ser	Phe	375
1126	ATA	GAG	AAA	TTA	TTA	AGT	GGA	AGA	CAT	CAT	GTA	ACC	AGA	GAT	AAA	1170
376	Ile	Glu	Lys	Leu	Leu	Ser	Gly	Arg	His	His	Val	Thr	Arg	Asp	Lys	390
1171	CAA	GGA	AGA	ATA	TTC	TTA	GAT	AGG	GAT	AGT	GAG	TTA	TTT	AGA	ATT	1215
391	Gln	Gly	Arg	Ile	Phe	Leu	Asp	Arg	Asp	Ser	Glu	Leu	Phe	Arg	Ile	405
1216	ATA	CTT	AAC	TTC	TTA	AGA	AAT	CCG	TTA	ACT	ATA	CCC	ATA	CCA	AAA	1260
406	Ile	Leu	Asn	Phe	Leu	Arg	Asn	Pro	Leu	Thr	Ile	Pro	Ile	Pro	Lys	420
1261	GAT	TTA	AGT	GAA	AGT	GAA	GCC	TTG	TTG	AAA	GAA	GCA	GAA	TTT	TAT	1305
421	Asp	Leu	Ser	Glu	Ser	Glu	Ala	Leu	Leu	Lys	Glu	Ala	Glu	Phe	Tyr	435
1306	GGT	ATT	AAA	TTT	TTA	CCA	TTC	CCA	TTA	GTA	TTT	TGT	ATA	GGT	GGA	1350
436	Gly	Ile	Lys	Phe	Leu	Pro	Phe	Pro	Leu	Val	Phe	Cys	Ile	Gly	Gly	450
1351	TTT	GAT	GGT	GTA	GAA	TAT	TTA	AAT	TCG	ATG	GAA	TTA	TTA	GAT	ATT	1395
451	Phe	Asp	Gly	Val	Glu	Tyr	Leu	Asn	Ser	Met	Glu	Leu	Leu	Asp	Ile	465
1396	AGT	CAA	CAA	TGC	TGG	CGT	ATG	TGT	ACA	CCT	ATG	TCT	ACC	AAA	AAA	1440
466	Ser	Gln	Gln	Cys	Trp	Arg	Met	Cys	Thr	Pro	Met	Ser	Thr	Lys	Lys	480
1441	GCT	TAT	TTT	GGA	AGT	GCT	GTA	TTG	AAT	AAT	TTC	TTA	TAC	GTT	TTT	1485
481	Ala	Tyr	Phe	Gly	Ser	Ala	Val	Leu	Asn	Asn	Phe	Leu	Tyr	Val	Phe	495

1486	GGT	GGT	AAT	AAC	TAT	GAT	TAT	AAG	GCT	TTA	TTT	GAA	ACT	GAG	GTG	1530
496	Gly	Gly	Asn	Asn	Tyr	Asp	Tyr	Lys	Ala	Leu	Phe	Glu	Thr	Glu	Val	510
1531	TAT	GAT	CGT	TTA	AGA	GAT	GTA	TGG	TAT	GTT	TCA	AGT	AAT	TTA	AAT	1575
511	Tyr	Asp	Arg	Leu	Arg	Asp	Val	Trp	Tyr	Val	Ser	Ser	Asn	Leu	Asn	525
1576	ATA	CCT	AGA	AGA	AAT	AAT	TGT	TGT	GTT	ACG	TCA	AAT	GGT	AGA	ATT	1620
526	Ile	Pro	Arg	Arg	Asn	Asn	Cys	Cys	Val	Thr	Ser	Asn	Gly	Arg	Ile	540
1621	TAT	TGT	ATT	GGG	GGA	TAT	GAT	GGC	TCT	TCT	ATT	ATA	CCG	AAT	GTA	1665
541	Tyr	Cys	Ile	Gly	Gly	Tyr	Asp	Gly	Ser	Ser	Ile	Ile	Pro	Asn	Val	555
1666	GAA	GCA	TAT	GAT	CAT	CGT	ATG	AAA	GCA	TGG	GTA	GAG	GTG	GCA	CCT	1710
556	Glu	Ala	Tyr	Asp	His	Arg	Met	Lys	Ala	Trp	Val	Glu	Val	Ala	Pro	570
