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<110> The Trustees of the University of Pennsylvania

<120> Simian Subfamily C Adenoviruses SAdV-40, -31, and -34 and Uses
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Pro Pro Pro Gln Gln Gln Gln His Gln Gln Glu Arg Gln Gln Gln	670 675 680 685
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Thr Ser Ala Ser Ala Ala Val Ser Gly Ala Cys Gly Gly Gly Gly Gly	705 710 715
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Pro Ala Asp Asp Pro Glu Glu Pro Pro Arg Arg Arg Ala Arg His Tyr	720 725 730
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Leu Asp Leu Glu Glu Gly Glu Gly Leu Ala Arg Leu Gly Ala Pro Ser	735 740 745
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Pro Glu Arg His Pro Arg Val Gln Leu Lys Arg Asp Ser Arg Glu Ala	750 755 760 765
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Tyr Val Pro Arg Gln Asn Leu Phe Arg Asp Arg Ala Gly Glu Glu Pro	770 775 780
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Glu Glu Met Arg Asp Arg Arg Phe Ser Ala Gly Arg Glu Leu Arg Gln	785 790 795
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Gly Leu Asn Arg Glu Arg Leu Leu Arg Glu Glu Asp Phe Glu Pro Asp	800 805 810
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Ala Arg Thr Gly Ile Ser Pro Ala Arg Ala His Val Ala Ala Ala Asp	815 820 825
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Leu Val Thr Ala Tyr Glu Gln Thr Val Asn Gln Glu Ile Asn Phe Gln	830 835 840 845
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Lys	Ser	Phe	Asn	Asn	His	Val	Arg	Thr	Leu	Val	Ala	Arg	Glu	Glu	Val	
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Asn	Pro	Asn	Ser	Lys	Pro	Leu	Thr	Ala	Gln	Leu	Phe	Leu	Ile	Val	Gln	
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His	Ser	Arg	Asp	Asn	Glu	Ala	Phe	Arg	Asp	Ala	Leu	Leu	Asn	Ile	Thr	
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Glu	Pro	Glu	Gly	Arg	Trp	Leu	Leu	Asp	Leu	Ile	Asn	Ile	Leu	Gln	Ser	
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Ile	Val	Val	Gln	Glu	Arg	Ser	Leu	Ser	Leu	Ala	Asp	Lys	Val	Ala	Ala	
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Ile	Asn	Tyr	Ser	Met	Leu	Ser	Leu	Gly	Lys	Phe	Tyr	Ala	Arg	Lys	Ile	
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Tyr	Gln	Thr	Pro	Tyr	Val	Pro	Ile	Asp	Lys	Glu	Val	Lys	Ile	Asp	Gly	
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Phe	Tyr	Met	Arg	Met	Ala	Leu	Lys	Val	Leu	Thr	Leu	Ser	Asp	Asp	Leu	
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Gly	Val	Tyr	Arg	Asn	Glu	Arg	Ile	His	Lys	Ala	Val	Ser	Val	Ser	Arg	
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Arg	Arg	Glu	Leu	Ser	Asp	Arg	Glu	Leu	Met	His	Ser	Leu	Gln	Arg		
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Phe	Asp	Ala	Gly	Ala	Asp	Leu	Arg	Trp	Ala	Pro	Ser	Arg	Arg	Ala		
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Pro	Ala	Leu	Arg	Ala	Ala	Leu	Gln	Ser	Gln	Pro	
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Thr	Ala	Arg	Asn	Pro	Asp	Ala	Phe	Arg	Gln	Gln	
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Pro	Thr	His	Glu	Lys	Val	Leu	Ala	Ile	Val	Asn	
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Gln	Glu	Asp	Tyr	Thr	Asn	Phe	Val	Ser	Ala	Leu	
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Thr	Glu	Thr	Pro	Gln	Ser	Glu	Val	Tyr	Gln	Ser	
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Phe	Phe	Gln	Thr	Ser	Arg	Gln	Gly	Leu	Gln	Thr	
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Gln	Ala	Phe	Lys	Asn	Leu	Arg	Gly	Leu	Trp	Gly	
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Val Ser Arg	Asp Thr Tyr Leu Gly	His Leu Leu Thr Leu	Tyr Arg	
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Glu Ala Ile	Gly Gln Ala Gln Val	Asp Glu His Thr Phe	Gln Glu	
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Ile Thr Ser	Val Ser Arg Ala Leu	Gly Gln Glu Asp Thr	Ser Ser	
1360	1365	1370		
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Leu Glu Ala	Thr Leu Asn Tyr Leu	Leu Thr Asn Arg Arg	Gln Lys	
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Val Thr Pro	Ser Val Ala Leu Asp	Met Thr Ala Arg Asn	Met Glu	
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Pro Gly Met	Tyr Ala Ala His Arg	Pro Tyr Ile Asn Arg	Leu Met	
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Asp Asp Met	Asp Asp Ser Val Phe	Ser Pro Arg Pro Gln	Ala Leu	
1495	1500	1505		
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Ala Glu Ala	Ser Leu Leu Arg Pro	Lys Lys Glu Glu Glu	Ala Ser	

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Ile Glu Ser Leu Val Asp Lys Met Ser Arg Trp Lys Thr Tyr Ala			
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Gln Glu His Arg Asp Ala Pro Ala Leu Arg Pro Pro Thr Arg Arg			
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Ser Ala Asp Asp Ser Ser Val Leu Asp Leu Gly Gly Ser Gly Asn			
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Met Arg Arg Ala Ala Met Tyr Gln Glu			
	1675		
gga cct cct ccc tct tac gag agc gtg gtg ggc gcg gcg gcg gcg			14327
Gly Pro Pro Pro Ser Tyr Glu Ser Val Val Gly Ala Ala Ala Ala			
1680	1685	1690	
gcg ccc tct tct ccc ttt gcg tcg cag ctg ctg gag ccg ccg tac			14372
Ala Pro Ser Ser Pro Phe Ala Ser Gln Leu Leu Glu Pro Pro Tyr			
1695	1700	1705	
gtg cct ccg cgc tac ctg cgg cct acg ggg ggg aga aac agc atc			14417
Val Pro Pro Arg Tyr Leu Arg Pro Thr Gly Gly Arg Asn Ser Ile			
1710	1715	1720	

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cgt Arg 1725	tac Tyr	tcg Ser	gag Glu	ctg Leu	gcg Ala 1730	ccc Pro	ctg Leu	ttc Phe	gac Asp	acc Thr 1735	acc Thr	cgg Arg	gtg Val	tac Tyr	14462
ctg Leu 1740	gtg Val	gac Asp	aac Asn	aag Lys	tcg Ser 1745	gcg Ala	gac Asp	gtg Val	gcc Ala	tcc Ser 1750	ctg Leu	aac Asn	tac Tyr	cag Gln	14507
aac Asn 1755	gac Asp	cac His	agc Ser	aat Asn	ttt Phe 1760	ttg Leu	acc Thr	acg Thr	gtc Val	atc Ile 1765	cag Gln	aac Asn	aat Asn	gac Asp	14552
tac Tyr 1770	agc Ser	ccg Pro	agc Ser	gag Glu	gcc Ala 1775	agc Ser	acc Thr	cag Gln	acc Thr	atc Ile 1780	aat Asn	ctg Leu	gat Asp	gac Asp	14597
cgg Arg 1785	tcg Ser	cac His	tgg Trp	ggc Gly	ggc Gly 1790	gac Asp	ctg Leu	aaa Lys	acc Thr	atc Ile 1795	ctg Leu	cac His	acc Thr	aac Asn	14642
atg Met 1800	ccc Pro	aac Asn	gtg Val	aac Asn	gag Glu 1805	ttc Phe	atg Met	ttc Phe	acc Thr	aat Asn 1810	aag Lys	ttc Phe	aag Lys	gcg Ala	14687
cgg Arg 1815	gtg Val	atg Met	gtg Val	tcg Ser	cgc Arg 1820	tcg Ser	cac His	acc Thr	aag Lys	gaa Glu 1825	gac Asp	cgg Arg	gtg Val	gag Glu	14732
ctg Leu 1830	aag Lys	tac Tyr	gag Glu	tgg Trp	gtg Val 1835	gag Glu	ttc Phe	gag Glu	ctg Leu	cca Pro 1840	gag Glu	ggc Gly	aac Asn	tac Tyr	14777
tcc Ser 1845	gag Glu	acc Thr	atg Met	acc Thr	att Ile 1850	gac Asp	ctg Leu	atg Met	aac Asn	aac Asn 1855	gcg Ala	atc Ile	gtg Val	gag Glu	14822
cac His 1860	tat Tyr	ctg Leu	aaa Lys	gtg Val	ggc Gly 1865	agg Arg	cag Gln	aac Asn	ggg Gly	gtc Val 1870	ctg Leu	gag Glu	agc Ser	gac Asp	14867
atc Ile 1875	ggg Gly	gtc Val	aag Lys	ttc Phe	gac Asp 1880	acc Thr	agg Arg	aac Asn	ttc Phe	cgc Arg 1885	ctg Leu	ggg Gly	ctg Leu	gac Asp	14912
ccc Pro 1890	gtg Val	acc Thr	ggg Gly	ctg Leu	gtt Val 1895	atg Met	ccc Pro	ggg Gly	gtg Val	tac Tyr 1900	acc Thr	aac Asn	gag Glu	gcc Ala	14957
ttc Phe 1905	cat His	ccc Pro	gac Asp	atc Ile	atc Ile 1910	ctg Leu	ctg Leu	ccc Pro	ggc Gly	tgc Cys 1915	ggg Gly	gtg Val	gac Asp	ttc Phe	15002
act Thr 1920	tac Tyr	agc Ser	cgc Arg	ctg Leu	agc Ser 1925	aac Asn	ctc Leu	ctg Leu	ggc Gly	atc Ile 1930	cgc Arg	aag Lys	cgg Arg	cag Gln	15047
ccc Pro	ttc Phe	cag Gln	gag Glu	ggc Gly	ttc Phe	agg Arg	atc Ile	acc Thr	tac Tyr	gag Glu	gac Asp	ctg Leu	gag Glu	ggg Gly	15092

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1935	1940	1945	
ggc Gly 1950	aac atc ccc gcg ctc Asn Ile Pro Ala Leu 1955	ctc gat gtg gag gcc Leu Asp Val Glu Ala 1960	tac cag gat agc Tyr Gln Asp Ser 15137
ttg Leu 1965	aag gaa aat gag gcg Lys Glu Asn Glu Ala 1970	gga cag gag gat acc Gly Gln Glu Asp Thr 1975	gcc ccc gcc gcc Ala Pro Ala Ala 15182
tcc Ser 1980	gcc gcc gcc gag cag Ala Ala Ala Glu Gln 1985	ggc gag gat gct gct Gly Glu Asp Ala Ala 1990	gac acc gcg gcc Asp Thr Ala Ala 15227
gcg Ala 1995	gac ggg gca gag gcc Asp Gly Ala Glu Ala 2000	gac ccc gct atg gtg Asp Pro Ala Met Val 2005	gtg gag gct ccc Val Glu Ala Pro 15272
gag Glu 2010	cag gag gag gac atg Gln Glu Glu Asp Met 2015	aat gac agt gcg gtg Asn Asp Ser Ala Val 2020	cgc gga gac acc Arg Gly Asp Thr 15317
ttc Phe 2025	gtc acc cgg ggg gag Val Thr Arg Gly Glu 2030	gaa aag caa gcg gag Glu Lys Gln Ala Glu 2035	gcc gag gcc gcg Ala Glu Ala Ala 15362
gcc Ala 2040	gag gaa aag caa ctg Glu Glu Lys Gln Leu 2045	gcg gca gca gcg gcg Ala Ala Ala Ala Ala 2050	gcg gcg gcg ttg Ala Ala Ala Leu 15407
gcc Ala 2055	gcg gcg gag gct gag Ala Ala Glu Ala Glu 2060	tct gag ggg acc aag Ser Glu Gly Thr Lys 2065	ccc gcc aag gag Pro Ala Lys Glu 15452
ccc Pro 2070	gtg att aag ccc ctg Val Ile Lys Pro Leu 2075	acc gaa gat agc aag Thr Glu Asp Ser Lys 2080	aag cgc agt tac Lys Arg Ser Tyr 15497
aac Asn 2085	ctg ctc aag gac agc Leu Leu Lys Asp Ser 2090	acc aac acc gcg tac Thr Asn Thr Ala Tyr 2095	cgc agc tgg tac Arg Ser Trp Tyr 15542
ctg Leu 2100	gcc tac aac tac ggc Ala Tyr Asn Tyr Gly 2105	gac ccg tcg acg ggg Asp Pro Ser Thr Gly 2110	gtg cgc tcc tgg Val Arg Ser Trp 15587
acc Thr 2115	ctg ctg tgc acg ccg Leu Leu Cys Thr Pro 2120	gac gtg acc tgc ggc Asp Val Thr Cys Gly 2125	tcg gag cag gtg Ser Glu Gln Val 15632
tac Tyr 2130	tgg tcg ctg ccc gac Trp Ser Leu Pro Asp 2135	atg atg caa gac ccc Met Met Gln Asp Pro 2140	gtg acc ttc cgc Val Thr Phe Arg 15677
tcc Ser 2145	acg cgg cag gtc agc Thr Arg Gln Val Ser 2150	aac ttc ccg gtg gtg Asn Phe Pro Val Val 2155	ggc gcc gag ctg Gly Ala Glu Leu 15722
ctg 15767	ccc gtg cac tcc aag 15767	agc ttc tac aac gac 15767	cag gcc gtc tac 15767

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Leu 2160	Pro	Val	His	Ser	Lys 2165	Ser	Phe	Tyr	Asn	Asp 2170	Gln	Ala	Val	Tyr	
tcc	cag	ctc	atc	cgc	cag	ttc	acc	tct	ctg	acc	cac	gtg	ttc	aat	15812
Ser 2175	Gln	Leu	Ile	Arg	Gln 2180	Phe	Thr	Ser	Leu	Thr 2185	His	Val	Phe	Asn	
cgc	ttt	cct	gag	aac	cag	att	ctg	gcg	cgc	ccg	ccc	gcc	ccc	acc	15857
Arg 2190	Phe	Pro	Glu	Asn	Gln 2195	Ile	Leu	Ala	Arg	Pro 2200	Pro	Ala	Pro	Thr	
atc	acc	acc	gtc	agt	gaa	aac	gtt	cct	gct	ctc	aca	gat	cac	ggg	15902
Ile 2205	Thr	Thr	Val	Ser	Glu 2210	Asn	Val	Pro	Ala	Leu 2215	Thr	Asp	His	Gly	
acg	cta	ccg	ctg	cgc	aac	agc	atc	gga	gga	gtc	cag	cga	gtg	acc	15947
Thr 2220	Leu	Pro	Leu	Arg	Asn 2225	Ser	Ile	Gly	Gly	Val 2230	Gln	Arg	Val	Thr	
gtt	act	gac	gcc	aga	cgc	cgc	acc	tgc	ccc	tac	gtt	tac	aag	gcc	15992
Val 2235	Thr	Asp	Ala	Arg	Arg 2240	Arg	Thr	Cys	Pro	Tyr 2245	Val	Tyr	Lys	Ala	
ttg	ggc	ata	gtc	tcg	ccg	cgc	gtc	ctt	tcc	agc	cgc	act	ttt		16034
Leu 2250	Gly	Ile	Val	Ser	Pro 2255	Arg	Val	Leu	Ser	Ser 2260	Arg	Thr	Phe		
tgagcaacac caccatc atg tcc atc ctg atc tca ccc agc aat aac tcc															16084
					Met Ser	Ile Leu Ile Ser Pro Ser Asn Asn Ser									
					2265										2270
ggc	tgg	gga	ctg	ctg	cgc	gcg	ccc	agc	aag	atg	ttc	gga	ggg	gcg	16129
Gly 2275	Trp	Gly	Leu	Leu	Arg 2280	Ala	Pro	Ser	Lys	Met 2285	Phe	Gly	Gly	Ala	
agg	aag	cgt	tcc	gag	cag	cac	ccc	gtg	cgc	gtg	cgc	ggg	cac	ttc	16174
Arg 2290	Lys	Arg	Ser	Glu	Gln 2295	His	Pro	Val	Arg	Val 2300	Arg	Gly	His	Phe	
cgc	gcc	ccc	tgg	gga	gcg	cac	aaa	cgc	ggc	cgc	gcg	ggg	cgc	acc	16219
Arg 2305	Ala	Pro	Trp	Gly	Ala 2310	His	Lys	Arg	Gly	Arg 2315	Ala	Gly	Arg	Thr	
acc	gtg	gac	gac	gcc	atc	gac	tcg	gtg	gtg	gag	cag	gcg	cgc	aac	16264
Thr 2320	Val	Asp	Asp	Ala	Ile 2325	Asp	Ser	Val	Val	Glu 2330	Gln	Ala	Arg	Asn	
tac	agg	ccc	gcg	gtc	tct	acc	gtg	gac	gcg	gcc	atc	cag	acc	gtg	16309
Tyr 2335	Arg	Pro	Ala	Val	Ser 2340	Thr	Val	Asp	Ala	Ala 2345	Ile	Gln	Thr	Val	
gtg	cgg	ggc	gcg	cgg	cgg	tac	gcc	aag	ctg	aag	agc	cgc	cgg	aag	16354
Val 2350	Arg	Gly	Ala	Arg	Arg 2355	Tyr	Ala	Lys	Leu	Lys 2360	Ser	Arg	Arg	Lys	
cgc	gtg	gcc	cgc	cgc	cac	cgc	cgc	cga	ccc	ggg	gcc	gcc	gcc	aaa	16399
Arg 2365	Val	Ala	Arg	Arg	His 2370	Arg	Arg	Arg	Pro	Gly 2375	Ala	Ala	Ala	Lys	

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cgc Arg 2380	gcc Ala	gcc Ala	gcg Ala	gcc Ala	ctg Leu 2385	ctt Leu	cgc Arg	cgg Arg	gcc Ala 2390	aag Lys	cgc Arg	acg Thr	ggc Gly	cgc Arg	16444
cgc Arg 2395	gcc Ala	gcc Ala	atg Met	agg Arg	gcc Ala 2400	gcg Ala	cgc Arg	cgc Arg	ttg Leu 2405	gcc Ala	gcc Ala	ggc Gly	atc Ile	acc Thr	16489
gcc Ala 2410	gcc Ala	acc Thr	atg Met	gcc Ala	ccc Pro 2415	cgt Arg	acc Thr	cga Arg	aga Arg	cgc Arg 2420	gcg Ala	gcc Ala	gcc Ala	gcc Ala	16534
gcc Ala 2425	gcc Ala	gcc Ala	gcc Ala	atc Ile	agt Ser 2430	gac Asp	atg Met	gcc Ala	agc Ser	agg Arg 2435	cgc Arg	cgg Arg	ggc Gly	aac Asn	16579
gtg Val 2440	tac Tyr	tgg Trp	gtg Val	cgc Arg	gac Asp 2445	tcg Ser	gtg Val	acc Thr	ggc Gly	acg Thr 2450	cgc Arg	gtg Val	ccc Pro	gtg Val	16624
cgc Arg 2455	ttc Phe	cgc Arg	ccc Pro	ccg Pro	cgg Arg 2460	act Thr	tgagatgatg	tgaaaaaaca	acactgagtc						16675
tcctgctggtt	gtgtgtatcc	cagcggcggc	ggcgcgcgca	gcgtc	atg	tcc	aag	Met	Ser	Lys					16729
cgc Arg 2465	aaa Lys	atc Ile	aaa Lys	gaa Glu	gag Glu 2470	atg Met	ctc Leu	cag Gln	gtc Val	gtc Val 2475	gcg Ala	ccg Pro	gag Glu	atc Ile	16774
tat Tyr 2480	ggg Gly	ccc Pro	ccg Pro	aag Lys	aag Lys 2485	gaa Glu	gag Glu	cag Gln	gat Asp	tcg Ser 2490	aag Lys	ccc Pro	cgc Arg	aag Lys	16819
ata Ile 2495	aag Lys	cgg Arg	gtc Val	aaa Lys	aag Lys 2500	aaa Lys	aag Lys	aaa Lys	gat Asp	gat Asp 2505	gac Asp	gat Asp	gcc Ala	gat Asp	16864
ggg Gly 2510	gag Glu	gtg Val	gag Glu	ttc Phe	ctg Leu 2515	cgc Arg	gcc Ala	acg Thr	gcg Ala	ccc Pro 2520	agg Arg	cgc Arg	ccg Pro	gtg Val	16909
cag Gln 2525	tgg Trp	aag Lys	ggc Gly	cgg Arg	cgc Arg 2530	gta Val	aag Lys	cgc Arg	gtc Val	ctg Leu 2535	cgc Arg	ccc Pro	ggc Gly	acc Thr	16954
gcg Ala 2540	gtg Val	gtc Val	ttc Phe	acg Thr	ccc Pro 2545	ggc Gly	gag Glu	cgc Arg	tcc Ser	acc Thr 2550	cgg Arg	act Thr	ttc Phe	aag Lys	16999
cgc Arg 2555	gtc Val	tat Tyr	gac Asp	gag Glu	gtg Val 2560	tac Tyr	ggc Gly	gac Asp	gaa Glu	gac Asp 2565	ctg Leu	ctg Leu	gag Glu	cag Gln	17044
gcc Ala 2570	aac Asn	gag Glu	cgc Arg	ttc Phe	gga Gly 2575	gag Glu	ttt Phe	gct Ala	tac Tyr	ggg Gly 2580	aag Lys	cgt Arg	cag Gln	cgg Arg	17089

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gcg Ala 2585	ctg Leu	ggg Gly	aag Lys	gag Glu	gac Asp 2590	ctg Leu	ctg Leu	gcg Ala	ctg Leu	ccg Pro 2595	ctg Leu	gac Asp	cag Gln	ggc Gly	17134
aac Asn 2600	ccc Pro	acc Thr	ccc Pro	agt Ser	ctg Leu 2605	aag Lys	ccc Pro	gtg Val	acc Thr	ctg Leu 2610	cag Gln	cag Gln	gtg Val	ctg Leu	17179
ccg Pro 2615	agc Ser	agc Ser	gca Ala	ccc Pro	tcc Ser 2620	gag Glu	gcg Ala	aag Lys	cgg Arg	ggt Gly 2625	ctg Leu	aag Lys	cgc Arg	gag Glu	17224
ggc Gly 2630	ggc Gly	gac Asp	ctg Leu	gcg Ala	ccc Pro 2635	acc Thr	gtg Val	cag Gln	ctc Leu	atg Met 2640	gtg Val	ccc Pro	aag Lys	cgg Arg	17269
cag Gln 2645	agg Arg	ctg Leu	gag Glu	gat Asp	gtg Val 2650	ctg Leu	gag Glu	aaa Lys	atg Met	aaa Lys 2655	gta Val	gac Asp	ccc Pro	ggt Gly	17314
ctg Leu 2660	cag Gln	ccg Pro	gac Asp	atc Ile	agg Arg 2665	gtc Val	cgc Arg	ccc Pro	atc Ile	aag Lys 2670	cag Gln	gtg Val	gcg Ala	ccg Pro	17359
ggc Gly 2675	ctc Leu	ggc Gly	gtg Val	cag Gln	acc Thr 2680	gtg Val	gac Asp	gtg Val	gtc Val	atc Ile 2685	ccc Pro	acc Thr	ggc Gly	aac Asn	17404
tcc Ser 2690	ccc Pro	gcc Ala	gcc Ala	acc Thr	acc Thr 2695	act Thr	acc Thr	gct Ala	gcc Ala	tcc Ser 2700	acg Thr	gac Asp	atg Met	gag Glu	17449
aca Thr 2705	cag Gln	acc Thr	gat Asp	ccc Pro	gcc Ala 2710	gca Ala	gcc Ala	gca Ala	gcc Ala	gcc Ala 2715	gcc Ala	gca Ala	gcc Ala	gcg Ala	17494
acc Thr 2720	tcc Ser	tcg Ser	gcg Ala	gag Glu	gtg Val 2725	cag Gln	acg Thr	gac Asp	ccc Pro	tgg Trp 2730	ctg Leu	ccg Pro	ccg Pro	gcg Ala	17539
atg Met 2735	tca Ser	gct Ala	ccc Pro	cgc Arg	gcg Ala 2740	cgt Arg	cgc Arg	ggg Gly	cgc Arg	agg Arg 2745	aag Lys	tac Tyr	ggc Gly	gcc Ala	17584
gcc Ala 2750	aac Asn	gcg Ala	ctc Leu	ctg Leu	ccc Pro 2755	gag Glu	tac Tyr	gcc Ala	ttg Leu	cat His 2760	cct Pro	tcc Ser	atc Ile	gcg Ala	17629
ccc Pro 2765	acc Thr	ccc Pro	ggc Gly	tac Tyr	cga Arg 2770	ggc Gly	tat Tyr	acc Thr	tac Tyr	cgc Arg 2775	ccg Pro	cga Arg	aga Arg	gcc Ala	17674
aag Lys 2780	ggt Gly	tcc Ser	acc Thr	cgc Arg	cgt Arg 2785	ccc Pro	cgc Arg	cga Arg	cgc Arg	gcc Ala 2790	gcc Ala	gcc Ala	acc Thr	acc Thr	17719
cgc Arg	cgc Arg	cgc Arg	cgc Arg	cgc Arg	aga Arg	cgc Arg	cag Gln	ccc Pro	gca Ala	ctg Leu	gct Ala	cca Pro	gtc Val	tcc Ser	17764

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2795		2800		2805	
gtg agg aga gtg gcg cgc gac gga cac acc ctg gtg ctg ccc agg					17809
Val Arg Arg Val Ala Arg Asp Gly His Thr Leu Val Leu Pro Arg					
2810		2815		2820	
gcg cgc tac cac ccc agc atc gtt taaaagcctg ttgtggttct tgcagat					17860
Ala Arg Tyr His Pro Ser Ile Val					
2825		2830			
atg gcc ctc act tgc cgc ctc cgt ttc ccg gtg ccg gga tac cga					17905
Met Ala Leu Thr Cys Arg Leu Arg Phe Pro Val Pro Gly Tyr Arg					
2835		2840		2845	
gga gga aga tcg cgc cgc agg agg ggt ctg gcc ggc cgc ggc ctg					17950
Gly Gly Arg Ser Arg Arg Arg Gly Leu Ala Gly Arg Gly Leu					
2850		2855		2860	
agc gga ggc agc cgc cgc gcg cac cgg cgg cga cgc gcc acc agc					17995
Ser Gly Gly Ser Arg Arg Ala His Arg Arg Arg Arg Ala Thr Ser					
2865		2870		2875	
cga cgc atg cgc ggc ggg gtg ctg ccc ctg tta atc ccc ctg atc					18040
Arg Arg Met Arg Gly Gly Val Leu Pro Leu Leu Ile Pro Leu Ile					
2880		2885		2890	
gcc gcg gcg atc ggc gcc gtg ccc ggg atc gcc tcc gtg gcc ttg					18085
Ala Ala Ala Ile Gly Ala Val Pro Gly Ile Ala Ser Val Ala Leu					
2895		2900		2905	
caa gcg tcc cag agg cat tgacagactt gcaaacttgc aaatatggaa					18133
Gln Ala Ser Gln Arg His					
2910					
aaaaaaaaa accccaataa aaaagtctag actctcacgc tcgcttggtc ctgtgactat					18193
tttgtaga atg gaa gac atc aac ttt gcg tcg ctg gcc ccg cgt cac					18240
Met Glu Asp Ile Asn Phe Ala Ser Leu Ala Pro Arg His					
2915		2920		2925	
ggc tcg cgc ccg ttc ctg gga cac tgg aac gat atc ggc acc agc					18285
Gly Ser Arg Pro Phe Leu Gly His Trp Asn Asp Ile Gly Thr Ser					
2930		2935		2940	
aac atg agc ggt ggc gcc ttc agt tgg ggc tct ctg tgg agc ggc					18330
Asn Met Ser Gly Gly Ala Phe Ser Trp Gly Ser Leu Trp Ser Gly					
2945		2950		2955	
att aaa agt atc ggg tct gcc gtt aaa aat tac ggc tcc cgg gcc					18375
Ile Lys Ser Ile Gly Ser Ala Val Lys Asn Tyr Gly Ser Arg Ala					
2960		2965		2970	
tgg aac agc agc acg ggc cag atg ttg aga gac aag ttg aaa gag					18420
Trp Asn Ser Ser Thr Gly Gln Met Leu Arg Asp Lys Leu Lys Glu					
2975		2980		2985	
cag aac ttc cag cag aag gtg gtg gag ggc ctg gcc tcc ggc atc					18465
Gln Asn Phe Gln Gln Lys Val Val Glu Gly Leu Ala Ser Gly Ile					
2990		2995		3000	

aac ggg gtg gtg	gac ctg gcc aac cag	gcc gtg cag aat aag atc	18510
Asn Gly Val Val	Asp Leu Ala Asn Gln	Ala Val Gln Asn Lys Ile	
3005	3010	3015	
aac agc aga ctg	gac ccc cgg ccg ccg	gtg gag gag gtg ccg ccg	18555
Asn Ser Arg Leu	Asp Pro Arg Pro Pro	Val Glu Glu Val Pro Pro	
3020	3025	3030	
gcg ctg gag acg	gtg tcc ccc gat ggg	cgt ggc gag aag cgc ccg	18600
Ala Leu Glu Thr	Val Ser Pro Asp Gly	Arg Gly Glu Lys Arg Pro	
3035	3040	3045	
cgg ccc gat agg	gaa gag acc act ctg	gtc acg cag acc gat gag	18645
Arg Pro Asp Arg	Glu Glu Thr Thr Leu	Val Thr Gln Thr Asp Glu	
3050	3055	3060	
ccg ccc ccg tat	gag gag gcc ctg aag	caa ggt ctg ccc acc acg	18690
Pro Pro Pro Tyr	Glu Glu Ala Leu Lys	Gln Gly Leu Pro Thr Thr	
3065	3070	3075	
cgg ccc atc gcg	ccc atg gcc acc ggg	gtg gtg ggc cgc cac acc	18735
Arg Pro Ile Ala	Pro Met Ala Thr Gly	Val Val Gly Arg His Thr	
3080	3085	3090	
ccc gcc acg ctg	gac ttg cct ccg ccc	gcc gat gtg ccg cag cag	18780
Pro Ala Thr Leu	Asp Leu Pro Pro Pro	Ala Asp Val Pro Gln Gln	
3095	3100	3105	
cag aag gcg gca	cag ccg ggc ccg ccc	gcg acc gcc tcc cgt tcc	18825
Gln Lys Ala Ala	Gln Pro Gly Pro Pro	Ala Thr Ala Ser Arg Ser	
3110	3115	3120	
tcc gcc ggt cct	ctg cgc cgc gcg gcc	agc ggc ccc cgc ggg ggg	18870
Ser Ala Gly Pro	Leu Arg Arg Ala Ala	Ser Gly Pro Arg Gly Gly	
3125	3130	3135	
gtc gcg agg cac	ggc aac tgg cag agc	acg ctg aac agc atc gtg	18915
Val Ala Arg His	Gly Asn Trp Gln Ser	Thr Leu Asn Ser Ile Val	
3140	3145	3150	
ggg ctg ggg gtg	cgg tcc gtg aag cgc	cgc cga tgc tac tgaatagctt	18964
Gly Leu Gly Val	Arg Ser Val Lys Arg	Arg Arg Cys Tyr	
3155	3160		
agctaacgtg ttgtatgtgt	gtatgcgccc tatgtcgccg	ccagaggagc tgctgagtcg	19024
ccgccgttcg cgcgccacc	accaccgcca ctccgcccct	caag atg gcg acc cca	19080
		Met Ala Thr Pro	
		3165	
tcg atg atg ccg cag tgg tgc	tac atg cac atc tgc	ggc cag gac	19125
Ser Met Met Pro Gln Trp Ser	Tyr Met His Ile Ser	Gly Gln Asp	
3170	3175	3180	
gcc tgc gag tac ctg agc ccc	ggg ctg gtg cag ttc	gcc cgc gcc	19170
Ala Ser Glu Tyr Leu Ser Pro	Gly Leu Val Gln Phe	Ala Arg Ala	
3185	3190	3195	

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acc gag	agc tac ttc	agc ctg	agt aac aag ttt	agg	aac ccc acg	19215
Thr Glu	Ser Tyr Phe	Ser Leu	Ser Asn Lys Phe	Arg	Asn Pro Thr	
3200		3205		3210		
gtg gcg	ccc acg cac gat	gtg	acc acc gac cgg tct	cag cgc ctg		19260
Val Ala	Pro Thr His Asp	Val	Thr Thr Asp Arg Ser	Gln Arg Leu		
3215		3220		3225		
acg ctg	cgg ttc att ccc	gtg	gac cgc gag gac acc	gcg tac tcg		19305
Thr Leu	Arg Phe Ile Pro	Val	Asp Arg Glu Asp Thr	Ala Tyr Ser		
3230		3235		3240		
tac aag	gcg cgg ttc acc	ctg	gcc gtg ggc gac aac	cgc gtg ctg		19350
Tyr Lys	Ala Arg Phe Thr	Leu	Ala Val Gly Asp Asn	Arg Val Leu		
3245		3250		3255		
gac atg	gcc tcc acc tac	ttt	gac atc cgc ggg gtg	ctg gac cgg		19395
Asp Met	Ala Ser Thr Tyr	Phe	Asp Ile Arg Gly Val	Leu Asp Arg		
3260		3265		3270		
ggg ccc	act ttc aag ccc	tac	tct ggc acc gcc tac	aac tcc ctg		19440
Gly Pro	Thr Phe Lys Pro	Tyr	Ser Gly Thr Ala Tyr	Asn Ser Leu		
3275		3280		3285		
gcc ccc	aag ggc gct ccc	aac	tcc tgc gag tgg gag	caa gag gaa		19485
Ala Pro	Lys Gly Ala Pro	Asn	Ser Cys Glu Trp Glu	Gln Glu Glu		
3290		3295		3300		
act cag	gca gtt gaa gaa	gca	gca gaa gag gaa gaa	gaa gat gct		19530
Thr Gln	Ala Val Glu Glu	Ala	Ala Glu Glu Glu Glu	Glu Asp Ala		
3305		3310		3315		
gac ggt	caa gct gag gaa	gag	caa gca gct acc aaa	aag act cat		19575
Asp Gly	Gln Ala Glu Glu	Glu	Gln Ala Ala Thr Lys	Lys Thr His		
3320		3325		3330		
gta tat	gct cag gct ccc	ctt	tct ggc gaa aaa att	agt aaa gat		19620
Val Tyr	Ala Gln Ala Pro	Leu	Ser Gly Glu Lys Ile	Ser Lys Asp		
3335		3340		3345		
ggg ctg	caa ata gga acg	gac	gct aca gct aca gaa	caa aaa cct		19665
Gly Leu	Gln Ile Gly Thr	Asp	Ala Thr Ala Thr Glu	Gln Lys Pro		
3350		3355		3360		
att tat	gca gac cct aca	ttc	cag ccc gaa ccc caa	atc ggg gag		19710
Ile Tyr	Ala Asp Pro Thr	Phe	Gln Pro Glu Pro Gln	Ile Gly Glu		
3365		3370		3375		
tca cag	tgg aat gag gca	gat	gct aca gtc gcc ggc	ggg aga gtg		19755
Ser Gln	Trp Asn Glu Ala	Asp	Ala Thr Val Ala Gly	Gly Arg Val		
3380		3385		3390		
cta aag	aaa tct act ccc	atg	aaa cca tgc tat ggt	tcc tat gca		19800
Leu Lys	Lys Ser Thr Pro	Met	Lys Pro Cys Tyr Gly	Ser Tyr Ala		
3395		3400		3405		
aga ccc	aca aat gct aat	gga	ggg cag ggt gta cta	acg gca aat		19845
Arg Pro	Thr Asn Ala Asn	Gly	Gly Gln Gly Val Leu	Thr Ala Asn		
3410		3415		3420		

gcc cag gga cag cta gaa tct	cag gtt gaa atg caa	ttc ttt tca	19890
Ala Gln Gly Gln Leu Glu Ser	Gln Val Glu Met Gln	Phe Phe Ser	
3425	3430	3435	
act tct gaa aac gcc cgt aac	gag act aac aac att	cag ccc aaa	19935
Thr Ser Glu Asn Ala Arg Asn	Glu Thr Asn Asn Ile	Gln Pro Lys	
3440	3445	3450	
ttg gtg ctg tat agt gag gat	gtg cac atg gag acc	ccg gat acg	19980
Leu Val Leu Tyr Ser Glu Asp	Val His Met Glu Thr	Pro Asp Thr	
3455	3460	3465	
cac ctt tct tac aag ccc gca	aaa agc gat gac aat	tca aaa atc	20025
His Leu Ser Tyr Lys Pro Ala	Lys Ser Asp Asp Asn	Ser Lys Ile	
3470	3475	3480	
atg ctg ggt cag cag tcc atg	ccc aac aga cct aat	tac atc ggc	20070
Met Leu Gly Gln Gln Ser Met	Pro Asn Arg Pro Asn	Tyr Ile Gly	
3485	3490	3495	
ttc aga gat aac ttt atc ggc	ctc atg tat tac aat	agc act ggc	20115
Phe Arg Asp Asn Phe Ile Gly	Leu Met Tyr Tyr Asn	Ser Thr Gly	
3500	3505	3510	
aac atg gga gtg ctt gca ggt	cag gcc tct cag ttg	aat gca gtg	20160
Asn Met Gly Val Leu Ala Gly	Gln Ala Ser Gln Leu	Asn Ala Val	
3515	3520	3525	
gtg gac ttg caa gac aga aac	aca gaa ctg tcc tac	cag ctc ttg	20205
Val Asp Leu Gln Asp Arg Asn	Thr Glu Leu Ser Tyr	Gln Leu Leu	
3530	3535	3540	
ctt gat tcc atg ggt gac aga	acc aga tac ttt tcc	atg tgg aat	20250
Leu Asp Ser Met Gly Asp Arg	Thr Arg Tyr Phe Ser	Met Trp Asn	
3545	3550	3555	
cag gca gtg gac agt tat gac	cca gat gtt aga att	att gaa aat	20295
Gln Ala Val Asp Ser Tyr Asp	Pro Asp Val Arg Ile	Ile Glu Asn	
3560	3565	3570	
cat gga act gaa gac gag ctc	ccc aac tat tgt ttc	cct ctg ggt	20340
His Gly Thr Glu Asp Glu Leu	Pro Asn Tyr Cys Phe	Pro Leu Gly	
3575	3580	3585	
ggc ata ggg gta act gac act	tac cag gct gtt aaa	acc aac aat	20385
Gly Ile Gly Val Thr Asp Thr	Tyr Gln Ala Val Lys	Thr Asn Asn	
3590	3595	3600	
ggc aat aac ggg ggc cag gtg	act tgg aca aaa gat	gaa act ttt	20430
Gly Asn Asn Gly Gly Gln Val	Thr Trp Thr Lys Asp	Glu Thr Phe	
3605	3610	3615	
gca gat cgc aat gaa ata ggg	gtg gga aac aat ttc	gct atg gag	20475
Ala Asp Arg Asn Glu Ile Gly	Val Gly Asn Asn Phe	Ala Met Glu	
3620	3625	3630	
ata aac ctc agt gcc aac ctg	tgg aga aac ttc ctg	tac tcc aac	20520
Ile Asn Leu Ser Ala Asn Leu	Trp Arg Asn Phe Leu	Tyr Ser Asn	

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3635		3640		3645	
gtg gcg ctg tac cta cca gac	aag ctt aag tac aac	ccc tcc aat	20565		
Val Ala Leu Tyr Leu Pro Asp	Lys Leu Lys Tyr Asn	Pro Ser Asn			
3650	3655	3660			
gtg gac atc tct gac aac ccc	aac acc tac gat tac	atg aac aag	20610		
Val Asp Ile Ser Asp Asn Pro	Asn Thr Tyr Asp Tyr	Met Asn Lys			
3665	3670	3675			
cga gtg gtg gcc ccg ggg ctg	gtg gac tgc tac atc	aac ctg ggc	20655		
Arg Val Val Ala Pro Gly Leu	Val Asp Cys Tyr Ile	Asn Leu Gly			
3680	3685	3690			
gcg cgc tgg tcg ctg gac tac	atg gac aac gtc aac	ccc ttc aac	20700		
Ala Arg Trp Ser Leu Asp Tyr	Met Asp Asn Val Asn	Pro Phe Asn			
3695	3700	3705			
cac cac cgc aat gcg ggc ctg	cgc tac cgc tcc atg	ctc ctg ggc	20745		
His His Arg Asn Ala Gly Leu	Arg Tyr Arg Ser Met	Leu Leu Gly			
3710	3715	3720			
aac ggg cgc tac gtg ccc ttc	cac atc cag gtg ccc	cag aag ttc	20790		
Asn Gly Arg Tyr Val Pro Phe	His Ile Gln Val Pro	Gln Lys Phe			
3725	3730	3735			
ttt gcc atc aag aac ctc ctc	ctc ctg ccg ggc tcc	tac acc tac	20835		
Phe Ala Ile Lys Asn Leu Leu	Leu Leu Pro Gly Ser	Tyr Thr Tyr			
3740	3745	3750			
gag tgg aac ttc agg aag gat	gtc aac atg gtc ctc	cag agc tct	20880		
Glu Trp Asn Phe Arg Lys Asp	Val Asn Met Val Leu	Gln Ser Ser			
3755	3760	3765			
ctg ggt aac gat ctc agg gtg	gac ggg gcc agc atc	aag ttc gag	20925		
Leu Gly Asn Asp Leu Arg Val	Asp Gly Ala Ser Ile	Lys Phe Glu			
3770	3775	3780			
agc atc tgc ctc tac gcc acc	ttc ttc ccc atg gcc	cac aac acg	20970		
Ser Ile Cys Leu Tyr Ala Thr	Phe Phe Pro Met Ala	His Asn Thr			
3785	3790	3795			
gcc tcc acg ctc gag gcc atg	ctc agg aac gac acc	aac gac cag	21015		
Ala Ser Thr Leu Glu Ala Met	Leu Arg Asn Asp Thr	Asn Asp Gln			
3800	3805	3810			
tcc ttc aat gac tac ctc tcc	gcc gcc aac atg ctc	tac ccc ata	21060		
Ser Phe Asn Asp Tyr Leu Ser	Ala Ala Asn Met Leu	Tyr Pro Ile			
3815	3820	3825			
ccc gcc aac gcc acc aac gtc	ccc atc tcc atc ccc	tcg cgc aac	21105		
Pro Ala Asn Ala Thr Asn Val	Pro Ile Ser Ile Pro	Ser Arg Asn			
3830	3835	3840			
tgg gcg gcc ttc cgc ggc tgg	gcc ttc acc cgc ctc	aag acc aag	21150		
Trp Ala Ala Phe Arg Gly Trp	Ala Phe Thr Arg Leu	Lys Thr Lys			
3845	3850	3855			
gag acc ccc tcc ctg ggc tcg	gga ttc gac ccc tac	tac acc tac	21195		

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Glu Thr 3860	Pro Ser Leu Gly 3865	Gly Phe Asp Pro Tyr 3870	Tyr Thr Tyr	
tcg ggc Ser Gly 3875	tcc att ccc tac ctg Ser Ile Pro Tyr 3880	gac ggc acc ttc tac Asp Gly Thr Phe Tyr 3885	ctc aac cac Leu Asn His	21240
act ttc Thr Phe 3890	aag aag gtc tcg gtc Lys Lys Val Ser Val 3895	acc ttc gac tcc tcg Thr Phe Asp Ser Ser 3900	gtc agc tgg Val Ser Trp	21285
ccg ggc Pro Gly 3905	aac gac cgt ctg ctc Asn Asp Arg Leu Leu 3910	acc ccc aac gag ttc Thr Pro Asn Glu Phe 3915	gag atc aag Glu Ile Lys	21330
cgc tcg Arg Ser 3920	gtc gac ggg gag ggc Val Asp Gly Glu Gly 3925	tac aac gtg gcc cag Tyr Asn Val Ala Gln 3930	tgc aac atg Cys Asn Met	21375
acc aag Thr Lys 3935	gac tgg ttc ctg gtc Asp Trp Phe Leu Val 3940	cag atg ctg gcc aac Gln Met Leu Ala Asn 3945	tac aac atc Tyr Asn Ile	21420
ggc tac Gly Tyr 3950	cag ggc ttc tac atc Gln Gly Phe Tyr Ile 3955	cca gag agc tac aag Pro Glu Ser Tyr Lys 3960	gac agg atg Asp Arg Met	21465
tac tcc Tyr Ser 3965	ttc ttc agg aac ttc Phe Phe Arg Asn Phe 3970	cag ccc atg agc cgg Gln Pro Met Ser Arg 3975	cag gtg gtg Gln Val Val	21510
gac cag Asp Gln 3980	acc aag tac aag gac Thr Lys Tyr Lys Asp 3985	tac cag gag gtg ggc Tyr Gln Glu Val Gly 3990	atc atc cac Ile Ile His	21555
cag cac Gln His 3995	aac aac tcg ggc ttc Asn Asn Ser Gly Phe 4000	gtg ggc tac ctc gcc Val Gly Tyr Leu Ala 4005	ccc acc atg Pro Thr Met	21600
cgc gag Arg Glu 4010	gga cag gcc tac ccc Gly Gln Ala Tyr Pro 4015	gcc aac ttc ccc tat Ala Asn Phe Pro Tyr 4020	ccg ctc ata Pro Leu Ile	21645
ggc aag Gly Lys 4025	acc gcg gtc gac agc Thr Ala Val Asp Ser 4030	atc acc cag aaa aag Ile Thr Gln Lys Lys 4035	ttc ctc tgc Phe Leu Cys	21690
gac cgc Asp Arg 4040	acc ctc tgg cgc atc Thr Leu Trp Arg Ile 4045	ccc ttc tcc agc aac Pro Phe Ser Ser Asn 4050	ttc atg tcc Phe Met Ser	21735
atg ggt Met Gly 4055	gcg ctc tcg gac ctg Ala Leu Ser Asp Leu 4060	ggc cag aac ttg ctc Gly Gln Asn Leu Leu 4065	tac gcc aac Tyr Ala Asn	21780
tcc gcc Ser Ala 4070	cac gcc ctc gac atg His Ala Leu Asp Met 4075	acc ttc gag gtc gac Thr Phe Glu Val Asp 4080	ccc atg gac Pro Met Asp	21825

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gag ccc acc ctt ctc tat gtt	ctg ttc gaa gtc ttt gac gtg gtc	21870
Glu Pro Thr Leu Leu Tyr Val	Leu Phe Glu Val Phe Asp Val Val	
4085	4090 4095	
cgg gtc cac cag ccg cac cgc	ggc gtc atc gag acc gtg tac ctg	21915
Arg Val His Gln Pro His Arg	Gly Val Ile Glu Thr Val Tyr Leu	
4100	4105 4110	
cgt acg ccc ttc tcg gcc ggc	aac gcc acc acc taaagaagca	21958
Arg Thr Pro Phe Ser Ala Gly	Asn Ala Thr Thr	
4115	4120	
agccgcagtc atcgccgcct gc atg	ccg tcg ggt tcc acc gag caa gag	22007
	Met Pro Ser Gly Ser Thr Glu Gln Glu	
	4125 4130	
ctc agg gcc atc gtc aga gac	ctg gga tgc ggg ccc tat ttt ttg	22052
Leu Arg Ala Ile Val Arg Asp	Leu Gly Cys Gly Pro Tyr Phe Leu	
4135	4140 4145	
ggc acc ttc gac aag cgc ttc	cct ggc ttt gtc tcc cca cac aag	22097
Gly Thr Phe Asp Lys Arg Phe	Pro Gly Phe Val Ser Pro His Lys	
4150	4155 4160	
ctg gcc tgc gcc atc gtc aac	acg gcc ggc cgc gag acc ggg ggc	22142
Leu Ala Cys Ala Ile Val Asn	Thr Ala Gly Arg Glu Thr Gly Gly	
4165	4170 4175	
gtg cac tgg ctg gcc ttc gcc	tgg aac ccg cgc tcc aaa aca tgc	22187
Val His Trp Leu Ala Phe Ala	Trp Asn Pro Arg Ser Lys Thr Cys	
4180	4185 4190	
ttc ctc ttt gac ccc ttc ggc	ttt tcg gac cag cgg ctc aag caa	22232
Phe Leu Phe Asp Pro Phe Gly	Phe Ser Asp Gln Arg Leu Lys Gln	
4195	4200 4205	
atc tac gag ttc gag tac gag	ggc ttg ctg cgt cgc agc gcc atc	22277
Ile Tyr Glu Phe Glu Tyr Glu	Gly Leu Leu Arg Arg Ser Ala Ile	
4210	4215 4220	
gcc tcc tcg ccc gac cgc tgc	gtc acc ctc gaa aag tcc acc cag	22322
Ala Ser Ser Pro Asp Arg Cys	Val Thr Leu Glu Lys Ser Thr Gln	
4225	4230 4235	
acc gtg cag ggg ccc gac tcg	gcc gcc tgc ggt ctc ttc tgc tgc	22367
Thr Val Gln Gly Pro Asp Ser	Ala Ala Cys Gly Leu Phe Cys Cys	
4240	4245 4250	
atg ttt ctg cac gcc ttt gtg	cac tgg cct cag agt ccc atg gac	22412
Met Phe Leu His Ala Phe Val	His Trp Pro Gln Ser Pro Met Asp	
4255	4260 4265	
cgc aac ccc acc atg aac ttg	ctg acg ggg gtg ccc aac tcc atg	22457
Arg Asn Pro Thr Met Asn Leu	Leu Thr Gly Val Pro Asn Ser Met	
4270	4275 4280	
ctc cag agc ccc cag gtc gag	ccc acc ctg cgc cgc aac cag gag	22502
Leu Gln Ser Pro Gln Val Glu	Pro Thr Leu Arg Arg Asn Gln Glu	
4285	4290 4295	

cag ctc	tac agc ttc ctg gag	cgc cac tcg ccc tac	ttc cgc cgc	22547
Gln Leu	Tyr Ser Phe Leu Glu	Arg His Ser Pro Tyr	Phe Arg Arg	
4300	4305	4310		
cac agc	gca cag atc agg agg	gcc acc tcc ttc tgc	cac ttg caa	22592
His Ser	Ala Gln Ile Arg Arg	Ala Thr Ser Phe Cys	His Leu Gln	
4315	4320	4325		
gag atg caa gaa ggg taataacgat gtacacactt tttttctcaa taaatggcat				22647
Glu Met	Gln Glu Gly			
4330				
ttttttatatt atacaagctc tctgggggtat tcattttccca ccaccaccac ccgccgttgt				22707
cgccatctgg ctctatttag aaatcgaaag ggttctgccg ggagtcgccg tgcgccacgg				22767
gcagggacac gttgcgatac tggtagcggg tgccccactt gaactcgggc accaccaggc				22827
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cacaggactt gcccgagaac tggtttgccg ggcagctggc gtcgtgcagg cagcagcgcg				23307
cgtcgggtgtt ggcgatctgc accacgttgc gccccaccg gttcttcacg atcttggcct				23367
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catgttcctt gttcaccatg ctgctgccgt gcagacactt cagctcgccc tccgtctcgg				23487
tgcagcgggtg ctgccacagc gcgcagcccg tgggctcgaa agacttgtag gtcacctccg				23547
cgaaggactg caggtacccc tgcaaaaagc ggcccatcat ggtcacgaag gtcttggtgc				23607
tgctgaagggt cagctgcagc ccgcgggtgct cctcgttcag ccaggtcttg cacacggccg				23667
ccagcgcctc cacctggtcg ggcagcatct tgaagttcac cttcagctca ttctccacgt				23727
ggtacttgtc catcagcgtg cgcgcgcct ccatgccctt ctcccaggcc gacaccagcg				23787
gcaggctcac ggggttcttc accatcaccg tggccgccgc ctccgccgcg ctttcgcttt				23847
ccgccccgct gttctcttcc tcttcctcct cttcctcgcc gccgccact cgcagcccc				23907
gcaccacggg gtcgtcttcc tgcaggcgt gtaccttgcg cttgccgttg cgccctgct				23967
tgatgcgcac gggcgggttg ctgaagccca ccatcaccag cgcggcctct tcttgctcgt				24027

cctcgctgtc	cagaatgacc	tccggggagg	gggggttggt	catcctcagt	accgaggcac	24087
gctttttttt	cttcctgggg	gcgttcgcca	gctccgcggc	tgcggccgct	gccgaggtcg	24147
aaggccgagg	gctgggcgtg	cgcggcacca	gcgcgtcctg	cgagccgtcc	tcgtcctcct	24207
cggactcgag	acggaggcgg	gcccgtttct	tcgggggcgc	gcggggcggc	ggaggcggcg	24267
gcggcgacgg	agacggggac	gagacatcgt	ccaggggtggg	tggacggcgg	gccgcgccgc	24327
gtccgcgctc	gggggttggtc	tcgcgctggt	cctcttccccg	actggccatc	tcccactgct	24387
cctttctcta	taggcagaaa	gagatc	atg	gag	tct ctc atg cga gtc gag	24437
			Met	Glu	Ser Leu Met Arg Val Glu	
			4335		4340	
aag gag gag gac	agc cta acc gcc	ccc	tct gag	ccc tcc acc	acc	24482
Lys Glu Glu Asp	Ser Leu Thr Ala	Pro	Ser Glu Pro Ser	Thr Thr		
	4345	4350		4355		
gcc gcc acc acc	gcc aat gcc gcc	gcg	gac gac gcg	ccc acc	gag	24527
Ala Ala Thr Thr	Ala Asn Ala Ala	Ala	Asp Asp Ala Pro	Thr Glu		
	4360	4365		4370		
acc acc gcc agt	acc acc ctc ccc	agc	gac gca ccc	ccg ctc	gag	24572
Thr Thr Ala Ser	Thr Thr Leu Pro	Ser	Asp Ala Pro Pro	Leu Glu		
	4375	4380		4385		
aat gaa gtg ctg	atc gag cag gac	ccg	ggt ttt gtg	agc gga	gag	24617
Asn Glu Val Leu	Ile Glu Gln Asp	Pro	Gly Phe Val Ser	Gly Glu		
	4390	4395		4400		
gag gat gag gtg	gat gag aag gag	aag	gag gag gtc	gcc gcc	tca	24662
Glu Asp Glu Val	Asp Glu Lys Glu	Lys	Glu Glu Val Ala	Ala Ser		
	4405	4410		4415		
gtg cca aaa gag	gat aaa aag caa	gac	cag gac gac	gca gat	aag	24707
Val Pro Lys Glu	Asp Lys Lys Gln	Asp	Gln Asp Asp Ala	Asp Lys		
	4420	4425		4430		
gat gag aca gca	gtc ggg cgg ggg	aac	gga agc cat	gat gct	gat	24752
Asp Glu Thr Ala	Val Gly Arg Gly	Asn	Gly Ser His Asp	Ala Asp		
	4435	4440		4445		
gac ggc tac cta	gac gtg gga gac	gac	gtg ctg ctt	aag cac	ctg	24797
Asp Gly Tyr Leu	Asp Val Gly Asp	Asp	Val Leu Leu Lys	His Leu		
	4450	4455		4460		
cac cgc cag tgc	gtc atc gtc tgc	gac	gcg ctg cag	gag cgc	tgc	24842
His Arg Gln Cys	Val Ile Val Cys	Asp	Ala Leu Gln Glu	Arg Cys		
	4465	4470		4475		
gaa gtg ccc ctg	gac gtg gcg gag	gtc	agc cgc gcc	tac gag	cgg	24887
Glu Val Pro Leu	Asp Val Ala Glu	Val	Ser Arg Ala Tyr	Glu Arg		
	4480	4485		4490		
cac ctc ttc gcg	ccg cac gtg ccc	ccc	aag cgc cgg	gag aac	ggc	24932
His Leu Phe Ala	Pro His Val Pro	Pro	Lys Arg Arg Glu	Asn Gly		
	4495	4500		4505		

acc tgc gag ccc	aac ccg cgt ctc aac	ttc tac ccg gtc ttc	gcg	24977
Thr Cys Glu Pro	Asn Pro Arg Leu Asn	Phe Tyr Pro Val Phe	Ala	
4510	4515	4520		
gta ccc gag gtg	ctg gcc acc tac cac	atc ttt ttc caa aac	tgc	25022
Val Pro Glu Val	Leu Ala Thr Tyr His	Ile Phe Phe Gln Asn	Cys	
4525	4530	4535		
aag atc ccc ctc	tcc tgc cgc gct aac	cgc acc cgc gcc gac	aaa	25067
Lys Ile Pro Leu	Ser Cys Arg Ala Asn	Arg Thr Arg Ala Asp	Lys	
4540	4545	4550		
acc ctg acc ctg	cgg cag ggc gcc cac	ata cct gat att gcc	tct	25112
Thr Leu Thr Leu	Arg Gln Gly Ala His	Ile Pro Asp Ile Ala	Ser	
4555	4560	4565		
ctg gag gaa gtg	ccc aag atc ttc gag	ggg ctc ggt cgc gac	gag	25157
Leu Glu Glu Val	Pro Lys Ile Phe Glu	Gly Leu Gly Arg Asp	Glu	
4570	4575	4580		
aaa cgg gcg gcg	aac gct ctg cac gga	gac agc gaa aac gag	agt	25202
Lys Arg Ala Ala	Asn Ala Leu His Gly	Asp Ser Glu Asn Glu	Ser	
4585	4590	4595		
cac tcg ggg gtg	ctg gtg gag ctc gag	ggc gac aac gcg cgc	ctg	25247
His Ser Gly Val	Leu Val Glu Leu Glu	Gly Asp Asn Ala Arg	Leu	
4600	4605	4610		
gcc gta ctc aag	cgc agc ata gag gtc	acc cac ttt gcc tac	ccg	25292
Ala Val Leu Lys	Arg Ser Ile Glu Val	Thr His Phe Ala Tyr	Pro	
4615	4620	4625		
gcg ctc aac ctg	ccc ccc aag gtc atg	agt gtg gtc atg ggc	gag	25337
Ala Leu Asn Leu	Pro Pro Lys Val Met	Ser Val Val Met Gly	Glu	
4630	4635	4640		
ctc atc atg cgc	cgc gcc cag ccc ctg	gcc gcg gat gca aac	ttg	25382
Leu Ile Met Arg	Arg Ala Gln Pro Leu	Ala Ala Asp Ala Asn	Leu	
4645	4650	4655		
caa gag tcc tca	gag gaa ggc ctg ccc	gcg gtc agc gac gag	cag	25427
Gln Glu Ser Ser	Glu Glu Gly Leu Pro	Ala Val Ser Asp Glu	Gln	
4660	4665	4670		
ctg gcg cgc tgg	ctg gaa acc cgc gac	ccc gcg cag ctg gag	gag	25472
Leu Ala Arg Trp	Leu Glu Thr Arg Asp	Pro Ala Gln Leu Glu	Glu	
4675	4680	4685		
cgg cgc aag ctc	atg atg gcc gcg gtg	ctg gtc acc gtg gag	ctc	25517
Arg Arg Lys Leu	Met Met Ala Ala Val	Leu Val Thr Val Glu	Leu	
4690	4695	4700		
gag tgt ctg cag	cgc ttc ttc gcg gac	ccc gag atg cag cgc	aag	25562
Glu Cys Leu Gln	Arg Phe Phe Ala Asp	Pro Glu Met Gln Arg	Lys	
4705	4710	4715		
ctc gag gag acc	ctg cac tac acc ttc	cgc cag ggc tac gtg	cgc	25607
Leu Glu Glu Thr	Leu His Tyr Thr Phe	Arg Gln Gly Tyr Val	Arg	

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4720	4725	4730	
cag gcc tgc aag atc tcc aac gtg gag	ctc tgc aac ctg gtc tcc		25652
Gln Ala Cys Lys Ile Ser Asn Val Glu	Leu Cys Asn Leu Val Ser		
4735	4740	4745	
tac ctg ggc atc ctg cac gag aac cgc	ctc ggg cag aac gtc ctg		25697
Tyr Leu Gly Ile Leu His Glu Asn Arg	Leu Gly Gln Asn Val Leu		
4750	4755	4760	
cac tcc acc ctc aaa ggg gag gcg cgc	cgc gac tac atc cgc gac		25742
His Ser Thr Leu Lys Gly Glu Ala Arg	Arg Asp Tyr Ile Arg Asp		
4765	4770	4775	
tgc gcc tac ctc ttc ctc tgc tac acc	tgg cag acg gcc atg ggg		25787
Cys Ala Tyr Leu Phe Leu Cys Tyr Thr	Trp Gln Thr Ala Met Gly		
4780	4785	4790	
gtc tgg cag cag tgc ctg gag gag cgc	aac ctc aag gag ctg gaa		25832
Val Trp Gln Gln Cys Leu Glu Glu Arg	Asn Leu Lys Glu Leu Glu		
4795	4800	4805	
aag ctc ctc aag cgc acc ctc agg gac	ctc tgg acg ggc ttc aac		25877
Lys Leu Leu Lys Arg Thr Leu Arg Asp	Leu Trp Thr Gly Phe Asn		
4810	4815	4820	
gag cgc tcg gtg gcc gcc gcg ctg gcg	gac atc atc ttc ccc gag		25922
Glu Arg Ser Val Ala Ala Ala Leu Ala	Asp Ile Ile Phe Pro Glu		
4825	4830	4835	
cgc ttg ctc aag acc ctg cag cag ggc	ctg cca gac ttc acc agc		25967
Arg Leu Leu Lys Thr Leu Gln Gln Gly	Leu Pro Asp Phe Thr Ser		
4840	4845	4850	
cag agc atg ctg cag aac ttc agg act	ttc atc ctg gag cgc tcg		26012
Gln Ser Met Leu Gln Asn Phe Arg Thr	Phe Ile Leu Glu Arg Ser		
4855	4860	4865	
ggc atc ctg ccg gcc act tgc tgc gcg	ctg ccc agc gac ttc gtg		26057
Gly Ile Leu Pro Ala Thr Cys Cys Ala	Leu Pro Ser Asp Phe Val		
4870	4875	4880	
ccc atc aag tac agg gag tgc ccg ccg	ccg ctc tgg ggc cac tgc		26102
Pro Ile Lys Tyr Arg Glu Cys Pro Pro	Pro Leu Trp Gly His Cys		
4885	4890	4895	
tac ctc ttc cag ctg gcc aac tac ctc	gcc tac cac tcg gac ctc		26147
Tyr Leu Phe Gln Leu Ala Asn Tyr Leu	Ala Tyr His Ser Asp Leu		
4900	4905	4910	
atg gaa gac gtg agc ggc gag ggc ctg	ctc gag tgc cac tgc cgc		26192
Met Glu Asp Val Ser Gly Glu Gly Leu	Leu Glu Cys His Cys Arg		
4915	4920	4925	
tgc aac ctc tgc acg ccc cac cgc tct	cta gtc tgc aac ccg cag		26237
Cys Asn Leu Cys Thr Pro His Arg Ser	Leu Val Cys Asn Pro Gln		
4930	4935	4940	
ctg ctc agc gag agt cag att atc ggt	acc ttc gag ctg cag ggt		26282

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Leu	Leu	Ser	Glu	Ser	Gln	Ile	Ile	Gly	Thr	Phe	Glu	Leu	Gln	Gly	
			4945					4950					4955		
ccc	tcg	cct	gac	gag	aag	tcc	gcg	gct	ccg	ggg	ctg	aaa	ctc	act	26327
Pro	Ser	Pro	Asp	Glu	Lys	Ser	Ala	Ala	Pro	Gly	Leu	Lys	Leu	Thr	
			4960					4965					4970		
ccg	ggg	cta	tgg	act	tcc	gcc	tac	cta	cgc	aaa	ttt	gta	cct	gag	26372
Pro	Gly	Leu	Trp	Thr	Ser	Ala	Tyr	Leu	Arg	Lys	Phe	Val	Pro	Glu	
			4975					4980					4985		
gac	tac	cac	gcc	cac	gag	atc	agg	ttc	tac	gaa	gac	caa	tcc	cgc	26417
Asp	Tyr	His	Ala	His	Glu	Ile	Arg	Phe	Tyr	Glu	Asp	Gln	Ser	Arg	
			4990					4995					5000		
ccg	ccc	aag	gcg	gag	ctc	acc	gcc	tgc	gtc	atc	acc	cag	ggg	cac	26462
Pro	Pro	Lys	Ala	Glu	Leu	Thr	Ala	Cys	Val	Ile	Thr	Gln	Gly	His	
			5005					5010					5015		
atc	ctg	ggc	caa	ttg	caa	gcc	atc	aac	aaa	gcc	cgc	cga	gag	ttc	26507
Ile	Leu	Gly	Gln	Leu	Gln	Ala	Ile	Asn	Lys	Ala	Arg	Arg	Glu	Phe	
			5020					5025					5030		
ttg	ctg	aaa	aag	ggc	cgg	ggg	gtg	tac	ctg	gac	ccc	cag	tcc	ggc	26552
Leu	Leu	Lys	Lys	Gly	Arg	Gly	Val	Tyr	Leu	Asp	Pro	Gln	Ser	Gly	
			5035					5040					5045		
gag	gag	cta	aac	ccg	cta	ccc	ccg	ccg	ccg	ccc	cag	cag	cgg	gac	26597
Glu	Glu	Leu	Asn	Pro	Leu	Pro	Pro	Pro	Pro	Pro	Gln	Gln	Arg	Asp	
			5050					5055					5060		
ctt	gct	tcc	cag	gat	ggc	acc	cag	aaa	gaa	gca	gca	gcc	gcc	gcc	26642
Leu	Ala	Ser	Gln	Asp	Gly	Thr	Gln	Lys	Glu	Ala	Ala	Ala	Ala	Ala	
			5065					5070					5075		
gca	gcc	ata	cat	gct	tct	gga	gga	aga	gga	gga	gga	ctg	gga	cag	26687
Ala	Ala	Ile	His	Ala	Ser	Gly	Gly	Arg	Gly	Gly	Gly	Leu	Gly	Gln	
			5080					5085					5090		
tca	ggc	aga	gga	ggc	ttc	gga	cga	gga	gca	gga	gga	gat	gat	gga	26732
Ser	Gly	Arg	Gly	Gly	Phe	Gly	Arg	Gly	Ala	Gly	Gly	Asp	Asp	Gly	
			5095					5100					5105		
aga	ctg	gga	gga	gga	cag	cag	cct	aga	cga	gga	agc	ttc	aga	ggc	26777
Arg	Leu	Gly	Gly	Gly	Gln	Gln	Pro	Arg	Arg	Gly	Ser	Phe	Arg	Gly	
			5110					5115					5120		
cga	aga	ggc	ggc	aga	cgc	aac	acc	atc	acc	ctc	ggc	cgc	agc	ccc	26822
Arg	Arg	Gly	Gly	Arg	Arg	Asn	Thr	Ile	Thr	Leu	Gly	Arg	Ser	Pro	
			5125					5130					5135		
ctc	gcc	ggg	gcc	cct	gaa	atc	ctc	cga	acc	cag	cac	cag	cgc	tat	26867
Leu	Ala	Gly	Ala	Pro	Glu	Ile	Leu	Arg	Thr	Gln	His	Gln	Arg	Tyr	
			5140					5145					5150		
aac	ctc	cgc	tcc	tcc	ggc	gcc	ggc	gcc	acc	cgc	ccg	cag	acc	caa	26912
Asn	Leu	Arg	Ser	Ser	Gly	Ala	Gly	Ala	Thr	Arg	Pro	Gln	Thr	Gln	
			5155					5160					5165		

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Pro	
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acgccatagt cgctgcttg caagactgcy ggggcaacat ctctttcgcc cgccgcttcc	27085
tgctattcca ccacggggtc gcctttcccc gcaatgtcct gcattactac cgtcatctct	27145
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cctaggaaga tatectccgc gggcaagaca gcggcagcag cggccaggag acccgcggcg	27265
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actacgtcat cgccggccgc cgcccagccc gccagccga g atg agc aaa gag	27618
Met Ser Lys Glu	5170
att ccc acg cca tac atg tgg agc tac cag ccg cag atg gga ctc	27663
Ile Pro Thr Pro Tyr Met Trp Ser Tyr Gln Pro Gln Met Gly Leu	5175 5180 5185
gcg gcg gga gcg gcc cag gac tac tcc acc cgc atg aac tac atg	27708
Ala Ala Gly Ala Ala Gln Asp Tyr Ser Thr Arg Met Asn Tyr Met	5190 5195 5200
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Ser Ala Gly Pro His Met Ile Ser Gln Val Asn Gly Ile Arg Ala	5205 5210 5215
cag cga aac caa ata ctg ctg gaa cag gcg gcc atc acc gcc acg	27798
Gln Arg Asn Gln Ile Leu Leu Glu Gln Ala Ala Ile Thr Ala Thr	5220 5225 5230
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Pro Arg His Asn Leu Asn Pro Arg Asn Trp Pro Ala Ala Leu Val	5235 5240 5245
tac cag gaa acc ccc tcc gcc acc acc gta cta ctt ccg cgt gac	27888
Tyr Gln Glu Thr Pro Ser Ala Thr Thr Val Leu Leu Pro Arg Asp	5250 5255 5260
gcc cag gcc gaa gtc cag atg act aac tca ggg gcg cag ctc gcg	27933
Ala Gln Ala Glu Val Gln Met Thr Asn Ser Gly Ala Gln Leu Ala	5265 5270 5275
ggc ggc ttt cgt cac ggg gcg cgg ccg ctc cga cca ggt ata aga	27978
Gly Gly Phe Arg His Gly Ala Arg Pro Leu Arg Pro Gly Ile Arg	5280 5285 5290

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His Leu Met Ile	Arg Gly Arg Gly Ile	Gln Leu Asn Asp Glu	Ser	
5295	5300	5305		
gtg agc tct tcg	ctc ggt ctc cgt ccg	gac gga act ttc cag	ctc	28068
Val Ser Ser Ser	Leu Gly Leu Arg Pro	Asp Gly Thr Phe Gln	Leu	
5310	5315	5320		
gcc gga tcc ggc	cgc tct tcg ttc acg	ccc cgc cag gcg tac	ctt	28113
Ala Gly Ser Gly	Arg Ser Ser Phe Thr	Pro Arg Gln Ala Tyr	Leu	
5325	5330	5335		
act ctg cag acc	tcg tcc tcg gag ccc	cgc tcc ggc ggc atc	gga	28158
Thr Leu Gln Thr	Ser Ser Ser Glu Pro	Arg Ser Gly Gly Ile	Gly	
5340	5345	5350		
acc ctc cag ttc	gtg gag gag ttc gtg	ccc tcg gtc tac ttc	aac	28203
Thr Leu Gln Phe	Val Glu Glu Phe Val	Pro Ser Val Tyr Phe	Asn	
5355	5360	5365		
ccc ttc tcg gga	cct ccc gga cgc tac	ccc gac cag ttc att	ccg	28248
Pro Phe Ser Gly	Pro Pro Gly Arg Tyr	Pro Asp Gln Phe Ile	Pro	
5370	5375	5380		
aac ttt gac gcg	gtg aag gac tcg gcg	gac ggc tac gac tga	atg	28293
Asn Phe Asp Ala	Val Lys Asp Ser Ala	Asp Gly Tyr Asp	Met	
5385	5390	5395		
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Ser Gly Ala Glu Ala	Glu Gln Leu Arg Leu	Arg His Leu Glu His		
5400	5405	5410		
tgc cgc cgc cac aag	tgc ttc gcc cgc ggt	tcc ggt gag ttc tgc		28383
Cys Arg Arg His Lys	Cys Phe Ala Arg Gly	Ser Gly Glu Phe Cys		
5415	5420	5425		
tac ttt cag cta ccc	gag gag cat acc gag	ggg ccg gcg cac ggc		28428
Tyr Phe Gln Leu Pro	Glu Glu His Thr Glu	Gly Pro Ala His Gly		
5430	5435	5440		
gtc cgc ctg acc acc	cag ggc gag gtt acc	tgt tcc ctc atc cgg		28473
Val Arg Leu Thr Thr	Gln Gly Glu Val Thr	Cys Ser Leu Ile Arg		
5445	5450	5455		
gag ttc acc ctc cgt	ccc ctg cta gtg gag	cgg gag cgg ggt ccc		28518
Glu Phe Thr Leu Arg	Pro Leu Leu Val Glu	Arg Glu Arg Gly Pro		
5460	5465	5470		
tgt gtc cta act atc	gcc tgc aac tgc cct	aac cct gga tta cat		28563
Cys Val Leu Thr Ile	Ala Cys Asn Cys Pro	Asn Pro Gly Leu His		
5475	5480	5485		
caa gat ctt tgc tgt	cat ctc tgt gct gag	ttt aat aaa cgc		28605
Gln Asp Leu Cys Cys	His Leu Cys Ala Glu	Phe Asn Lys Arg		
5490	5495			
tgagatcaga atctactggg	gctcctgtcg ccatacctgtg	aacgccaccg tcttcaccca		28665

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	Met Asn Arg Tyr Met
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Val Leu Ser Ile Leu Gly Leu Leu Ala Leu Ala Ala Cys Ser Ala	
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Ala Lys Lys Glu Ile Thr Phe Glu Glu Pro Ala Cys Asn Val Thr	
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Phe Lys Pro Glu Gly Asp Gln Cys Thr Thr Leu Val Lys Cys Val	
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Thr Asn His Glu Arg Leu Arg Ile Asp Tyr Lys Asn Lys Thr Gly	
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Arg Phe Ala Val Tyr Ser Val Phe Thr Pro Gly Asp Pro Ser Asn	
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tac tct gtc acc gtc ttc cag ggc gga cag tct aag ata ttc aat	29587
Tyr Ser Val Thr Val Phe Gln Gly Gly Gln Ser Lys Ile Phe Asn	
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Tyr Thr Phe Pro Phe Tyr Glu Leu Cys Asp Ala Val Met Tyr Met	
5595 5600 5605	
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Ser Lys Gln Tyr Asn Leu Trp Pro Pro Ser Pro Gln Ala Cys Val	
5610 5615 5620	
gaa aat act ggg tct tac tgc tgt atg gct ttc gca atc act acg	29722
Glu Asn Thr Gly Ser Tyr Cys Cys Met Ala Phe Ala Ile Thr Thr	
5625 5630 5635	

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ctc gct cta atc tgc acg gtg cta tat ata aaa ttc agg cag agg Leu Ala Leu Ile Cys Thr Val Leu Tyr Ile Lys Phe Arg Gln Arg 5640 5645 5650	29767
cga atc ttt atc gat gaa aag aaa atg cct tgatcgctaa caccggcttt Arg Ile Phe Ile Asp Glu Lys Lys Met Pro 5655 5660	29817
ctatctgcag a atg aat gca atc acc tcc cta cta atc acc acc acc Met Asn Ala Ile Thr Ser Leu Leu Ile Thr Thr Thr 5665 5670 5675	29864
ctc ctt gcg att gcc cat ggg ttg aca cga atc gaa gtg cca gtg Leu Leu Ala Ile Ala His Gly Leu Thr Arg Ile Glu Val Pro Val 5680 5685 5690	29909
ggg tcc aat gtc acc atg gtg ggc ccc gcc ggc aat tcc acc ctc Gly Ser Asn Val Thr Met Val Gly Pro Ala Gly Asn Ser Thr Leu 5695 5700 5705	29954
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ggc gcg acc tca gaa acc acc gag ctt tgc ttc tgc caa tgc act Gly Ala Thr Ser Glu Thr Thr Glu Leu Cys Phe Cys Gln Cys Thr 5830 5835 5840	30359
aac gcc agc gct cat gaa ctg ttc gac ctg gag aat gag gat gcc Asn Ala Ser Ala His Glu Leu Phe Asp Leu Glu Asn Glu Asp Ala	30404

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5845	5850	5855	
cag cag agc tcc gct tgc ctg acc cag gag gct gtg gag ccc gtt	Gln Gln Ser Ser Ala Cys Leu Thr Gln Glu Ala Val Glu Pro Val	30449	
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5875	5880	5885	
gcc act ccc gaa tac cct ccc gat tct act ttc cac atc acg ggt	Ala Thr Pro Glu Tyr Pro Pro Asp Ser Thr Phe His Ile Thr Gly	30539	
5890	5895	5900	
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5905	5910	5915	
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5920	5925	5930	
tgc ctg atc tgc cgc aga aag aga aaa gct cgc tct cag ggc caa	Cys Leu Ile Cys Arg Arg Lys Arg Lys Ala Arg Ser Gln Gly Gln	30674	
5935	5940	5945	
cca ctg atg ccc ttc ccc tac ccc ccg gat ttt gca gat aac aag	Pro Leu Met Pro Phe Pro Tyr Pro Pro Asp Phe Ala Asp Asn Lys	30719	
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Met Pro Arg Ile Phe Leu Tyr Met Phe	
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Leu Leu Pro Pro Phe Leu Gly Cys Ser Thr Leu Ala Ala Val Ser	
5975 5980 5985	
cac ctg gag gta gac tgc ctc tca ccc ttc act gtc tac ctg ctt	31692
His Leu Glu Val Asp Cys Leu Ser Pro Phe Thr Val Tyr Leu Leu	
5990 5995 6000	
tac gga ttg gtc acc ctc act ctc atc tgc agc cta atc aca gta	31737
Tyr Gly Leu Val Thr Leu Thr Leu Ile Cys Ser Leu Ile Thr Val	
6005 6010 6015	
atc atc gcc ttc atc cag tgc att gat tac atc tgt gtg cgc ctc	31782
Ile Ile Ala Phe Ile Gln Cys Ile Asp Tyr Ile Cys Val Arg Leu	
6020 6025 6030	
gca tac ttc aga cac cac ccg cag tac cga gac agg aac att gcc	31827
Ala Tyr Phe Arg His His Pro Gln Tyr Arg Asp Arg Asn Ile Ala	
6035 6040 6045	
caa ctt cta aga ctg ctc taatc atg cat aag act gtg atc tgc ctt	31874
Gln Leu Leu Arg Leu Leu Met His Lys Thr Val Ile Cys Leu	
6050 6055 6060	
ctg atc ctc tgc atc ctg ccc acc ctc acc tcc tgc cag tac acc	31919
Leu Ile Leu Cys Ile Leu Pro Thr Leu Thr Ser Cys Gln Tyr Thr	
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Thr Lys Ser Pro Arg Lys Arg His Ala Ser Cys Arg Phe Thr Gln	
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Leu Trp Asn Ile Pro Lys Cys Tyr Asn Glu Lys Ser Glu Leu Ser	
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Thr Val Phe Ala Leu Met Ile Tyr Pro Tyr Phe Asp Leu Gly Trp	
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Asn Ala Ile Asp Ala Met Asn Tyr Pro Thr Phe Pro Ala Pro Glu	
6140 6145 6150	
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Ile Ile Pro Leu Arg Gln Val Val Pro Val Val Val Asn Gln Arg	
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ccc cca tcc cct acg ccc act gaa atc agc tac ttt aac cta aca	32234
Pro Pro Ser Pro Thr Pro Thr Glu Ile Ser Tyr Phe Asn Leu Thr	

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Gly Gly Asp Asp			
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Met Lys Arg Thr Lys Thr Ser Asp Glu Ser Phe Asn Pro			
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Val Tyr Pro Tyr Asp Thr Glu Ser Gly Pro Pro Ser Val Pro Phe			
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Leu Thr Pro Pro Phe Val Ser Pro Asp Gly Phe Gln Glu Ser Pro			
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Pro Gly Val Leu Ser Leu Asn Leu Ala Glu Pro Leu Val Thr Ser			
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Asp Ala Gly Asn Leu Thr Ser Gln Asp Ile Thr Ser Thr Thr Pro			
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Pro Leu Lys Lys Thr Lys Thr Asn Leu Ser Leu Glu Thr Ser Ser			
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Pro Leu Thr Val Ser Thr Ser Gly Ala Leu Thr Val Ala Ala Ala			
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Ala Pro Leu Ala Val Ala Gly Thr Ser Leu Thr Met Gln Ser Glu			
6305	6310	6315	

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Gly Pro Leu	Thr Val Ser Glu	Gly	Lys Leu Ala Leu	Gln	Thr Ser	
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Thr Pro Pro	Ile Ser Val Ser	Ser	Gly Ser Leu Gly	Leu	Asp Met	
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Glu Asp Pro	Met Tyr Thr His	Asp	Gly Lys Leu Gly	Ile	Arg Ile	
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Gly Gly Pro	Leu Arg Val Val	Asp	Ser Leu His Thr	Leu	Thr Val	
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35 40 45