1711	TTG	AAT	ACC	CCT	AGA	TCA	TCA	GCT	ATG	TGT	GTT	GCT	TTT	GAT	AAT	1755
571	Leu	Asn	Thr	Pro	Arg	Ser	Ser	Ala	Met	Cys	Val	Ala	Phe	Asp	Asn	585
1756	AAA	ATT	TAT	GTC	ATT	GGT	GGA	ACT	AAT	GGT	GAG	AGA	TTA	AAT	TCT	1800
586	Lys	Ile	Tyr	Val	Ile	Gly	Gly	Thr	Asn	Gly	Glu	Arg	Leu	Asn	Ser	600
1801	ATT	GAA	GTA	TAT	GAA	GAA	AAA	ATG	AAT	AAA	TGG	GAA	CAA	TTT	CCA	1845
601	Ile	Glu	Val	Tyr	Glu	Glu	Lys	Met	Asn	Lys	Trp	Glu	Gln	Phe	Pro	615
1846	TAT	GCC	TTA	TTA	GAA	GCT	AGA	AGT	TCA	GGA	GCA	GCT	TTT	AAT	TAC	1890
616	Tyr	Ala	Leu	Leu	Glu	Ala	Arg	Ser	Ser	Gly	Ala	Ala	Phe	Asn	Tyr	630
1891	CTT	AAT	CAA	ATA	TAT	GTT	GTT	GGA	GGT	ATT						1920
631	Leu	Asn	Gln	Ile	Tyr	Val	Val	Gly	Gly	Ile						640

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1	ATG	GAA	GGA	GAA	AAA	GTA	AAA	ACA	AAA	GCA	AAT	AGT	ATC	TCG	AAT	45
1	Met	Glu	Gly	Glu	Lys	Val	Lys	Thr	Lys	Ala	Asn	Ser	Ile	Ser	Asn	15
46	TTT	TCT	ATG	ACG	TAT	GAT	AGG	GAA	TCT	GGT	GGT	AAC	AGC	AAT	AGT	90
16	Phe	Ser	Met	Thr	Tyr	Asp	Arg	Glu	Ser	Gly	Gly	Asn	Ser	Asn	Ser	30
91	GAT	GAT	AAA	AGC	GGA	AGT	AGT	AGC	GAG	AAT	GAT	TCT	AAT	TCA	TTT	135
31	Asp	Asp	Lys	Ser	Gly	Ser	Ser	Ser	Glu	Asn	Asp	Ser	Asn	Ser	Phe	45
136	ATG	AAT	CTA	ACT	AGT	GAT	AAA	AAT	GAG	AAA	ACG	GAA	AAT	AAT	AGT	180
46	Met	Asn	Leu	Thr	Ser	Asp	Lys	Asn	Glu	Lys	Thr	Glu	Asn	Asn	Ser	60
181	TTC	CTT	TTA	AAT	AAT	AGT	AGT	TAT	GGA	AAT	GTT	AAA	GAT	AGC	CTA	225
61	Phe	Leu	Leu	Asn	Asn	Ser	Ser	Tyr	Gly	Asn	Val	Lys	Asp	Ser	Leu	75
226	TTA	GAA	TCC	ATT	GAT	ATG	AGT	GTA	TTA	GAT	TCG	AAC	TTT	GAT	AGT	270
76	Leu	Glu	Ser	Ile	Asp	Met	Ser	Val	Leu	Asp	Ser	Asn	Phe	Asp	Ser	90
271	AAA	AAA	GAT	TTT	TTA	CCA	AGT	AAT	TTA	TCA	AGA	ACA	TTT	AAT	AAT	315
91	Lys	Lys	Asp	Phe	Leu	Pro	Ser	Asn	Leu	Ser	Arg	Thr	Phe	Asn	Asn	105

316	ATG	TCT	AAA	GAT	AAT	ATA	GGA	AAT	AAA	TAT	TTA	AAT	AAA	TTG	TTA	360
106	Met	Ser	Lys	Asp	Asn	Ile	Gly	Asn	Lys	Tyr	Leu	Asn	Lys	Leu	Leu	120