Gly Arg Val Arg Gly Pro Gly Pro Ser Gly Ser Gly Gly Glu Gly Thr
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Pro Ser Thr Ser Gly Val Asn Val Gly Gln Val Val Asp Leu Phe Pro
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Glu Leu Arg Arg Ile Leu Thr Ile Arg Glu Asp Gly Gln Phe Val Lys
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Asn Leu Ala Phe Ser Leu Met Thr Arg His Arg Pro Glu Cys Ile Thr
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Phe Gln Gln Ile Lys Asp Asn Cys Ala Asn Glu Leu Asp Leu Leu Gly
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Gln Lys Tyr Ser Ile Glu Gln Leu Thr Thr Tyr Trp Leu Gln Pro Gly
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Asp Asp Leu Glu Glu Ala Ile Arg Val Tyr Ala Lys Val Ala Leu Arg
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Pro Asp Cys Lys Tyr Lys Leu Lys Gly Leu Val Asn Ile Arg Asn Cys
195 200 205

Cys Tyr Ile Ser Gly Asn Gly Ala Glu Val Glu Ile Glu Thr Glu Asp
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Arg Val Ala Phe Arg Cys Ser Met Met Asn Met Trp Pro Gly Val Leu
225 230 235 240

Gly Met Asp Gly Val Val Ile Met Asn Val Arg Phe Thr Gly Pro Asn
245 250 255

Phe Asn Gly Thr Val Phe Leu Gly Asn Thr Asn Leu Val Leu His Gly
260 265 270

Val Ser Phe Tyr Gly Phe Asn Asn Thr Cys Val Glu Ala Trp Thr Asp
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Val Lys Val Arg Gly Cys Ala Phe Tyr Gly Cys Trp Lys Ala Ile Val
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Ser Arg Pro Lys Ser Arg Ser Ser Ile Lys Lys Cys Leu Phe Glu Arg
305 310 315 320

Cys Thr Leu Gly Ile Leu Ala Glu Gly Asn Cys Arg Val Arg His Asn
325 330 335

Val Ala Ser Glu Cys Gly Cys Phe Met Leu Val Lys Ser Val Ala Val
340 345 350

Ile Lys His Asn Met Val Cys Gly Asn Ser Glu Asp Lys Ala Ser Gln
355 360 365

Met Leu Thr Cys Thr Asp Gly Asn Cys His Leu Leu Lys Thr Ile His
370 375 380

Val Thr Ser His Ser Arg Lys Ala Trp Pro Val Phe Glu His Asn Leu
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Leu Thr Arg Cys Ser Leu His Leu Gly Asn Arg Arg Gly Val Phe Leu
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Pro Tyr Gln Cys Asn Phe Ser His Thr Lys Ile Leu Leu Glu Pro Glu
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Ser Met Ser Lys Val Asn Leu Asn Gly Val Phe Asp Met Thr Met Lys
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Ile Trp Lys Val Leu Arg Tyr Asp Glu Thr Arg Ser Arg Cys Arg Pro
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Cys Glu Cys Gly Gly Lys His Met Arg Asn Gln Pro Val Met Leu Asp
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Ala Asn Ser Ala Thr Leu Thr Tyr Ala Thr Val Ala Gly Thr Pro Leu
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Asp Ala Thr Ala Ala Ala Ala Ala Thr Ala Ala Ala Ser Ala Val Arg
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Ser Leu Ala Thr Asp Phe Ala Phe Leu Gly Pro Leu Ala Thr Gly Ala
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Thr Ser Arg Ala Ala Ala Ala Ala Val Arg Asp Asp Lys Leu Thr Ala
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Leu Leu Ala Gln Leu Asp Ala Leu Thr Arg Glu Leu Gly Asp Leu Ser
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Pro	Ser	Pro	Thr	Leu	Gly	Gly	Pro	Ala	Thr	Ser	Ala	Ser	Ala	Ala	Val	35	40	45
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Pro	Pro	Arg	Arg	Arg	Ala	Arg	His	Tyr	Leu	Asp	Leu	Glu	Glu	Gly	Glu	65	70	75
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Phe	Arg	Asp	Arg	Ala	Gly	Glu	Glu	Pro	Glu	Glu	Met	Arg	Asp	Arg	Arg	115	120	125
Phe	Ser	Ala	Gly	Arg	Glu	Leu	Arg	Gln	Gly	Leu	Asn	Arg	Glu	Arg	Leu	130	135	140
Leu	Arg	Glu	Glu	Asp	Phe	Glu	Pro	Asp	Ala	Arg	Thr	Gly	Ile	Ser	Pro	145	150	155
Ala	Arg	Ala	His	Val	Ala	Ala	Ala	Asp	Leu	Val	Thr	Ala	Tyr	Glu	Gln	165	170	175
Thr	Val	Asn	Gln	Glu	Ile	Asn	Phe	Gln	Lys	Ser	Phe	Asn	Asn	His	Val	180	185	190
Arg	Thr	Leu	Val	Ala	Arg	Glu	Glu	Val	Thr	Ile	Gly	Leu	Met	His	Leu	195	200	205
Trp	Asp	Phe	Val	Ser	Ala	Leu	Val	Gln	Asn	Pro	Asn	Ser	Lys	Pro	Leu	210	215	220
Thr	Ala	Gln	Leu	Phe	Leu	Ile	Val	Gln	His	Ser	Arg	Asp	Asn	Glu	Ala	225	230	235
Phe	Arg	Asp	Ala	Leu	Leu	Asn	Ile	Thr	Glu	Pro	Glu	Gly	Arg	Trp	Leu			

245						250						255			
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Leu	Gly 290	Lys	Phe	Tyr	Ala	Arg 295	Lys	Ile	Tyr	Gln	Thr 300	Pro	Tyr	Val	Pro
Ile 305	Asp	Lys	Glu	Val	Lys 310	Ile	Asp	Gly	Phe	Tyr 315	Met	Arg	Met	Ala	Leu 320
Lys	Val	Leu	Thr 325	Leu	Ser	Asp	Asp	Leu	Gly 330	Val	Tyr	Arg	Asn	Glu 335	Arg
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25

30

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Gln Pro Gln Ala Asn Arg Leu Ser Ala Ile Leu Glu Ala Val Val Pro
50 55 60

Ala Arg Ser Asn Pro Thr His Glu Lys Val Leu Ala Ile Val Asn Ala
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Thr Asn Leu Asp Arg Leu Val Gly Asp Val Arg Glu Ala Val Ala Gln
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130 135 140

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145 150 155 160

Asp Tyr Thr Asn Phe Val Ser Ala Leu Arg Leu Met Val Thr Glu Thr
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Val Ser Ser Leu Leu Thr Pro Asn Ser Arg Leu Leu Leu Leu Ile
225 230 235 240

Ala Pro Phe Thr Asp Ser Gly Ser Val Ser Arg Asp Thr Tyr Leu Gly
245 250 255

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His Leu Leu Thr Leu Tyr Arg Glu Ala Ile Gly Gln Ala Gln Val Asp
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Glu His Thr Phe Gln Glu Ile Thr Ser Val Ser Arg Ala Leu Gly Gln
275 280 285

Glu Asp Thr Ser Ser Leu Glu Ala Thr Leu Asn Tyr Leu Leu Thr Asn
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His Ser Glu Arg Thr Thr Arg Pro Arg Leu Leu Gly Glu Asp Glu Tyr
485 490 495

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Ala Phe Pro Asn Asn Gly Ile Glu Ser Leu Val Asp Lys Met Ser Arg
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Trp Lys Thr Tyr Ala Gln Glu His Arg Asp Ala Pro Ala Leu Arg Pro
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Ser Val Val Gly Ala Ala Ala Ala Ala Pro Ser Ser Pro Phe Ala Ser
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Gln Leu Leu Glu Pro Pro Tyr Val Pro Pro Arg Tyr Leu Arg Pro Thr
35 40 45

Gly Gly Arg Asn Ser Ile Arg Tyr Ser Glu Leu Ala Pro Leu Phe Asp
50 55 60

Thr Thr Arg Val Tyr Leu Val Asp Asn Lys Ser Ala Asp Val Ala Ser
65 70 75 80

Leu Asn Tyr Gln Asn Asp His Ser Asn Phe Leu Thr Thr Val Ile Gln
85 90 95

Asn Asn Asp Tyr Ser Pro Ser Glu Ala Ser Thr Gln Thr Ile Asn Leu
100 105 110

Asp Asp Arg Ser His Trp Gly Gly Asp Leu Lys Thr Ile Leu His Thr
115 120 125

Asn Met Pro Asn Val Asn Glu Phe Met Phe Thr Asn Lys Phe Lys Ala
130 135 140

Arg Val Met Val Ser Arg Ser His Thr Lys Glu Asp Arg Val Glu Leu
145 150 155 160

Lys Tyr Glu Trp Val Glu Phe Glu Leu Pro Glu Gly Asn Tyr Ser Glu
165 170 175

Thr Met Thr Ile Asp Leu Met Asn Asn Ala Ile Val Glu His Tyr Leu
180 185 190

Lys Val Gly Arg Gln Asn Gly Val Leu Glu Ser Asp Ile Gly Val Lys
195 200 205

Phe Asp Thr Arg Asn Phe Arg Leu Gly Leu Asp Pro Val Thr Gly Leu
210 215 220

Val Met Pro Gly Val Tyr Thr Asn Glu Ala Phe His Pro Asp Ile Ile
225 230 235 240

Leu Leu Pro Gly Cys Gly Val Asp Phe Thr Tyr Ser Arg Leu Ser Asn
245 250 255

Leu Leu Gly Ile Arg Lys Arg Gln Pro Phe Gln Glu Gly Phe Arg Ile
260 265 270

Thr Tyr Glu Asp Leu Glu Gly Gly Asn Ile Pro Ala Leu Leu Asp Val
275 280 285

Glu Ala Tyr Gln Asp Ser Leu Lys Glu Asn Glu Ala Gly Gln Glu Asp
290 295 300

Thr Ala Pro Ala Ala Ser Ala Ala Ala Glu Gln Gly Glu Asp Ala Ala
305 310 315 320

Asp Thr Ala Ala Ala Asp Gly Ala Glu Ala Asp Pro Ala Met Val Val
325 330 335

Glu Ala Pro Glu Gln Glu Glu Asp Met Asn Asp Ser Ala Val Arg Gly
340 345 350

Asp Thr Phe Val Thr Arg Gly Glu Glu Lys Gln Ala Glu Ala Glu Ala
355 360 365

Ala Ala Glu Glu Lys Gln Leu Ala Ala Ala Ala Ala Ala Ala Ala Leu
370 375 380

Ala Ala Ala Glu Ala Glu Ser Glu Gly Thr Lys Pro Ala Lys Glu Pro
385 390 395 400

Val Ile Lys Pro Leu Thr Glu Asp Ser Lys Lys Arg Ser Tyr Asn Leu
405 410 415

Leu Lys Asp Ser Thr Asn Thr Ala Tyr Arg Ser Trp Tyr Leu Ala Tyr
420 425 430

Asn Tyr Gly Asp Pro Ser Thr Gly Val Arg Ser Trp Thr Leu Leu Cys
435 440 445

Thr Pro Asp Val Thr Cys Gly Ser Glu Gln Val Tyr Trp Ser Leu Pro
450 455 460

Asp Met Met Gln Asp Pro Val Thr Phe Arg Ser Thr Arg Gln Val Ser
465 470 475 480

Asn Phe Pro Val Val Gly Ala Glu Leu Leu Pro Val His Ser Lys Ser
485 490 495

Phe Tyr Asn Asp Gln Ala Val Tyr Ser Gln Leu Ile Arg Gln Phe Thr
500 505 510

Ser Leu Thr His Val Phe Asn Arg Phe Pro Glu Asn Gln Ile Leu Ala
515 520 525

Arg Pro Pro Ala Pro Thr Ile Thr Thr Val Ser Glu Asn Val Pro Ala
530 535 540

Leu Thr Asp His Gly Thr Leu Pro Leu Arg Asn Ser Ile Gly Gly Val
545 550 555 560

Gln Arg Val Thr Val Thr Asp Ala Arg Arg Arg Thr Cys Pro Tyr Val
565 570 575

Tyr Lys Ala Leu Gly Ile Val Ser Pro Arg Val Leu Ser Ser Arg Thr

580

585

590

Phe

<210> 7

<211> 198

<212> PRT

<213> Simian adenovirus 40

<400> 7

Met Ser Ile Leu Ile Ser Pro Ser Asn Asn Ser Gly Trp Gly Leu Leu
 1 5 10 15

Arg Ala Pro Ser Lys Met Phe Gly Gly Ala Arg Lys Arg Ser Glu Gln
 20 25 30

His Pro Val Arg Val Arg Gly His Phe Arg Ala Pro Trp Gly Ala His
 35 40 45

Lys Arg Gly Arg Ala Gly Arg Thr Thr Val Asp Asp Ala Ile Asp Ser
 50 55 60

Val Val Glu Gln Ala Arg Asn Tyr Arg Pro Ala Val Ser Thr Val Asp
 65 70 75 80

Ala Ala Ile Gln Thr Val Val Arg Gly Ala Arg Arg Tyr Ala Lys Leu
 85 90 95

Lys Ser Arg Arg Lys Arg Val Ala Arg Arg His Arg Arg Arg Pro Gly
 100 105 110

Ala Ala Ala Lys Arg Ala Ala Ala Ala Leu Leu Arg Arg Ala Lys Arg
 115 120 125

Thr Gly Arg Arg Ala Ala Met Arg Ala Ala Arg Arg Leu Ala Ala Gly
 130 135 140

Ile Thr Ala Ala Thr Met Ala Pro Arg Thr Arg Arg Arg Ala Ala Ala
 145 150 155 160

Ala Ala Ala Ala Ala Ile Ser Asp Met Ala Ser Arg Arg Arg Gly Asn
 165 170 175

Val Tyr Trp Val Arg Asp Ser Val Thr Gly Thr Arg Val Pro Val Arg

180

185

190

Phe Arg Pro Pro Arg Thr
195

<210> 8

<211> 371

<212> PRT

<213> Simian adenovirus 40

<400> 8

Met Ser Lys Arg Lys Ile Lys Glu Glu Met Leu Gln Val Val Ala Pro
1 5 10 15

Glu Ile Tyr Gly Pro Pro Lys Lys Glu Glu Gln Asp Ser Lys Pro Arg
20 25 30

Lys Ile Lys Arg Val Lys Lys Lys Lys Lys Asp Asp Asp Asp Ala Asp
35 40 45

Gly Glu Val Glu Phe Leu Arg Ala Thr Ala Pro Arg Arg Pro Val Gln
50 55 60

Trp Lys Gly Arg Arg Val Lys Arg Val Leu Arg Pro Gly Thr Ala Val
65 70 75 80

Val Phe Thr Pro Gly Glu Arg Ser Thr Arg Thr Phe Lys Arg Val Tyr
85 90 95

Asp Glu Val Tyr Gly Asp Glu Asp Leu Leu Glu Gln Ala Asn Glu Arg
100 105 110

Phe Gly Glu Phe Ala Tyr Gly Lys Arg Gln Arg Ala Leu Gly Lys Glu
115 120 125

Asp Leu Leu Ala Leu Pro Leu Asp Gln Gly Asn Pro Thr Pro Ser Leu
130 135 140

Lys Pro Val Thr Leu Gln Gln Val Leu Pro Ser Ser Ala Pro Ser Glu
145 150 155 160

Ala Lys Arg Gly Leu Lys Arg Glu Gly Gly Asp Leu Ala Pro Thr Val
165 170 175

Gln Leu Met Val Pro Lys Arg Gln Arg Leu Glu Asp Val Leu Glu Lys

180	185	190
Met Lys Val Asp Pro Gly Leu Gln Pro Asp Ile Arg Val Arg Pro Ile		
195	200	205
Lys Gln Val Ala Pro Gly Leu Gly Val Gln Thr Val Asp Val Val Ile		
210	215	220
Pro Thr Gly Asn Ser Pro Ala Ala Thr Thr Thr Thr Ala Ala Ser Thr		
225	230	235 240
Asp Met Glu Thr Gln Thr Asp Pro Ala Ala Ala Ala Ala Ala Ala Ala		
245	250	255
Ala Ala Thr Ser Ser Ala Glu Val Gln Thr Asp Pro Trp Leu Pro Pro		
260	265	270
Ala Met Ser Ala Pro Arg Ala Arg Arg Gly Arg Arg Lys Tyr Gly Ala		
275	280	285
Ala Asn Ala Leu Leu Pro Glu Tyr Ala Leu His Pro Ser Ile Ala Pro		
290	295	300
Thr Pro Gly Tyr Arg Gly Tyr Thr Tyr Arg Pro Arg Arg Ala Lys Gly		
305	310	315 320
Ser Thr Arg Arg Pro Arg Arg Arg Ala Ala Ala Thr Thr Arg Arg Arg		
325	330	335
Arg Arg Arg Arg Gln Pro Ala Leu Ala Pro Val Ser Val Arg Arg Val		
340	345	350
Ala Arg Asp Gly His Thr Leu Val Leu Pro Arg Ala Arg Tyr His Pro		
355	360	365
Ser Ile Val		
370		
<210> 9		
<211> 81		
<212> PRT		
<213> Simian adenovirus 40		
<400> 9		
Met Ala Leu Thr Cys Arg Leu Arg Phe Pro Val Pro Gly Tyr Arg Gly		

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1	5	10	15
Gly Arg Ser Arg Arg Arg Arg Gly Leu Ala Gly Arg Gly Leu Ser Gly	20	25	30
Gly Ser Arg Arg Ala His Arg Arg Arg Arg Ala Thr Ser Arg Arg Met	35	40	45
Arg Gly Gly Val Leu Pro Leu Leu Ile Pro Leu Ile Ala Ala Ala Ile	50	55	60
Gly Ala Val Pro Gly Ile Ala Ser Val Ala Leu Gln Ala Ser Gln Arg	65	70	75
			80

His

<210> 10
 <211> 251
 <212> PRT
 <213> Simian adenovirus 40
 <400> 10

Met Glu Asp Ile Asn Phe Ala Ser Leu Ala Pro Arg His Gly Ser Arg	1	5	10	15
Pro Phe Leu Gly His Trp Asn Asp Ile Gly Thr Ser Asn Met Ser Gly	20	25	30	
Gly Ala Phe Ser Trp Gly Ser Leu Trp Ser Gly Ile Lys Ser Ile Gly	35	40	45	
Ser Ala Val Lys Asn Tyr Gly Ser Arg Ala Trp Asn Ser Ser Thr Gly	50	55	60	
Gln Met Leu Arg Asp Lys Leu Lys Glu Gln Asn Phe Gln Gln Lys Val	65	70	75	80
Val Glu Gly Leu Ala Ser Gly Ile Asn Gly Val Val Asp Leu Ala Asn	85	90	95	
Gln Ala Val Gln Asn Lys Ile Asn Ser Arg Leu Asp Pro Arg Pro Pro	100	105	110	
Val Glu Glu Val Pro Pro Ala Leu Glu Thr Val Ser Pro Asp Gly Arg				

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115		120		125
Gly Glu Lys Arg Pro Arg Pro Asp Arg Glu Glu Thr Thr Leu Val Thr				
130		135		140
Gln Thr Asp Glu Pro Pro Pro Tyr Glu Glu Ala Leu Lys Gln Gly Leu				
145		150		155
Pro Thr Thr Arg Pro Ile Ala Pro Met Ala Thr Gly Val Val Gly Arg				
		165		170
His Thr Pro Ala Thr Leu Asp Leu Pro Pro Pro Ala Asp Val Pro Gln				
		180		185
Gln Gln Lys Ala Ala Gln Pro Gly Pro Pro Ala Thr Ala Ser Arg Ser				
		195		200
Ser Ala Gly Pro Leu Arg Arg Ala Ala Ser Gly Pro Arg Gly Gly Val				
		210		215
Ala Arg His Gly Asn Trp Gln Ser Thr Leu Asn Ser Ile Val Gly Leu				
		225		230
Gly Val Arg Ser Val Lys Arg Arg Arg Cys Tyr				
		245		250

<210> 11
 <211> 960
 <212> PRT
 <213> Simian adenovirus 40

<400> 11

Met Ala Thr Pro Ser Met Met Pro Gln Trp Ser Tyr Met His Ile Ser				
1		5		10
Gly Gln Asp Ala Ser Glu Tyr Leu Ser Pro Gly Leu Val Gln Phe Ala				
		20		25
Arg Ala Thr Glu Ser Tyr Phe Ser Leu Ser Asn Lys Phe Arg Asn Pro				
		35		40
Thr Val Ala Pro Thr His Asp Val Thr Thr Asp Arg Ser Gln Arg Leu				
		50		55
Thr Leu Arg Phe Ile Pro Val Asp Arg Glu Asp Thr Ala Tyr Ser Tyr				

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His Leu Ser Tyr Lys Pro Ala Lys Ser Asp Asp Asn Ser Lys Ile Met
305 310 315 320

Leu Gly Gln Gln Ser Met Pro Asn Arg Pro Asn Tyr Ile Gly Phe Arg
325 330 335

Asp Asn Phe Ile Gly Leu Met Tyr Tyr Asn Ser Thr Gly Asn Met Gly
340 345 350

Val Leu Ala Gly Gln Ala Ser Gln Leu Asn Ala Val Val Asp Leu Gln
355 360 365

Asp Arg Asn Thr Glu Leu Ser Tyr Gln Leu Leu Leu Asp Ser Met Gly
370 375 380

Asp Arg Thr Arg Tyr Phe Ser Met Trp Asn Gln Ala Val Asp Ser Tyr
385 390 395 400

Asp Pro Asp Val Arg Ile Ile Glu Asn His Gly Thr Glu Asp Glu Leu
405 410 415

Pro Asn Tyr Cys Phe Pro Leu Gly Gly Ile Gly Val Thr Asp Thr Tyr
420 425 430

Gln Ala Val Lys Thr Asn Asn Gly Asn Asn Gly Gly Gln Val Thr Trp
435 440 445

Thr Lys Asp Glu Thr Phe Ala Asp Arg Asn Glu Ile Gly Val Gly Asn
450 455 460

Asn Phe Ala Met Glu Ile Asn Leu Ser Ala Asn Leu Trp Arg Asn Phe
465 470 475 480

Leu Tyr Ser Asn Val Ala Leu Tyr Leu Pro Asp Lys Leu Lys Tyr Asn
485 490 495

Pro Ser Asn Val Asp Ile Ser Asp Asn Pro Asn Thr Tyr Asp Tyr Met
500 505 510

Asn Lys Arg Val Val Ala Pro Gly Leu Val Asp Cys Tyr Ile Asn Leu
515 520 525

Gly Ala Arg Trp Ser Leu Asp Tyr Met Asp Asn Val Asn Pro Phe Asn
530 535 540

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His His Arg Asn Ala Gly Leu Arg Tyr Arg Ser Met Leu Leu Gly Asn
545 550 555 560

Gly Arg Tyr Val Pro Phe His Ile Gln Val Pro Gln Lys Phe Phe Ala
565 570 575

Ile Lys Asn Leu Leu Leu Leu Pro Gly Ser Tyr Thr Tyr Glu Trp Asn
580 585 590

Phe Arg Lys Asp Val Asn Met Val Leu Gln Ser Ser Leu Gly Asn Asp
595 600 605

Leu Arg Val Asp Gly Ala Ser Ile Lys Phe Glu Ser Ile Cys Leu Tyr
610 615 620

Ala Thr Phe Phe Pro Met Ala His Asn Thr Ala Ser Thr Leu Glu Ala
625 630 635 640

Met Leu Arg Asn Asp Thr Asn Asp Gln Ser Phe Asn Asp Tyr Leu Ser
645 650 655

Ala Ala Asn Met Leu Tyr Pro Ile Pro Ala Asn Ala Thr Asn Val Pro
660 665 670

Ile Ser Ile Pro Ser Arg Asn Trp Ala Ala Phe Arg Gly Trp Ala Phe
675 680 685

Thr Arg Leu Lys Thr Lys Glu Thr Pro Ser Leu Gly Ser Gly Phe Asp
690 695 700

Pro Tyr Tyr Thr Tyr Ser Gly Ser Ile Pro Tyr Leu Asp Gly Thr Phe
705 710 715 720

Tyr Leu Asn His Thr Phe Lys Lys Val Ser Val Thr Phe Asp Ser Ser
725 730 735

Val Ser Trp Pro Gly Asn Asp Arg Leu Leu Thr Pro Asn Glu Phe Glu
740 745 750

Ile Lys Arg Ser Val Asp Gly Glu Gly Tyr Asn Val Ala Gln Cys Asn
755 760 765

Met Thr Lys Asp Trp Phe Leu Val Gln Met Leu Ala Asn Tyr Asn Ile
770 775 780

Gly Tyr Gln Gly Phe Tyr Ile Pro Glu Ser Tyr Lys Asp Arg Met Tyr
785 790 795 800

Ser Phe Phe Arg Asn Phe Gln Pro Met Ser Arg Gln Val Val Asp Gln
805 810 815

Thr Lys Tyr Lys Asp Tyr Gln Glu Val Gly Ile Ile His Gln His Asn
820 825 830

Asn Ser Gly Phe Val Gly Tyr Leu Ala Pro Thr Met Arg Glu Gly Gln
835 840 845

Ala Tyr Pro Ala Asn Phe Pro Tyr Pro Leu Ile Gly Lys Thr Ala Val
850 855 860

Asp Ser Ile Thr Gln Lys Lys Phe Leu Cys Asp Arg Thr Leu Trp Arg
865 870 875 880

Ile Pro Phe Ser Ser Asn Phe Met Ser Met Gly Ala Leu Ser Asp Leu
885 890 895

Gly Gln Asn Leu Leu Tyr Ala Asn Ser Ala His Ala Leu Asp Met Thr
900 905 910

Phe Glu Val Asp Pro Met Asp Glu Pro Thr Leu Leu Tyr Val Leu Phe
915 920 925

Glu Val Phe Asp Val Val Arg Val His Gln Pro His Arg Gly Val Ile
930 935 940

Glu Thr Val Tyr Leu Arg Thr Pro Phe Ser Ala Gly Asn Ala Thr Thr
945 950 955 960

<210> 12
<211> 209
<212> PRT
<213> Simian adenovirus 40

<400> 12

Met Pro Ser Gly Ser Thr Glu Gln Glu Leu Arg Ala Ile Val Arg Asp
1 5 10 15

Leu Gly Cys Gly Pro Tyr Phe Leu Gly Thr Phe Asp Lys Arg Phe Pro
20 25 30

Gly Phe Val Ser Pro His Lys Leu Ala Cys Ala Ile Val Asn Thr Ala
35 40 45

Gly Arg Glu Thr Gly Gly Val His Trp Leu Ala Phe Ala Trp Asn Pro
50 55 60

Arg Ser Lys Thr Cys Phe Leu Phe Asp Pro Phe Gly Phe Ser Asp Gln
65 70 75 80

Arg Leu Lys Gln Ile Tyr Glu Phe Glu Tyr Glu Gly Leu Leu Arg Arg
85 90 95

Ser Ala Ile Ala Ser Ser Pro Asp Arg Cys Val Thr Leu Glu Lys Ser
100 105 110

Thr Gln Thr Val Gln Gly Pro Asp Ser Ala Ala Cys Gly Leu Phe Cys
115 120 125

Cys Met Phe Leu His Ala Phe Val His Trp Pro Gln Ser Pro Met Asp
130 135 140

Arg Asn Pro Thr Met Asn Leu Leu Thr Gly Val Pro Asn Ser Met Leu
145 150 155 160

Gln Ser Pro Gln Val Glu Pro Thr Leu Arg Arg Asn Gln Glu Gln Leu
165 170 175

Tyr Ser Phe Leu Glu Arg His Ser Pro Tyr Phe Arg Arg His Ser Ala
180 185 190

Gln Ile Arg Arg Ala Thr Ser Phe Cys His Leu Gln Glu Met Gln Glu
195 200 205

Gly

<210> 13
<211> 834
<212> PRT
<213> Simian adenovirus 40

<400> 13

Met Glu Ser Leu Met Arg Val Glu Lys Glu Glu Asp Ser Leu Thr Ala
1 5 10 15

Pro	Ser	Glu	Pro	Ser	Thr	Thr	Ala	Ala	Thr	Thr	Ala	Asn	Ala	Ala	Ala	
			20					25					30			
Asp	Asp	Ala	Pro	Thr	Glu	Thr	Thr	Ala	Ser	Thr	Thr	Leu	Pro	Ser	Asp	
		35					40					45				
Ala	Pro	Pro	Leu	Glu	Asn	Glu	Val	Leu	Ile	Glu	Gln	Asp	Pro	Gly	Phe	
	50					55					60					
Val	Ser	Gly	Glu	Glu	Asp	Glu	Val	Asp	Glu	Lys	Glu	Lys	Glu	Glu	Val	
65					70					75					80	
Ala	Ala	Ser	Val	Pro	Lys	Glu	Asp	Lys	Lys	Gln	Asp	Gln	Asp	Asp	Ala	
				85					90					95		
Asp	Lys	Asp	Glu	Thr	Ala	Val	Gly	Arg	Gly	Asn	Gly	Ser	His	Asp	Ala	
			100					105					110			
Asp	Asp	Gly	Tyr	Leu	Asp	Val	Gly	Asp	Asp	Val	Leu	Leu	Lys	His	Leu	
		115					120					125				
His	Arg	Gln	Cys	Val	Ile	Val	Cys	Asp	Ala	Leu	Gln	Glu	Arg	Cys	Glu	
	130					135					140					
Val	Pro	Leu	Asp	Val	Ala	Glu	Val	Ser	Arg	Ala	Tyr	Glu	Arg	His	Leu	
145					150					155					160	
Phe	Ala	Pro	His	Val	Pro	Pro	Lys	Arg	Arg	Glu	Asn	Gly	Thr	Cys	Glu	
				165					170					175		
Pro	Asn	Pro	Arg	Leu	Asn	Phe	Tyr	Pro	Val	Phe	Ala	Val	Pro	Glu	Val	
			180					185					190			
Leu	Ala	Thr	Tyr	His	Ile	Phe	Phe	Gln	Asn	Cys	Lys	Ile	Pro	Leu	Ser	
		195					200					205				
Cys	Arg	Ala	Asn	Arg	Thr	Arg	Ala	Asp	Lys	Thr	Leu	Thr	Leu	Arg	Gln	
	210					215					220					
Gly	Ala	His	Ile	Pro	Asp	Ile	Ala	Ser	Leu	Glu	Glu	Val	Pro	Lys	Ile	
225					230					235					240	
Phe	Glu	Gly	Leu	Gly	Arg	Asp	Glu	Lys	Arg	Ala	Ala	Asn	Ala	Leu	His	

245								250					255			
Gly	Asp	Ser	Glu 260	Asn	Glu	Ser	His	Ser 265	Gly	Val	Leu	Val	Glu 270	Leu	Glu	
Gly	Asp	Asn 275	Ala	Arg	Leu	Ala	Val 280	Leu	Lys	Arg	Ser	Ile 285	Glu	Val	Thr	
His	Phe 290	Ala	Tyr	Pro	Ala	Leu 295	Asn	Leu	Pro	Pro	Lys 300	Val	Met	Ser	Val	
Val 305	Met	Gly	Glu	Leu	Ile 310	Met	Arg	Arg	Ala	Gln 315	Pro	Leu	Ala	Ala	Asp 320	
Ala	Asn	Leu	Gln	Glu 325	Ser	Ser	Glu	Glu	Gly 330	Leu	Pro	Ala	Val	Ser 335	Asp	
Glu	Gln	Leu	Ala 340	Arg	Trp	Leu	Glu	Thr 345	Arg	Asp	Pro	Ala	Gln 350	Leu	Glu	
Glu	Arg	Arg 355	Lys	Leu	Met	Met	Ala 360	Ala	Val	Leu	Val	Thr 365	Val	Glu	Leu	
Glu	Cys 370	Leu	Gln	Arg	Phe	Phe 375	Ala	Asp	Pro	Glu	Met 380	Gln	Arg	Lys	Leu	
Glu 385	Glu	Thr	Leu	His	Tyr 390	Thr	Phe	Arg	Gln	Gly 395	Tyr	Val	Arg	Gln	Ala 400	
Cys	Lys	Ile	Ser	Asn 405	Val	Glu	Leu	Cys	Asn 410	Leu	Val	Ser	Tyr	Leu 415	Gly	
Ile	Leu	His	Glu 420	Asn	Arg	Leu	Gly	Gln 425	Asn	Val	Leu	His	Ser 430	Thr	Leu	
Lys	Gly	Glu	Ala 435	Arg	Arg	Asp	Tyr 440	Ile	Arg	Asp	Cys	Ala 445	Tyr	Leu	Phe	
Leu	Cys 450	Tyr	Thr	Trp	Gln	Thr 455	Ala	Met	Gly	Val	Trp 460	Gln	Gln	Cys	Leu	
Glu 465	Glu	Arg	Asn	Leu	Lys 470	Glu	Leu	Glu	Lys	Leu 475	Leu	Lys	Arg	Thr	Leu 480	

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Arg Asp Leu Trp Thr Gly Phe Asn Glu Arg Ser Val Ala Ala Ala Leu
485 490 495

Ala Asp Ile Ile Phe Pro Glu Arg Leu Leu Lys Thr Leu Gln Gln Gly
500 505 510

Leu Pro Asp Phe Thr Ser Gln Ser Met Leu Gln Asn Phe Arg Thr Phe
515 520 525

Ile Leu Glu Arg Ser Gly Ile Leu Pro Ala Thr Cys Cys Ala Leu Pro
530 535 540

Ser Asp Phe Val Pro Ile Lys Tyr Arg Glu Cys Pro Pro Pro Leu Trp
545 550 555 560

Gly His Cys Tyr Leu Phe Gln Leu Ala Asn Tyr Leu Ala Tyr His Ser
565 570 575

Asp Leu Met Glu Asp Val Ser Gly Glu Gly Leu Leu Glu Cys His Cys
580 585 590

Arg Cys Asn Leu Cys Thr Pro His Arg Ser Leu Val Cys Asn Pro Gln
595 600 605

Leu Leu Ser Glu Ser Gln Ile Ile Gly Thr Phe Glu Leu Gln Gly Pro
610 615 620

Ser Pro Asp Glu Lys Ser Ala Ala Pro Gly Leu Lys Leu Thr Pro Gly
625 630 635 640

Leu Trp Thr Ser Ala Tyr Leu Arg Lys Phe Val Pro Glu Asp Tyr His
645 650 655

Ala His Glu Ile Arg Phe Tyr Glu Asp Gln Ser Arg Pro Pro Lys Ala
660 665 670

Glu Leu Thr Ala Cys Val Ile Thr Gln Gly His Ile Leu Gly Gln Leu
675 680 685

Gln Ala Ile Asn Lys Ala Arg Arg Glu Phe Leu Leu Lys Lys Gly Arg
690 695 700

Gly Val Tyr Leu Asp Pro Gln Ser Gly Glu Glu Leu Asn Pro Leu Pro
705 710 715 720

Pro Pro Pro Pro Gln Gln Arg Asp Leu Ala Ser Gln Asp Gly Thr Gln
725 730 735

Lys Glu Ala Ala Ala Ala Ala Ala Ala Ile His Ala Ser Gly Gly Arg
740 745 750

Gly Gly Gly Leu Gly Gln Ser Gly Arg Gly Gly Phe Gly Arg Gly Ala
755 760 765

Gly Gly Asp Asp Gly Arg Leu Gly Gly Gly Gln Gln Pro Arg Arg Gly
770 775 780

Ser Phe Arg Gly Arg Arg Gly Gly Arg Arg Asn Thr Ile Thr Leu Gly
785 790 795 800

Arg Ser Pro Leu Ala Gly Ala Pro Glu Ile Leu Arg Thr Gln His Gln
805 810 815

Arg Tyr Asn Leu Arg Ser Ser Gly Ala Gly Ala Thr Arg Pro Gln Thr
820 825 830

Gln Pro

<210> 14
<211> 227
<212> PRT
<213> Simian adenovirus 40

<400> 14

Met Ser Lys Glu Ile Pro Thr Pro Tyr Met Trp Ser Tyr Gln Pro Gln
1 5 10 15

Met Gly Leu Ala Ala Gly Ala Ala Gln Asp Tyr Ser Thr Arg Met Asn
20 25 30

Tyr Met Ser Ala Gly Pro His Met Ile Ser Gln Val Asn Gly Ile Arg
35 40 45

Ala Gln Arg Asn Gln Ile Leu Leu Glu Gln Ala Ala Ile Thr Ala Thr
50 55 60

Pro Arg His Asn Leu Asn Pro Arg Asn Trp Pro Ala Ala Leu Val Tyr
65 70 75 80

Gln Glu Thr Pro Ser Ala Thr Thr Val Leu Leu Pro Arg Asp Ala Gln
85 90 95

Ala Glu Val Gln Met Thr Asn Ser Gly Ala Gln Leu Ala Gly Gly Phe
100 105 110

Arg His Gly Ala Arg Pro Leu Arg Pro Gly Ile Arg His Leu Met Ile
115 120 125

Arg Gly Arg Gly Ile Gln Leu Asn Asp Glu Ser Val Ser Ser Ser Leu
130 135 140

Gly Leu Arg Pro Asp Gly Thr Phe Gln Leu Ala Gly Ser Gly Arg Ser
145 150 155 160

Ser Phe Thr Pro Arg Gln Ala Tyr Leu Thr Leu Gln Thr Ser Ser Ser
165 170 175

Glu Pro Arg Ser Gly Gly Ile Gly Thr Leu Gln Phe Val Glu Glu Phe
180 185 190

Val Pro Ser Val Tyr Phe Asn Pro Phe Ser Gly Pro Pro Gly Arg Tyr
195 200 205

Pro Asp Gln Phe Ile Pro Asn Phe Asp Ala Val Lys Asp Ser Ala Asp
210 215 220

Gly Tyr Asp
225

<210> 15
<211> 105
<212> PRT
<213> Simian adenovirus 40

<400> 15

Met Ser Gly Ala Glu Ala Glu Gln Leu Arg Leu Arg His Leu Glu His
1 5 10 15

Cys Arg Arg His Lys Cys Phe Ala Arg Gly Ser Gly Glu Phe Cys Tyr
20 25 30

Phe Gln Leu Pro Glu Glu His Thr Glu Gly Pro Ala His Gly Val Arg
35 40 45

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Leu Thr Thr Gln Gly Glu Val Thr Cys Ser Leu Ile Arg Glu Phe Thr
50 55 60

Leu Arg Pro Leu Leu Val Glu Arg Glu Arg Gly Pro Cys Val Leu Thr
65 70 75 80

Ile Ala Cys Asn Cys Pro Asn Pro Gly Leu His Gln Asp Leu Cys Cys
85 90 95

His Leu Cys Ala Glu Phe Asn Lys Arg
100 105

<210> 16
<211> 165
<212> PRT
<213> Simian adenovirus 40

<400> 16

Met Asn Arg Tyr Met Val Leu Ser Ile Leu Gly Leu Leu Ala Leu Ala
1 5 10 15

Ala Cys Ser Ala Ala Lys Lys Glu Ile Thr Phe Glu Glu Pro Ala Cys
20 25 30

Asn Val Thr Phe Lys Pro Glu Gly Asp Gln Cys Thr Thr Leu Val Lys
35 40 45

Cys Val Thr Asn His Glu Arg Leu Arg Ile Asp Tyr Lys Asn Lys Thr
50 55 60

Gly Arg Phe Ala Val Tyr Ser Val Phe Thr Pro Gly Asp Pro Ser Asn
65 70 75 80

Tyr Ser Val Thr Val Phe Gln Gly Gly Gln Ser Lys Ile Phe Asn Tyr
85 90 95

Thr Phe Pro Phe Tyr Glu Leu Cys Asp Ala Val Met Tyr Met Ser Lys
100 105 110

Gln Tyr Asn Leu Trp Pro Pro Ser Pro Gln Ala Cys Val Glu Asn Thr
115 120 125

Gly Ser Tyr Cys Cys Met Ala Phe Ala Ile Thr Thr Leu Ala Leu Ile
130 135 140

Cys Thr Val Leu Tyr Ile Lys Phe Arg Gln Arg Arg Ile Phe Ile Asp
145 150 155 160

Glu Lys Lys Met Pro
165

<210> 17
<211> 298
<212> PRT
<213> Simian adenovirus 40

<400> 17

Met Asn Ala Ile Thr Ser Leu Leu Ile Thr Thr Thr Leu Leu Ala Ile
1 5 10 15

Ala His Gly Leu Thr Arg Ile Glu Val Pro Val Gly Ser Asn Val Thr
20 25 30

Met Val Gly Pro Ala Gly Asn Ser Thr Leu Met Trp Glu Lys Phe Val
35 40 45

Arg Asn Gln Trp Val His Phe Cys Ser Asn Arg Ile Ser Ile Lys Pro
50 55 60

Arg Ala Ile Cys Asp Gly Gln Asn Leu Thr Leu Ile Asn Val Gln Met
65 70 75 80

Met Asp Ala Gly Tyr Tyr Tyr Gly Gln Arg Gly Glu Ile Ile Asn Tyr
85 90 95

Trp Arg Pro His Lys Asp Tyr Met Leu His Val Val Glu Ala Leu Pro
100 105 110

Thr Thr Thr Pro Thr Thr Thr Ser Pro Thr Thr Thr Thr Thr Thr Thr
115 120 125

Thr Thr Thr Thr Thr Thr Thr Thr Ala Ala Arg His Thr Arg Lys Ser
130 135 140

Thr Met Ile Ser Thr Lys Pro Pro Arg Ala His Ser His Ala Gly Gly
145 150 155 160

Pro Ile Gly Ala Thr Ser Glu Thr Thr Glu Leu Cys Phe Cys Gln Cys
165 170 175

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Thr Asn Ala Ser Ala His Glu Leu Phe Asp Leu Glu Asn Glu Asp Ala
180 185 190