361	AAT	AAA	AAA	AAA	GAT	ACT	ATT	ACA	AAT	GAA	AAT	AAT	AAT	ATT	AAT	405
121	Asn	Lys	Lys	Lys	Asp	Thr	Ile	Thr	Asn	Glu	Asn	Asn	Asn	Ile	Asn	135
406	CAT	AAT	AAT	AAT	AAT	AAT	AAT	CTG	ACA	GCA	AAT	AAT	ATA	ACT	AAT	450
136	His	Asn	Asn	Asn	Asn	Asn	Asn	Leu	Thr	Ala	Asn	Asn	Ile	Thr	Asn	150
451	AAT	CTT	ATT	AAT	AAT	AAT	ATG	AAT	TCT	CCA	TCA	ATT	ATG	AAT	ACC	495
151	Asn	Leu	Ile	Asn	Asn	Asn	Met	Asn	Ser	Pro	Ser	Ile	Met	Asn	Thr	165
496	AAC	AAA	AAA	GAG	AAT	TTT	TTA	GAT	GCA	GCA	AAT	CTT	ATA	AAT	GAT	540
166	Asn	Lys	Lys	Glu	Asn	Phe	Leu	Asp	Ala	Ala	Asn	Leu	Ile	Asn	Asp	180
541	GAT	TCT	GGA	TTA	AAC	AAT	TTA	AAA	AAA	TTT	TCA	ACT	GTA	AAT	AAT	585
181	Asp	Ser	Gly	Leu	Asn	Asn	Leu	Lys	Lys	Phe	Ser	Thr	Val	Asn	Asn	195
586	GTA	AAT	GAT	ACT	TAT	GAA	AAG	AAA	ATT	ATT	GAA	ACG	GAA	TTA	AGT	630
196	Val	Asn	Asp	Thr	Tyr	Glu	Lys	Lys	Ile	Ile	Glu	Thr	Glu	Leu	Ser	210
631	GAT	GCT	AGT	GAT	TTT	GAA	AAT	ATG	GTA	GGT	GAT	TTA	AGA	ATT	ACA	675
211	Asp	Ala	Ser	Asp	Phe	Glu	Asn	Met	Val	Gly	Asp	Leu	Arg	Ile	Thr	225
676	TTT	ATT	AAT	TGG	TTA	AAA	AAG	ACA	CAA	ATG	AAT	TTT	ATT	CGA	GAA	720
226	Phe	Ile	Asn	Trp	Leu	Lys	Lys	Thr	Gln	Met	Asn	Phe	Ile	Arg	Glu	240
721	AAA	GAT	AAA	TTA	TTT	AAA	GAT	AAG	AAA	GAA	CTA	GAA	ATG	GAA	AGA	765
241	Lys	Asp	Lys	Leu	Phe	Lys	Asp	Lys	Lys	Glu	Leu	Glu	Met	Glu	Arg	255
766	GTA	CGA	TTG	TAC	AAA	GAA	TTA	GAA	AAC	CGT	AAA	AAT	ATT	GAA	GAA	810
256	Val	Arg	Leu	Tyr	Lys	Glu	Leu	Glu	Asn	Arg	Lys	Asn	Ile	Glu	Glu	270
811	CAG	AAA	TTA	CAT	GAT	GAA	AGA	AAG	AAA	TTA	GAT	ATT	GAT	ATA	TCT	855
271	Gln	Lys	Leu	His	Asp	Glu	Arg	Lys	Lys	Leu	Asp	Ile	Asp	Ile	Ser	285
856	AAT	GGT	TAT	AAA	CAA	ATA	AAA	AAA	GAA	AAA	GAA	GAA	CAT	AGG	AAA	900
286	Asn	Gly	Tyr	Lys	Gln	Ile	Lys	Lys	Glu	Lys	Glu	Glu	His	Arg	Lys	300
901	CGA	TTT	GAT	GAA	GAA	AGA	TTA	AGA	TTT	TTA	CAA	GAA	ATC	GAT	AAA	945
301	Arg	Phe	Asp	Glu	Glu	Arg	Leu	Arg	Phe	Leu	Gln	Glu	Ile	Asp	Lys	315