Gln Gln Ser Ser Ala Cys Leu Thr Gln Glu Ala Val Glu Pro Val Ala
195 200 205

Leu Lys Gln Ile Gly Asp Ser Ile Ile Asp Ser Ser Ser Phe Ala Thr
210 215 220

Pro Glu Tyr Pro Pro Asp Ser Thr Phe His Ile Thr Gly Thr Lys Asp
225 230 235 240

Pro Asn Leu Ser Phe Tyr Leu Met Leu Leu Leu Cys Ile Ser Val Val
245 250 255

Ser Ser Ala Leu Met Leu Leu Gly Met Phe Cys Cys Leu Ile Cys Arg
260 265 270

Arg Lys Arg Lys Ala Arg Ser Gln Gly Gln Pro Leu Met Pro Phe Pro
275 280 285

Tyr Pro Pro Asp Phe Ala Asp Asn Lys Ile
290 295

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35 40 45

Cys Ser Leu Ile Thr Val Ile Ile Ala Phe Ile Gln Cys Ile Asp Tyr
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Lys Ser Glu Leu Ser Glu Ala Trp Leu Tyr Gly Val Ile Cys Val Leu
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Val Phe Cys Ser Thr Val Phe Ala Leu Met Ile Tyr Pro Tyr Phe Asp
65 70 75 80

Leu Gly Trp Asn Ala Ile Asp Ala Met Asn Tyr Pro Thr Phe Pro Ala
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Pro Glu Ile Ile Pro Leu Arg Gln Val Val Pro Val Val Val Asn Gln
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Phe Val Ser Pro Asp Gly Phe Gln Glu Ser Pro Pro Gly Val Leu Ser
35 40 45

Leu Asn Leu Ala Glu Pro Leu Val Thr Ser His Gly Met Leu Ala Leu
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Lys Met Gly Ser Gly Leu Ser Leu Asp Asp Ala Gly Asn Leu Thr Ser
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Gln Asp Ile Thr Ser Thr Thr Pro Pro Leu Lys Lys Thr Lys Thr Asn
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Gln Thr Ser Ala Pro Leu Thr Ala Ala Asp Ser Ser Thr Leu Thr Val
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Thr Gly Asn Gly Leu Thr Val Asp Asn Asn Ala Leu Gln Thr Arg Val
225 230 235 240

Thr Gly Ala Leu Gly Tyr Asp Thr Ser Gly Asn Leu Gln Leu Arg Ala
245 250 255

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Ala Gly Gly Met Arg Ile Asp Ala Asn Gly Gln Leu Ile Leu Asp Val
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Ala Tyr Pro Phe Asp Ala Gln Asn Asn Leu Ser Leu Arg Leu Gly Gln
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Gly Pro Leu Tyr Val Asn Thr Asp His Asn Leu Asp Leu Asn Cys Asn
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370 375 380

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Val Tyr Leu Asn Gly Asp Lys Ser Lys Pro Met Thr Leu Thr Ile Thr
485 490 495

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 Gly Leu Asn Leu Val Thr Leu Asp Leu Met Glu Ala Trp Glu Cys Leu
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 Val Cys Arg Ile Lys Glu Asp Tyr Lys Trp Glu Phe Glu Glu Leu Leu
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 Lys Ser Cys Gly Glu Leu Leu Asp Ser Leu Asn Leu Gly His Gln Ala
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 Arg Ile Ala Ala Ala Val Ala Phe Leu Ala Phe Leu Lys Asp Arg Trp
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Lys	Ser	Cys	Gly	Glu	Leu	Leu	Asp	Ser	Leu	Asn	Leu	Gly	His	Gln	Ala		
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Met Thr Asp Ala Leu Asp Leu Glu Met Asp Gly	
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Ile Ser Thr Glu Gln Arg Leu Leu Glu Arg Arg Arg Gln Ala Ala Glu	
675 680 685	
caa gag cgc ctc aat cag gag ctc cga gat ctc gtt aac ctg cac cag	5760

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Gln Glu Arg Leu Asn Gln Glu Leu Arg Asp Leu Val Asn Leu His Gln	
690 695 700	
tgc aaa aga ggc atc ttt tgt ctg gta aag cag gct aaa gtc acc tac	5808
Cys Lys Arg Gly Ile Phe Cys Leu Val Lys Gln Ala Lys Val Thr Tyr	
705 710 715	
gag aag acc ggc aac agc cac cgc ctc agt tac aaa ttg ccc acc cag	5856
Glu Lys Thr Gly Asn Ser His Arg Leu Ser Tyr Lys Leu Pro Thr Gln	
720 725 730	
cgc cag aag ctg gtg ctc atg gtg ggt gag aat ccc atc acc gtc acc	5904
Arg Gln Lys Leu Val Leu Met Val Gly Glu Asn Pro Ile Thr Val Thr	
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cag cac tcg gta gag acc gag ggg tgt ctg cac tcc ccc tgt cgg ggt	5952
Gln His Ser Val Glu Thr Glu Gly Cys Leu His Ser Pro Cys Arg Gly	
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Pro Glu Asp Leu Cys Thr Leu Val Lys Thr Leu Cys Gly Leu Arg Asp	
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50 55 60	
Ser Pro Ser Val Ala Ala Pro Ser Pro Gly Pro Leu Lys Ser Ser Glu	
65 70 75 80	
Pro Ser Thr Ser Ala Ile Thr Ser Ala Pro Pro Ala Pro Ala Pro Pro	
85 90 95	

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Ala Arg Arg Pro Asn Arg Arg Trp Asp Thr Thr Gly Thr Gly Val Gly
100 105 110

Lys Ser Lys Cys Pro Pro Pro Pro Pro Gln Gln Gln Gln Gln Gln Arg
115 120 125

Gln Gly Tyr Arg Ser Trp Arg Gly His Lys Asn Ala Ile Val Ala Cys
130 135 140

Leu Gln Asp Cys Gly Gly Asn Ile Ser Phe Ala Arg Arg Phe Leu Leu
145 150 155 160

Phe His His Gly Val Ala Phe Pro Arg Asn Val Leu His Tyr Tyr Arg
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Ala Thr Ala Ala Thr Thr Thr
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Trp Tyr Phe Asn Gly Thr Pro Phe Val Val Tyr Asn Ser Phe Asp Gly
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Asp Gly Val Ser Leu Lys Asp Gln Leu Ser Gly Leu Ser Tyr Ser Ile
65 70 75 80

His Lys Asn Thr Thr Leu Gln Leu Phe Pro Pro Tyr Leu Pro Gly Thr
85 90 95

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Tyr Glu Cys Val Thr Gly Arg Cys Thr His Leu Thr Arg Leu Ile Val
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Asn Gln Ser Phe Pro Gly Thr Asp Asn Ser Leu Phe Pro Arg Thr Gly
115 120 125

Gly Glu Leu Arg Lys Leu Pro Gly Asp Gln Gly Gly Asp Val Pro Ser
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Gly Gly Gln Gly Lys Thr His Ala Tyr Asn Leu Glu Val Arg Gln Pro
100 105 110

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Arg Thr Thr Thr Gln Ala Ser Pro Thr Thr Thr Thr Thr Ile Ser Ser
115 120 125

Ser Ser Ser Ser Ser His Ser Ser Ser Ser Arg Leu Leu Thr Leu Val
130 135 140

Leu Ala Ser Ser Ser Ala Ala Thr Gln Ala Ile Tyr Ser Ser Val Pro
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Glu Thr Thr Gln Ile His Arg Pro Glu Thr Thr Thr Ala Thr Thr Leu
165 170 175

His Thr Ser Ser Asp Gln Met Pro Thr Asn Ile Thr Pro Leu Ala Leu
180 185 190

Gln Met Gly Leu Thr Ser Pro Thr Pro Lys Pro Val Asp Ala Thr Glu
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Val Ser Ala Leu Val Asn Asp Trp Ala Gly Leu Gly Met Trp Trp Phe
210 215 220

Ala Ile Gly Met Met Ala Leu Cys Leu Leu Leu Leu Trp Leu Ile Cys
225 230 235 240

Cys Leu His Arg Arg Arg Ala Arg Pro Pro Ile Tyr Arg Pro Ile Ile
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Phe Cys Leu Val Lys Gln Ala Lys Val Thr Tyr Glu Lys Thr Gly Asn
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Ser His Arg Leu Ser Tyr Lys Leu Pro Thr Gln Arg Gln Lys Leu Val
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Leu Ala Ala Glu Val Leu Asp Thr Leu Ile Glu Glu Val Leu Ala Asp
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aat tat cct ccc tcg act cct ttt gag cca cct aca ctt cac gaa ctc 146
Asn Tyr Pro Pro Ser Thr Pro Phe Glu Pro Pro Thr Leu His Glu Leu
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Tyr Asp Leu Asp Val Val Gly Pro Ser Asp Pro Asn Glu Gln Ala Val
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tcc agt ttt ttt cca gag tcc atg ttg ttg gcc agc cag gag ggg gtc 242
Ser Ser Phe Phe Pro Glu Ser Met Leu Leu Ala Ser Gln Glu Gly Val

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Glu Leu Glu Thr Pro Pro Pro Ile Val Asp Ser Pro Asp Pro Pro Gln			
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ctg act agg cag ccc gag cgc tgt gcg gga cct gag act atg ccc cag			338
Leu Thr Arg Gln Pro Glu Arg Cys Ala Gly Pro Glu Thr Met Pro Gln			
95	100	105	110
ctg cta cct gag gtg atc gat ctc acc tgt aat gag tct ggt ttt cca			386
Leu Leu Pro Glu Val Ile Asp Leu Thr Cys Asn Glu Ser Gly Phe Pro			
	115	120	125
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Pro Ser Glu Asp Glu Asp Glu Glu Gly Glu Glu Phe Val Leu Asp Ser			
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Val Glu Gln Pro Gly Arg Gly Cys Arg Ser Cys Gln Tyr His Arg Lys			
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Asn Thr Gly Asp Ser Gln Ile Met Cys Ser Leu Cys Tyr Met Lys Met			
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Thr Cys Met Phe Ile Tyr			
175	180		
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ctttttttatt gtgattttta aag gt cca gtg tct gag ccc gag caa gaa cct			691
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 85 90 95

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 130 135 140

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Tyr Met Leu Leu Glu Glu Glu Glu Glu Asp Trp Asp Ser Gln Ala Glu
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Glu Val Ser Asp Glu Glu Gln Glu Glu Met Met Glu Asp Trp Glu Glu
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Asp Ser Ser Leu Asp Glu Glu Ala Ser Glu Ala Glu Glu Val Ala Asp
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gca aca cca tca ccc tcg gtc gca gcc ccc tcg ccg ggg ccc ctg aaa 241
Ala Thr Pro Ser Pro Ser Val Ala Ala Pro Ser Pro Gly Pro Leu Lys
65 70 75

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Ala Pro Pro Ala Arg Arg Pro Asn Arg Arg Trp Asp Thr Thr Gly Thr
      95                      100                      105

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Gly
110

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Pro Ser Thr Ser Ala Ile Thr Ser Ala Pro Pro Ala Pro Ala Pro Pro	85	90	95
Ala Arg Arg Pro Asn Arg Arg Trp Asp Thr Thr Gly Thr Gly Ile Ser	100	105	110
Ser Ala Gly Lys Thr Ala Ala Ala Ala Ala Arg Arg Pro Ala Ala Ala	115	120	125
Ala Ala Gly Ala Val Gly Ala Leu Arg Leu Ser Pro Asn Glu Pro Leu	130	135	140
Ser Thr Arg Glu Leu Arg His Arg Ile Phe Pro Thr Leu Tyr Ala Ile	145	150	155
Phe Gln Gln Ser Arg Gly Gln Glu Gln Glu Leu Lys Ile Lys Asn Arg	165	170	175
Ser Leu Arg Ser Leu Thr Arg Ser Cys Leu Tyr His Lys Ser Glu Asp	180	185	190
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Thr Ser Gly Val Asn Val Gly Gln Val Ala Asp Leu Phe Pro Glu Leu	
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Lys Arg Glu Arg Gly Ala Ser Glu His Asn Glu Glu Ala Ser Asn Leu	
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Ala Phe Ser Leu Met Thr Arg His Arg Pro Glu Cys Ile Thr Phe Gln	
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Gln Ile Lys Asp Asn Cys Ala Asn Glu Leu Asp Leu Leu Gly Gln Lys	
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Tyr Ser Ile Glu Gln Leu Thr Thr Tyr Trp Leu Gln Pro Gly Asp Asp	
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Leu Glu Glu Ala Ile Arg Val Tyr Ala Lys Val Ala Leu Arg Pro Asp	
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Ile Ser Gly Asn Gly Ala Glu Val Glu Ile Glu Thr Glu Asp Arg Val	
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Asp Lys Val Ala Ala Ile Asn Tyr Ser Met Leu Ser Leu Gly Lys Phe	
940 945 950	
tac gcg cgc aag atc tac cag acg ccg tac gtg ccc ata gac aag gag	12044
Tyr Ala Arg Lys Ile Tyr Gln Thr Pro Tyr Val Pro Ile Asp Lys Glu	

955	960	965	970	
gtg aag atc gac ggc ttt tac atg cgc atg gcg ctg aag gtg ctg acc				12092
Val Lys Ile Asp Gly Phe Tyr Met Arg Met Ala Leu Lys Val Leu Thr				
	975	980	985	
ctg agc gac gac ctg ggc gtg tac cgc aac gag cgc atc cac aag gcc				12140
Leu Ser Asp Asp Leu Gly Val Tyr Arg Asn Glu Arg Ile His Lys Ala				
	990	995	1000	
gtg agc gtg agc cgg cgg cgc gag ctg agc gac cgc gag ctg atg				12185
Val Ser Val Ser Arg Arg Arg Glu Leu Ser Asp Arg Glu Leu Met				
	1005	1010	1015	
cac agc ctg cag cgg gcg ctg gcg ggc gcc ggc agc ggc gac agg				12230
His Ser Leu Gln Arg Ala Leu Ala Gly Ala Gly Ser Gly Asp Arg				
	1020	1025	1030	
gag gcg gag tcc tac ttc gat gcg ggg gcg gac ctg cgc tgg gcg				12275
Glu Ala Glu Ser Tyr Phe Asp Ala Gly Ala Asp Leu Arg Trp Ala				
	1035	1040	1045	
ccc agc cgg cgg gcc ctg gag gcc gcg ggg gtc cgc gag gac tat				12320
Pro Ser Arg Arg Ala Leu Glu Ala Ala Gly Val Arg Glu Asp Tyr				
	1050	1055	1060	
gac gag gac ggc gag gag gat gag gag tac gag cta gag gag ggc				12365
Asp Glu Asp Gly Glu Glu Asp Glu Glu Tyr Glu Leu Glu Glu Gly				
	1065	1070	1075	
gag tac ctg gac taaaccgcgg gtggtgtttc cggtag atg caa gac ccg				12415
Glu Tyr Leu Asp Met Gln Asp Pro				
	1080		1085	
aac gtg gtg gac ccg gcg ctg cgg gcg gct ctg cag agc cag ccg				12460
Asn Val Val Asp Pro Ala Leu Arg Ala Ala Leu Gln Ser Gln Pro				
	1090	1095	1100	
tcc ggc ctt aac tcc tca gac gac tgg cga cag gtc atg gac cgc				12505
Ser Gly Leu Asn Ser Ser Asp Asp Trp Arg Gln Val Met Asp Arg				
	1105	1110	1115	
atc atg tcg ctg acg gcg cgc aac ccg gac gcg ttc cgg cag cag				12550
Ile Met Ser Leu Thr Ala Arg Asn Pro Asp Ala Phe Arg Gln Gln				
	1120	1125	1130	
ccg cag gcc aac agg ctc tcc gcc atc ctg gag gcg gtg gtg cct				12595
Pro Gln Ala Asn Arg Leu Ser Ala Ile Leu Glu Ala Val Val Pro				
	1135	1140	1145	
gcg cgc tcg aac ccc acg cac gag aag gtg ctg gcc ata gtg aac				12640
Ala Arg Ser Asn Pro Thr His Glu Lys Val Leu Ala Ile Val Asn				
	1150	1155	1160	
gcg ctg gcc gag aac agg gcc atc cgc ccg gac gag gcc ggg ctg				12685
Ala Leu Ala Glu Asn Arg Ala Ile Arg Pro Asp Glu Ala Gly Leu				
	1165	1170	1175	
gtg tac gac gcg ctg ctg cag cgc gtg gcc cgc tac aac agc ggc				12730

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Val	Tyr	Asp	Ala	Leu	Leu	Gln	Arg	Val	Ala	Arg	Tyr	Asn	Ser	Gly	
				1180					1185					1190	
aac	gtg	cag	acc	aac	ctg	gac	cgg	ctg	gtg	ggg	gac	gtg	cgc	gag	12775
Asn	Val	Gln	Thr	Asn	Leu	Asp	Arg	Leu	Val	Gly	Asp	Val	Arg	Glu	
				1195					1200					1205	
gcg	gtg	gcg	cag	cgc	gag	cgc	gcg	gat	cgg	cag	ggc	aac	ctg	ggc	12820
Ala	Val	Ala	Gln	Arg	Glu	Arg	Ala	Asp	Arg	Gln	Gly	Asn	Leu	Gly	
				1210					1215					1220	
tcc	atg	gtg	gcg	ctg	aac	gcc	ttc	ctg	agc	acg	cag	ccg	gcc	aac	12865
Ser	Met	Val	Ala	Leu	Asn	Ala	Phe	Leu	Ser	Thr	Gln	Pro	Ala	Asn	
				1225					1230					1235	
gtg	ccg	cgg	ggg	cag	gag	gac	tac	acc	aac	ttt	gtg	agc	gcg	ctg	12910
Val	Pro	Arg	Gly	Gln	Glu	Asp	Tyr	Thr	Asn	Phe	Val	Ser	Ala	Leu	
				1240					1245					1250	
cgg	ctg	atg	gtg	acc	gag	acc	ccc	cag	agc	gag	gtg	tac	cag	tcg	12955
Arg	Leu	Met	Val	Thr	Glu	Thr	Pro	Gln	Ser	Glu	Val	Tyr	Gln	Ser	
				1255					1260					1265	
ggc	ccg	gac	tac	ttc	ttc	cag	acc	agc	aga	cag	ggc	ctg	caa	acg	13000
Gly	Pro	Asp	Tyr	Phe	Phe	Gln	Thr	Ser	Arg	Gln	Gly	Leu	Gln	Thr	
				1270					1275					1280	
gtg	aac	ctg	agc	cag	gct	ttc	aag	aac	ctg	cgg	ggg	ctg	tgg	ggc	13045
Val	Asn	Leu	Ser	Gln	Ala	Phe	Lys	Asn	Leu	Arg	Gly	Leu	Trp	Gly	
				1285					1290					1295	
gtg	aag	gcg	ccc	acc	ggg	gac	cgg	gcg	acg	gtg	tcc	agc	ctg	ctg	13090
Val	Lys	Ala	Pro	Thr	Gly	Asp	Arg	Ala	Thr	Val	Ser	Ser	Leu	Leu	
				1300					1305					1310	
acg	ccc	aac	tcg	cgc	ctg	ctg	ctg	cta	ctg	atc	gcg	ccg	ttc	acg	13135
Thr	Pro	Asn	Ser	Arg	Leu	Leu	Leu	Leu	Leu	Ile	Ala	Pro	Phe	Thr	
				1315					1320					1325	
gac	agc	ggc	agc	gtg	tcc	cgg	gac	acc	tac	ctg	ggg	cac	ctg	ctg	13180
Asp	Ser	Gly	Ser	Val	Ser	Arg	Asp	Thr	Tyr	Leu	Gly	His	Leu	Leu	
				1330					1335					1340	
acc	ctg	tac	cgc	gag	gcc	atc	ggg	cag	gcg	cag	gtg	gac	gag	cac	13225
Thr	Leu	Tyr	Arg	Glu	Ala	Ile	Gly	Gln	Ala	Gln	Val	Asp	Glu	His	
				1345					1350					1355	
acc	ttc	caa	gag	atc	acc	agc	gtg	agc	cgc	gcg	ctg	ggg	cag	gag	13270
Thr	Phe	Gln	Glu	Ile	Thr	Ser	Val	Ser	Arg	Ala	Leu	Gly	Gln	Glu	
				1360					1365					1370	
gac	acg	agc	agc	ctg	gag	gcg	act	ctg	aac	tac	ctg	ctg	acc	aac	13315
Asp	Thr	Ser	Ser	Leu	Glu	Ala	Thr	Leu	Asn	Tyr	Leu	Leu	Thr	Asn	
				1375					1380					1385	
cgg	cgg	cag	aag	atc	ccc	tcg	ctg	cac	agc	ctg	acc	tcc	gag	gag	13360
Arg	Arg	Gln	Lys	Ile	Pro	Ser	Leu	His	Ser	Leu	Thr	Ser	Glu	Glu	
				1390					1395					1400	

gag cgc atc ctg cgc	tac gtg cag cag agc	gtg agc ctg aac ctg	13405
Glu Arg Ile Leu Arg	Tyr Val Gln Gln Ser	Val Ser Leu Asn Leu	
1405	1410	1415	
atg cgc gac ggt gtg	acg ccc agc gtg gcg	ctg gac atg acc gcg	13450
Met Arg Asp Gly Val	Thr Pro Ser Val Ala	Leu Asp Met Thr Ala	
1420	1425	1430	
cgc aac atg gaa ccg	ggc atg tac gcc gcg	cac cgg cct tac atc	13495
Arg Asn Met Glu Pro	Gly Met Tyr Ala Ala	His Arg Pro Tyr Ile	
1435	1440	1445	
aac cgc ctg atg gac	tac ctg cat cgc gcg	gcg gcc gtg aac ccc	13540
Asn Arg Leu Met Asp	Tyr Leu His Arg Ala	Ala Ala Val Asn Pro	
1450	1455	1460	
gag tac ttc acc aac	gcc atc ctg aac ccg	cac tgg ctc ccg ccg	13585
Glu Tyr Phe Thr Asn	Ala Ile Leu Asn Pro	His Trp Leu Pro Pro	
1465	1470	1475	
ccc ggg ttc tac agc	ggg ggc ttc gag gtt	ccc gag gcc aac gat	13630
Pro Gly Phe Tyr Ser	Gly Gly Phe Glu Val	Pro Glu Ala Asn Asp	
1480	1485	1490	
ggc ttc ctg tgg gac	gac atg gac gac agc	gtg ttc tcc ccg ccg	13675
Gly Phe Leu Trp Asp	Asp Met Asp Asp Ser	Val Phe Ser Pro Arg	
1495	1500	1505	
ccg cag gcg ctg gcg	gag gcg tcc ctg ctg	cgt ccc aag aag gag	13720
Pro Gln Ala Leu Ala	Glu Ala Ser Leu Leu	Arg Pro Lys Lys Glu	
1510	1515	1520	
gag agt cgc cac ggt	ccc cgc ggc agt agc	gct tct ctg tcc gag	13765
Glu Ser Arg His Gly	Pro Arg Gly Ser Ser	Ala Ser Leu Ser Glu	
1525	1530	1535	
ctg ggg gcg gcc gcc	gcg cgc ccc ggg tcc	cta ggg ggc agc ccc	13810
Leu Gly Ala Ala Ala	Ala Arg Pro Gly Ser	Leu Gly Gly Ser Pro	
1540	1545	1550	
ttt ccg agc ctg gtg	ggg tct ctg caa agc	ggg cgc acc acc cgc	13855
Phe Pro Ser Leu Val	Gly Ser Leu Gln Ser	Gly Arg Thr Thr Arg	
1555	1560	1565	
ccg cga ctg ctg ggc	gag gac gag tac ctg	aac aac tcc ctg atg	13900
Pro Arg Leu Leu Gly	Glu Asp Glu Tyr Leu	Asn Asn Ser Leu Met	
1570	1575	1580	
cag ccg gtg cgg gag	aaa aac ctg ccc ccc	gca ttt ccc aac aac	13945
Gln Pro Val Arg Glu	Lys Asn Leu Pro Pro	Ala Phe Pro Asn Asn	
1585	1590	1595	
ggg ata gag agc ctg	gtg gac aag atg agc	aga tgg aag acc tat	13990
Gly Ile Glu Ser Leu	Val Asp Lys Met Ser	Arg Trp Lys Thr Tyr	
1600	1605	1610	
gcg cag gag cac agg	gac gcg ccc gcg ctc	cgc ccg ccc acg ccg	14035
Ala Gln Glu His Arg	Asp Ala Pro Ala Leu	Arg Pro Pro Thr Arg	
1615	1620	1625	

cgc cag cgc cac gac	cgg cag cgg ggg ctg	gtg tgg gat gac gag	14080
Arg Gln Arg His Asp	Arg Gln Arg Gly Leu	Val Trp Asp Asp Glu	
1630	1635	1640	
gac tcc gcg gac gat	agc agc gtg ctg gac	ctg gga ggg agc ggc	14125
Asp Ser Ala Asp Asp	Ser Ser Val Leu Asp	Leu Gly Gly Ser Gly	
1645	1650	1655	
aac ccg ttc gcg cac	ctg cgc ccc cgc ctg	ggg agg atg ttt	14167
Asn Pro Phe Ala His	Leu Arg Pro Arg Leu	Gly Arg Met Phe	
1660	1665		
taaaaaagca agaagcatga	tgcaaaaaat tggataatta	atataataaaa actcaccaag	14227
gccatggcga ccgagcggttg	gtttcttggtt gtgttccctt	tagt atg cga cgc gcg	14283
		Met Arg Arg Ala	
		1670	
gcg atg tac cag gag gga cct	cct ccc tct tac gag	agc gtg gtg	14328
Ala Met Tyr Gln Glu Gly Pro	Pro Pro Ser Tyr Glu	Ser Val Val	
1675	1680	1685	
ggc gcg gct tct ccc ttt gcg	tca cag ctg gag ccg	ccg tac gtg	14373
Gly Ala Ala Ser Pro Phe Ala	Ser Gln Leu Glu Pro	Pro Tyr Val	
1690	1695	1700	
cct ccg cgc tac ctg cgg cct	acg ggg ggg aga aac	agc atc cgt	14418
Pro Pro Arg Tyr Leu Arg Pro	Thr Gly Gly Arg Asn	Ser Ile Arg	
1705	1710	1715	
tac tcg gag ctg gcg ccc ctg	ttc gac acc acc ccg	gtg tac ctg	14463
Tyr Ser Glu Leu Ala Pro Leu	Phe Asp Thr Thr Arg	Val Tyr Leu	
1720	1725	1730	
gtg gac aac aag tcg gcg gac	gtg gcc tcc ctg aac	tac cag aac	14508
Val Asp Asn Lys Ser Ala Asp	Val Ala Ser Leu Asn	Tyr Gln Asn	
1735	1740	1745	
gac cac agc aat ttt ttg acc	acg gtc atc cag aac	aat gac tac	14553
Asp His Ser Asn Phe Leu Thr	Thr Val Ile Gln Asn	Asn Asp Tyr	
1750	1755	1760	
agc ccg agc gag gcc agc acc	cag acc atc aat ctg	gat gac ccg	14598
Ser Pro Ser Glu Ala Ser Thr	Gln Thr Ile Asn Leu	Asp Asp Arg	
1765	1770	1775	
tcg cac tgg ggc ggc gac ctg	aaa acc atc ctg cac	acc aac atg	14643
Ser His Trp Gly Gly Asp Leu	Lys Thr Ile Leu His	Thr Asn Met	
1780	1785	1790	
ccc aac gtg aac gag ttc atg	ttc acc aat aag ttc	aag gcg ccg	14688
Pro Asn Val Asn Glu Phe Met	Phe Thr Asn Lys Phe	Lys Ala Arg	
1795	1800	1805	
gtg atg gtg tcg cgc tcg cac	acc aag gac gac ccg	gtg gag ctg	14733
Val Met Val Ser Arg Ser His	Thr Lys Asp Asp Arg	Val Glu Leu	
1810	1815	1820	

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aag tac gag tgg gtg gag ttc gag ctg ccc gag ggc aac tac tcc Lys Tyr Glu Trp Val Glu Phe Glu Leu Pro Glu Gly Asn Tyr Ser 1825 1830 1835	14778
gag acc atg acc att gac ctg atg aac aac gcg atc gtg gag cac Glu Thr Met Thr Ile Asp Leu Met Asn Asn Ala Ile Val Glu His 1840 1845 1850	14823
tat ctg aaa gtg ggc agg cag aac ggg gtt ctg gag agc gac atc Tyr Leu Lys Val Gly Arg Gln Asn Gly Val Leu Glu Ser Asp Ile 1855 1860 1865	14868
ggg gtg aag ttc gac acc agg aac ttc cgc ctg ggg ctg gac ccc Gly Val Lys Phe Asp Thr Arg Asn Phe Arg Leu Gly Leu Asp Pro 1870 1875 1880	14913
gtg acc ggg ctg gtc atg ccc ggg gtg tac acc aac gag gcc ttc Val Thr Gly Leu Val Met Pro Gly Val Tyr Thr Asn Glu Ala Phe 1885 1890 1895	14958
cat ccc gac atc gtc ctg ctg ccc ggc tgc ggg gtg gac ttc acc His Pro Asp Ile Val Leu Leu Pro Gly Cys Gly Val Asp Phe Thr 1900 1905 1910	15003
tac agc cgc ctg agc aac ctc ctg ggc atc cgc aag cgg cag ccc Tyr Ser Arg Leu Ser Asn Leu Leu Gly Ile Arg Lys Arg Gln Pro 1915 1920 1925	15048
ttc cag gag ggc ttc agg atc acc tac gag gac ctg gag ggg ggc Phe Gln Glu Gly Phe Arg Ile Thr Tyr Glu Asp Leu Glu Gly Gly 1930 1935 1940	15093
aac atc ccc gcg ctc ctc gat gtg gag gcc tac cag gat agc tta Asn Ile Pro Ala Leu Leu Asp Val Glu Ala Tyr Gln Asp Ser Leu 1945 1950 1955	15138
aag gaa aac gag gcg ggg cag gag gac acc gcc tcc gcc gcc gcc Lys Glu Asn Glu Ala Gly Gln Glu Asp Thr Ala Ser Ala Ala Ala 1960 1965 1970	15183
gct gca gcc gcc gcc acc ccc gct gag cag ggc gag gat gcc gcc Ala Ala Ala Ala Ala Thr Pro Ala Glu Gln Gly Glu Asp Ala Ala 1975 1980 1985	15228
gcc gca gcc ggc gcg gcc gag gcg gag gcc gaa ccc gcc atg gtg Ala Ala Ala Gly Ala Ala Glu Ala Glu Ala Glu Pro Ala Met Val 1990 1995 2000	15273
gtg gag gag cag gag gag gac atg aat gac agc gcg gtg cgc gga Val Glu Glu Gln Glu Glu Asp Met Asn Asp Ser Ala Val Arg Gly 2005 2010 2015	15318
gac acc ttc gtc acc cgg ggg gag gaa aag caa gcg gag gcc gag Asp Thr Phe Val Thr Arg Gly Glu Glu Lys Gln Ala Glu Ala Glu 2020 2025 2030	15363
gcc gcg gcc gag gag aag cag gcg gcg gag gcg gca gcg gct ttg Ala Ala Ala Glu Glu Lys Gln Ala Ala Glu Ala Ala Ala Ala Leu 2035 2040 2045	15408

gcc gcg gca gag gcg gct gag gct gag tcg gag ggg gcc aag aag Ala Ala Ala Glu Ala Ala Glu Ala Glu Ser Glu Gly Ala Lys Lys 2050 2055 2060	15453
gag ccc gtg att aag ccc ctg acc gaa gat agc aag aag cgc agt Glu Pro Val Ile Lys Pro Leu Thr Glu Asp Ser Lys Lys Arg Ser 2065 2070 2075	15498
tac aac gtg ctc aag gac agc acc aac acc gcg tac cgc agc tgg Tyr Asn Val Leu Lys Asp Ser Thr Asn Thr Ala Tyr Arg Ser Trp 2080 2085 2090	15543
tac ctg gcc tac aac tac ggc gac ccg tcg acg ggg gtg cgc tcc Tyr Leu Ala Tyr Asn Tyr Gly Asp Pro Ser Thr Gly Val Arg Ser 2095 2100 2105	15588
tgg acc ctg ctg tgc acg ccg gac gtg acc tgc ggc tcg gag cag Trp Thr Leu Leu Cys Thr Pro Asp Val Thr Cys Gly Ser Glu Gln 2110 2115 2120	15633
gtg tac tgg tcg ctg ccc gac atg atg caa gac ccc gtg acc ttc Val Tyr Trp Ser Leu Pro Asp Met Met Gln Asp Pro Val Thr Phe 2125 2130 2135	15678
cgc tcc acg cgg cag gtc agc aac ttc ccg gtg gtg ggc gcc gag Arg Ser Thr Arg Gln Val Ser Asn Phe Pro Val Val Gly Ala Glu 2140 2145 2150	15723
ctg ctg ccc gtg cac tcc aag agc ttc tac aac gac cag gcc gtc Leu Leu Pro Val His Ser Lys Ser Phe Tyr Asn Asp Gln Ala Val 2155 2160 2165	15768
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aat cgc ttt cct gag aac cag att ctg gcg cgc ccg ccc gcc ccc Asn Arg Phe Pro Glu Asn Gln Ile Leu Ala Arg Pro Pro Ala Pro 2185 2190 2195	15858
acc atc acc acc gtc agt gaa aac gtt cct gct ctc aca gat cac Thr Ile Thr Thr Val Ser Glu Asn Val Pro Ala Leu Thr Asp His 2200 2205 2210	15903
ggg acg cta ccg ctg cgc aac agc atc gga gga gtc cag cga gtg Gly Thr Leu Pro Leu Arg Asn Ser Ile Gly Gly Val Gln Arg Val 2215 2220 2225	15948
acc gtt act gac gcc aga cgc cgc acc tgc ccc tac gtt tac aag Thr Val Thr Asp Ala Arg Arg Arg Thr Cys Pro Tyr Val Tyr Lys 2230 2235 2240	15993
gcc ttg ggc ata gtc tct ccg cgc gtc ctt tcc agc cgc act ttt Ala Leu Gly Ile Val Ser Pro Arg Val Leu Ser Ser Arg Thr Phe 2245 2250 2255	16038
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aac	tcc	ggc	tgg	gga	ctg	ctg	cgc	gcg	ccc	agc	aag	atg	ttc	gga	16133
Asn	Ser	Gly	Trp	Gly	Leu	Leu	Arg	Ala	Pro	Ser	Lys	Met	Phe	Gly	
		2270					2275					2280			
ggg	gcg	agg	aag	cgc	tcc	gag	cag	cac	ccc	gtg	cgc	gtg	cgc	ggg	16178
Gly	Ala	Arg	Lys	Arg	Ser	Glu	Gln	His	Pro	Val	Arg	Val	Arg	Gly	
		2285					2290					2295			
cac	ttc	cgc	gcc	ccc	tgg	gga	gcg	cac	aaa	cgc	ggc	cgc	acg	ggg	16223
His	Phe	Arg	Ala	Pro	Trp	Gly	Ala	His	Lys	Arg	Gly	Arg	Thr	Gly	
		2300					2305					2310			
cgc	acc	acc	gtg	gac	gac	gcc	atc	gac	tcg	gtg	gtg	gag	cag	gcg	16268
Arg	Thr	Thr	Val	Asp	Asp	Ala	Ile	Asp	Ser	Val	Val	Glu	Gln	Ala	
		2315					2320					2325			
cgc	aac	tac	agg	ccc	gcg	gtc	tcc	acc	gtg	gac	gcg	gcc	atc	cag	16313
Arg	Asn	Tyr	Arg	Pro	Ala	Val	Ser	Thr	Val	Asp	Ala	Ala	Ile	Gln	
		2330					2335					2340			
aca	gtg	gtg	cag	ggc	gcg	cgg	cgg	tac	gcc	aag	ctg	aag	agc	cgc	16358
Thr	Val	Val	Gln	Gly	Ala	Arg	Arg	Tyr	Ala	Lys	Leu	Lys	Ser	Arg	
		2345					2350					2355			
cgg	aag	cgc	gtg	gcc	cgc	cgc	cac	cgc	cgc	cga	ccc	ggg	gcc	gcc	16403
Arg	Lys	Arg	Val	Ala	Arg	Arg	His	Arg	Arg	Arg	Pro	Gly	Ala	Ala	
		2360					2365					2370			
gcc	aaa	cgc	gcc	gcc	gcc	gcc	ctg	ctt	cgc	cgg	gcc	aag	cgc	acg	16448
Ala	Lys	Arg	Ala	Ala	Ala	Ala	Leu	Leu	Arg	Arg	Ala	Lys	Arg	Thr	
		2375					2380					2385			
ggc	cgc	cgc	gcc	gcc	atg	agg	gcc	gcg	cgc	cgc	ctg	gcc	gcc	ggc	16493
Gly	Arg	Arg	Ala	Ala	Met	Arg	Ala	Ala	Arg	Arg	Leu	Ala	Ala	Gly	
		2390					2395					2400			
atc	acc	gcc	acc	gcc	atg	gcc	ccc	cgc	acc	cga	aga	cgc	gcg	gcc	16538
Ile	Thr	Ala	Thr	Ala	Met	Ala	Pro	Arg	Thr	Arg	Arg	Arg	Ala	Ala	
		2405					2410					2415			
gcc	gcc	gcc	gcc	gcg	gcc	atc	agc	gac	atg	gcc	acc	agg	cgc	cgg	16583
Ala	Ala	Ala	Ala	Ala	Ala	Ile	Ser	Asp	Met	Ala	Thr	Arg	Arg	Arg	
		2420					2425					2430			
ggc	aac	gtg	tac	tgg	gtg	cgc	gac	tcg	gtg	agc	ggt	gtg	cgc	gtg	16628
Gly	Asn	Val	Tyr	Trp	Val	Arg	Asp	Ser	Val	Ser	Gly	Val	Arg	Val	
		2435					2440					2445			
ccc	gtg	cgc	ttc	cgc	ccc	ccg	cgg	act	tgatgtgtga	aaaacaacac					16675
Pro	Val	Arg	Phe	Arg	Pro	Pro	Arg	Thr							
		2450					2455								
tgagtctcct			gctgtt	gtgt			gtatcccagc	ggcgcgcgcga	gcgac			atg	tcc	aag	16729
												Met	Ser	Lys	
cgc	aaa	atc	aaa	gaa	g										