946	ATT	AAA	TTA	GTA	TTA	TAT	TTA	GAA	AAA	GAA	AAA	TAT	TAT	CAA	GAA	990
316	Ile	Lys	Leu	Val	Leu	Tyr	Leu	Glu	Lys	Glu	Lys	Tyr	Tyr	Gln	Glu	330
991	TAT	AAA	AAT	TTT	GAG	AAT	GAT	AAA	AAA	AAA	ATT	GTT	GAT	GCA	AAT	1035
331	Tyr	Lys	Asn	Phe	Glu	Asn	Asp	Lys	Lys	Lys	Ile	Val	Asp	Ala	Asn	345
1036	ATT	GCT	ACT	GAA	ACT	ATG	ATT	GAT	ATT	AAT	GTT	GGT	GGA	GCT	ATT	1080
346	Ile	Ala	Thr	Glu	Thr	Met	Ile	Asp	Ile	Asn	Val	Gly	Gly	Ala	Ile	360
1081	TTT	GAA	ACA	TCT	AGA	CAT	ACC	TTA	ACA	CAA	CAA	AAA	GAT	TCA	TTT	1125
361	Phe	Glu	Thr	Ser	Arg	His	Thr	Leu	Thr	Gln	Gln	Lys	Asp	Ser	Phe	375

1126	ATA	GAG	AAA	TTA	TTA	AGT	GGA	AGA	CAT	CAT	GTA	ACC	AGA	GAT	AAA	1170
376	Ile	Glu	Lys	Leu	Leu	Ser	Gly	Arg	His	His	Val	Thr	Arg	Asp	Lys	390
1171	CAA	GGA	AGA	ATA	TTC	TTA	GAT	AGG	GAT	AGT	GAG	TTA	TTT	AGA	ATT	1215
391	Gln	Gly	Arg	Ile	Phe	Leu	Asp	Arg	Asp	Ser	Glu	Leu	Phe	Arg	Ile	405
1216	ATA	CTT	AAC	TTC	TTA	AGA	AAT	CCG	TTA	ACT	ATA	CCC	ATA	CCA	AAA	1260
406	Ile	Leu	Asn	Phe	Leu	Arg	Asn	Pro	Leu	Thr	Ile	Pro	Ile	Pro	Lys	420
1261	GAT	TTA	AGT	GAA	AGT	GAA	GCC	TTG	TTG	AAA	GAA	GCA	GAA	TTT	TAT	1305
421	Asp	Leu	Ser	Glu	Ser	Glu	Ala	Leu	Leu	Lys	Glu	Ala	Glu	Phe	Tyr	435
1306	GGT	ATT	AAA	TTT	TTA	CCA	TTC	CCA	TTA	GTA	TTT	TGT	ATA	GGT	GGA	1350
436	Gly	Ile	Lys	Phe	Leu	Pro	Phe	Pro	Leu	Val	Phe	Cys	Ile	Gly	Gly	450
1351	TTT	GAT	GGT	GTA	GAA	TAT	TTA	AAT	TCG	ATG	GAA	TTA	TTA	GAT	ATT	1395
451	Phe	Asp	Gly	Val	Glu	Tyr	Leu	Asn	Ser	Met	Glu	Leu	Leu	Asp	Ile	465
1396	AGT	CAA	CAA	TGC	TGG	CGT	ATG	TGT	ACA	CCT	ATG	TCT	ACC	AAA	AAA	1440
466	Ser	Gln	Gln	Cys	Trp	Arg	Met	Cys	Thr	Pro	Met	Ser	Thr	Lys	Lys	480
1441	GCT	TAT	TTT	GGA	AGT	GCT	GTA	TTG	AAT	AAT	TTC	TTA	TAC	GTT	TTT	1485
481	Ala	Tyr	Phe	Gly	Ser	Ala	Val	Leu	Asn	Asn	Phe	Leu	Tyr	Val	Phe	495
1486	GGT	GGT	AAT	AAC	TAT	GAT	TAT	AAG	GCT	TTA	TTT	GAA	ACT	GAA	GTG	1530
496	Gly	Gly	Asn	Asn	Tyr	Asp	Tyr	Lys	Ala	Leu	Phe	Glu	Thr	Glu	Val	510
1531	TAT	GAT	CGT	TTA	AGA	GAT	GTA	TGG	TAT	GTT	TCA	AGT	AAT	TTA	AAT	1575
511	Tyr	Asp	Arg	Leu	Arg	Asp	Val	Trp	Tyr	Val	Ser	Ser	Asn	Leu	Asn	525
1576	ATA	CCT	AGA	AGA	AAT	AAT	TGT	GGT	GTT	ACG	TCA	AAT	GGT	AGA	ATT	1620
526	Ile	Pro	Arg	Arg	Asn	Asn	Cys	Gly	Val	Thr	Ser	Asn	Gly	Arg	Ile	540
1621	TAT	TGT	ATT	GGG	GGA	TAT	GAT	GGC	TCT	TCT	ATT	ATA	CCG	AAT	GTA	1665
541	Tyr	Cys	Ile	Gly	Gly	Tyr	Asp	Gly	Ser	Ser	Ile	Ile	Pro	Asn	Val	555
1666	GAA	GCA	TAT	GAT	CAT	CGT	ATG	AAA	GCA	TGG	GTA	GAG	GTG	GCA	CCT	1710
556	Glu	Ala	Tyr	Asp	His	Arg	Met	Lys	Ala	Trp	Val	Glu	Val	Ala	Pro	570
1711	TTG	AAT	ACC	CCT	AGA	TCA	TCA	GCT	ATG	TGT	GTT	GCT	TTT	GAT	AAT	1755
571	Leu	Asn	Thr	Pro	Arg	Ser	Ser	Ala	Met	Cys	Val	Ala	Phe	Asp	Asn	585
1756	AAA	ATT	TAT	GTC	ATT	GGT	GGA	ACT	AAT	GGT	GAG	AGG	TTA	AAT	TCT	1800
586	Lys	Ile	Tyr	Val	Ile	Gly	Gly	Thr	Asn	Gly	Glu	Arg	Leu	Asn	Ser	600
1801	ATT	GAA	GTA	TAT	GAA	GAA	AAA	ATG	AAT	AAA	TGG	GAA	CAA	TTT	CCA	1845
601	Ile	Glu	Val	Tyr	Glu	Glu	Lys	Met	Asn	Lys	Trp	Glu	Gln	Phe	Pro	615
1846	TAT	GCC	TTA	TTA	GAA	GCT	AGA	AGT	TCA	GGA	GCA	GCT	TTT	AAT	TAC	1890
616	Tyr	Ala	Leu	Leu	Glu	Ala	Arg	Ser	Ser	Gly	Ala	Ala	Phe	Asn	Tyr	630
1891	CTT	AAT	CAA	ATA	TAT	GTT	GTT	GGA	GGT	ATT						1920

631 Leu Asn Gln Ile Tyr Val Val Gly Gly Ile 640

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1	ATG	GAA	GGA	GAA	AAA	GTA	AAA	ACA	AAA	GCA	AAT	AGT	ATC	TCG	AAT	45
1	Met	Glu	Gly	Glu	Lys	Val	Lys	Thr	Lys	Ala	Asn	Ser	Ile	Ser	Asn	15
46	TTT	TCT	ATG	ACG	TAT	GAT	AGG	GAA	TCT	GGT	GGT	AAC	AGC	AAT	AGT	90
16	Phe	Ser	Met	Thr	Tyr	Asp	Arg	Glu	Ser	Gly	Gly	Asn	Ser	Asn	Ser	30
91	GAT	GAT	AAA	AGC	GGA	AGT	AGT	AGC	GAG	AAT	GAT	TCT	AAT	TCA	TTT	135
31	Asp	Asp	Lys	Ser	Gly	Ser	Ser	Ser	Glu	Asn	Asp	Ser	Asn	Ser	Phe	45
136	ATG	AAT	CTA	ACT	AGT	GAT	AAA	AAT	GAG	AAA	ACG	GAA	AAT	AAT	AGT	180
46	Met	Asn	Leu	Thr	Ser	Asp	Lys	Asn	Glu	Lys	Thr	Glu	Asn	Asn	Ser	60