Arg 2460	Lys	Ile	Lys	Glu	Glu	Met	Leu	Gln	Val	Ile 2470	Ala	Pro	Glu	Ile	
					2465										
tat Tyr 2475	ggg Gly	ccc Pro	ccg Pro	aag Lys	aag Lys	gaa Glu	gag Glu	cag Gln	gat Asp	ttc Phe	aag Lys	tcc Ser	cgc Arg	aag Lys	16819
					2480					2485					
ata Ile 2490	aag Lys	cgg Arg	gtc Val	aaa Lys	aag Lys	aaa Lys	aag Lys	aaa Lys	gat Asp	gat Asp	gat Asp	gcc Ala	gat Asp	ggg Gly	16864
					2495					2500					
gag Glu 2505	gtg Val	gag Glu	ttt Phe	ctg Leu	cgc Arg	gcc Ala	acg Thr	gcg Ala	ccc Pro	agg Arg	cgc Arg	ccg Pro	gtg Val	cag Gln	16909
					2510					2515					
tgg Trp 2520	aag Lys	ggc Gly	cgg Arg	cgc Arg	gta Val	aag Lys	cgc Arg	gtc Val	ctg Leu	cgc Arg	ccc Pro	ggc Gly	acc Thr	gcg Ala	16954
					2525					2530					
gtg Val 2535	gtc Val	ttc Phe	acg Thr	ccc Pro	ggc Gly	gag Glu	cgc Arg	tcc Ser	acc Thr	cgg Arg	act Thr	ttc Phe	aag Lys	cgc Arg	16999
					2540					2545					
gtc Val 2550	tat Tyr	gac Asp	gag Glu	gtg Val	tac Tyr	ggc Gly	gac Asp	gaa Glu	gac Asp	ctg Leu	ctg Leu	gag Glu	cag Gln	gcc Ala	17044
					2555					2560					
aac Asn 2565	gag Glu	cgc Arg	ttc Phe	gga Gly	gag Glu	ttt Phe	gct Ala	tac Tyr	ggg Gly	aag Lys	cga Arg	cag Gln	cgg Arg	ccg Pro	17089
					2570					2575					
ctg Leu 2580	ggg Gly	aag Lys	gag Glu	gat Asp	gag Glu	gac Asp	ctg Leu	ctg Leu	gcg Ala	ctg Leu	ccg Pro	ctg Leu	gac Asp	cgg Arg	17134
					2585					2590					
ggc Gly 2595	aac Asn	ccc Pro	acc Thr	ccc Pro	agc Ser	ttg Leu	aag Lys	ccc Pro	gtg Val	acc Thr	ctg Leu	cag Gln	cag Gln	gtg Val	17179
					2600					2605					
ctg Leu 2610	ccg Pro	agc Ser	agc Ser	gcg Ala	ccc Pro	tcc Ser	gag Glu	acg Thr	aag Lys	cgg Arg	ggt Gly	ctg Leu	aag Lys	cgc Arg	17224
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gag Glu 2625	ggc Gly	ggc Gly	gac Asp	ctg Leu	gcg Ala	ccc Pro	acc Thr	gtg Val	cag Gln	ctg Leu	atg Met	gtg Val	ccc Pro	aag Lys	17269
					2630					2635					
cgg Arg 2640	cag Gln	agg Arg	ctg Leu	gag Glu	gac Asp	gtg Val	ctg Leu	gag Glu	aaa Lys	atg Met	aaa Lys	gta Val	gac Asp	ccc Pro	17314
					2645					2650					
ggt Gly 2655	ctg Leu	cag Gln	ccg Pro	gac Asp	atc Ile	agg Arg	gtc Val	cgc Arg	ccc Pro	atc Ile	aag Lys	cag Gln	gtg Val	gca Ala	17359
					2660					2665					
ccg Pro 2670	ggt Gly	ctc Leu	ggc Gly	gtg Val	cag Gln	acc Thr	gtg Val	gac Asp	gtg Val	gtc Val	att Ile	ccc Pro	acc Thr	ggc Gly	17404
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aac Asn 2685	tcc Ser	ccc Pro	gcc Ala	gcc Ala	gcc Ala	acc Thr	acc Thr	acc Thr	acc Thr	gct Ala	acc Thr	tcc Ser	acg Thr	gac Asp	17449
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atg Met 2700	gag Glu	acg Thr	cag Gln	acc Thr	gtc Val	ccc Pro	gca Ala	gcc Ala	gca Ala	gcc Ala	gcc Ala	gct Ala	gca Ala	gcc Ala	17494
					2705					2710					
acc Thr 2715	gcc Ala	gcg Ala	acc Thr	tcc Ser	tcg Ser	gcg Ala	gag Glu	gtg Val	cag Gln	acg Thr	gac Asp	ccc Pro	tggtg Trp	ctg Leu	17539
					2720					2725					
ccg Pro 2730	ccg Pro	gcg Ala	atg Met	gct Ala	ccc Pro	cgc Arg	gcg Ala	cgc Arg	cgc Arg	ggg Gly	cgc Arg	agg Arg	aag Lys	tac Tyr	17584
					2735					2740					
ggc Gly 2745	gcc Ala	gcc Ala	aac Asn	gcg Ala	ctc Leu	ctg Leu	ccc Pro	gag Glu	tac Tyr	gcc Ala	ttg Leu	cat His	cct Pro	tcc Ser	17629
					2750					2755					
atc Ile 2760	gcg Ala	ccc Pro	acc Thr	ccc Pro	ggc Gly	tac Tyr	cga Arg	ggc Gly	tac Tyr	acc Thr	tac Tyr	cgc Arg	ccg Pro	cga Arg	17674
					2765					2770					
aga Arg 2775	gcc Ala	aag Lys	ggc Gly	tcc Ser	acc Thr	cgc Arg	cgc Arg	ccc Pro	cgc Arg	cga Arg	cgc Arg	gcc Ala	gcc Ala	acc Thr	17719
					2780					2785					
acc Thr 2790	cgc Arg	cgc Arg	cgt Arg	cgc Arg	cgc Arg	agc Ser	cgt Arg	cgc Arg	cag Gln	ccc Pro	gca Ala	ctg Leu	gcc Ala	cca Pro	17764
					2795					2800					
atc Ile 2805	tcc Ser	gtg Val	agg Arg	aga Arg	gtg Val	gcg Ala	cgc Arg	gac Asp	gga Gly	cgc Arg	acc Thr	ctg Leu	gtg Val	ctg Leu	17809
					2810					2815					
ccc Pro 2820	agg Arg	gcg Ala	cgc Arg	tac Tyr	cac His	ccc Pro	agc Ser	atc Ile	gtt Val	taaaaaagcct gttgtgggttc					17859
					2825										
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tac Tyr	cga Arg	gga Gly	gga Gly	aga Arg	tcg Ser	cgc Arg	cgc Arg	agg Arg	agg Arg	ggt Gly	ctg Leu	gcc Ala	ggc Gly	cgc Arg	17951
		2845					2850					2855			
ggc Gly	ctg Leu	agc Ser	gga Gly	ggc Gly	agc Ser	cgc Arg	cgc Arg	gcg Ala	cac His	cgg Arg	cgg Arg	cga Arg	cgc Arg	gcc Ala	17996
		2860					2865					2870			
acc Thr	agc Ser	cga Arg	cgc Arg	atg Met	cgc Arg	ggc Gly	ggg Gly	gtg Val	ctg Leu	ccc Pro	ctg Leu	ctg Leu	atc Ile	ccc Pro	18041
		2875					2880					2885			
ctg Leu	atc Ile	gcc Ala	gcg Ala	gcg Ala	atc Ile	ggc Gly	gcc Ala	gtg Val	ccc Pro	ggg Gly	atc Ile	gcc Ala	tcc Ser	gtg Val	18086
		2890					2895					2900			

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Ala Leu Gln Ala Ser Gln Arg Arg	
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gtgactatatt tgtaga atg gaa gac atc aac ttt gcg tcg ctg gcc ccg	18239
Met Glu Asp Ile Asn Phe Ala Ser Leu Ala Pro	
2915 2920	
cgt cac ggc tcg cgc ccg ttc ctg gga cac tgg aac gat atc ggc	18284
Arg His Gly Ser Arg Pro Phe Leu Gly His Trp Asn Asp Ile Gly	
2925 2930 2935	
acc agc aac atg agc ggt ggc gcc ttc agt tgg ggc tct ctg tgg	18329
Thr Ser Asn Met Ser Gly Gly Ala Phe Ser Trp Gly Ser Leu Trp	
2940 2945 2950	
agc ggc att aaa agt atc ggg tcg gcc gtt aaa aat tac ggc acc	18374
Ser Gly Ile Lys Ser Ile Gly Ser Ala Val Lys Asn Tyr Gly Thr	
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cgg gcc tgg aac agc agc acg ggc cag atg ttg aga gac aag ttg	18419
Arg Ala Trp Asn Ser Ser Thr Gly Gln Met Leu Arg Asp Lys Leu	
2970 2975 2980	
aaa gag cag aac ttc cag cag aag gtg gtg gag ggc ctg gcc tcc	18464
Lys Glu Gln Asn Phe Gln Gln Lys Val Val Glu Gly Leu Ala Ser	
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ggc atc aac ggg gtg gtg gac ctg gcc aac cag gcc gtg cag aat	18509
Gly Ile Asn Gly Val Val Asp Leu Ala Asn Gln Ala Val Gln Asn	
3000 3005 3010	
aag atc aac agc aga ctg gac ccc cgg ccg ccg gta gag gag gtg	18554
Lys Ile Asn Ser Arg Leu Asp Pro Arg Pro Pro Val Glu Glu Val	
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ccg ccg gcg ctg gag acg gtg tcc ccc gat ggg ccg ggc gaa aag	18599
Pro Pro Ala Leu Glu Thr Val Ser Pro Asp Gly Arg Gly Glu Lys	
3030 3035 3040	
cgc ccg cgg ccc gat agg gaa gag acc act ctg gtc acg cag acc	18644
Arg Pro Arg Pro Asp Arg Glu Glu Thr Thr Leu Val Thr Gln Thr	
3045 3050 3055	
gat gag ccg ccc ccg tac gag gag gcc ctg aag caa ggt ctg ccc	18689
Asp Glu Pro Pro Pro Tyr Glu Glu Ala Leu Lys Gln Gly Leu Pro	
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acc acg cgg ccc atc gcg ccc atg gcc acc ggg gtg gtg ggc cgc	18734
Thr Thr Arg Pro Ile Ala Pro Met Ala Thr Gly Val Val Gly Arg	
3075 3080 3085	
cac acc ccc gcc acg ctg gac ttg cct ccg ccc gcc gat gtg ccg	18779
His Thr Pro Ala Thr Leu Asp Leu Pro Pro Pro Ala Asp Val Pro	
3090 3095 3100	

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cag cag cag aag	gcg gca cag ccg ggc	ccg ccc gcg acc gcc	ccc	18824
Gln Gln Gln Lys	Ala Ala Gln Pro Gly	Pro Pro Ala Thr Ala	Pro	
3105	3110	3115		
cgt tcc tcc gcc	ggt cct ctg cgc cgc	gcg gcc agt ggc ccc	cgc	18869
Arg Ser Ser Ala	Gly Pro Leu Arg Arg	Ala Ala Ser Gly Pro	Arg	
3120	3125	3130		
ggc ggg gtc tcg	agg cac agc agc ggc	aac tgg cag agc acg	ctg	18914
Gly Gly Val Ser	Arg His Ser Ser Gly	Asn Trp Gln Ser Thr	Leu	
3135	3140	3145		
aac agc atc gtg	ggt ctg ggg gtg cgg	tcc gtg aag cgc cgc	cga	18959
Asn Ser Ile Val	Gly Leu Gly Val Arg	Ser Val Lys Arg Arg	Arg	
3150	3155	3160		
tgc tac tgaatagctt	agctaacgtg ttgtatgtgt	gtatgcgtcc tatgtcgccg		19015
Cys Tyr				
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g atg gcg	acc cca tcg atg atg	ccg cag tgg tcg tac	atg cac atc	19121
Met Ala	Thr Pro Ser Met Met	Pro Gln Trp Ser Tyr	Met His Ile	
3165	3170	3175		
tcg ggc	cag gac gcc tcg gag	tac ctg agt ccc ggg	ctg gtg cag	19166
Ser Gly	Gln Asp Ala Ser Glu	Tyr Leu Ser Pro Gly	Leu Val Gln	
3180	3185	3190		
ttc gcc	cgc gcc acc gag agc	tac ttc agt ctg agt	aac aag ttt	19211
Phe Ala	Arg Ala Thr Glu Ser	Tyr Phe Ser Leu Ser	Asn Lys Phe	
3195	3200	3205		
agg aac	ccc acg gtg gcg ccc	acg cac gat gtg acc	acc gac cgg	19256
Arg Asn	Pro Thr Val Ala Pro	Thr His Asp Val Thr	Thr Asp Arg	
3210	3215	3220		
tcc cag	cgc ctg acg ctg cgg	ttc atc ccc gtg gac	cgc gag gac	19301
Ser Gln	Arg Leu Thr Leu Arg	Phe Ile Pro Val Asp	Arg Glu Asp	
3225	3230	3235		
acc gcg	tac tcg tac aag gcg	cgg ttc acc ctg gcc	gtg ggc gac	19346
Thr Ala	Tyr Ser Tyr Lys Ala	Arg Phe Thr Leu Ala	Val Gly Asp	
3240	3245	3250		
aac cgc	gtg ctg gac atg gcc	tcc acc tac ttt gac	atc cgc ggc	19391
Asn Arg	Val Leu Asp Met Ala	Ser Thr Tyr Phe Asp	Ile Arg Gly	
3255	3260	3265		
gtg ctg	gac cgc ggc ccc acc	ttt aag ccc tac tcc	ggc acc gcc	19436
Val Leu	Asp Arg Gly Pro Thr	Phe Lys Pro Tyr Ser	Gly Thr Ala	
3270	3275	3280		
tac aac	tcc ctg gcc ccc aag	ggc gcg ccc aac cca	tgc gag tgg	19481
Tyr Asn	Ser Leu Ala Pro Lys	Gly Ala Pro Asn Pro	Cys Glu Trp	
3285	3290	3295		
gat gag	gct gct act gcc ctt	gac att gat ttg aac	gca gaa gaa	19526

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Asp	Glu	Ala	Ala	Thr	Ala	Leu	Asp	Ile	Asp	Leu	Asn	Ala	Glu	Glu	
	3300					3305					3310				
gat	gaa	gaa	ggc	gat	gaa	gcc	caa	ggg	gaa	gca	gat	cag	cag	aaa	19571
Asp	Glu	Glu	Gly	Asp	Glu	Ala	Gln	Gly	Glu	Ala	Asp	Gln	Gln	Lys	
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act	cat	gta	ttt	ggc	cag	gcg	cca	tac	tcc	gga	cag	aac	att	aca	19616
Thr	His	Val	Phe	Gly	Gln	Ala	Pro	Tyr	Ser	Gly	Gln	Asn	Ile	Thr	
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Lys	Glu	Gly	Ile	Gln	Ile	Gly	Ile	Asp	Ala	Thr	Ser	Gln	Ala	Gln	
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aca	cct	cta	tat	gcc	gac	aaa	aca	ttc	caa	ccc	gaa	cct	caa	atc	19706
Thr	Pro	Leu	Tyr	Ala	Asp	Lys	Thr	Phe	Gln	Pro	Glu	Pro	Gln	Ile	
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Gly	Glu	Ser	Gln	Trp	Asn	Glu	Thr	Glu	Ile	Ser	Tyr	Gly	Ala	Gly	
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cgg	gtg	cta	aaa	aag	acc	act	ctc	atg	aaa	cct	tgc	tat	ggg	tca	19796
Arg	Val	Leu	Lys	Lys	Thr	Thr	Leu	Met	Lys	Pro	Cys	Tyr	Gly	Ser	
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Tyr	Ala	Arg	Pro	Thr	Asn	Glu	Asn	Gly	Gly	Gln	Gly	Ile	Leu	Leu	
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gaa	caa	gat	gga	aag	aaa	gaa	agt	caa	gtg	gaa	atg	caa	ttt	ttc	19886
Glu	Gln	Asp	Gly	Lys	Lys	Glu	Ser	Gln	Val	Glu	Met	Gln	Phe	Phe	
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tcc	act	act	cag	gca	gct	gcg	ggt	aat	tca	gat	aat	cct	act	cca	19931
Ser	Thr	Thr	Gln	Ala	Ala	Ala	Gly	Asn	Ser	Asp	Asn	Pro	Thr	Pro	
	3435					3440					3445				
aag	ctt	gtt	ttg	tac	agc	gag	gat	gtt	aac	ctg	gaa	aca	cca	gat	19976
Lys	Leu	Val	Leu	Tyr	Ser	Glu	Asp	Val	Asn	Leu	Glu	Thr	Pro	Asp	
	3450					3455					3460				
aca	cac	att	tca	tac	atg	ccc	act	aac	aac	gaa	acc	aat	tca	aga	20021
Thr	His	Ile	Ser	Tyr	Met	Pro	Thr	Asn	Asn	Glu	Thr	Asn	Ser	Arg	
	3465					3470					3475				
gaa	ctg	ttg	gga	caa	cag	gcc	atg	ccc	aac	agg	cct	aat	tac	atc	20066
Glu	Leu	Leu	Gly	Gln	Gln	Ala	Met	Pro	Asn	Arg	Pro	Asn	Tyr	Ile	
	3480					3485					3490				
ggc	ttc	aga	gac	aac	ttt	atc	ggt	ctc	atg	tac	tac	aac	agc	act	20111
Gly	Phe	Arg	Asp	Asn	Phe	Ile	Gly	Leu	Met	Tyr	Tyr	Asn	Ser	Thr	
	3495					3500					3505				
ggc	aac	atg	gga	gtg	ctt	gca	ggt	cag	gcc	tct	cag	ttg	aat	gca	20156
Gly	Asn	Met	Gly	Val	Leu	Ala	Gly	Gln	Ala	Ser	Gln	Leu	Asn	Ala	
	3510					3515					3520				

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gtg	gtg	gac	ttg	caa	gac	aga	aac	aca	gaa	ctg	tcc	tac	cag	ctc	20201
Val	Val	Asp	Leu	Gln	Asp	Arg	Asn	Thr	Glu	Leu	Ser	Tyr	Gln	Leu	
	3525					3530					3535				
ttg	ctt	gat	tcc	atg	ggt	gac	aga	acc	aga	tat	ttc	tcc	atg	tgg	20246
Leu	Leu	Asp	Ser	Met	Gly	Asp	Arg	Thr	Arg	Tyr	Phe	Ser	Met	Trp	
	3540					3545					3550				
aat	cag	gca	gtg	gac	agt	tat	gac	cca	gat	gtt	aga	att	att	gaa	20291
Asn	Gln	Ala	Val	Asp	Ser	Tyr	Asp	Pro	Asp	Val	Arg	Ile	Ile	Glu	
	3555					3560					3565				
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Asn	His	Gly	Thr	Glu	Asp	Glu	Leu	Pro	Asn	Tyr	Cys	Phe	Pro	Leu	
	3570					3575					3580				
ggc	ggc	ata	atc	aat	acg	gaa	act	ttt	aca	aaa	gtc	aag	cct	aaa	20381
Gly	Gly	Ile	Ile	Asn	Thr	Glu	Thr	Phe	Thr	Lys	Val	Lys	Pro	Lys	
	3585					3590					3595				
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Ala	Gly	Gln	Asp	Ala	Gln	Trp	Glu	Lys	Asp	Ser	Glu	Phe	Ser	Asp	
	3600					3605					3610				
aaa	aat	gaa	ata	aga	gtg	gga	aac	aac	ttc	gct	atg	gaa	atc	aac	20471
Lys	Asn	Glu	Ile	Arg	Val	Gly	Asn	Asn	Phe	Ala	Met	Glu	Ile	Asn	
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atc	aat	gcc	aac	ctg	tgg	agg	aac	ttc	ctg	tac	tcc	aac	gtg	gcc	20516
Ile	Asn	Ala	Asn	Leu	Trp	Arg	Asn	Phe	Leu	Tyr	Ser	Asn	Val	Ala	
	3630					3635					3640				
ctg	tac	ctg	cca	gac	aag	ctt	aag	tat	act	cca	tcc	aat	gtg	caa	20561
Leu	Tyr	Leu	Pro	Asp	Lys	Leu	Lys	Tyr	Thr	Pro	Ser	Asn	Val	Gln	
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att	tcc	aac	aac	ccc	aac	tcc	tac	gat	tac	atg	aac	aag	cga	gtg	20606
Ile	Ser	Asn	Asn	Pro	Asn	Ser	Tyr	Asp	Tyr	Met	Asn	Lys	Arg	Val	
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Val	Ala	Pro	Gly	Leu	Val	Asp	Cys	Tyr	Ile	Asn	Leu	Gly	Ala	Arg	
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Trp	Ser	Leu	Asp	Tyr	Met	Asp	Asn	Val	Asn	Pro	Phe	Asn	His	His	
	3690					3695					3700				
cgc	aac	gcg	ggc	ctg	cgc	tac	cgc	tcc	atg	ctc	ctg	ggc	aac	ggg	20741
Arg	Asn	Ala	Gly	Leu	Arg	Tyr	Arg	Ser	Met	Leu	Leu	Gly	Asn	Gly	
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cgc	tac	gtg	ccc	ttc	cac	atc	cag	gtg	ccc	cag	aag	ttc	ttt	gcc	20786
Arg	Tyr	Val	Pro	Phe	His	Ile	Gln	Val	Pro	Gln	Lys	Phe	Phe	Ala	
	3720					3725					3730				
atc	aag	aac	ctc	ctc	ctc	ctg	ccg	ggc	tcc	tac	acc	tac	gag	tgg	20831
Ile	Lys	Asn	Leu	Leu	Leu	Leu	Pro	Gly	Ser	Tyr	Thr	Tyr	Glu	Trp	
	3735					3740					3745				

aac ttc agg aag gat gtc aac atg gtc ctc cag agc tct ctg ggc	20876
Asn Phe Arg Lys Asp Val Asn Met Val Leu Gln Ser Ser Leu Gly	
3750 3755 3760	
aac gat ctc agg gtg gac ggg gcc agc atc aag ttc gag agc atc	20921
Asn Asp Leu Arg Val Asp Gly Ala Ser Ile Lys Phe Glu Ser Ile	
3765 3770 3775	
tgc ctc tac gcc acc ttc ttc ccc atg gcc cac aac acc gcc tcc	20966
Cys Leu Tyr Ala Thr Phe Phe Pro Met Ala His Asn Thr Ala Ser	
3780 3785 3790	
acg ctc gag gcc atg ctc agg aac gac acc aac gac cag tcc ttc	21011
Thr Leu Glu Ala Met Leu Arg Asn Asp Thr Asn Asp Gln Ser Phe	
3795 3800 3805	
aat gac tac ctc tcc gcc gcc aac atg ctc tac ccc atc ccc gcc	21056
Asn Asp Tyr Leu Ser Ala Ala Asn Met Leu Tyr Pro Ile Pro Ala	
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aac gcc acc aac gtc ccc atc tcc atc ccc tcg cgc aac tgg gcg	21101
Asn Ala Thr Asn Val Pro Ile Ser Ile Pro Ser Arg Asn Trp Ala	
3825 3830 3835	
gcc ttc cgc ggc tgg gcc ttc acc cgc ctc aag acc aag gag acc	21146
Ala Phe Arg Gly Trp Ala Phe Thr Arg Leu Lys Thr Lys Glu Thr	
3840 3845 3850	
ccc tcc ctg ggc tcg gga ttc gac ccc tac tac acc tac tcg gga	21191
Pro Ser Leu Gly Ser Gly Phe Asp Pro Tyr Tyr Thr Tyr Ser Gly	
3855 3860 3865	
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Ser Ile Pro Tyr Leu Asp Gly Thr Phe Tyr Leu Asn His Thr Phe	
3870 3875 3880	
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Lys Lys Val Ser Val Thr Phe Asp Ser Ser Val Ser Trp Pro Gly	
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Asn Asp Arg Leu Leu Thr Pro Asn Glu Phe Glu Ile Lys Arg Ser	
3900 3905 3910	
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Val Asp Gly Glu Gly Tyr Asn Val Ala Gln Cys Asn Met Thr Lys	
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Asp Trp Phe Leu Val Gln Met Leu Ala Asn Tyr Asn Ile Gly Tyr	
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Gln Gly Phe Tyr Ile Pro Glu Ser Tyr Lys Asp Arg Met Tyr Ser	
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ttc ttc agg aac ttc cag ccc atg agc cgg cag gtg gtg gac cag	21506
Phe Phe Arg Asn Phe Gln Pro Met Ser Arg Gln Val Val Asp Gln	

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3960		3965		3970	
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Thr Lys Tyr Lys Asp Tyr Gln Glu Val Gly Ile Ile His Gln His					
3975		3980		3985	
aac aac tcg ggc ttc gtg ggc tac ctt gcc ccc acc atg cgc gag					21596
Asn Asn Ser Gly Phe Val Gly Tyr Leu Ala Pro Thr Met Arg Glu					
3990		3995		4000	
gga cag gcc tac ccc gcc aac ttc ccc tac ccg ctc ata ggc aag					21641
Gly Gln Ala Tyr Pro Ala Asn Phe Pro Tyr Pro Leu Ile Gly Lys					
4005		4010		4015	
acc gcg gtc gac agc atc acc cag aaa aag ttc ctc tgc gac cgc					21686
Thr Ala Val Asp Ser Ile Thr Gln Lys Lys Phe Leu Cys Asp Arg					
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acc ctc tgg cgc atc ccc ttc tcc agc aac ttc atg tcc atg ggt					21731
Thr Leu Trp Arg Ile Pro Phe Ser Ser Asn Phe Met Ser Met Gly					
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Ala Leu Thr Asp Leu Gly Gln Asn Leu Leu Tyr Ala Asn Ser Ala					
4050		4055		4060	
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His Ala Leu Asp Met Thr Phe Glu Val Asp Pro Met Asp Glu Pro					
4065		4070		4075	
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Thr Leu Leu Tyr Val Leu Phe Glu Val Phe Asp Val Val Arg Val					
4080		4085		4090	
cac cag ccg cac cgc ggc gtc atc gag acc gtg tac ctg cgc aca					21911
His Gln Pro His Arg Gly Val Ile Glu Thr Val Tyr Leu Arg Thr					
4095		4100		4105	
ccc ttc tcg gcc ggc aac gcc acc acc taaagaagca agccgccgcc					21958
Pro Phe Ser Ala Gly Asn Ala Thr Thr					
4110		4115			
tccgccgccg cccgc atg ccg tcg ggt tcc acc gag cag gag ctc agg					22006
		Met Pro Ser Gly Ser Thr Glu Gln Glu Leu Arg			
		4120		4125	
gcc atc gtc aga gac ctg gga tgc ggg ccc tat ttt ttg ggc acc					22051
Ala Ile Val Arg Asp Leu Gly Cys Gly Pro Tyr Phe Leu Gly Thr					
4130		4135		4140	
ttc gac aag cgc ttc ccg ggc ttc gtc tcc ccg cac aag ctg gcc					22096
Phe Asp Lys Arg Phe Pro Gly Phe Val Ser Pro His Lys Leu Ala					
4145		4150		4155	
tgc gcc atc gtc aac acg gcc ggc cgc gag acc ggg ggc gtg cac					22141
Cys Ala Ile Val Asn Thr Ala Gly Arg Glu Thr Gly Gly Val His					
4160		4165		4170	
tgg ctg gcc ttc gcc tgg aac ccg cgc tcc aaa aca tgc ttt ctc					22186

[illegible]

gtcgcagcgc agcgggatca gcaggtgccc gtgcccggac tcggcggttg ggtacagcgc	23183
gcgcaggaag gcctgcatct ggcggaaggc catctggggc ttcgcgccct ccgagaagaa	23243
catgccgcag gatttgcccg agaactgggt cgcggggcag ctgcgcgtcgt gcaggcaaca	23303
gcgcgcgtcg gtgttggcga tctgcaccac gttgcgcccc caccggttct tcacgatctt	23363
ggccttggac gcctgctcct tcagcgcgcg ctgcccgttc tcgctggtca catccatctc	23423
gatcacatgc tccttgttca ccatgctgct gccgtgcagg cacttcagct cgccctccgt	23483
ctcagtgcag cgggtgctgcc acagcgcgca gcccggtggc tcgaaagact tgtaggtcac	23543
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gttgctgctg aaggtcagct gcagcccgcg gtgctcctcg ttcagccagg tcttgcaaac	23663
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cacgtggtac ttgtccatca gcgcgcgcgc cgctccata cccttctccc aggccgacac	23783
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gggtggacgg cgggccgcgc cgcgtccgcg ctcggggggt gtctcgcgt ggtcctcttc	24383
ccgactggcc atctcccact gtccttctc ctataggcag aaagagatc atg gag	24438
Met Glu	
tct ctc atg caa gtc gag aag gag gag gac agc cta acc gcc ccc	24483
Ser Leu Met Gln Val Glu Lys Glu Glu Asp Ser Leu Thr Ala Pro	
4330 4335 4340	
tct gag ccc acc acc gcc gcc acc gcc gcc gcc agt gcc gcc gcg	24528
Ser Glu Pro Thr Thr Ala Ala Thr Ala Ala Ala Ser Ala Ala Ala	
4345 4350 4355	
gac gac gcg ccc acc gag acc acc acc act acc acc acc ctt ccc	24573
Asp Asp Ala Pro Thr Glu Thr Thr Thr Thr Thr Thr Thr Thr Leu Pro	
4360 4365 4370	
agc gac gca ccc ccg ctc gag aag gaa gtg ctg atc gag cag gac	24618

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Ser 4375	Asp	Ala	Pro	Pro	Leu 4380	Glu	Lys	Glu	Val	Leu 4385	Ile	Glu	Gln	Asp	
ccg 4390	ggt Pro	ttt Gly	gtg Phe	agc Val	gaa Ser	gag Glu	gag Glu	gat Asp	gag Glu	gcg Ala	gat Asp	gag Glu	aag Lys	gag Glu	24663
gat 4405	act Asp	gcc Ala	gcc Ala	tca Ser	gtg Val	cca Pro	aaa Lys	gag Glu	gat Asp	aaa Lys	aag Lys	caa Gln	gac Asp	cag Gln	24708
gac 4420	gac Asp	gca Ala	gaa Glu	aaa Lys	gat Asp	gag Glu	gca Ala	gca Ala	gtc Val	ggg Gly	cgg Arg	ggg Gly	gac Asp	gga Gly	24753
agc 4435	cat Ser	gat His	gct Asp	gat Ala	gac Asp	ggc Gly	tac Tyr	cta Leu	gac Asp	gtg Val	gga Gly	gac Asp	gac Asp	gtg Val	24798
ctg 4450	ctt Leu	aag Lys	cac His	ctg Leu	cac His	cgc Arg	cag Gln	tgc Cys	gtc Val	atc Ile	atc Ile	tgc Cys	gac Asp	gcg Ala	24843
ctg 4465	cag Leu	gag Gln	cgc Glu	tgc Arg	gaa Cys	gtg Glu	ccc Val	ctg Pro	gac Leu	gtg Asp	gcg Val	gag Ala	gtc Glu	agc Val	24888
cgc 4480	gcc Arg	tac Ala	gag Tyr	cgc Glu	cac Arg	ctc Leu	ttc Phe	gcg Ala	ccg Pro	cac His	gtg Val	ccc Pro	ccc Pro	aag Lys	24933
cgc 4495	cgc Arg	gag Glu	aac Asn	ggc Gly	acc Thr	tgc Cys	gag Glu	ccc Pro	aac Asn	ccg Pro	cgc Arg	ctc Leu	aac Asn	ttc Phe	24978
tac 4510	ccg Tyr	gtc Pro	ttc Val	gcg Phe	gta Ala	ccc Pro	gag Glu	gtg Val	ctg Leu	gcc Ala	acc Thr	tac Tyr	cac His	atc Ile	25023
ttc 4525	ttc Phe	caa Gln	aac Asn	tgc Cys	aag Lys	atc Ile	ccc Pro	ctc Leu	tcc Ser	tgc Cys	cgc Arg	gcc Ala	aac Asn	cgc Arg	25068
acc 4540	cgc Thr	gcc Arg	gac Ala	aag Asp	acc Lys	ctg Leu	acc Thr	atg Met	cgc Arg	cag Gln	ggc Gly	gcc Ala	cac His	ata Ile	25113
cct 4555	gat Pro	atc Asp	acc Ile	tct Thr	ctg Ser	gag Leu	gaa Glu	gtg Val	ccc Pro	aag Lys	atc Ile	ttc Phe	gag Glu	ggt Gly	25158
ctc 4570	ggt Leu	cgc Gly	gac Arg	gag Asp	aaa Glu	cgc Arg	gcg Ala	gcg Ala	aac Asn	gct Ala	ctg Leu	cac His	gga Gly	gac Asp	25203
agt 4585	gaa Ser	aac Glu	gag Asn	agt Glu	cac Ser	tcg Ser	ggg Gly	gtg Val	ctg Leu	gtg Val	gag Glu	ctc Leu	gag Glu	ggc Gly	25248

gac Asp 4600	aac Asn 4605	gcg Ala 4605	cgc Arg 4605	ctg Leu 4605	gcc Ala 4605	gtg Val 4605	ctc Leu 4610	aag Lys 4610	cgc Arg 4610	agc Ser 4610	atc Ile 4610	gag Glu 4610	gtc Val 4610	acc Thr 4610	25293
cac His 4615	ttc Phe 4615	gcc Ala 4620	tac Tyr 4620	ccg Pro 4620	gcg Ala 4620	ctc Leu 4625	aac Asn 4625	ctg Leu 4625	ccc Pro 4625	ccc Pro 4625	aag Lys 4625	gtc Val 4625	atg Met 4625	agt Ser 4625	25338
gtg Val 4630	gtc Val 4630	atg Met 4630	ggc Gly 4635	gag Glu 4635	ctc Leu 4635	atc Ile 4640	atg Met 4640	cgc Arg 4640	cgc Arg 4640	gcc Ala 4640	cag Gln 4640	ccc Pro 4640	ctg Leu 4640	gac Asp 4640	25383
gcg Ala 4645	gat Asp 4645	gca Ala 4650	aac Asn 4650	ttg Leu 4650	caa Gln 4650	gag Glu 4655	tcc Ser 4655	tcc Ser 4655	gag Glu 4655	gaa Glu 4655	ggc Gly 4655	ctg Leu 4655	ccc Pro 4655	gcg Ala 4655	25428
gtc Val 4660	agc Ser 4660	gac Asp 4665	gag Glu 4665	cag Gln 4665	ctg Leu 4665	gcg Ala 4670	cgc Arg 4670	tgg Trp 4670	ctg Leu 4670	gag Glu 4670	acc Thr 4670	cgc Arg 4670	gac Asp 4670	ccc Pro 4670	25473
gcg Ala 4675	cag Gln 4675	ctg Leu 4680	gag Glu 4680	gag Glu 4680	cgg Arg 4680	cgc Arg 4685	aag Lys 4685	ctc Leu 4685	atg Met 4685	atg Met 4685	gcc Ala 4685	gcg Ala 4685	gtg Val 4685	ctg Leu 4685	25518
gtc Val 4690	acc Thr 4690	gtg Val 4695	gag Glu 4695	ctc Leu 4695	gag Glu 4695	tgt Cys 4700	ctg Leu 4700	cag Gln 4700	cgc Arg 4700	ttc Phe 4700	ttc Phe 4700	gcc Ala 4700	gac Asp 4700	ccc Pro 4700	25563
gag Glu 4705	atg Met 4705	cag Gln 4710	cgc Arg 4710	aag Lys 4710	ctc Leu 4710	gag Glu 4715	gag Glu 4715	acc Thr 4715	ctg Leu 4715	cac His 4715	tac Tyr 4715	acc Thr 4715	ttc Phe 4715	cgc Arg 4715	25608
cag Gln 4720	ggc Gly 4720	tac Tyr 4725	gtg Val 4725	cgc Arg 4725	cag Gln 4725	gcc Ala 4730	tgc Cys 4730	aag Lys 4730	atc Ile 4730	tcc Ser 4730	aac Asn 4730	gtg Val 4730	gag Glu 4730	ctc Leu 4730	25653
tgc Cys 4735	aac Asn 4735	ctg Leu 4740	gtc Val 4740	tcc Ser 4740	tac Tyr 4740	ctg Leu 4745	ggc Gly 4745	atc Ile 4745	ctg Leu 4745	cac His 4745	gag Glu 4745	aac Asn 4745	cgc Arg 4745	ctc Leu 4745	25698
ggg Gly 4750	cag Gln 4750	aac Asn 4755	gtc Val 4755	ctg Leu 4755	cac His 4755	tcc Ser 4760	acc Thr 4760	ctc Leu 4760	cga Arg 4760	ggg Gly 4760	gag Glu 4760	gcg Ala 4760	cgc Arg 4760	cgc Arg 4760	25743
gat Asp 4765	tac Tyr 4765	atc Ile 4770	cgc Arg 4770	gac Asp 4770	tgc Cys 4770	gtc Val 4775	tac Tyr 4775	ctc Leu 4775	ttt Phe 4775	ctc Leu 4775	tgc Cys 4775	tac Tyr 4775	acc Thr 4775	tgg Trp 4775	25788
cag Gln 4780	acg Thr 4780	gcc Ala 4785	atg Met 4785	ggg Gly 4785	gtc Val 4785	tgg Trp 4790	cag Gln 4790	cag Gln 4790	tgc Cys 4790	ctg Leu 4790	gag Glu 4790	gag Glu 4790	cgc Arg 4790	aac Asn 4790	25833
ctc Leu 4795	aag Lys 4795	gag Glu 4800	ctg Leu 4800	gaa Glu 4800	aag Lys 4800	ctc Leu 4805	ctc Leu 4805	agg Arg 4805	cgc Arg 4805	gcc Ala 4805	ctc Leu 4805	agg Arg 4805	gac Asp 4805	ctc Leu 4805	25878
tgg Trp 4810	acg Thr 4810	ggc Gly 4815	ttc Phe 4815	aac Asn 4815	gag Glu 4815	cgc Arg 4820	tgc Ser 4820	gtg Val 4820	gcc Ala 4820	gcc Ala 4820	gcg Ala 4820	ctg Leu 4820	gcg Ala 4820	gac Asp 4820	25923

atc Ile 4825	atc ttc ccc gag cgt Ile Phe Pro Glu Arg 4830	ctg ctc aag acc ctg Leu Leu Lys Thr 4835	caa cag ggc ctg Gln Gln Gly Leu	25968
ccc Pro 4840	gac ttc acc agc cag Asp Phe Thr Ser Gln 4845	agc atg ctg cag aac Ser Met Leu Gln Asn 4850	ttc agg act ttc Phe Arg Thr Phe	26013
atc Ile 4855	ctg gag cgc tcg ggc Leu Glu Arg Ser Gly 4860	atc ctg ccg gcc acc Ile Leu Pro Ala Thr 4865	tgc tgc gcg ctg Cys Cys Ala Leu	26058
ccc Pro 4870	agc gac ttc gtg ccc Ser Asp Phe Val Pro 4875	atc aag tac agg gag Ile Lys Tyr Arg Glu 4880	tgc ccg ccg ccg Cys Pro Pro Pro	26103
ctc Leu 4885	tgg ggc cac tgc tac Trp Gly His Cys Tyr 4890	ctc ttc cag ctg gcc Leu Phe Gln Leu Ala 4895	aac tac ctc gcc Asn Tyr Leu Ala	26148
cac His 4900	cac tcg gac ctc atg His Ser Asp Leu Met 4905	gaa gac gtg agc ggc Glu Asp Val Ser Gly 4910	gag ggc ctg ctc Glu Gly Leu Leu	26193
gag Glu 4915	tgc cac tgc cgc tgc Cys His Cys Arg Cys 4920	aac ctc tgc acg ccc Asn Leu Cys Thr Pro 4925	cac cgc tct ctg His Arg Ser Leu	26238
gtc Val 4930	tgc aac ccg cag ctg Cys Asn Pro Gln Leu 4935	ctc agc gag agt cag Leu Ser Glu Ser Gln 4940	att atc ggt acc Ile Ile Gly Thr	26283
ttc Phe 4945	gag ctg cag ggt ccc Glu Leu Gln Gly Pro 4950	tcg cct gac gag aag Ser Pro Asp Glu Lys 4955	tcc gcg gct ccg Ser Ala Ala Pro	26328
ggg Gly 4960	ctg aaa ctc act ccg Leu Lys Leu Thr Pro 4965	ggg ctg tgg act tcc Gly Leu Trp Thr Ser 4970	gcc tac cta cgc Ala Tyr Leu Arg	26373
aaa Lys 4975	ttt gta cct gag gac Phe Val Pro Glu Asp 4980	tac cac gcc cac gag Tyr His Ala His Glu 4985	atc agg ttc tac Ile Arg Phe Tyr	26418
gaa Glu 4990	gac caa tcc cgc ccg Asp Gln Ser Arg Pro 4995	ccc aag gcg gag ctc Pro Lys Ala Glu Leu 5000	acc gcc tgc gtc Thr Ala Cys Val	26463
atc Ile 5005	acc cag ggg cac atc Thr Gln Gly His Ile 5010	ctg ggc caa ttg caa Leu Gly Gln Leu Gln 5015	gcc atc aac aaa Ala Ile Asn Lys	26508
gcc Ala 5020	cgc caa gag ttc ttg Arg Gln Glu Phe Leu 5025	ctg aaa aag ggt cgg Leu Lys Lys Gly Arg 5030	ggg gtg tac ctg Gly Val Tyr Leu	26553
gac Asp	ccc cag tcc ggc gag Pro Gln Ser Gly Glu	gag ctc aac ccg cta Glu Leu Asn Pro Leu	ccc ccg ccg ccg Pro Pro Pro Pro	26598