181	TTC	CTT	TTA	AAT	AAT	AGT	AGT	TAT	GGA	AAT	GTT	AAA	GAT	AGC	CTA	225
61	Phe	Leu	Leu	Asn	Asn	Ser	Ser	Tyr	Gly	Asn	Val	Lys	Asp	Ser	Leu	75
226	TTA	GAA	TCC	ATT	GAT	ATG	AGT	GTA	TTA	GAT	TCG	AAC	TTT	GAT	AGT	270
76	Leu	Glu	Ser	Ile	Asp	Met	Ser	Val	Leu	Asp	Ser	Asn	Phe	Asp	Ser	90
271	AAA	AAA	GAT	TTT	TTA	CCA	AGT	AAT	TTA	TCA	AGA	ACA	TTT	AAT	AAT	315
91	Lys	Lys	Asp	Phe	Leu	Pro	Ser	Asn	Leu	Ser	Arg	Thr	Phe	Asn	Asn	105
316	ATG	TCT	AAA	GAT	AAT	ATA	GGA	AAT	AAA	TAT	TTA	AAT	AAA	TTG	TTA	360
106	Met	Ser	Lys	Asp	Asn	Ile	Gly	Asn	Lys	Tyr	Leu	Asn	Lys	Leu	Leu	120
361	AAT	AAA	AAA	AAA	GAT	ACT	ATT	ACA	AAT	GAA	AAT	AAT	AAT	ATT	AAT	405
121	Asn	Lys	Lys	Lys	Asp	Thr	Ile	Thr	Asn	Glu	Asn	Asn	Asn	Ile	Asn	135
406	CAT	AAT	AAT	AAT	AAT	AAT	AAT	CTG	ACA	GCA	AAT	AAT	ATA	ACT	AAT	450
136	His	Asn	Asn	Asn	Asn	Asn	Asn	Leu	Thr	Ala	Asn	Asn	Ile	Thr	Asn	150
451	AAT	CTT	ATT	AAT	AAT	AAT	ATG	AAT	TCT	CCA	TCA	ATT	ATG	AAT	ACC	495
151	Asn	Leu	Ile	Asn	Asn	Asn	Met	Asn	Ser	Pro	Ser	Ile	Met	Asn	Thr	165
496	AAC	AAA	AAA	GAG	AAT	TTT	TTA	GAT	GCA	GCA	AAT	CTT	ATA	AAT	GAT	540
166	Asn	Lys	Lys	Glu	Asn	Phe	Leu	Asp	Ala	Ala	Asn	Leu	Ile	Asn	Asp	180
541	GAT	TCT	GGA	TTA	AAC	AAT	TTA	AAA	AAA	TTT	TCA	ACT	GTA	AAT	AAT	585
181	Asp	Ser	Gly	Leu	Asn	Asn	Leu	Lys	Lys	Phe	Ser	Thr	Val	Asn	Asn	195
586	GTA	AAT	GAT	ACT	TAT	GAA	AAG	AAA	ATT	ATT	GAA	ACG	GAA	TTA	AGT	630
196	Val	Asn	Asp	Thr	Tyr	Glu	Lys	Lys	Ile	Ile	Glu	Thr	Glu	Leu	Ser	210
631	GAT	GCT	AGT	GAT	TTT	GAA	AAT	ATG	GTA	GGT	GAT	TTA	AGA	ATT	ACA	675
211	Asp	Ala	Ser	Asp	Phe	Glu	Asn	Met	Val	Gly	Asp	Leu	Arg	Ile	Thr	225
676	TTT	ATT	AAT	TGG	TTA	AAA	AAG	ACA	CAA	ATG	AAT	TTT	ATT	CGA	GAA	720
226	Phe	Ile	Asn	Trp	Leu	Lys	Lys	Thr	Gln	Met	Asn	Phe	Ile	Arg	Glu	240
721	AAA	GAT	AAA	TTA	TTT	AAA	GAT	AAG	AAA	GAA	CTA	GAA	ATG	GAA	AGA	765

241	Lys Asp Lys Leu Phe Lys Asp Lys Lys Glu Leu Glu Met Glu Arg	255