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5035											5040											5045																																																									
ccc	cag	cag	cgg	gac	ctt	gct	tcc	cag	gat	ggc	acc	cag	aaa	gaa	26643																																																																
Pro	Gln	Gln	Arg	Asp	Leu	Ala	Ser	Gln	Asp	Gly	Thr	Gln	Lys	Glu																																																																	
5050											5055											5060																																																									
gca	gca	gca	gcc	gcc	gcc	gca	gcc	tca	gcc	cta	cat	gct	tct	gga	26688																																																																
Ala	Ala	Ala	Ala	Ala	Ala	Ala	Ala	Ser	Ala	Leu	His	Ala	Ser	Gly																																																																	
5065											5070											5075																																																									
gga	aga	gga	gga	ctg	gga	cag	tca	ggc	aga	gga	ggt	ttc	gga	cga	26733																																																																
Gly	Arg	Gly	Gly	Leu	Gly	Gln	Ser	Gly	Arg	Gly	Gly	Phe	Gly	Arg																																																																	
5080											5085											5090																																																									
gga	gga	gga	gat	gat	gga	aga	ctg	gga	gga	gga	cag	cag	cct	aga	26778																																																																
Gly	Gly	Gly	Asp	Asp	Gly	Arg	Leu	Gly	Gly	Gly	Gln	Gln	Pro	Arg																																																																	
5095											5100											5105																																																									
cga	gga	agc	ttc	aga	ggc	cga	aga	ggt	ggc	aga	cgc	aac	acc	atc	26823																																																																
Arg	Gly	Ser	Phe	Arg	Gly	Arg	Arg	Gly	Gly	Arg	Arg	Asn	Thr	Ile																																																																	
5110											5115											5120																																																									
acc	ctc	ggt	cgc	agc	ccc	ctc	gcc	ggg	gcc	cct	gaa	gtc	ctc	cga	26868																																																																
Thr	Leu	Gly	Arg	Ser	Pro	Leu	Ala	Gly	Ala	Pro	Glu	Val	Leu	Arg																																																																	
5125											5130											5135																																																									
gcc	cag	cat	cag	cgc	tat	aac	ctc	cgc	tcc	tcc	ggc	gcc	acc	cgg	26913																																																																
Ala	Gln	His	Gln	Arg	Tyr	Asn	Leu	Arg	Ser	Ser	Gly	Ala	Thr	Arg																																																																	
5140											5145											5150																																																									
ccg	cag	acc	caa	ccg	tagatgggac	accacaggaa					ccgggggtcgg					taagtcaaag					26968																																																										
Pro	Gln	Thr	Gln	Pro																																																																											
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tgcccaccgc					cgccaccccc					ctcgcagcag					cagcgccagg					gctaccgctc					gtggcgcggg					27028																																																	
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cgcttctctgc					tcttccacca					cgggggtcgcc					ttcccccgca					atgtcctgca					ttactaccgt					27148																																																	
catctctaca					gcccctactg					cggcagcggc					gaccagagg					cggcagcgtc					agccgcagcg					27208																																																	
gagaccacca					gctaggaaga					cctcatcctc					cgcgggcaag					acggcggcag					cggccaggag					27268																																																	
accgcggcg					gctgcggcga					cgggagcggg					gggcgcactg					cgcctctcgc					ccaacgaacc					27328																																																	
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gagcagaggc					caggagcagg					agctgaaaat					aaaaaacaga					tctctgcgct					ccctcaccgc					27448																																																	
cagctgtctg					tatcacaaaa					gcgaagatca					gcttcggcgc					acgctagagg					acgcggaggc					27508																																																	
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agc					aaa					gag					att					ccc					acg					cca					tac					atg					tgg					agc					tac					cag					ccg					cag					27670				

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Ser	Lys	Glu	Ile	Pro	Thr	Pro	Tyr	Met	Trp	Ser	Tyr	Gln	Pro	Gln	
				5165					5170					5175	
atg	gga	gtc	gcg	gcg	gga	gcg	gcc	cag	gac	tac	tcc	acc	cgc	atg	27715
Met	Gly	Val	Ala	Ala	Gly	Ala	Ala	Gln	Asp	Tyr	Ser	Thr	Arg	Met	
				5180					5185					5190	
aac	tac	atg	agc	gcg	gga	ccc	cac	atg	atc	tca	cgg	gtc	aac	ggc	27760
Asn	Tyr	Met	Ser	Ala	Gly	Pro	His	Met	Ile	Ser	Arg	Val	Asn	Gly	
				5195					5200					5205	
atc	cgc	gcc	cag	cga	aac	caa	ata	ctg	ctg	gaa	cag	gcg	gcc	atc	27805
Ile	Arg	Ala	Gln	Arg	Asn	Gln	Ile	Leu	Leu	Glu	Gln	Ala	Ala	Ile	
				5210					5215					5220	
acc	gcc	acg	ccc	cgt	cat	aat	ctc	aac	ccc	cga	aat	tgg	ccc	gcc	27850
Thr	Ala	Thr	Pro	Arg	His	Asn	Leu	Asn	Pro	Arg	Asn	Trp	Pro	Ala	
				5225					5230					5235	
gcc	ctc	gtg	tac	cag	gaa	acc	ccc	tct	gcc	acc	acc	gta	cta	ctt	27895
Ala	Leu	Val	Tyr	Gln	Glu	Thr	Pro	Ser	Ala	Thr	Thr	Val	Leu	Leu	
				5240					5245					5250	
ccg	cgt	gac	gcc	cag	gcc	gaa	gtc	cag	atg	act	aac	tca	ggg	gcg	27940
Pro	Arg	Asp	Ala	Gln	Ala	Glu	Val	Gln	Met	Thr	Asn	Ser	Gly	Ala	
				5255					5260					5265	
cag	ctc	gcg	ggc	ggc	ttt	cgt	cac	ggg	gcg	agg	ccg	cac	cgg	cag	27985
Gln	Leu	Ala	Gly	Gly	Phe	Arg	His	Gly	Ala	Arg	Pro	His	Arg	Gln	
				5270					5275					5280	
ggc	ata	tta	cac	ctg	gcg	atc	aga	ggc	cga	ggc	att	cag	ctc	aac	28030
Gly	Ile	Leu	His	Leu	Ala	Ile	Arg	Gly	Arg	Gly	Ile	Gln	Leu	Asn	
				5285					5290					5295	
gac	gag	tcg	gtg	agc	tct	tcg	ctc	ggc	ctc	cgt	ccg	gac	gga	acc	28075
Asp	Glu	Ser	Val	Ser	Ser	Ser	Leu	Gly	Leu	Arg	Pro	Asp	Gly	Thr	
				5300					5305					5310	
ttc	cag	ctc	gcc	gga	gcc	ggc	cgc	tct	tcg	ttc	acg	ccc	cgc	cag	28120
Phe	Gln	Leu	Ala	Gly	Ala	Gly	Arg	Ser	Ser	Phe	Thr	Pro	Arg	Gln	
				5315					5320					5325	
gcg	tac	ctg	act	ctg	cag	acc	tcg	tcc	tcg	gag	cct	cgc	tcc	ggc	28165
Ala	Tyr	Leu	Thr	Leu	Gln	Thr	Ser	Ser	Ser	Glu	Pro	Arg	Ser	Gly	
				5330					5335					5340	
ggc	atc	ggg	acc	ctc	cag	ttc	gtg	gag	gag	ttc	gtg	ccc	tcg	gtc	28210
Gly	Ile	Gly	Thr	Leu	Gln	Phe	Val	Glu	Glu	Phe	Val	Pro	Ser	Val	
				5345					5350					5355	
tac	ttc	aac	ccc	ttc	tcg	gga	cct	ccc	gga	cgc	tac	ccc	gac	cag	28255
Tyr	Phe	Asn	Pro	Phe	Ser	Gly	Pro	Pro	Gly	Arg	Tyr	Pro	Asp	Gln	
				5360					5365					5370	
ttc	atc	ccg	aac	ttt	gac	gcg	gtg	aag	gac	tca	gcg	gac	ggc	tac	28300
Phe	Ile	Pro	Asn	Phe	Asp	Ala	Val	Lys	Asp	Ser	Ala	Asp	Gly	Tyr	
				5375					5380					5385	

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gac tga atg tca ggt gcc	gag gca gag cgg ctt	cgc ctg aaa cac	28345
Asp Met Ser Gly Ala	Glu Ala Glu Arg Leu	Arg Leu Lys His	
5390	5395		
ctc gag cac tgc cgc cgc	cac aac tgc ttc gcc	cgc ggc tcc ggt	28390
Leu Glu His Cys Arg Arg	His Asn Cys Phe Ala	Arg Gly Ser Gly	
5400	5405	5410	
gag ttc tgc tac ttt cag	cta ccc gag gag cat	acc gaa ggg ccg	28435
Glu Phe Cys Tyr Phe Gln	Leu Pro Glu Glu His	Thr Glu Gly Pro	
5415	5420	5425	
gcg cac ggc gtc cgc ctg	acc acc cag ggc gag	gtt acc tgt tcc	28480
Ala His Gly Val Arg Leu	Thr Thr Gln Gly Glu	Val Thr Cys Ser	
5430	5435	5440	
ctc atc cgg gag ttc acc	ctc cgt ccc ctg cta	gtg gag cgg gag	28525
Leu Ile Arg Glu Phe Thr	Leu Arg Pro Leu Leu	Val Glu Arg Glu	
5445	5450	5455	
cgg ggt ccc tgt gtc cta	act atc gcc tgc aac	tgc cct aac cct	28570
Arg Gly Pro Cys Val Leu	Thr Ile Ala Cys Asn	Cys Pro Asn Pro	
5460	5465	5470	
gga tta cat caa gat ctt	tgc tgt cat ctc tgt	gct gag ttt aat	28615
Gly Leu His Gln Asp Leu	Cys Cys His Leu Cys	Ala Glu Phe Asn	
5475	5480	5485	
aaa cgc tgagatcaga atctactggg	gctcctgtcg ccatcctctg	aacgccaccg	28671
Lys Arg			
5490			
tcttcaccca ccccgaccag gccagggcga	acctcacctg cggctctgcat	cggagggcca	28731
ggaagtacct cacctggtac ttcaacggca	ccccctttgt ggtttacaac	agcttcgacg	28791
gggacggagt ctccctgaaa gaccagctct	ccggtctcag ctactccatc	cacaagaaca	28851
ccaccctcca actcttccct ccctacctgc	cgggaacctc cgagtgcgtc	accgggccgt	28911
gcacccacct caccgcctg atcgtaaacc	agagctttcc gggaacagat	aactccctct	28971
tccccagaac aggaggtgag ctcaggaaac	tccccgggga ccagggcgga	gacctacctt	29031
cgacccttgt ggggttagga ttttttatta	ccgggttgct ggctgtttta	atcaaagctt	29091
cottgagatt tatectctcc atttacgtgt	atgaacacct cagcctccag	taactctacc	29151
ctttcttcgg aatcaggtga cttttctgaa	atcgggctcg gtgtgctgct	tactctgttg	29211
atttttttcc ttatcatact cagccttctg	tgcctcaggc tcgccgctg	ctgcgcacat	29271
atctacatct actgctgggt gctcaagtgc	aggggtcgcc acccaag	atg aac agg	29327
	Met Asn Arg		
tac aca att cta acc atc	cta ggc ctg ctg gcc	ctg gcg gcc tgc	29372
Tyr Thr Ile Leu Thr Ile	Leu Gly Leu Leu Ala	Leu Ala Ala Cys	
5495	5500	5505	

agc Ser 5510	gcc Ala	gcc Ala	acc Thr	aaa Lys	aaa Lys	gag Glu	gtt Val	acc Thr	ttt Phe	gag Glu	gag Glu	ccc Pro	gct Ala	tgc Cys	29417
					5515					5520					
aat Asn 5525	gta Val	acc Thr	ttc Phe	aag Lys	ccc Pro	gag Glu	ggt Gly	gcg Ala	cat His	tgt Cys	acc Thr	acc Thr	ctg Leu	gtc Val	29462
					5530					5535					
aaa Lys 5540	tgc Cys	gtt Val	acc Thr	aag Lys	cat His	gag Glu	agg Arg	ttg Leu	cgc Arg	atc Ile	gac Asp	tac Tyr	aaa Lys	aac Asn	29507
					5545					5550					
atg Met 5555	act Thr	ggc Gly	agg Arg	tat Tyr	gcg Ala	gtc Val	tat Tyr	agt Ser	atc Ile	ttt Phe	acg Thr	ccc Pro	gga Gly	gac Asp	29552
					5560					5565					
ccc Pro 5570	tct Ser	aac Asn	tac Tyr	tct Ser	gtc Val	acc Thr	gtc Val	ttt Phe	gag Glu	ggc Gly	ggt Gly	cag Gln	ttt Phe	aag Lys	29597
					5575					5580					
aaa Lys 5585	ttc Phe	gat Asp	tac Tyr	act Thr	ttc Phe	ccc Pro	ttt Phe	tat Tyr	gag Glu	ttg Leu	tgc Cys	gat Asp	gcg Ala	gtc Val	29642
					5590					5595					
atg Met 5600	tac Tyr	atg Met	tca Ser	aaa Lys	cag Gln	tac Tyr	aac Asn	ctg Leu	tgg Trp	ccc Pro	ccc Pro	act Thr	ccc Pro	cag Gln	29687
					5605					5610					
gcg Ala 5615	tgt Cys	gtg Val	gaa Glu	aat Asn	act Thr	ggg Gly	tct Ser	ttc Phe	tgc Cys	tgt Cys	gtg Val	gct Ala	ttc Phe	cta Leu	29732
					5620					5625					
atc Ile 5630	act Thr	gca Ala	gtc Val	gct Ala	cta Leu	atc Ile	tgc Cys	acg Thr	ctg Leu	cta Leu	tat Tyr	atc Ile	aaa Lys	ttc Phe	29777
					5635					5640					
agg Arg 5645	cag Gln	agg Arg	cga Arg	atc Ile	ttt Phe	atc Ile	gat Asp	gaa Glu	aag Lys	aaa Lys	atg Met	cct Pro	tgatcgcgttaa		29826
					5650					5655					
caccggccttt	ctatctgcag	a	atg	aat	gca	atc	acc	acc	tcc	cta	cta	atc			29877
					Met		Asn	Ala	Ile	Thr	Thr	Ser	Leu	Leu	Ile
					5660										5665
acc Thr 5670	acc Thr	acc Thr	ctc Leu	ctt Leu	gcg Ala	att Ile	gcc Ala	cat His	ggg Gly	ttg Leu	aca Thr	cga Arg	atc Ile	gaa Glu	29922
					5675										5680
gtg Val 5685	cca Pro	gtg Val	ggg Gly	tcc Ser	aat Asn	gtc Val	acc Thr	atg Met	gtg Val	ggc Gly	ccc Pro	gcc Ala	ggc Gly	aat Asn	29967
					5690										5695
tcc Ser 5700	acc Thr	ctc Leu	atg Met	tgg Trp	gaa Glu	aaa Lys	ttt Phe	gtc Val	cgc Arg	aat Asn	caa Gln	tgg Trp	gtt Val	cat His	30012
					5705										5710
ttc Phe	tgc Cys	tct Ser	aac Asn	cga Arg	atc Ile	agt Ser	atc Ile	aag Lys	ccc Pro	aga Arg	gcc Ala	atc Ile	tgc Cys	gat Asp	30057

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5715	5720	5725	
ggg caa aat cta acc ctg atc gat Gly Gln Asn Leu Thr Leu Ile Asp 5730	gtg caa atg atg gat Val Gln Met Met Asp 5735	gcc ggg Ala Gly 5740	30102
tac tat tac ggg cag cgg gga gag Tyr Tyr Tyr Gly Gln Arg Gly Glu 5745	att att aat tac tgg Ile Ile Asn Tyr Trp 5750	cga ccc Arg Pro 5755	30147
cac aag gac tac atg ctg cat gta His Lys Asp Tyr Met Leu His Val 5760	gtc gag gca gtt ccc Val Glu Ala Val Pro 5765	act acc Thr Thr 5770	30192
tcc ccc act acc acc act acc act Ser Pro Thr Thr Thr Thr Thr 5775	acc act acc acc tcc Thr Thr Thr Thr Ser 5780	act acc Thr Thr 5785	30237
gct gcc cgc cat acc cgc aaa agc Ala Ala Arg His Thr Arg Lys Ser 5790	acc atg att agc aca Thr Met Ile Ser Thr 5795	aag ccc Lys Pro 5800	30282
cct cct gct cac tcc cac gcc ggc Pro Pro Ala His Ser His Ala Gly 5805	ggg ccc atc ggt gcg Gly Pro Ile Gly Ala 5810	acc tca Thr Ser 5815	30327
gaa acc acc gag ctt tgc ttc tgc Glu Thr Thr Glu Leu Cys Phe Cys 5820	caa tgc act aac gcc Gln Cys Thr Asn Ala 5825	agc gct Ser Ala 5830	30372
cat gaa ctg ttc gac ctg gag aat His Glu Leu Phe Asp Leu Glu Asn 5835	gag gat gcc cag cag Glu Asp Ala Gln Gln 5840	agc tcc Ser Ser 5845	30417
gct tgc ccg gcc ccg gcg gct gtg Ala Cys Pro Ala Pro Ala Ala Val 5850	gag ccc gtt gcc ctg Glu Pro Val Ala Leu 5855	aag cag Lys Gln 5860	30462
atc ggt gat tct tcg ata att gac Ile Gly Asp Ser Ser Ile Ile Asp 5865	ttt tct gcc act ccc Phe Ser Ala Thr Pro 5870	gaa tac Glu Tyr 5875	30507
cct ccc gat tct acc ttc cac atc Pro Pro Asp Ser Thr Phe His Ile 5880	acg ggt acc aaa gac Thr Gly Thr Lys Asp 5885	cct aac Pro Asn 5890	30552
ctc tct ttc tac ctg atg ctg ctg Leu Ser Phe Tyr Leu Met Leu Leu 5895	ctc tgt atc tct gtg Leu Cys Ile Ser Val 5900	gtc tct Val Ser 5905	30597
tcc gcg ctg atg tta ctg ggg atg Ser Ala Leu Met Leu Leu Gly Met 5910	ttc tgc tgc ctg atc Phe Cys Cys Leu Ile 5915	tgc cgc Cys Arg 5920	30642
aga aag aga aaa gct cgc tct cag Arg Lys Arg Lys Ala Arg Ser Gln 5925	ggc caa cca ctg atg Gly Gln Pro Leu Met 5930	ccc ttc Pro Phe 5935	30687
ccc tac ccc ccg gat ttt gca gat 5940	aac aag ata tgagctcgct 5945		30730

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Pro Tyr Pro	Pro Asp Phe Ala Asp	Asn Lys Ile	
5940	5945		
gctgacacta accgctttac tagcctgcgc tgctctaacc cttgtcgcctt gcgaatccag			30790
attccacaat gtcacagttg tggcaggaga aaatgttaca ttcaactcca cggccgacgc			30850
ccggtgggtcg tggagtggct ccggtagcta cctagatatc tgcaatagct ccacttcctc			30910
tagcataacc ccagccaagt accaatgcaa tgccaccctg ttcaccctca tcaacgcctc			30970
caccctggac aatggactct atgtaggcta cgtaccccc ggtgggcaag gaaagaccca			31030
cgcttacaac ctggaagtgc gccagcccag aaccactacc cagccttccc ccagcaccac			31090
caccaccacc agcagcagca gcaacagaag cagattcctg acttttcattt tggccagctc			31150
atccgcgcgc accgctcaga ccaccagggc catctacacc tctgtgcccc aaaccactca			31210
gaccaccgc ccagagacga ccaccgccac caccacacac acctccaccg accggatgcc			31270
ggccaacatc gcccccttgg ctcttcagaa tggacttaca agctccactc caaaaccagt			31330
ggatgcagcc gaagtctccg cctcgtcaa tgactgggcg gggctgggaa tgtggtggtt			31390
cgccataggc atgatggcgc tctgcctgct tctgctctgg ctcatctgct gcctccaccg			31450
caggcgagcc agacccccca tctatagacc catcattgtc ctcaaccccg ataatgatgg			31510
gatccataga ttggatggcc tgaaaaacct acttttttct ttacagtat gataaattga			31570
gac atg cct	cgc att ttc ttg tac	ttg ctc ctt atc cca	cct ttt
Met Pro	Arg Ile Phe Leu Tyr	Leu Leu Leu Ile Pro	Pro Phe
5950	5955	5960	
ctg ggg tgt tct acg ctg gcc gct			31660
Leu Gly Cys	Ser Thr Leu Ala Ala	Val Ser His Leu Glu	Val Asp
5965	5970	5975	
tgt ctc cag ccc ttc gct gtc tac			31705
Cys Leu Gln	Pro Phe Ala Val Tyr	Leu Leu Tyr Gly Leu	Val Thr
5980	5985	5990	
ctc act ctc atc tgc agc cta atc			31750
Leu Thr Leu	Ile Cys Ser Leu Ile	Thr Val Ile Ile Ala	Phe Ile
5995	6000	6005	
cag tgc att gat tac atc tgt gtg			31795
Gln Cys Ile	Asp Tyr Ile Cys Val	Arg Leu Ala Tyr Phe	Arg His
6010	6015	6020	
cac cca cag tac cga gac agg aac			31840
His Pro Gln	Tyr Arg Asp Arg Asn	Ile Ala Gln Leu Leu	Arg Leu
6025	6030	6035	
ctc taatc atg cat aag acc gtg atc tgc			31887
Leu	Met His Lys Thr Val Ile	Cys Leu Leu Ile Leu Cys	Thr
	6040	6045	6050

ctg ccc gcc ttc acc tcc tgc cag tac acc aca aaa gct ccg cgc	31932
Leu Pro Ala Phe Thr Ser Cys Gln Tyr Thr Thr Lys Ala Pro Arg	
6055 6060 6065	
aaa aga cat gcc tcc tgc cgc ttc acc caa ctg tgg aat atc ccc	31977
Lys Arg His Ala Ser Cys Arg Phe Thr Gln Leu Trp Asn Ile Pro	
6070 6075 6080	
aaa tgc tac aac gaa aag agc gag ctc tcc gaa gcc tgg ctg tat	32022
Lys Cys Tyr Asn Glu Lys Ser Glu Leu Ser Glu Ala Trp Leu Tyr	
6085 6090 6095	
ggg gtt atc tgt gtc tta gtt ttc tgc agc act gtc ttt gcc ctg	32067
Gly Val Ile Cys Val Leu Val Phe Cys Ser Thr Val Phe Ala Leu	
6100 6105 6110	
atg atc tac ccc cac att gat ttg gga tgg aac gcg atc gat gcc	32112
Met Ile Tyr Pro His Ile Asp Leu Gly Trp Asn Ala Ile Asp Ala	
6115 6120 6125	
atg agt tac ccc acc ttt ccc gcg ccc gag atg att cca ctg cga	32157
Met Ser Tyr Pro Thr Phe Pro Ala Pro Glu Met Ile Pro Leu Arg	
6130 6135 6140	
cag gtc gta ccc gtt gtc gtc aat caa cgc ccc cca tcc cct acg	32202
Gln Val Val Pro Val Val Val Asn Gln Arg Pro Pro Ser Pro Thr	
6145 6150 6155	
ccc act gag atc agc tac ttt aat cta aca ggc gga gat gac	32244
Pro Thr Glu Ile Ser Tyr Phe Asn Leu Thr Gly Gly Asp Asp	
6160 6165 6170	
tgacgcccta gatctagaaa tggacggcat cagtaccgag cagcgtctcc tagagaggcg	32304
caggcaggcg gttgagcaag agcgccctcaa tcaggagctc cgagatctcc ttaacctgca	32364
ccagtgc aaa agaggcatct ttgacctggc caagcaggcc aaagtcacct acgagaagac	32424
cggtaacagc caccgcctca gttacaaatt gcccaccag cgccagaagc tgggtgctcat	32484
ggtgggtgag aatcccatca ccgtcaccca gcaactcggtg gaaaccgagg ggtgtctgca	32544
ctccccctgt cgggggtccag aagacctctg caccctgggtg aagaccctgt gcggtctcag	32604
agatttagtc ccctttaact aatcaaacac tggaatcaat aaaaaagaat cacttactta	32664
aaatcagtc gcaaggtctct gtccagtttc ttcagcagca cctccttccc ctctcccaa	32724
ctctgggtact ccaaacgcct tctagcggca aacttcctcc acaccctgaa ggga atg	32781
Met	
tca gat tct tgc tcc tgt ccc tcc gca ccc act atc ttc atg ttg	32826
Ser Asp Ser Cys Ser Cys Pro Ser Ala Pro Thr Ile Phe Met Leu	
6175 6180 6185	
ttg cag atg aag cgc acc aaa acg tct gac gag agc ttc aac ccc	32871
Leu Gln Met Lys Arg Thr Lys Thr Ser Asp Glu Ser Phe Asn Pro	
6190 6195 6200	

gtg tac ccc tat	gac acg gaa aac ggt	cct ccc tcc gtc cct ttc	32916
Val Tyr Pro Tyr	Asp Thr Glu Asn Gly	Pro Pro Ser Val Pro Phe	
6205	6210	6215	
ctc acc cct ccc	ttc gtg tct ccc gat	gga ttc caa gag agc ccc	32961
Leu Thr Pro Pro	Phe Val Ser Pro Asp	Gly Phe Gln Glu Ser Pro	
6220	6225	6230	
ccc ggg gtc ctg	tct ctg aac ctg gcc	gag ccc ctg gtc act tcc	33006
Pro Gly Val Leu	Ser Leu Asn Leu Ala	Glu Pro Leu Val Thr Ser	
6235	6240	6245	
cac ggc atg ctc	gcc ctg aaa atg gga	agt ggc ctc tcc ctg gac	33051
His Gly Met Leu	Ala Leu Lys Met Gly	Ser Gly Leu Ser Leu Asp	
6250	6255	6260	
gac gcc ggc aac	ctc acc tct caa gat	gtc acc acc act acc cct	33096
Asp Ala Gly Asn	Leu Thr Ser Gln Asp	Val Thr Thr Thr Thr Pro	
6265	6270	6275	
ccc ctg aaa aaa	acc aag acc aac ctc	agc cta gaa acc tca gcc	33141
Pro Leu Lys Lys	Thr Lys Thr Asn Leu	Ser Leu Glu Thr Ser Ala	
6280	6285	6290	
ccc ctg act gtg	agc acc tca ggc gcc	ctc acc cta gca gcc gcc	33186
Pro Leu Thr Val	Ser Thr Ser Gly Ala	Leu Thr Leu Ala Ala Ala	
6295	6300	6305	
gct ccc ctg gcg	gtg gcc ggc acc tcc	ctc acc atg caa tca gag	33231
Ala Pro Leu Ala	Val Ala Gly Thr Ser	Leu Thr Met Gln Ser Glu	
6310	6315	6320	
gcc ccc ctg aca	gtc caa gat gca aaa	ctc acc ctg gcc acc aag	33276
Ala Pro Leu Thr	Val Gln Asp Ala Lys	Leu Thr Leu Ala Thr Lys	
6325	6330	6335	
ggc ccc ctg acc	gtg tct gaa ggc aaa	ctg gcc ttg cag acc tcg	33321
Gly Pro Leu Thr	Val Ser Glu Gly Lys	Leu Ala Leu Gln Thr Ser	
6340	6345	6350	
gcc ccg ctg acg	gcc gct gac agc agc	acc ctc acc gtc agc gcc	33366
Ala Pro Leu Thr	Ala Ala Asp Ser Ser	Thr Leu Thr Val Ser Ala	
6355	6360	6365	
aca ccg ccc ctt	agc aca agc aat ggc	agc ttg ggt att gac atg	33411
Thr Pro Pro Leu	Ser Thr Ser Asn Gly	Ser Leu Gly Ile Asp Met	
6370	6375	6380	
caa gcc ccc att	tac act act aac gga	aaa ctg gga ctt aac ttt	33456
Gln Ala Pro Ile	Tyr Thr Thr Asn Gly	Lys Leu Gly Leu Asn Phe	
6385	6390	6395	
ggc gct ccc ctg	cat gtg gta gac agc	cta aat gca ctg act gta	33501
Gly Ala Pro Leu	His Val Val Asp Ser	Leu Asn Ala Leu Thr Val	
6400	6405	6410	
gtg act ggc caa	ggc ctt acg ata aac	ggc aca gcc cta caa act	33546
Val Thr Gly Gln	Gly Leu Thr Ile Asn	Gly Thr Ala Leu Gln Thr	

6415	6420	6425	
aga gtc tca ggt gcc ctc aac tat gac tca tca gga aac cta gaa			33591
Arg Val Ser Gly Ala Leu Asn Tyr Asp Ser Ser Gly Asn Leu Glu			
6430	6435	6440	
ttg aga gct gca ggg ggt atg cga gtt gat gca aat ggc aaa ctt			33636
Leu Arg Ala Ala Gly Gly Met Arg Val Asp Ala Asn Gly Lys Leu			
6445	6450	6455	
atc ctt gac gta gct tac cca ttt gat gct caa aac aac ctc agc			33681
Ile Leu Asp Val Ala Tyr Pro Phe Asp Ala Gln Asn Asn Leu Ser			
6460	6465	6470	
ctt aga ctt gga cag gga ccc ctg ttt gtt aac tct gcc cac aac			33726
Leu Arg Leu Gly Gln Gly Pro Leu Phe Val Asn Ser Ala His Asn			
6475	6480	6485	
ttg gat gtt aac tac aac aga ggc ctc tac ctg ttc aca tct gga			33771
Leu Asp Val Asn Tyr Asn Arg Gly Leu Tyr Leu Phe Thr Ser Gly			
6490	6495	6500	
aac acc aaa aag cta gaa gtt aat atc aaa aca gcc aaa ggc ctc			33816
Asn Thr Lys Lys Leu Glu Val Asn Ile Lys Thr Ala Lys Gly Leu			
6505	6510	6515	
att tat gat gac act gct ata gca atc aat cca ggc gat ggg cta			33861
Ile Tyr Asp Asp Thr Ala Ile Ala Ile Asn Pro Gly Asp Gly Leu			
6520	6525	6530	
gag ttt ggc tca ggc tca gat aca aat cca tta aaa act aaa ctt			33906
Glu Phe Gly Ser Gly Ser Asp Thr Asn Pro Leu Lys Thr Lys Leu			
6535	6540	6545	
gga ttg gga cta gag tat gac tcc agc aga gcc ata att gct aag			33951
Gly Leu Gly Leu Glu Tyr Asp Ser Ser Arg Ala Ile Ile Ala Lys			
6550	6555	6560	
ctg gga acc ggc cta agc ttt gac aac aca ggt gcc atc aca gtg			33996
Leu Gly Thr Gly Leu Ser Phe Asp Asn Thr Gly Ala Ile Thr Val			
6565	6570	6575	
ggc aac aac aat gat gac aag ctt acc ttg tgg acc aca cca gac			34041
Gly Asn Asn Asn Asp Asp Lys Leu Thr Leu Trp Thr Thr Pro Asp			
6580	6585	6590	
ccc tct ccc aac tgt aga att tat tca gaa aaa gat gct aaa ttt			34086
Pro Ser Pro Asn Cys Arg Ile Tyr Ser Glu Lys Asp Ala Lys Phe			
6595	6600	6605	
aca cta gtt tta act aaa tgc ggc agt cag gtg ttg gcc agc gtt			34131
Thr Leu Val Leu Thr Lys Cys Gly Ser Gln Val Leu Ala Ser Val			
6610	6615	6620	
tct gtt tta tct gta aaa ggc agc ctt gcg ccc atc agt ggc aca			34176
Ser Val Leu Ser Val Lys Gly Ser Leu Ala Pro Ile Ser Gly Thr			
6625	6630	6635	
gta act agc gct cag att att ctc aga ttt aat gaa aat gga gtt			34221

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Val Thr Ser Ala Gln Ile Ile Leu Arg Phe Asn Glu Asn Gly Val	
6640 6645 6650	
cta cta agc aat tct tct ctt gac ccc caa tac tgg aac tac aga	34266
Leu Leu Ser Asn Ser Ser Leu Asp Pro Gln Tyr Trp Asn Tyr Arg	
6655 6660 6665	
aaa ggt gac ctt aca gag ggc act gca tat acc aac gca gtg gga	34311
Lys Gly Asp Leu Thr Glu Gly Thr Ala Tyr Thr Asn Ala Val Gly	
6670 6675 6680	
ttt atg ccc aac ctc aca gca tac cca aaa aca cag agt caa act	34356
Phe Met Pro Asn Leu Thr Ala Tyr Pro Lys Thr Gln Ser Gln Thr	
6685 6690 6695	
gct aaa agc aac att gta agc cag gtt tac ttg aat ggg gac aaa	34401
Ala Lys Ser Asn Ile Val Ser Gln Val Tyr Leu Asn Gly Asp Lys	
6700 6705 6710	
tcc aaa ccc atg atc ctc acc att acc ctc aat gga act aat gaa	34446
Ser Lys Pro Met Ile Leu Thr Ile Thr Leu Asn Gly Thr Asn Glu	
6715 6720 6725	
aca ggg gat gct aca gtt agc act tac tcc atg tca ttc tca tgg	34491
Thr Gly Asp Ala Thr Val Ser Thr Tyr Ser Met Ser Phe Ser Trp	
6730 6735 6740	
aat tgg aat gga agt aat tac att aat gaa acg ttc caa acc aac	34536
Asn Trp Asn Gly Ser Asn Tyr Ile Asn Glu Thr Phe Gln Thr Asn	
6745 6750 6755	
tct ttc acc ttc tcc tac atc gcc caa gaa taaaaaagca tgacgctgtt	34586
Ser Phe Thr Phe Ser Tyr Ile Ala Gln Glu	
6760 6765	
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gggaggtaaa	ggggccctgc	tgtacggact	gtgccgggac	gaccgagatc	gtgttgaacg	35906
tagtgatcat	gaaaagggaa	cgccggacgt	ggtcataact	cttgaaacag	aaccagggttc	35966
gcgcgtggca	ggcttccttg	cgtctgcggg	ctcgccgtct	agctcgctcc	gtgtgatagt	36026
tgtagtacag	ccactcccg	agaccgtcga	ggcgccccct	ggcttcggga	tctatgtaga	36086
ctccgtcttg	cgccgcggcc	ctgataatat	ccaccaccgt	agaataagca	acaccagcc	36146
aagcaataca	ctcgctctgc	gagcggcaga	caggaggagc	gggtagagat	gggaggacca	36206
tgataaaaaa	ctttttaaag	aaaattctcc	acttcttcga	aaacaagatc	tatcaagtgg	36266
cagcgctccc	ctccactggc	gcggtcaaac	tctacggcca	aagcacagat	aacggcattt	36326
ctaagatggt	ccttaacggc	atccaaaaga	cacaccgctc	tcaagttgca	ataaactatt	36386
aatgaaaacc	catccggctg	attgtccaat	atagaccgcg	cgccggcgctc	caccaaacc	36446
agataatttt	cgtctctcca	gcgatttaaa	atctgtctaa	gcaaatccct	tatgtcaagt	36506
ccgaccatct	gaaaaatctg	ctcaagagcg	ccctccacct	tcatcatcaa	gcagcgcac	36566
atgattgcaa	aaattcaggt	tcttcagaga	cctgtataag	attcaaaacg	ggaacattaa	36626
ccaaaattcc	tctgtcgcgc	agatcccttc	gcagggcaag	ctgaacataa	tcagacaggt	36686
ctgaacggac	cagtgaggcc	aaatccccac	caggaaccag	atccagagac	cctatactga	36746
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aagctaacac	atcgtaatca	tgctcatgca	ggtagttgca	ggtaagctca	ggaacaaaaa	36926
cggaataaca	cacgattttc	ctctcaaaca	tgacttcgcg	gataactgct	taaaaaacaa	36986
aaattataaa	taaaaattaa	ttaaatatct	taaatatcag	aagcctgtct	tacaacagga	37046
aaaaccactc	tgattaacat	aagacgagcc	acgggcatgc	cggcataacc	gtaaaaaaat	37106

tgggtccccgt gatttacaag taccacagac agctccccgg tcatgtcggg ggtcatcatg 37166
 tgagactgtg tatacacgtc tgggttggtta acatcagaca gagaaagaaa tcggcctatg 37226
 tagccccggag gtataatcac ccgcaggcgg aggtaaagca aaataacccc cataggagga 37286
 atcacaaaat tagtaggaga aaaaaatata taaacaccag agaaaccctc ttgctgaggc 37346
 aaaatagcgc cctccccggac caaaacaaca taaagcgctt ccacaggagc agccataaca 37406
 aagacccgag ccttaccagt aaaataaaaa agatatctca acgcagcacc agcaccaaca 37466
 cctgtcagtg tgtcaggcca agtgccgagc gagtatatat aggaataaaa agtgacgtaa 37526
 acggttaaag tccagaaaac gcccgaaaaa accgcacgcg aacctacgcc ccgaaacgaa 37586
 agccaaaaaa cagtagacac tcccttcggg cgtcaacttc cgctttccca cgctacgtca 37646
 cttccccggt caaacaaact acatttccca aacatacaag ttaccacgcc ccaaacaccg 37706
 cccacacctc ccgccccgcc ggcccccccc gcgccccgcc tcccgccccg cgtcacatcc 37766
 cgctccgccc acctcattat catattggct tcaatccaaa ataaggtata ttattgatga 37826
 tg 37828

<210> 33
 <211> 507
 <212> PRT
 <213> Simian adenovirus 31

<400> 33

Met Glu Arg Arg Asp Pro Leu Glu Phe Gly Leu Arg Pro Gly Phe Ser
 1 5 10 15

Gly His Ala Thr Val Glu Gly Met Asp Gln Ala Gln Glu Gln Ala Ala
 20 25 30

Thr Val Val Tyr Arg Pro Pro Ala Ala Asp Ser Gly Gly Gly Ala Thr
 35 40 45

Gly Arg Val Arg Gly Pro Gly Pro Ser Gly Ser Gly Ala Gly Gly Ala
 50 55 60

Glu Ala Gly Arg Glu Glu Arg Val Glu Pro Gly Asn Arg Ala Glu Arg
 65 70 75 80

Pro Ser Thr Ser Gly Val Asn Val Gly Gln Val Ala Asp Leu Phe Pro
 85 90 95

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Glu	Leu	Arg	Arg	Ile	Leu	Thr	Ile	Arg	Glu	Asp	Gly	Gln	Phe	Val	Lys	
			100					105					110			
Gly	Leu	Lys	Arg	Glu	Arg	Gly	Ala	Ser	Glu	His	Asn	Glu	Glu	Ala	Ser	
		115					120					125				
Asn	Leu	Ala	Phe	Ser	Leu	Met	Thr	Arg	His	Arg	Pro	Glu	Cys	Ile	Thr	
	130					135					140					
Phe	Gln	Gln	Ile	Lys	Asp	Asn	Cys	Ala	Asn	Glu	Leu	Asp	Leu	Leu	Gly	
145					150					155					160	
Gln	Lys	Tyr	Ser	Ile	Glu	Gln	Leu	Thr	Thr	Tyr	Trp	Leu	Gln	Pro	Gly	
				165					170					175		
Asp	Asp	Leu	Glu	Glu	Ala	Ile	Arg	Val	Tyr	Ala	Lys	Val	Ala	Leu	Arg	
			180					185					190			
Pro	Asp	Cys	Lys	Tyr	Lys	Leu	Lys	Gly	Leu	Val	Asn	Ile	Arg	Asn	Cys	
		195					200					205				
Cys	Tyr	Ile	Ser	Gly	Asn	Gly	Ala	Glu	Val	Glu	Ile	Glu	Thr	Glu	Asp	
	210					215					220					
Arg	Val	Ala	Phe	Arg	Cys	Cys	Met	Val	Asn	Met	Trp	Pro	Gly	Val	Leu	
225					230					235					240	
Gly	Met	Asp	Gly	Val	Val	Ile	Met	Asn	Val	Arg	Phe	Thr	Gly	Pro	Asn	
				245					250					255		
Phe	Asn	Gly	Thr	Val	Phe	Leu	Gly	Asn	Thr	Asn	Leu	Val	Leu	His	Gly	
			260					265					270			
Val	Ser	Phe	Tyr	Gly	Phe	Asn	Asn	Thr	Cys	Val	Glu	Ala	Trp	Thr	Asp	
		275					280					285				
Val	Lys	Val	Arg	Gly	Cys	Ala	Phe	Tyr	Gly	Cys	Trp	Lys	Ala	Ile	Val	
	290					295					300					
Ser	Arg	Pro	Lys	Ser	Arg	Ser	Ser	Ile	Lys	Lys	Cys	Leu	Phe	Glu	Arg	
305					310					315					320	
Cys	Thr	Leu	Gly	Ile	Leu	Ala	Glu	Gly	Asn	Cys	Arg	Val	Arg	His	Asn	
				325					330					335		