766	GTA CGA TTG TAC AAA GAA TTA GAA AAC CGT AAA AAT ATT GAA GAA	810
256	Val Arg Leu Tyr Lys Glu Leu Glu Asn Arg Lys Asn Ile Glu Glu	270
811	CAG AAA TTA CAT GAT GAA AGA AAG AAA TTA GAT ATT GAT ATA TCT	855
271	Gln Lys Leu His Asp Glu Arg Lys Lys Leu Asp Ile Asp Ile Ser	285
856	AAT GGT TAT AAA CAA ATA AAA AAA GAA AAA GAA GAA CAT AGG AAA	900
286	Asn Gly Tyr Lys Gln Ile Lys Lys Glu Lys Glu Glu His Arg Lys	300
901	CGA TTT GAT GAA GAA AGA TTA AGA TTT TTA CAA GAA ATC GAT AAA	945
301	Arg Phe Asp Glu Glu Arg Leu Arg Phe Leu Gln Glu Ile Asp Lys	315
946	ATT AAA TTA GTA TTA TAT TTA GAA AAA GAA AAA TAT TAT CAA GAA	990
316	Ile Lys Leu Val Leu Tyr Leu Glu Lys Glu Lys Tyr Tyr Gln Glu	330
991	TAT AAA AAT TTT GAG AAT GAT AAA AAA AAA ATT GTT GAT GCA AAT	1035
331	Tyr Lys Asn Phe Glu Asn Asp Lys Lys Lys Ile Val Asp Ala Asn	345
1036	ATT GCT ACT GAA ACT ATG ATT GAT ATT AAT GTT GGT GGA GCT ATT	1080
346	Ile Ala Thr Glu Thr Met Ile Asp Ile Asn Val Gly Gly Ala Ile	360
1081	TTT GAA ACA TCT AGA CAT ACC TTA ACA CAA CAA AAA GAT TCA TTT	1125
361	Phe Glu Thr Ser Arg His Thr Leu Thr Gln Gln Lys Asp Ser Phe	375
1126	ATA GAG AAA TTA TTA AGT GGA AGA CAT CAT GTA ACC AGA GAT AAA	1170
376	Ile Glu Lys Leu Leu Ser Gly Arg His His Val Thr Arg Asp Lys	390
1171	CAA GGA AGA ATA TTC TTA GAT AGG GAT AGT GAG TTA TTT AGA ATT	1215
391	Gln Gly Arg Ile Phe Leu Asp Arg Asp Ser Glu Leu Phe Arg Ile	405
1216	ATA CTT AAC TTC TTA AGA AAT CCG TTA ACT ATA CCC ATA CCA AAA	1260
406	Ile Leu Asn Phe Leu Arg Asn Pro Leu Thr Ile Pro Ile Pro Lys	420
1261	GAT TTA AGT GAA AGT GAA GCC TTG TTG AAA GAA GCA GAA TTT TAT	1305
421	Asp Leu Ser Glu Ser Glu Ala Leu Leu Lys Glu Ala Glu Phe Tyr	435
1306	GGT ATT AAA TTT TTA CCA TTC CCA TTA GTA TTT TGT ATA GGT GGA	1350
436	Gly Ile Lys Phe Leu Pro Phe Pro Leu Val Phe Cys Ile Gly Gly	450
1351	TTT GAT GGT GTA GAA TAT TTA AAT TCG ATG GAA TTA TTA GAT ATT	1395
451	Phe Asp Gly Val Glu Tyr Leu Asn Ser Met Glu Leu Leu Asp Ile	465
1396	AGT CAA CAA TGC TGG CGT ATG TGT ACA CCT ATG TCT ACC AAA AAA	1440
466	Ser Gln Gln Cys Trp Arg Met Cys Thr Pro Met Ser Thr Lys Lys	480
1441	GCT TAT TTT GGA AGT GCT GTA TTG AAT AAT TTC TTA TAC GTT TTT	1485
481	Ala Tyr Phe Gly Ser Ala Val Leu Asn Asn Phe Leu Tyr Val Phe	495
1486	GGT GGT AAT AAC TAT GAT TAT AAG GCT TTA TTT GAA ACT GAG GTG	1530
496	Gly Gly Asn Asn Tyr Asp Tyr Lys Ala Leu Phe Glu Thr Glu Val	510

1531	TAT	GAT	CGT	TTA	AGA	GAT	GTA	TGG	TAT	GTT	TCA	AGG	AAT	TTA	AAT	1575
511	Tyr	Asp	Arg	Leu	Arg	Asp	Val	Trp	Tyr	Val	Ser	Arg	Asn	Leu	Asn	525
1576	ATA	CCT	AGA	AGA	AAT	AAT	TGT	GGT	GTT	ACG	TCA	AAT	GGT	AGA	ATT	1620
526	Ile	Pro	Arg	Arg	Asn	Asn	Cys	Gly	Val	Thr	Ser	Asn	Gly	Arg	Ile	540
1621	TAT	TGT	ATT	GGG	GGA	TAT	GAT	GGC	TCT	TCT	ATT	ATA	CCG	AAT	GTA	1665
541	Tyr	Cys	Ile	Gly	Gly	Tyr	Asp	Gly	Ser	Ser	Ile	Ile	Pro	Asn	Val	555
1666	GAA	GCA	TAT	GAT	CAT	CGT	ATG	AAA	GCA	TGG	GTA	GAG	GTG	GCA	CCT	1710
556	Glu	Ala	Tyr	Asp	His	Arg	Met	Lys	Ala	Trp	Val	Glu	Val	Ala	Pro	570
1711	TTG	AAT	ACC	CCT	AGA	TCA	TCA	GCT	ATG	TGT	GTT	GCT	TTT	GAT	AAT	1755
571	Leu	Asn	Thr	Pro	Arg	Ser	Ser	Ala	Met	Cys	Val	Ala	Phe	Asp	Asn	585
1756	AAA	ATT	TAT	GTC	ATT	GGT	GGA	ACT	AAT	GGT	GAG	AGA	TTA	AAT	TCT	1800
586	Lys	Ile	Tyr	Val	Ile	Gly	Gly	Thr	Asn	Gly	Glu	Arg	Leu	Asn	Ser	600
1801	ATT	GAA	GTA	TAT	GAA	GAA	AAA	ATG	AAT	AAA	TGG	GAA	CAA	TTT	CCA	1845
601	Ile	Glu	Val	Tyr	Glu	Glu	Lys	Met	Asn	Lys	Trp	Glu	Gln	Phe	Pro	615
1846	TAT	GCC	TTA	TTA	GAA	GCT	AGA	AGT	TCA	GGA	GCA	GCT	TTT	AAT	TAC	1890
616	Tyr	Ala	Leu	Leu	Glu	Ala	Arg	Ser	Ser	Gly	Ala	Ala	Phe	Asn	Tyr	630
1891	CTT	AAT	CAA	ATA	TAT	GTT	GTT	AGA	GGT	ATT						1920
631	Leu	Asn	Gln	Ile	Tyr	Val	Val	Arg	Gly	Ile						640

■ Reference Codon
 ■ Mutant Codon