Val Ala Ser Glu Cys Gly Cys Phe Met Leu Val Lys Ser Val Ala Ile
340 345 350

Ile Lys His Asn Met Val Cys Gly Asn Ser Glu Asp Lys Ala Ser Gln
355 360 365

Met Leu Thr Cys Ala Asp Gly Asn Cys His Leu Leu Lys Thr Ile His
370 375 380

Ile Thr Ser His Gly Arg Lys Ala Trp Pro Val Phe Glu His Asn Val
385 390 395 400

Leu Thr Arg Cys Ser Leu His Leu Gly Asn Arg Arg Gly Val Phe Leu
405 410 415

Pro Tyr Gln Cys Asn Leu Ser His Thr Lys Ile Leu Leu Glu Pro Glu
420 425 430

Ser Met Ser Lys Val Asn Leu Asn Gly Val Phe Asp Met Thr Met Lys
435 440 445

Ile Trp Lys Val Leu Arg Tyr Asp Glu Thr Arg Ser Arg Cys Arg Pro
450 455 460

Cys Glu Cys Gly Gly Lys His Met Arg Asn Gln Pro Val Met Leu Asp
465 470 475 480

Val Thr Glu Glu Leu Arg Thr Asp His Leu Val Leu Ala Cys Thr Arg
485 490 495

Ala Glu Phe Gly Ser Ser Asp Glu Asp Thr Asp
500 505

<210> 34
<211> 154
<212> PRT
<213> Simian adenovirus 31

<400> 34

Met Ser Gly Ser Ser Ser Ser Ser Ser Ser Ser Ser Ala Leu Asp Gly
1 5 10 15

Ser Ile Val Ser Pro Tyr Leu Thr Thr Arg Met Pro His Trp Ala Gly
20 25 30

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Val Arg Gln Asn Val Met Gly Ser Ser Ile Asp Gly Arg Pro Val Leu
35 40 45

Pro Ala Asn Ser Ala Thr Leu Thr Tyr Ala Thr Val Ala Gly Thr Pro
50 55 60

Leu Asp Ala Thr Ala Ala Ala Ala Thr Ala Ala Ala Ser Ala Val
65 70 75 80

Arg Ser Leu Ala Thr Asp Phe Ala Phe Leu Gly Pro Leu Ala Thr Gly
85 90 95

Ala Thr Ser Arg Ala Ala Ala Ala Ala Val Arg Asp Asp Lys Leu Thr
100 105 110

Ala Leu Leu Ala Gln Leu Asp Ala Leu Thr Arg Glu Leu Gly Asp Leu
115 120 125

Ser Gln Gln Val Met Ala Leu Arg Gln Gln Val Ser Ser Leu Gln Ala
130 135 140

Gly Gly Asn Ala Ser Pro Thr Asn Ala Val
145 150

<210> 35
<211> 420
<212> PRT
<213> Simian adenovirus 31

<400> 35

Met His Pro Val Leu Arg Gln Met Arg Pro Pro Pro Gln Gln Gln His
1 5 10 15

Gln Gln Gln Glu Arg Gln Pro Gln Gln Gln Arg Glu Ser Cys Arg
20 25 30

Ala Pro Ser Pro Thr Leu Gly Gly Pro Ala Thr Ser Ala Ser Ala Ala
35 40 45

Val Ser Gly Ala Gly Gly Gly Gly Gly Gly Leu Ala Asp Asp Pro Glu
50 55 60

Glu Pro Pro Arg Arg Arg Ala Arg His Tyr Leu Asp Leu Glu Glu Gly
65 70 75 80

Glu	Gly	Leu	Ala	Arg	Leu	Gly	Ala	Pro	Ser	Pro	Glu	Arg	His	Pro	Arg	85	90	95
Val	Gln	Leu	Lys	Arg	Asp	Ser	Arg	Glu	Ala	Tyr	Val	Pro	Arg	Gln	Asn	100	105	110
Leu	Phe	Arg	Asp	Arg	Ala	Gly	Glu	Glu	Pro	Glu	Glu	Met	Arg	Asp	Arg	115	120	125
Arg	Phe	Ser	Ala	Gly	Arg	Glu	Leu	Arg	Gln	Gly	Leu	Asn	Arg	Glu	Arg	130	135	140
Leu	Leu	Arg	Glu	Glu	Asp	Phe	Glu	Pro	Asp	Ala	Arg	Thr	Gly	Ile	Ser	145	150	155
Pro	Ala	Arg	Ala	His	Val	Ala	Ala	Ala	Asp	Leu	Val	Thr	Ala	Tyr	Glu	165	170	175
Gln	Thr	Val	Asn	Gln	Glu	Ile	Asn	Phe	Gln	Lys	Ser	Phe	Asn	Asn	His	180	185	190
Val	Arg	Thr	Leu	Val	Ala	Arg	Glu	Glu	Val	Thr	Ile	Gly	Leu	Met	His	195	200	205
Leu	Trp	Asp	Phe	Val	Ser	Ala	Leu	Val	Gln	Asn	Pro	Asn	Ser	Lys	Pro	210	215	220
Leu	Thr	Ala	Gln	Leu	Phe	Leu	Ile	Val	Gln	His	Ser	Arg	Asp	Asn	Glu	225	230	235
Ala	Phe	Arg	Asp	Ala	Leu	Leu	Asn	Ile	Thr	Glu	Pro	Glu	Gly	Arg	Trp	245	250	255
Leu	Leu	Asp	Leu	Ile	Asn	Ile	Leu	Gln	Ser	Ile	Val	Val	Gln	Glu	Arg	260	265	270
Ser	Leu	Ser	Leu	Ala	Asp	Lys	Val	Ala	Ala	Ile	Asn	Tyr	Ser	Met	Leu	275	280	285
Ser	Leu	Gly	Lys	Phe	Tyr	Ala	Arg	Lys	Ile	Tyr	Gln	Thr	Pro	Tyr	Val	290	295	300
Pro	Ile	Asp	Lys	Glu	Val	Lys	Ile	Asp	Gly	Phe	Tyr	Met	Arg	Met	Ala	305	310	315

Leu Lys Val Leu Thr Leu Ser Asp Asp Leu Gly Val Tyr Arg Asn Glu
325 330 335

Arg Ile His Lys Ala Val Ser Val Ser Arg Arg Arg Glu Leu Ser Asp
340 345 350

Arg Glu Leu Met His Ser Leu Gln Arg Ala Leu Ala Gly Ala Gly Ser
355 360 365

Gly Asp Arg Glu Ala Glu Ser Tyr Phe Asp Ala Gly Ala Asp Leu Arg
370 375 380

Trp Ala Pro Ser Arg Arg Ala Leu Glu Ala Ala Gly Val Arg Glu Asp
385 390 395 400

Tyr Asp Glu Asp Gly Glu Glu Asp Glu Glu Tyr Glu Leu Glu Glu Gly
405 410 415

Glu Tyr Leu Asp
420

<210> 36
<211> 588
<212> PRT
<213> Simian adenovirus 31

<400> 36

Met Gln Asp Pro Asn Val Val Asp Pro Ala Leu Arg Ala Ala Leu Gln
1 5 10 15

Ser Gln Pro Ser Gly Leu Asn Ser Ser Asp Asp Trp Arg Gln Val Met
20 25 30

Asp Arg Ile Met Ser Leu Thr Ala Arg Asn Pro Asp Ala Phe Arg Gln
35 40 45

Gln Pro Gln Ala Asn Arg Leu Ser Ala Ile Leu Glu Ala Val Val Pro
50 55 60

Ala Arg Ser Asn Pro Thr His Glu Lys Val Leu Ala Ile Val Asn Ala
65 70 75 80

Leu Ala Glu Asn Arg Ala Ile Arg Pro Asp Glu Ala Gly Leu Val Tyr
85 90 95

Asp Ala Leu Leu Gln Arg Val Ala Arg Tyr Asn Ser Gly Asn Val Gln
100 105 110

Thr Asn Leu Asp Arg Leu Val Gly Asp Val Arg Glu Ala Val Ala Gln
115 120 125

Arg Glu Arg Ala Asp Arg Gln Gly Asn Leu Gly Ser Met Val Ala Leu
130 135 140

Asn Ala Phe Leu Ser Thr Gln Pro Ala Asn Val Pro Arg Gly Gln Glu
145 150 155 160

Asp Tyr Thr Asn Phe Val Ser Ala Leu Arg Leu Met Val Thr Glu Thr
165 170 175

Pro Gln Ser Glu Val Tyr Gln Ser Gly Pro Asp Tyr Phe Phe Gln Thr
180 185 190

Ser Arg Gln Gly Leu Gln Thr Val Asn Leu Ser Gln Ala Phe Lys Asn
195 200 205

Leu Arg Gly Leu Trp Gly Val Lys Ala Pro Thr Gly Asp Arg Ala Thr
210 215 220

Val Ser Ser Leu Leu Thr Pro Asn Ser Arg Leu Leu Leu Leu Ile
225 230 235 240

Ala Pro Phe Thr Asp Ser Gly Ser Val Ser Arg Asp Thr Tyr Leu Gly
245 250 255

His Leu Leu Thr Leu Tyr Arg Glu Ala Ile Gly Gln Ala Gln Val Asp
260 265 270

Glu His Thr Phe Gln Glu Ile Thr Ser Val Ser Arg Ala Leu Gly Gln
275 280 285

Glu Asp Thr Ser Ser Leu Glu Ala Thr Leu Asn Tyr Leu Leu Thr Asn
290 295 300

Arg Arg Gln Lys Ile Pro Ser Leu His Ser Leu Thr Ser Glu Glu Glu
305 310 315 320

Arg Ile Leu Arg Tyr Val Gln Gln Ser Val Ser Leu Asn Leu Met Arg

325	330	335
Asp Gly Val Thr Pro Ser Val Ala Leu Asp Met Thr Ala Arg Asn Met		
340	345	350
Glu Pro Gly Met Tyr Ala Ala His Arg Pro Tyr Ile Asn Arg Leu Met		
355	360	365
Asp Tyr Leu His Arg Ala Ala Ala Val Asn Pro Glu Tyr Phe Thr Asn		
370	375	380
Ala Ile Leu Asn Pro His Trp Leu Pro Pro Gly Phe Tyr Ser Gly		
385	390	395
Gly Phe Glu Val Pro Glu Ala Asn Asp Gly Phe Leu Trp Asp Asp Met		
405	410	415
Asp Asp Ser Val Phe Ser Pro Arg Pro Gln Ala Leu Ala Glu Ala Ser		
420	425	430
Leu Leu Arg Pro Lys Lys Glu Glu Ser Arg His Gly Pro Arg Gly Ser		
435	440	445
Ser Ala Ser Leu Ser Glu Leu Gly Ala Ala Ala Arg Pro Gly Ser		
450	455	460
Leu Gly Gly Ser Pro Phe Pro Ser Leu Val Gly Ser Leu Gln Ser Gly		
465	470	475
Arg Thr Thr Arg Pro Arg Leu Leu Gly Glu Asp Glu Tyr Leu Asn Asn		
485	490	495
Ser Leu Met Gln Pro Val Arg Glu Lys Asn Leu Pro Pro Ala Phe Pro		
500	505	510
Asn Asn Gly Ile Glu Ser Leu Val Asp Lys Met Ser Arg Trp Lys Thr		
515	520	525
Tyr Ala Gln Glu His Arg Asp Ala Pro Ala Leu Arg Pro Pro Thr Arg		
530	535	540
Arg Gln Arg His Asp Arg Gln Arg Gly Leu Val Trp Asp Asp Glu Asp		
545	550	555
		560

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Ser Ala Asp Asp Ser Ser Val Leu Asp Leu Gly Gly Ser Gly Asn Pro
565 570 575

Phe Ala His Leu Arg Pro Arg Leu Gly Arg Met Phe
580 585

<210> 37
<211> 589
<212> PRT
<213> Simian adenovirus 31

<400> 37

Met Arg Arg Ala Ala Met Tyr Gln Glu Gly Pro Pro Pro Ser Tyr Glu
1 5 10 15

Ser Val Val Gly Ala Ala Ser Pro Phe Ala Ser Gln Leu Glu Pro Pro
20 25 30

Tyr Val Pro Pro Arg Tyr Leu Arg Pro Thr Gly Gly Arg Asn Ser Ile
35 40 45

Arg Tyr Ser Glu Leu Ala Pro Leu Phe Asp Thr Thr Arg Val Tyr Leu
50 55 60

Val Asp Asn Lys Ser Ala Asp Val Ala Ser Leu Asn Tyr Gln Asn Asp
65 70 75 80

His Ser Asn Phe Leu Thr Thr Val Ile Gln Asn Asn Asp Tyr Ser Pro
85 90 95

Ser Glu Ala Ser Thr Gln Thr Ile Asn Leu Asp Asp Arg Ser His Trp
100 105 110

Gly Gly Asp Leu Lys Thr Ile Leu His Thr Asn Met Pro Asn Val Asn
115 120 125

Glu Phe Met Phe Thr Asn Lys Phe Lys Ala Arg Val Met Val Ser Arg
130 135 140

Ser His Thr Lys Asp Asp Arg Val Glu Leu Lys Tyr Glu Trp Val Glu
145 150 155 160

Phe Glu Leu Pro Glu Gly Asn Tyr Ser Glu Thr Met Thr Ile Asp Leu
165 170 175

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Met Asn Asn Ala Ile Val Glu His Tyr Leu Lys Val Gly Arg Gln Asn
180 185 190

Gly Val Leu Glu Ser Asp Ile Gly Val Lys Phe Asp Thr Arg Asn Phe
195 200 205

Arg Leu Gly Leu Asp Pro Val Thr Gly Leu Val Met Pro Gly Val Tyr
210 215 220

Thr Asn Glu Ala Phe His Pro Asp Ile Val Leu Leu Pro Gly Cys Gly
225 230 235 240

Val Asp Phe Thr Tyr Ser Arg Leu Ser Asn Leu Leu Gly Ile Arg Lys
245 250 255

Arg Gln Pro Phe Gln Glu Gly Phe Arg Ile Thr Tyr Glu Asp Leu Glu
260 265 270

Gly Gly Asn Ile Pro Ala Leu Leu Asp Val Glu Ala Tyr Gln Asp Ser
275 280 285

Leu Lys Glu Asn Glu Ala Gly Gln Glu Asp Thr Ala Ser Ala Ala Ala
290 295 300

Ala Ala Ala Ala Ala Thr Pro Ala Glu Gln Gly Glu Asp Ala Ala Ala
305 310 315 320

Ala Ala Gly Ala Ala Glu Ala Glu Ala Glu Pro Ala Met Val Val Glu
325 330 335

Glu Gln Glu Glu Asp Met Asn Asp Ser Ala Val Arg Gly Asp Thr Phe
340 345 350

Val Thr Arg Gly Glu Glu Lys Gln Ala Glu Ala Glu Ala Ala Ala Glu
355 360 365

Glu Lys Gln Ala Ala Glu Ala Ala Ala Ala Leu Ala Ala Ala Glu Ala
370 375 380

Ala Glu Ala Glu Ser Glu Gly Ala Lys Lys Glu Pro Val Ile Lys Pro
385 390 395 400

Leu Thr Glu Asp Ser Lys Lys Arg Ser Tyr Asn Val Leu Lys Asp Ser
405 410 415

Thr Asn Thr Ala Tyr Arg Ser Trp Tyr Leu Ala Tyr Asn Tyr Gly Asp
420 425 430

Pro Ser Thr Gly Val Arg Ser Trp Thr Leu Leu Cys Thr Pro Asp Val
435 440 445

Thr Cys Gly Ser Glu Gln Val Tyr Trp Ser Leu Pro Asp Met Met Gln
450 455 460

Asp Pro Val Thr Phe Arg Ser Thr Arg Gln Val Ser Asn Phe Pro Val
465 470 475 480

Val Gly Ala Glu Leu Leu Pro Val His Ser Lys Ser Phe Tyr Asn Asp
485 490 495

Gln Ala Val Tyr Ser Gln Leu Ile Arg Gln Phe Thr Ser Leu Thr His
500 505 510

Val Phe Asn Arg Phe Pro Glu Asn Gln Ile Leu Ala Arg Pro Pro Ala
515 520 525

Pro Thr Ile Thr Thr Val Ser Glu Asn Val Pro Ala Leu Thr Asp His
530 535 540

Gly Thr Leu Pro Leu Arg Asn Ser Ile Gly Gly Val Gln Arg Val Thr
545 550 555 560

Val Thr Asp Ala Arg Arg Arg Thr Cys Pro Tyr Val Tyr Lys Ala Leu
565 570 575

Gly Ile Val Ser Pro Arg Val Leu Ser Ser Arg Thr Phe
580 585

<210> 38

<211> 198

<212> PRT

<213> Simian adenovirus 31

<400> 38

Met Ser Ile Leu Ile Ser Pro Ser Asn Asn Ser Gly Trp Gly Leu Leu
1 5 10 15

Arg Ala Pro Ser Lys Met Phe Gly Gly Ala Arg Lys Arg Ser Glu Gln
20 25 30

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His Pro Val Arg Val Arg Gly His Phe Arg Ala Pro Trp Gly Ala His
35 40 45

Lys Arg Gly Arg Thr Gly Arg Thr Thr Val Asp Asp Ala Ile Asp Ser
50 55 60

Val Val Glu Gln Ala Arg Asn Tyr Arg Pro Ala Val Ser Thr Val Asp
65 70 75 80

Ala Ala Ile Gln Thr Val Val Gln Gly Ala Arg Arg Tyr Ala Lys Leu
85 90 95

Lys Ser Arg Arg Lys Arg Val Ala Arg Arg His Arg Arg Arg Pro Gly
100 105 110

Ala Ala Ala Lys Arg Ala Ala Ala Ala Leu Leu Arg Arg Ala Lys Arg
115 120 125

Thr Gly Arg Arg Ala Ala Met Arg Ala Ala Arg Arg Leu Ala Ala Gly
130 135 140

Ile Thr Ala Thr Ala Met Ala Pro Arg Thr Arg Arg Arg Ala Ala Ala
145 150 155 160

Ala Ala Ala Ala Ala Ile Ser Asp Met Ala Thr Arg Arg Arg Gly Asn
165 170 175

Val Tyr Trp Val Arg Asp Ser Val Ser Gly Val Arg Val Pro Val Arg
180 185 190

Phe Arg Pro Pro Arg Thr
195

<210> 39
<211> 373
<212> PRT
<213> Simian adenovirus 31

<400> 39

Met Ser Lys Arg Lys Ile Lys Glu Glu Met Leu Gln Val Ile Ala Pro
1 5 10 15

Glu Ile Tyr Gly Pro Pro Lys Lys Glu Glu Gln Asp Phe Lys Ser Arg
20 25 30

Lys	Ile	Lys	Arg	Val	Lys	Lys	Lys	Lys	Lys	Asp	Asp	Asp	Ala	Asp	Gly	35	40	45	
Glu	Val	Glu	Phe	Leu	Arg	Ala	Thr	Ala	Pro	Arg	Arg	Pro	Val	Gln	Trp	50	55	60	
Lys	Gly	Arg	Arg	Val	Lys	Arg	Val	Leu	Arg	Pro	Gly	Thr	Ala	Val	Val	65	70	75	80
Phe	Thr	Pro	Gly	Glu	Arg	Ser	Thr	Arg	Thr	Phe	Lys	Arg	Val	Tyr	Asp	85	90	95	
Glu	Val	Tyr	Gly	Asp	Glu	Asp	Leu	Leu	Glu	Gln	Ala	Asn	Glu	Arg	Phe	100	105	110	
Gly	Glu	Phe	Ala	Tyr	Gly	Lys	Arg	Gln	Arg	Pro	Leu	Gly	Lys	Glu	Asp	115	120	125	
Glu	Asp	Leu	Leu	Ala	Leu	Pro	Leu	Asp	Arg	Gly	Asn	Pro	Thr	Pro	Ser	130	135	140	
Leu	Lys	Pro	Val	Thr	Leu	Gln	Gln	Val	Leu	Pro	Ser	Ser	Ala	Pro	Ser	145	150	155	160
Glu	Thr	Lys	Arg	Gly	Leu	Lys	Arg	Glu	Gly	Gly	Asp	Leu	Ala	Pro	Thr	165	170	175	
Val	Gln	Leu	Met	Val	Pro	Lys	Arg	Gln	Arg	Leu	Glu	Asp	Val	Leu	Glu	180	185	190	
Lys	Met	Lys	Val	Asp	Pro	Gly	Leu	Gln	Pro	Asp	Ile	Arg	Val	Arg	Pro	195	200	205	
Ile	Lys	Gln	Val	Ala	Pro	Gly	Leu	Gly	Val	Gln	Thr	Val	Asp	Val	Val	210	215	220	
Ile	Pro	Thr	Gly	Asn	Ser	Pro	Ala	Ala	Ala	Thr	Thr	Thr	Thr	Ala	Thr	225	230	235	240
Ser	Thr	Asp	Met	Glu	Thr	Gln	Thr	Val	Pro	Ala	Ala	Ala	Ala	Ala	Ala	245	250	255	
Ala	Ala	Thr	Ala	Ala	Thr	Ser	Ser	Ala	Glu	Val	Gln	Thr	Asp	Pro	Trp	260	265	270	

Leu Pro Pro Ala Met Ala Pro Arg Ala Arg Arg Gly Arg Arg Lys Tyr
275 280 285

Gly Ala Ala Asn Ala Leu Leu Pro Glu Tyr Ala Leu His Pro Ser Ile
290 295 300

Ala Pro Thr Pro Gly Tyr Arg Gly Tyr Thr Tyr Arg Pro Arg Arg Ala
305 310 315 320

Lys Gly Ser Thr Arg Arg Pro Arg Arg Arg Ala Ala Thr Thr Arg Arg
325 330 335

Arg Arg Arg Ser Arg Arg Gln Pro Ala Leu Ala Pro Ile Ser Val Arg
340 345 350

Arg Val Ala Arg Asp Gly Arg Thr Leu Val Leu Pro Arg Ala Arg Tyr
355 360 365

His Pro Ser Ile Val
370

<210> 40
<211> 81
<212> PRT
<213> Simian adenovirus 31

<400> 40

Met Ala Leu Thr Cys Arg Leu Arg Phe Pro Val Pro Gly Tyr Arg Gly
1 5 10 15

Gly Arg Ser Arg Arg Arg Arg Gly Leu Ala Gly Arg Gly Leu Ser Gly
20 25 30

Gly Ser Arg Arg Ala His Arg Arg Arg Arg Ala Thr Ser Arg Arg Met
35 40 45

Arg Gly Gly Val Leu Pro Leu Leu Ile Pro Leu Ile Ala Ala Ala Ile
50 55 60

Gly Ala Val Pro Gly Ile Ala Ser Val Ala Leu Gln Ala Ser Gln Arg
65 70 75 80

Arg

<210> 41
 <211> 253
 <212> PRT
 <213> Simian adenovirus 31

<400> 41

Met Glu Asp Ile Asn Phe Ala Ser Leu Ala Pro Arg His Gly Ser Arg
 1 5 10 15

Pro Phe Leu Gly His Trp Asn Asp Ile Gly Thr Ser Asn Met Ser Gly
 20 25 30

Gly Ala Phe Ser Trp Gly Ser Leu Trp Ser Gly Ile Lys Ser Ile Gly
 35 40 45

Ser Ala Val Lys Asn Tyr Gly Thr Arg Ala Trp Asn Ser Ser Thr Gly
 50 55 60

Gln Met Leu Arg Asp Lys Leu Lys Glu Gln Asn Phe Gln Gln Lys Val
 65 70 75 80

Val Glu Gly Leu Ala Ser Gly Ile Asn Gly Val Val Asp Leu Ala Asn
 85 90 95

Gln Ala Val Gln Asn Lys Ile Asn Ser Arg Leu Asp Pro Arg Pro Pro
 100 105 110

Val Glu Glu Val Pro Pro Ala Leu Glu Thr Val Ser Pro Asp Gly Arg
 115 120 125

Gly Glu Lys Arg Pro Arg Pro Asp Arg Glu Glu Thr Thr Leu Val Thr
 130 135 140

Gln Thr Asp Glu Pro Pro Pro Tyr Glu Glu Ala Leu Lys Gln Gly Leu
 145 150 155 160

Pro Thr Thr Arg Pro Ile Ala Pro Met Ala Thr Gly Val Val Gly Arg
 165 170 175

His Thr Pro Ala Thr Leu Asp Leu Pro Pro Pro Ala Asp Val Pro Gln
 180 185 190

Gln Gln Lys Ala Ala Gln Pro Gly Pro Pro Ala Thr Ala Pro Arg Ser
 195 200 205

Ser Ala Gly Pro Leu Arg Arg Ala Ala Ser Gly Pro Arg Gly Gly Val
210 215 220

Ser Arg His Ser Ser Gly Asn Trp Gln Ser Thr Leu Asn Ser Ile Val
225 230 235 240

Gly Leu Gly Val Arg Ser Val Lys Arg Arg Arg Cys Tyr
245 250

<210> 42

<211> 954

<212> PRT

<213> Simian adenovirus 31

<400> 42

Met Ala Thr Pro Ser Met Met Pro Gln Trp Ser Tyr Met His Ile Ser
1 5 10 15

Gly Gln Asp Ala Ser Glu Tyr Leu Ser Pro Gly Leu Val Gln Phe Ala
20 25 30

Arg Ala Thr Glu Ser Tyr Phe Ser Leu Ser Asn Lys Phe Arg Asn Pro
35 40 45

Thr Val Ala Pro Thr His Asp Val Thr Thr Asp Arg Ser Gln Arg Leu
50 55 60

Thr Leu Arg Phe Ile Pro Val Asp Arg Glu Asp Thr Ala Tyr Ser Tyr
65 70 75 80

Lys Ala Arg Phe Thr Leu Ala Val Gly Asp Asn Arg Val Leu Asp Met
85 90 95

Ala Ser Thr Tyr Phe Asp Ile Arg Gly Val Leu Asp Arg Gly Pro Thr
100 105 110

Phe Lys Pro Tyr Ser Gly Thr Ala Tyr Asn Ser Leu Ala Pro Lys Gly
115 120 125

Ala Pro Asn Pro Cys Glu Trp Asp Glu Ala Ala Thr Ala Leu Asp Ile
130 135 140

Asp Leu Asn Ala Glu Glu Asp Glu Glu Gly Asp Glu Ala Gln Gly Glu
145 150 155 160

Ala Asp Gln Gln Lys Thr His Val Phe Gly Gln Ala Pro Tyr Ser Gly
165 170 175

Gln Asn Ile Thr Lys Glu Gly Ile Gln Ile Gly Ile Asp Ala Thr Ser
180 185 190

Gln Ala Gln Thr Pro Leu Tyr Ala Asp Lys Thr Phe Gln Pro Glu Pro
195 200 205

Gln Ile Gly Glu Ser Gln Trp Asn Glu Thr Glu Ile Ser Tyr Gly Ala
210 215 220

Gly Arg Val Leu Lys Lys Thr Thr Leu Met Lys Pro Cys Tyr Gly Ser
225 230 235 240

Tyr Ala Arg Pro Thr Asn Glu Asn Gly Gly Gln Gly Ile Leu Leu Glu
245 250 255

Gln Asp Gly Lys Lys Glu Ser Gln Val Glu Met Gln Phe Phe Ser Thr
260 265 270

Thr Gln Ala Ala Ala Gly Asn Ser Asp Asn Pro Thr Pro Lys Leu Val
275 280 285

Leu Tyr Ser Glu Asp Val Asn Leu Glu Thr Pro Asp Thr His Ile Ser
290 295 300

Tyr Met Pro Thr Asn Asn Glu Thr Asn Ser Arg Glu Leu Leu Gly Gln
305 310 315 320

Gln Ala Met Pro Asn Arg Pro Asn Tyr Ile Gly Phe Arg Asp Asn Phe
325 330 335

Ile Gly Leu Met Tyr Tyr Asn Ser Thr Gly Asn Met Gly Val Leu Ala
340 345 350

Gly Gln Ala Ser Gln Leu Asn Ala Val Val Asp Leu Gln Asp Arg Asn
355 360 365

Thr Glu Leu Ser Tyr Gln Leu Leu Leu Asp Ser Met Gly Asp Arg Thr
370 375 380

Arg Tyr Phe Ser Met Trp Asn Gln Ala Val Asp Ser Tyr Asp Pro Asp

385		390		395		400
Val Arg Ile Ile Glu Asn His Gly Thr Glu Asp Glu Leu Pro Asn Tyr						
		405		410		415
Cys Phe Pro Leu Gly Gly Ile Ile Asn Thr Glu Thr Phe Thr Lys Val						
		420		425		430
Lys Pro Lys Ala Gly Gln Asp Ala Gln Trp Glu Lys Asp Ser Glu Phe						
		435		440		445
Ser Asp Lys Asn Glu Ile Arg Val Gly Asn Asn Phe Ala Met Glu Ile						
		450		455		460
Asn Ile Asn Ala Asn Leu Trp Arg Asn Phe Leu Tyr Ser Asn Val Ala						
465		470		475		480
Leu Tyr Leu Pro Asp Lys Leu Lys Tyr Thr Pro Ser Asn Val Gln Ile						
		485		490		495
Ser Asn Asn Pro Asn Ser Tyr Asp Tyr Met Asn Lys Arg Val Val Ala						
		500		505		510
Pro Gly Leu Val Asp Cys Tyr Ile Asn Leu Gly Ala Arg Trp Ser Leu						
		515		520		525
Asp Tyr Met Asp Asn Val Asn Pro Phe Asn His His Arg Asn Ala Gly						
		530		535		540
Leu Arg Tyr Arg Ser Met Leu Leu Gly Asn Gly Arg Tyr Val Pro Phe						
545		550		555		560
His Ile Gln Val Pro Gln Lys Phe Phe Ala Ile Lys Asn Leu Leu Leu						
		565		570		575
Leu Pro Gly Ser Tyr Thr Tyr Glu Trp Asn Phe Arg Lys Asp Val Asn						
		580		585		590
Met Val Leu Gln Ser Ser Leu Gly Asn Asp Leu Arg Val Asp Gly Ala						
		595		600		605
Ser Ile Lys Phe Glu Ser Ile Cys Leu Tyr Ala Thr Phe Phe Pro Met						
		610		615		620

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Ala His Asn Thr Ala Ser Thr Leu Glu Ala Met Leu Arg Asn Asp Thr
625 630 635 640

Asn Asp Gln Ser Phe Asn Asp Tyr Leu Ser Ala Ala Asn Met Leu Tyr
645 650 655

Pro Ile Pro Ala Asn Ala Thr Asn Val Pro Ile Ser Ile Pro Ser Arg
660 665 670

Asn Trp Ala Ala Phe Arg Gly Trp Ala Phe Thr Arg Leu Lys Thr Lys
675 680 685

Glu Thr Pro Ser Leu Gly Ser Gly Phe Asp Pro Tyr Tyr Thr Tyr Ser
690 695 700

Gly Ser Ile Pro Tyr Leu Asp Gly Thr Phe Tyr Leu Asn His Thr Phe
705 710 715 720

Lys Lys Val Ser Val Thr Phe Asp Ser Ser Val Ser Trp Pro Gly Asn
725 730 735

Asp Arg Leu Leu Thr Pro Asn Glu Phe Glu Ile Lys Arg Ser Val Asp
740 745 750

Gly Glu Gly Tyr Asn Val Ala Gln Cys Asn Met Thr Lys Asp Trp Phe
755 760 765

Leu Val Gln Met Leu Ala Asn Tyr Asn Ile Gly Tyr Gln Gly Phe Tyr
770 775 780

Ile Pro Glu Ser Tyr Lys Asp Arg Met Tyr Ser Phe Phe Arg Asn Phe
785 790 795 800

Gln Pro Met Ser Arg Gln Val Val Asp Gln Thr Lys Tyr Lys Asp Tyr
805 810 815

Gln Glu Val Gly Ile Ile His Gln His Asn Asn Ser Gly Phe Val Gly
820 825 830

Tyr Leu Ala Pro Thr Met Arg Glu Gly Gln Ala Tyr Pro Ala Asn Phe
835 840 845

Pro Tyr Pro Leu Ile Gly Lys Thr Ala Val Asp Ser Ile Thr Gln Lys
850 855 860

Lys Phe Leu Cys Asp Arg Thr Leu Trp Arg Ile Pro Phe Ser Ser Asn
865 870 875 880

Phe Met Ser Met Gly Ala Leu Thr Asp Leu Gly Gln Asn Leu Leu Tyr
885 890 895

Ala Asn Ser Ala His Ala Leu Asp Met Thr Phe Glu Val Asp Pro Met
900 905 910

Asp Glu Pro Thr Leu Leu Tyr Val Leu Phe Glu Val Phe Asp Val Val
915 920 925

Arg Val His Gln Pro His Arg Gly Val Ile Glu Thr Val Tyr Leu Arg
930 935 940

Thr Pro Phe Ser Ala Gly Asn Ala Thr Thr
945 950

<210> 43
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<212> PRT
<213> Simian adenovirus 31

<400> 43

Met Pro Ser Gly Ser Thr Glu Gln Glu Leu Arg Ala Ile Val Arg Asp
1 5 10 15

Leu Gly Cys Gly Pro Tyr Phe Leu Gly Thr Phe Asp Lys Arg Phe Pro
20 25 30

Gly Phe Val Ser Pro His Lys Leu Ala Cys Ala Ile Val Asn Thr Ala
35 40 45

Gly Arg Glu Thr Gly Gly Val His Trp Leu Ala Phe Ala Trp Asn Pro
50 55 60

Arg Ser Lys Thr Cys Phe Leu Phe Asp Pro Phe Gly Phe Ser Asp Gln
65 70 75 80

Arg Leu Lys Gln Ile Tyr Glu Phe Glu Tyr Glu Gly Leu Leu Arg Arg
85 90 95

Ser Ala Ile Ala Ser Ser Pro Asp Arg Cys Val Thr Leu Glu Lys Ser
100 105 110

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Thr Gln Thr Val Gln Gly Pro Asp Ser Ala Ala Cys Gly Leu Phe Cys
115 120 125

Cys Met Phe Leu His Ala Phe Val His Trp Pro Gln Ser Pro Met Asp
130 135 140

Arg Asn Pro Thr Met Asn Leu Leu Thr Gly Val Pro Asn Ser Met Leu
145 150 155 160

Gln Ser Pro Gln Val Glu Pro Thr Leu Arg Arg Asn Gln Glu Gln Leu
165 170 175

Tyr Ser Phe Leu Glu Arg His Ser Pro Tyr Phe Arg Arg His Ser Ala
180 185 190

Gln Ile Arg Arg Ala Thr Ser Phe Cys His Leu Gln Glu Met Gln Glu
195 200 205

Gly Lys
210

<210> 44
<211> 832
<212> PRT
<213> Simian adenovirus 31

<400> 44

Met Glu Ser Leu Met Gln Val Glu Lys Glu Glu Asp Ser Leu Thr Ala
1 5 10 15

Pro Ser Glu Pro Thr Thr Ala Ala Thr Ala Ala Ala Ser Ala Ala Ala
20 25 30

Asp Asp Ala Pro Thr Glu Thr Thr Thr Thr Thr Thr Leu Pro Ser
35 40 45

Asp Ala Pro Pro Leu Glu Lys Glu Val Leu Ile Glu Gln Asp Pro Gly
50 55 60

Phe Val Ser Glu Glu Glu Asp Glu Ala Asp Glu Lys Glu Asp Thr Ala
65 70 75 80

Ala Ser Val Pro Lys Glu Asp Lys Lys Gln Asp Gln Asp Asp Ala Glu
85 90 95

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Lys Asp Glu Ala Ala Val Gly Arg Gly Asp Gly Ser His Asp Ala Asp
100 105 110

Asp Gly Tyr Leu Asp Val Gly Asp Asp Val Leu Leu Lys His Leu His
115 120 125

Arg Gln Cys Val Ile Ile Cys Asp Ala Leu Gln Glu Arg Cys Glu Val
130 135 140

Pro Leu Asp Val Ala Glu Val Ser Arg Ala Tyr Glu Arg His Leu Phe
145 150 155 160

Ala Pro His Val Pro Pro Lys Arg Arg Glu Asn Gly Thr Cys Glu Pro
165 170 175

Asn Pro Arg Leu Asn Phe Tyr Pro Val Phe Ala Val Pro Glu Val Leu
180 185 190

Ala Thr Tyr His Ile Phe Phe Gln Asn Cys Lys Ile Pro Leu Ser Cys
195 200 205

Arg Ala Asn Arg Thr Arg Ala Asp Lys Thr Leu Thr Met Arg Gln Gly
210 215 220

Ala His Ile Pro Asp Ile Thr Ser Leu Glu Glu Val Pro Lys Ile Phe
225 230 235 240

Glu Gly Leu Gly Arg Asp Glu Lys Arg Ala Ala Asn Ala Leu His Gly
245 250 255

Asp Ser Glu Asn Glu Ser His Ser Gly Val Leu Val Glu Leu Glu Gly
260 265 270

Asp Asn Ala Arg Leu Ala Val Leu Lys Arg Ser Ile Glu Val Thr His
275 280 285

Phe Ala Tyr Pro Ala Leu Asn Leu Pro Pro Lys Val Met Ser Val Val
290 295 300

Met Gly Glu Leu Ile Met Arg Arg Ala Gln Pro Leu Asp Ala Asp Ala
305 310 315 320

Asn Leu Gln Glu Ser Ser Glu Glu Gly Leu Pro Ala Val Ser Asp Glu
325 330 335

Gln Leu Ala Arg Trp Leu Glu Thr Arg Asp Pro Ala Gln Leu Glu Glu
340 345 350

Arg Arg Lys Leu Met Met Ala Ala Val Leu Val Thr Val Glu Leu Glu
355 360 365

Cys Leu Gln Arg Phe Phe Ala Asp Pro Glu Met Gln Arg Lys Leu Glu
370 375 380

Glu Thr Leu His Tyr Thr Phe Arg Gln Gly Tyr Val Arg Gln Ala Cys
385 390 395 400

Lys Ile Ser Asn Val Glu Leu Cys Asn Leu Val Ser Tyr Leu Gly Ile
405 410 415

Leu His Glu Asn Arg Leu Gly Gln Asn Val Leu His Ser Thr Leu Arg
420 425 430

Gly Glu Ala Arg Arg Asp Tyr Ile Arg Asp Cys Val Tyr Leu Phe Leu
435 440 445

Cys Tyr Thr Trp Gln Thr Ala Met Gly Val Trp Gln Gln Cys Leu Glu
450 455 460

Glu Arg Asn Leu Lys Glu Leu Glu Lys Leu Leu Arg Arg Ala Leu Arg
465 470 475 480

Asp Leu Trp Thr Gly Phe Asn Glu Arg Ser Val Ala Ala Ala Leu Ala
485 490 495

Asp Ile Ile Phe Pro Glu Arg Leu Leu Lys Thr Leu Gln Gln Gly Leu
500 505 510

Pro Asp Phe Thr Ser Gln Ser Met Leu Gln Asn Phe Arg Thr Phe Ile
515 520 525

Leu Glu Arg Ser Gly Ile Leu Pro Ala Thr Cys Cys Ala Leu Pro Ser
530 535 540

Asp Phe Val Pro Ile Lys Tyr Arg Glu Cys Pro Pro Pro Leu Trp Gly
545 550 555 560

His Cys Tyr Leu Phe Gln Leu Ala Asn Tyr Leu Ala His His Ser Asp

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				565						570						575	
Leu	Met	Glu	Asp	Val	Ser	Gly	Glu	Gly	Leu	Leu	Glu	Cys	His	Cys	Arg		
			580					585					590				
Cys	Asn	Leu	Cys	Thr	Pro	His	Arg	Ser	Leu	Val	Cys	Asn	Pro	Gln	Leu		
		595					600					605					
Leu	Ser	Glu	Ser	Gln	Ile	Ile	Gly	Thr	Phe	Glu	Leu	Gln	Gly	Pro	Ser		
	610					615						620					
Pro	Asp	Glu	Lys	Ser	Ala	Ala	Pro	Gly	Leu	Lys	Leu	Thr	Pro	Gly	Leu		
625					630					635					640		
Trp	Thr	Ser	Ala	Tyr	Leu	Arg	Lys	Phe	Val	Pro	Glu	Asp	Tyr	His	Ala		
				645					650					655			
His	Glu	Ile	Arg	Phe	Tyr	Glu	Asp	Gln	Ser	Arg	Pro	Pro	Lys	Ala	Glu		
			660					665					670				
Leu	Thr	Ala	Cys	Val	Ile	Thr	Gln	Gly	His	Ile	Leu	Gly	Gln	Leu	Gln		
		675					680					685					
Ala	Ile	Asn	Lys	Ala	Arg	Gln	Glu	Phe	Leu	Leu	Lys	Lys	Gly	Arg	Gly		
	690					695					700						
Val	Tyr	Leu	Asp	Pro	Gln	Ser	Gly	Glu	Glu	Leu	Asn	Pro	Leu	Pro	Pro		
705					710					715					720		
Pro	Pro	Pro	Gln	Gln	Arg	Asp	Leu	Ala	Ser	Gln	Asp	Gly	Thr	Gln	Lys		
				725					730					735			
Glu	Ala	Ala	Ala	Ala	Ala	Ala	Ala	Ala	Ser	Ala	Leu	His	Ala	Ser	Gly		
			740					745					750				
Gly	Arg	Gly	Gly	Leu	Gly	Gln	Ser	Gly	Arg	Gly	Gly	Phe	Gly	Arg	Gly		
		755					760					765					
Gly	Gly	Asp	Asp	Gly	Arg	Leu	Gly	Gly	Gly	Gln	Gln	Pro	Arg	Arg	Gly		
	770					775					780						
Ser	Phe	Arg	Gly	Arg	Arg	Gly	Gly	Arg	Arg	Asn	Thr	Ile	Thr	Leu	Gly		
785					790					795					800		

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Arg Ser Pro Leu Ala Gly Ala Pro Glu Val Leu Arg Ala Gln His Gln
805 810 815

Arg Tyr Asn Leu Arg Ser Ser Gly Ala Thr Arg Pro Gln Thr Gln Pro
820 825 830

<210> 45
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<212> PRT
<213> Simian adenovirus 31

<400> 45

Met Ser Lys Glu Ile Pro Thr Pro Tyr Met Trp Ser Tyr Gln Pro Gln
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Met Gly Val Ala Ala Gly Ala Ala Gln Asp Tyr Ser Thr Arg Met Asn
20 25 30

Tyr Met Ser Ala Gly Pro His Met Ile Ser Arg Val Asn Gly Ile Arg
35 40 45

Ala Gln Arg Asn Gln Ile Leu Leu Glu Gln Ala Ala Ile Thr Ala Thr
50 55 60

Pro Arg His Asn Leu Asn Pro Arg Asn Trp Pro Ala Ala Leu Val Tyr
65 70 75 80

Gln Glu Thr Pro Ser Ala Thr Thr Val Leu Leu Pro Arg Asp Ala Gln
85 90 95

Ala Glu Val Gln Met Thr Asn Ser Gly Ala Gln Leu Ala Gly Gly Phe
100 105 110

Arg His Gly Ala Arg Pro His Arg Gln Gly Ile Leu His Leu Ala Ile
115 120 125

Arg Gly Arg Gly Ile Gln Leu Asn Asp Glu Ser Val Ser Ser Ser Leu
130 135 140

Gly Leu Arg Pro Asp Gly Thr Phe Gln Leu Ala Gly Ala Gly Arg Ser
145 150 155 160

Ser Phe Thr Pro Arg Gln Ala Tyr Leu Thr Leu Gln Thr Ser Ser Ser
165 170 175

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Glu Pro Arg Ser Gly Gly Ile Gly Thr Leu Gln Phe Val Glu Glu Phe
180 185 190

Val Pro Ser Val Tyr Phe Asn Pro Phe Ser Gly Pro Pro Gly Arg Tyr
195 200 205

Pro Asp Gln Phe Ile Pro Asn Phe Asp Ala Val Lys Asp Ser Ala Asp
210 215 220

Gly Tyr Asp
225

<210> 46
<211> 105
<212> PRT
<213> Simian adenovirus 31

<400> 46

Met Ser Gly Ala Glu Ala Glu Arg Leu Arg Leu Lys His Leu Glu His
1 5 10 15

Cys Arg Arg His Asn Cys Phe Ala Arg Gly Ser Gly Glu Phe Cys Tyr
20 25 30

Phe Gln Leu Pro Glu Glu His Thr Glu Gly Pro Ala His Gly Val Arg
35 40 45

Leu Thr Thr Gln Gly Glu Val Thr Cys Ser Leu Ile Arg Glu Phe Thr
50 55 60

Leu Arg Pro Leu Leu Val Glu Arg Glu Arg Gly Pro Cys Val Leu Thr
65 70 75 80

Ile Ala Cys Asn Cys Pro Asn Pro Gly Leu His Gln Asp Leu Cys Cys
85 90 95

His Leu Cys Ala Glu Phe Asn Lys Arg
100 105

<210> 47
<211> 166
<212> PRT
<213> Simian adenovirus 31

<400> 47

Met Asn Arg Tyr Thr Ile Leu Thr Ile Leu Gly Leu Leu Ala Leu Ala

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1		5		10		15									
Ala	Cys	Ser	Ala	Ala	Thr	Lys	Lys	Glu	Val	Thr	Phe	Glu	Glu	Pro	Ala
			20					25					30		
Cys	Asn	Val	Thr	Phe	Lys	Pro	Glu	Gly	Ala	His	Cys	Thr	Thr	Leu	Val
		35					40					45			
Lys	Cys	Val	Thr	Lys	His	Glu	Arg	Leu	Arg	Ile	Asp	Tyr	Lys	Asn	Met
	50					55					60				
Thr	Gly	Arg	Tyr	Ala	Val	Tyr	Ser	Ile	Phe	Thr	Pro	Gly	Asp	Pro	Ser
65					70					75					80
Asn	Tyr	Ser	Val	Thr	Val	Phe	Glu	Gly	Gly	Gln	Phe	Lys	Lys	Phe	Asp
				85					90					95	
Tyr	Thr	Phe	Pro	Phe	Tyr	Glu	Leu	Cys	Asp	Ala	Val	Met	Tyr	Met	Ser
			100					105					110		
Lys	Gln	Tyr	Asn	Leu	Trp	Pro	Pro	Thr	Pro	Gln	Ala	Cys	Val	Glu	Asn
		115					120					125			
Thr	Gly	Ser	Phe	Cys	Cys	Val	Ala	Phe	Leu	Ile	Thr	Ala	Val	Ala	Leu
	130					135					140				
Ile	Cys	Thr	Leu	Leu	Tyr	Ile	Lys	Phe	Arg	Gln	Arg	Arg	Ile	Phe	Ile
145					150					155					160
Asp	Glu	Lys	Lys	Met	Pro										
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 <211> 291
 <212> PRT
 <213> Simian adenovirus 31

<400> 48

Met	Asn	Ala	Ile	Thr	Thr	Ser	Leu	Leu	Ile	Thr	Thr	Thr	Leu	Leu	Ala
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Ile	Ala	His	Gly	Leu	Thr	Arg	Ile	Glu	Val	Pro	Val	Gly	Ser	Asn	Val
			20					25					30		
Thr	Met	Val	Gly	Pro	Ala	Gly	Asn	Ser	Thr	Leu	Met	Trp	Glu	Lys	Phe

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35

40

45

Val Arg Asn Gln Trp Val His Phe Cys Ser Asn Arg Ile Ser Ile Lys
50 55 60

Pro Arg Ala Ile Cys Asp Gly Gln Asn Leu Thr Leu Ile Asp Val Gln
65 70 75 80

Met Met Asp Ala Gly Tyr Tyr Tyr Gly Gln Arg Gly Glu Ile Ile Asn
85 90 95

Tyr Trp Arg Pro His Lys Asp Tyr Met Leu His Val Val Glu Ala Val
100 105 110

Pro Thr Thr Ser Pro Thr Thr Thr Thr Thr Thr Thr Thr Thr Ser
115 120 125

Thr Thr Ala Ala Arg His Thr Arg Lys Ser Thr Met Ile Ser Thr Lys
130 135 140

Pro Pro Pro Ala His Ser His Ala Gly Gly Pro Ile Gly Ala Thr Ser
145 150 155 160

Glu Thr Thr Glu Leu Cys Phe Cys Gln Cys Thr Asn Ala Ser Ala His
165 170 175

Glu Leu Phe Asp Leu Glu Asn Glu Asp Ala Gln Gln Ser Ser Ala Cys
180 185 190

Pro Ala Pro Ala Ala Val Glu Pro Val Ala Leu Lys Gln Ile Gly Asp
195 200 205

Ser Ser Ile Ile Asp Phe Ser Ala Thr Pro Glu Tyr Pro Pro Asp Ser
210 215 220

Thr Phe His Ile Thr Gly Thr Lys Asp Pro Asn Leu Ser Phe Tyr Leu
225 230 235 240

Met Leu Leu Leu Cys Ile Ser Val Val Ser Ser Ala Leu Met Leu Leu
245 250 255

Gly Met Phe Cys Cys Leu Ile Cys Arg Arg Lys Arg Lys Ala Arg Ser
260 265 270

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Gln Gly Gln Pro Leu Met Pro Phe Pro Tyr Pro Pro Asp Phe Ala Asp
275 280 285

Asn Lys Ile
290

<210> 49
<211> 90
<212> PRT
<213> Simian adenovirus 31

<400> 49

Met Pro Arg Ile Phe Leu Tyr Leu Leu Leu Ile Pro Pro Phe Leu Gly
1 5 10 15

Cys Ser Thr Leu Ala Ala Val Ser His Leu Glu Val Asp Cys Leu Gln
20 25 30

Pro Phe Ala Val Tyr Leu Leu Tyr Gly Leu Val Thr Leu Thr Leu Ile
35 40 45

Cys Ser Leu Ile Thr Val Ile Ile Ala Phe Ile Gln Cys Ile Asp Tyr
50 55 60

Ile Cys Val Arg Leu Ala Tyr Phe Arg His His Pro Gln Tyr Arg Asp
65 70 75 80

Arg Asn Ile Ala Gln Leu Leu Arg Leu Leu
85 90

<210> 50
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<212> PRT
<213> Simian adenovirus 31

<400> 50

Met His Lys Thr Val Ile Cys Leu Leu Ile Leu Cys Thr Leu Pro Ala
1 5 10 15

Phe Thr Ser Cys Gln Tyr Thr Thr Lys Ala Pro Arg Lys Arg His Ala
20 25 30

Ser Cys Arg Phe Thr Gln Leu Trp Asn Ile Pro Lys Cys Tyr Asn Glu
35 40 45

Lys Ser Glu Leu Ser Glu Ala Trp Leu Tyr Gly Val Ile Cys Val Leu

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50                               55                               60

Val Phe Cys Ser Thr Val Phe Ala Leu Met Ile Tyr Pro His Ile Asp
65                               70                               75                               80

Leu Gly Trp Asn Ala Ile Asp Ala Met Ser Tyr Pro Thr Phe Pro Ala
85                               90                               95

Pro Glu Met Ile Pro Leu Arg Gln Val Val Pro Val Val Val Asn Gln
100                            105                            110

Arg Pro Pro Ser Pro Thr Pro Thr Glu Ile Ser Tyr Phe Asn Leu Thr
115                            120                            125

Gly Gly Asp Asp
130

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<213> Simian adenovirus 31

<400> 51

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Leu Gln Met Lys Arg Thr Lys Thr Ser Asp Glu Ser Phe Asn Pro Val
20                               25                               30

Tyr Pro Tyr Asp Thr Glu Asn Gly Pro Pro Ser Val Pro Phe Leu Thr
35                               40                               45

Pro Pro Phe Val Ser Pro Asp Gly Phe Gln Glu Ser Pro Pro Gly Val
50                               55                               60

Leu Ser Leu Asn Leu Ala Glu Pro Leu Val Thr Ser His Gly Met Leu
65                               70                               75                               80

Ala Leu Lys Met Gly Ser Gly Leu Ser Leu Asp Asp Ala Gly Asn Leu
85                               90                               95

Thr Ser Gln Asp Val Thr Thr Thr Thr Pro Pro Leu Lys Lys Thr Lys
100                            105                            110

Thr Asn Leu Ser Leu Glu Thr Ser Ala Pro Leu Thr Val Ser Thr Ser

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115																	
Gly	Ala	Leu	Thr	Leu	Ala	Ala	Ala	Ala	Pro	Leu	Ala	Val	Ala	Gly	Thr		
130						135					140						
Ser	Leu	Thr	Met	Gln	Ser	Glu	Ala	Pro	Leu	Thr	Val	Gln	Asp	Ala	Lys		
145					150					155					160		
Leu	Thr	Leu	Ala	Thr	Lys	Gly	Pro	Leu	Thr	Val	Ser	Glu	Gly	Lys	Leu		
				165					170					175			
Ala	Leu	Gln	Thr	Ser	Ala	Pro	Leu	Thr	Ala	Ala	Asp	Ser	Ser	Thr	Leu		
			180					185						190			
Thr	Val	Ser	Ala	Thr	Pro	Pro	Leu	Ser	Thr	Ser	Asn	Gly	Ser	Leu	Gly		
	195						200					205					
Ile	Asp	Met	Gln	Ala	Pro	Ile	Tyr	Thr	Thr	Asn	Gly	Lys	Leu	Gly	Leu		
210						215					220						
Asn	Phe	Gly	Ala	Pro	Leu	His	Val	Val	Asp	Ser	Leu	Asn	Ala	Leu	Thr		
225					230					235					240		
Val	Val	Thr	Gly	Gln	Gly	Leu	Thr	Ile	Asn	Gly	Thr	Ala	Leu	Gln	Thr		
				245					250					255			
Arg	Val	Ser	Gly	Ala	Leu	Asn	Tyr	Asp	Ser	Ser	Gly	Asn	Leu	Glu	Leu		
			260					265					270				
Arg	Ala	Ala	Gly	Gly	Met	Arg	Val	Asp	Ala	Asn	Gly	Lys	Leu	Ile	Leu		
	275						280					285					
Asp	Val	Ala	Tyr	Pro	Phe	Asp	Ala	Gln	Asn	Asn	Leu	Ser	Leu	Arg	Leu		
290						295					300						
Gly	Gln	Gly	Pro	Leu	Phe	Val	Asn	Ser	Ala	His	Asn	Leu	Asp	Val	Asn		
305					310					315					320		
Tyr	Asn	Arg	Gly	Leu	Tyr	Leu	Phe	Thr	Ser	Gly	Asn	Thr	Lys	Lys	Leu		
				325					330					335			
Glu	Val	Asn	Ile	Lys	Thr	Ala	Lys	Gly	Leu	Ile	Tyr	Asp	Asp	Thr	Ala		
			340					345					350				

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Ile Ala Ile Asn Pro Gly Asp Gly Leu Glu Phe Gly Ser Gly Ser Asp
355 360 365

Thr Asn Pro Leu Lys Thr Lys Leu Gly Leu Gly Leu Glu Tyr Asp Ser
370 375 380

Ser Arg Ala Ile Ile Ala Lys Leu Gly Thr Gly Leu Ser Phe Asp Asn
385 390 395 400

Thr Gly Ala Ile Thr Val Gly Asn Asn Asn Asp Asp Lys Leu Thr Leu
405 410 415

Trp Thr Thr Pro Asp Pro Ser Pro Asn Cys Arg Ile Tyr Ser Glu Lys
420 425 430

Asp Ala Lys Phe Thr Leu Val Leu Thr Lys Cys Gly Ser Gln Val Leu
435 440 445

Ala Ser Val Ser Val Leu Ser Val Lys Gly Ser Leu Ala Pro Ile Ser
450 455 460

Gly Thr Val Thr Ser Ala Gln Ile Ile Leu Arg Phe Asn Glu Asn Gly
465 470 475 480

Val Leu Leu Ser Asn Ser Ser Leu Asp Pro Gln Tyr Trp Asn Tyr Arg
485 490 495

Lys Gly Asp Leu Thr Glu Gly Thr Ala Tyr Thr Asn Ala Val Gly Phe
500 505 510

Met Pro Asn Leu Thr Ala Tyr Pro Lys Thr Gln Ser Gln Thr Ala Lys
515 520 525

Ser Asn Ile Val Ser Gln Val Tyr Leu Asn Gly Asp Lys Ser Lys Pro
530 535 540

Met Ile Leu Thr Ile Thr Leu Asn Gly Thr Asn Glu Thr Gly Asp Ala
545 550 555 560

Thr Val Ser Thr Tyr Ser Met Ser Phe Ser Trp Asn Trp Asn Gly Ser
565 570 575

Asn Tyr Ile Asn Glu Thr Phe Gln Thr Asn Ser Phe Thr Phe Ser Tyr
580 585 590

Ile Ala Gln Glu
595

<210> 52
<211> 570
<212> DNA
<213> Simian adenovirus 31

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Ala Leu Leu Asp Glu Ser Ser Asn Asn Thr Ser Gly Trp Trp Arg Tyr
15 20 25 30

ttg tgg ggc tct ccc cag ggc aag tta gtt tgt agg atc aag gag gat 145
Leu Trp Gly Ser Pro Gln Gly Lys Leu Val Cys Arg Ile Lys Glu Asp
35 40 45

tac aag tgg gaa ttt gaa gag ctt ttg aaa tcc tgt ggt gag cta ttg 193
Tyr Lys Trp Glu Phe Glu Glu Leu Leu Lys Ser Cys Gly Glu Leu Leu
50 55 60

gat tct ttg aat cta ggc cac cag gct ctt ttc cag gag aag gtc atc 241
Asp Ser Leu Asn Leu Gly His Gln Ala Leu Phe Gln Glu Lys Val Ile
65 70 75

agg act ttg gat ttt tcc aca ccg ggg cgc gtt gca gcc ggg gtt gct 289
Arg Thr Leu Asp Phe Ser Thr Pro Gly Arg Val Ala Ala Gly Val Ala
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Ser Gly Tyr Val Leu Asp Phe Leu Ala Met Gln Leu Trp Arg Ala Trp
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Ile Arg His Lys Asn Arg Leu Gln Leu Leu Ser Thr Val Arg Pro Leu
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Ser Ser Ser Ile Thr Pro Ala Lys Tyr Gln Cys Asn Ala Thr Leu Phe						
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acc ctc atc aac gcc tcc acc ctg gac aat gga ctc tat gta ggc tac						4381
Thr Leu Ile Asn Ala Ser Thr Leu Asp Asn Gly Leu Tyr Val Gly Tyr						
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Ser Ser Ser Ala Ala Thr Ala Gln Thr Thr Gln Ala Ile Tyr Thr Ser						
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gtg ccc gaa acc act cag acc cac cgc cca gag acg acc acc gcc acc						4621
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Trp Phe Ala Ile Gly Met Met Ala Leu Cys Leu Leu Leu Leu Trp Leu						
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Ile Cys Cys Leu His Arg Arg Arg Ala Arg Pro Pro Ile Tyr Arg Pro						
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Ile Ile Val Leu Asn Pro Asp Asn Asp Gly Ile His Arg Leu Asp Gly						
		635		640		645
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cag gag ctc cga gat ctc ctt aac ctg cac cag tgc aaa aga ggc atc	5763
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Phe Cys Leu Ala Lys Gln Ala Lys Val Thr Tyr Glu Lys Thr Gly Asn	
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Thr Glu Gly Cys Leu His Ser Pro Cys Arg Gly Pro Glu Asp Leu Cys	
755	760 765 770
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Pro Ser Pro Ser Val Ala Ala Pro Ser Pro Gly Pro Leu Lys Ser Ser
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Glu Pro Ser Ile Ser Ala Ile Thr Ser Ala Pro Pro Ala Pro Pro Gly
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Arg Arg Pro Asn Arg Arg Trp Asp Thr Thr Gly Thr Gly Val Gly Lys
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Ser Lys Cys Pro Pro Pro Pro Pro Pro Ser Gln Gln Gln Arg Gln Gly
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Ala Ala Glu Thr Thr Ser
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 50 55 60

Asp Gly Val Ser Leu Lys Asp Gln Leu Ser Gly Leu Ser Tyr Ser Ile
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His Lys Asn Thr Thr Leu Gln Leu Phe Pro Pro Tyr Leu Pro Gly Thr
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Leu Ser Leu Gln
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<213> Simian adenovirus 31

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Pro Gly Gly Gln Gly Lys Thr His Ala Tyr Asn Leu Glu Val Arg Gln
100 105 110

Pro Arg Thr Thr Thr Gln Pro Ser Pro Ser Thr Thr Thr Thr Ser
115 120 125

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Glu Thr Thr Gln Thr His Arg Pro Glu Thr Thr Thr Ala Thr Thr Pro
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His Thr Ser Thr Asp Arg Met Pro Ala Asn Ile Ala Pro Leu Ala Leu
180 185 190

Gln Asn Gly Leu Thr Ser Ser Thr Pro Lys Pro Val Asp Ala Ala Glu
195 200 205

Val Ser Ala Leu Val Asn Asp Trp Ala Gly Leu Gly Met Trp Trp Phe
210 215 220

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Ala Ile Gly Met Met Ala Leu Cys Leu Leu Leu Leu Trp Leu Ile Cys
225 230 235 240

Cys Leu His Arg Arg Arg Ala Arg Pro Pro Ile Tyr Arg Pro Ile Ile
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Leu Met Val Gly Glu Asn Pro Ile Thr Val Thr Gln His Ser Val Glu
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Thr Glu Gly Cys Leu His Ser Pro Cys Arg Gly Pro Glu Asp Leu Cys
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Thr Leu Val Lys Thr Leu Cys Gly Leu Arg Asp Leu Val Pro Phe Asn
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Ala Ala Gln Val Leu Asp Thr Leu Ile Glu Glu Val Leu Ala Asp Asn	
20 25 30	

tat cct ccc gcg act cct ttc gac gca cct acc ctt cac gaa ctg tat	146
Tyr Pro Pro Ala Thr Pro Phe Asp Ala Pro Thr Leu His Glu Leu Tyr	
35 40 45	

gat ctg gag gtg gtg ggg ccc aac gat ccg aac gag cag gcg gtt tcc	194
Asp Leu Glu Val Val Gly Pro Asn Asp Pro Asn Glu Gln Ala Val Ser	
50 55 60	

gaa ttt ttt ccc gag tcc atg ttg ttg gcc agc cag gag ggg gtc gaa	242
Glu Phe Phe Pro Glu Ser Met Leu Leu Ala Ser Gln Glu Gly Val Glu	
65 70 75	

ctt cag acc cct cct ccg atc acc gtt tcc ccc gat ccg ccg ccg ctg	290
Leu Gln Thr Pro Pro Pro Ile Thr Val Ser Pro Asp Pro Pro Pro Leu	
80 85 90 95	

agt agg cag ccc gag cgc tgc gtg gga cct gcg act atg ccc cag ctg	338
Ser Arg Gln Pro Glu Arg Cys Val Gly Pro Ala Thr Met Pro Gln Leu	
100 105 110	

ctg cct gag gtg atc gat ctc acc tgt aac gag tct ggt ttt cca ccc	386
Leu Pro Glu Val Ile Asp Leu Thr Cys Asn Glu Ser Gly Phe Pro Pro	
115 120 125	

agc gag gat gag gac gaa gag ggt gag cag ttt gtg tta gat tct gtg	434
Ser Glu Asp Glu Asp Glu Glu Gly Glu Gln Phe Val Leu Asp Ser Val	
130 135 140	

gat caa ccc ggg cga gga tgc agg tct tgt caa tat cac cgg aga aac	482
Asp Gln Pro Gly Arg Gly Cys Arg Ser Cys Gln Tyr His Arg Arg Asn	
145 150 155	

aca gga gac ccc cag att atg tgt tct ctg tgt tat atg aag atg acc	530
Thr Gly Asp Pro Gln Ile Met Cys Ser Leu Cys Tyr Met Lys Met Thr	
160 165 170 175	

tgt atg ttt att tac a gtaagtttgt gatcggtggg caggtgggct atagtgtggg	586
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Cys Met Phe Ile Tyr
180

tggggtggtct ttgtggtgtt ttttttttta atatatgtta ggggggttatg ctaaatactt 646

tcttattgtg attttttttaa aag gt cca gtg tct gag ccc gag cag gaa cct 698
Ser Pro Val Ser Glu Pro Glu Gln Glu Pro
185 190

gag ccg gag cct gag cct cct cgc ccc agg aga aag cct gca att tta 746
Glu Pro Glu Pro Glu Pro Pro Arg Pro Arg Arg Lys Pro Ala Ile Leu
195 200 205

act aga ccc agc gca ccg gta gcg agg ggc ctc agc agt gcg gag acc 794
Thr Arg Pro Ser Ala Pro Val Ala Arg Gly Leu Ser Ser Ala Glu Thr
210 215 220

acc gac tcc ggc gct tcc gca cca tcc cct ccg gag att cat cct gtg 842
Thr Asp Ser Gly Ala Ser Ala Pro Ser Pro Pro Glu Ile His Pro Val
225 230 235

gtg ccc ctg tgt ccc att aag ccc gtt gcc gtg aga gtt agt ggg cgg 890
Val Pro Leu Cys Pro Ile Lys Pro Val Ala Val Arg Val Ser Gly Arg
240 245 250

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Arg Ser Ala Val Glu Cys Ile Glu Asp Leu Leu Phe Glu Ser Gln Glu
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35 40 45

Leu Glu Val Val Gly Pro Asn Asp Pro Asn Glu Gln Ala Val Ser Glu
50 55 60

Phe Phe Pro Glu Ser Met Leu Leu Ala Ser Gln Glu Gly Val Glu Leu
65 70 75 80

Gln Thr Pro Pro Pro Ile Thr Val Ser Pro Asp Pro Pro Pro Leu Ser
85 90 95

Arg Gln Pro Glu Arg Cys Val Gly Pro Ala Thr Met Pro Gln Leu Leu
100 105 110

Pro Glu Val Ile Asp Leu Thr Cys Asn Glu Ser Gly Phe Pro Pro Ser
115 120 125

Glu Asp Glu Asp Glu Glu Gly Glu Gln Phe Val Leu Asp Ser Val Asp
130 135 140

Gln Pro Gly Arg Gly Cys Arg Ser Cys Gln Tyr His Arg Arg Asn Thr
145 150 155 160

Gly Asp Pro Gln Ile Met Cys Ser Leu Cys Tyr Met Lys Met Thr Cys
165 170 175

Met Phe Ile Tyr Ser Pro Val Ser Glu Pro Glu Gln Glu Pro Glu Pro
180 185 190

Glu Pro Glu Pro Pro Arg Pro Arg Arg Lys Pro Ala Ile Leu Thr Arg
195 200 205

Pro Ser Ala Pro Val Ala Arg Gly Leu Ser Ser Ala Glu Thr Thr Asp
210 215 220

Ser Gly Ala Ser Ala Pro Ser Pro Pro Glu Ile His Pro Val Val Pro
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Leu Cys Pro Ile Lys Pro Val Ala Val Arg Val Ser Gly Arg Arg Ser
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 Gln Pro Tyr Met Leu Leu Glu Glu Glu Glu Asp Trp Asp Ser Gln Ala
 15 20 25 30

gag gag gtt tcg gac gag gag gag gag atg atg gaa gac tgg gag gag 144
 Glu Glu Val Ser Asp Glu Glu Glu Glu Met Met Glu Asp Trp Glu Glu
 35 40 45

gac agc agc cta gac gag gaa gct tca gag gcc gaa gag gtg gca gac 192
 Asp Ser Ser Leu Asp Glu Glu Ala Ser Glu Ala Glu Glu Val Ala Asp
 50 55 60

gca aca cca tca ccc tcg gtc gca gcc ccc tcg ccg ggg ccc ctg aag 240
 Ala Thr Pro Ser Pro Ser Val Ala Ala Pro Ser Pro Gly Pro Leu Lys
 65 70 75

tcc tcc gag ccc agc atc agc gct ata acc tcc gct cct ccg gcg cca 288
 Ser Ser Glu Pro Ser Ile Ser Ala Ile Thr Ser Ala Pro Pro Ala Pro
 80 85 90

ccc ggc cgc aga ccc aac cgt aga tgg gac acc aca gga acc ggg 333
 Pro Gly Arg Arg Pro Asn Arg Arg Trp Asp Thr Thr Gly Thr Gly
 95 100 105

gtcggtaagt caaagtgcc accgcccca cccccctcgc agcagcagcg ccagggttac 393

cgctcgtggc gcgggcacaa gaacgccata gtcgcctgct tgcaagactg cgggggcaac 453

atctccttcg ccgcgcgctt cctgctcttc caccacgggg tcgccttccc ccgcaatgtc 513

ctgcattact accgtcatct ctacagcccc tactgcggca gcggcgaccc agaggcggca 573

gcgtcagccg cagcggagac caccagctag gaagacctca tcctccgcgg gcaag acg 631
 Thr
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 Ala Ala Ala Ala Arg Arg Pro Ala Ala Ala Ala Ala Thr Gly Ala Val
 115 120 125

ggc gca ctg cgc ctc tcg ccc aac gaa ccc ctc tcg acc cgg gag ctc 727
 Gly Ala Leu Arg Leu Ser Pro Asn Glu Pro Leu Ser Thr Arg Glu Leu
 130 135 140

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aga cac agg atc ttc ccc act ctg tat gcc atc ttc caa cag agc aga      775
Arg His Arg Ile Phe Pro Thr Leu Tyr Ala Ile Phe Gln Gln Ser Arg
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Gly Gln Glu Gln Glu Leu Lys Ile Lys Asn Arg Ser Leu Arg Ser Leu
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acc cgc agc tgt ctg tat cac aaa agc gaa gat cag ctt cgg cgc acg      871
Thr Arg Ser Cys Leu Tyr His Lys Ser Glu Asp Gln Leu Arg Arg Thr
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cta gag gac gcg gag gca ctc ttc agc aaa tac tgc gcg ctc act ctt      919
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Lys Asp

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Tyr Met Leu Leu Glu Glu Glu Glu Asp Trp Asp Ser Gln Ala Glu Glu
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Val Ser Asp Glu Glu Glu Glu Met Met Glu Asp Trp Glu Glu Asp Ser
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Ser Leu Asp Glu Glu Ala Ser Glu Ala Glu Glu Val Ala Asp Ala Thr
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Pro Ser Pro Ser Val Ala Ala Pro Ser Pro Gly Pro Leu Lys Ser Ser
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Glu Pro Ser Ile Ser Ala Ile Thr Ser Ala Pro Pro Ala Pro Pro Gly
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Ala Ala Arg Arg Pro Ala Ala Ala Ala Ala Thr Gly Ala Val Gly Ala
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Arg Ile Phe Pro Thr Leu Tyr Ala Ile Phe Gln Gln Ser Arg Gly Gln
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Glu Gln Glu Leu Lys Ile Lys Asn Arg Ser Leu Arg Ser Leu Thr Arg
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Ser Cys Leu Tyr His Lys Ser Glu Asp Gln Leu Arg Arg Thr Leu Glu
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ttc tac agc ggg ggc ttc gag gtc ccg gag gcc aac gat ggc ttc Phe Tyr Ser Gly Gly Phe Glu Val Pro Glu Ala Asn Asp Gly Phe	13617

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1185	1190	1195	
ctg tgg gac gac atg gac gac agc gtg ttc tcc ccg cgg ccg cag			13662
Leu Trp Asp Asp Met Asp Asp Ser Val Phe Ser Pro Arg Pro Gln			
1200	1205	1210	
gcg ctg gcg gaa gcg tcc ctg ctg cgc ccc aag aag gag gag gag			13707
Ala Leu Ala Glu Ala Ser Leu Leu Arg Pro Lys Lys Glu Glu Glu			
1215	1220	1225	
gcg agt cgc cgc cgc cgc ggc agc agc ggc gtg gct tct ctg tcc			13752
Ala Ser Arg Arg Arg Arg Gly Ser Ser Gly Val Ala Ser Leu Ser			
1230	1235	1240	
gag ctg ggg gcg gca gcc gcc gcg cgc ccc ggg tcc ctg ggc ggc			13797
Glu Leu Gly Ala Ala Ala Ala Ala Arg Pro Gly Ser Leu Gly Gly			
1245	1250	1255	
agc ccc ttt ccg agc ctg gtg ggg tct ctg cac agc gag cgc acc			13842
Ser Pro Phe Pro Ser Leu Val Gly Ser Leu His Ser Glu Arg Thr			
1260	1265	1270	
acc cgc ccc cgg ctg ctg ggc gag gac gag tac ctg aat aac tcc			13887
Thr Arg Pro Arg Leu Leu Gly Glu Asp Glu Tyr Leu Asn Asn Ser			
1275	1280	1285	
ctg ctg cag ccg gtg cgg gag aaa aac ctg cct ccc gcc ttc ccc			13932
Leu Leu Gln Pro Val Arg Glu Lys Asn Leu Pro Pro Ala Phe Pro			
1290	1295	1300	
aac aac ggg ata gag agc ctg gtg gac aag atg agc aga tgg aag			13977
Asn Asn Gly Ile Glu Ser Leu Val Asp Lys Met Ser Arg Trp Lys			
1305	1310	1315	
acc tat gcg cag gag cac agg gac gcg ccc gcg ctc cgg ccg ccc			14022
Thr Tyr Ala Gln Glu His Arg Asp Ala Pro Ala Leu Arg Pro Pro			
1320	1325	1330	
acg cgg cgc cag cgc cac gac cgg cag cgg ggg ctg gtg tgg gat			14067
Thr Arg Arg Gln Arg His Asp Arg Gln Arg Gly Leu Val Trp Asp			
1335	1340	1345	
gac gag gac tcc gcg gac gat agc agc gtg ctg gac ctg gga ggg			14112
Asp Glu Asp Ser Ala Asp Asp Ser Ser Val Leu Asp Leu Gly Gly			
1350	1355	1360	
agc ggc aac ccg ttc gcg cac ctg cgc ccc cgc ctg ggg agg atg			14157
Ser Gly Asn Pro Phe Ala His Leu Arg Pro Arg Leu Gly Arg Met			
1365	1370	1375	
ttt taaaaaaaaa aaaaagcaag aagc atg atg caa aaa tta aat aaa act			14208
Phe Met Met Gln Lys Leu Asn Lys Thr			
	1380	1385	
cac caa ggc cat ggc gac cga gcg ttg gtt tct tgt gtt ccc ttc			14253
His Gln Gly His Gly Asp Arg Ala Leu Val Ser Cys Val Pro Phe			
1390	1395	1400	
agt atg cgg cgc gcg gcg atg tac cag gag gga cct cct ccc tct			14298

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Ser	Met	Arg	Arg	Ala	Ala	Met	Tyr	Gln	Glu	Gly	Pro	Pro	Pro	Ser	
			1405					1410					1415		
tac	gag	agc	gtg	gtg	ggc	gcg	gcg	gcg	gcg	gcg	ccc	tct	tct	ccc	14343
Tyr	Glu	Ser	Val	Val	Gly	Ala	Ala	Ala	Ala	Ala	Pro	Ser	Ser	Pro	
			1420					1425					1430		
ttt	gcg	tcg	cag	ctg	ctg	gag	ccg	ccg	tac	gtg	cct	ccg	cgc	tac	14388
Phe	Ala	Ser	Gln	Leu	Leu	Glu	Pro	Pro	Tyr	Val	Pro	Pro	Arg	Tyr	
			1435					1440					1445		
ctg	cgg	cct	acg	ggg	ggg	aga	aac	agc	atc	cgt	tac	tcg	gag	ctg	14433
Leu	Arg	Pro	Thr	Gly	Gly	Arg	Asn	Ser	Ile	Arg	Tyr	Ser	Glu	Leu	
			1450					1455					1460		
gcg	ccc	ctg	ttc	gac	acc	acc	cgg	gtg	tac	ctg	gtg	gac	aac	aag	14478
Ala	Pro	Leu	Phe	Asp	Thr	Thr	Arg	Val	Tyr	Leu	Val	Asp	Asn	Lys	
			1465					1470					1475		
tcg	gcg	gac	gtg	gcc	tcc	ctg	aac	tac	cag	aac	gac	cac	agc	aat	14523
Ser	Ala	Asp	Val	Ala	Ser	Leu	Asn	Tyr	Gln	Asn	Asp	His	Ser	Asn	
			1480					1485					1490		
ttt	ttg	acc	acg	gtc	atc	cag	aac	aat	gac	tac	agc	ccg	agc	gag	14568
Phe	Leu	Thr	Thr	Val	Ile	Gln	Asn	Asn	Asp	Tyr	Ser	Pro	Ser	Glu	
			1495					1500					1505		
gcc	agc	acc	cag	acc	atc	aat	ctg	gat	gac	cgg	tcg	cac	tgg	ggc	14613
Ala	Ser	Thr	Gln	Thr	Ile	Asn	Leu	Asp	Asp	Arg	Ser	His	Trp	Gly	
			1510					1515					1520		
ggc	gac	ctg	aaa	acc	atc	ctg	cac	acc	aac	atg	ccc	aac	gtg	aac	14658
Gly	Asp	Leu	Lys	Thr	Ile	Leu	His	Thr	Asn	Met	Pro	Asn	Val	Asn	
			1525					1530					1535		
gag	ttc	atg	ttc	acc	aat	aag	ttc	aag	gcg	cgg	gtg	atg	gtg	tcg	14703
Glu	Phe	Met	Phe	Thr	Asn	Lys	Phe	Lys	Ala	Arg	Val	Met	Val	Ser	
			1540					1545					1550		
cgc	tcg	cac	acc	aag	gaa	gac	cgg	gtg	gag	ctg	aag	tac	gag	tgg	14748
Arg	Ser	His	Thr	Lys	Glu	Asp	Arg	Val	Glu	Leu	Lys	Tyr	Glu	Trp	
			1555					1560					1565		
gtg	gag	ttc	gag	ctg	cca	gag	ggc	aac	tac	tcc	gag	acc	atg	acc	14793
Val	Glu	Phe	Glu	Leu	Pro	Glu	Gly	Asn	Tyr	Ser	Glu	Thr	Met	Thr	
			1570					1575					1580		
att	gac	ctg	atg	aac	aac	gcg	atc	gtg	gag	cac	tat	ctg	aaa	gtg	14838
Ile	Asp	Leu	Met	Asn	Asn	Ala	Ile	Val	Glu	His	Tyr	Leu	Lys	Val	
			1585					1590					1595		
ggc	agg	cag	aac	ggg	gtc	ctg	gag	agc	gac	atc	ggg	gtc	aag	ttc	14883
Gly	Arg	Gln	Asn	Gly	Val	Leu	Glu	Ser	Asp	Ile	Gly	Val	Lys	Phe	
			1600					1605					1610		
gac	acc	agg	aac	ttc	cgc	ctg	ggg	ctg	gac	ccc	gtg	acc	ggg	ctg	14928
Asp	Thr	Arg	Asn	Phe	Arg	Leu	Gly	Leu	Asp	Pro	Val	Thr	Gly	Leu	
			1615					1620					1625		

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gtt atg ccc ggg	gtg tac acc aac	gag gcc ttc cat ccc	gac atc	14973
Val Met Pro Gly	Val Tyr Thr Asn	Glu Ala Phe His Pro	Asp Ile	
1630		1635	1640	
atc ctg ctg ccc	ggc tgc ggg gtg	gac ttc act tac agc	cgc ctg	15018
Ile Leu Leu Pro	Gly Cys Gly Val	Asp Phe Thr Tyr Ser	Arg Leu	
1645		1650	1655	
agc aac ctc ctg	ggc atc cgc aag	cgg cag ccc ttc cag	gag ggc	15063
Ser Asn Leu Leu	Gly Ile Arg Lys	Arg Gln Pro Phe Gln	Glu Gly	
1660		1665	1670	
ttc agg atc acc	tac gag gac ctg	gag ggg ggc aac atc	ccc gcg	15108
Phe Arg Ile Thr	Tyr Glu Asp Leu	Glu Gly Gly Asn Ile	Pro Ala	
1675		1680	1685	
cta ctc gat gtg	gag gcc tac cag	gat agc ttg aag gaa	aat gag	15153
Leu Leu Asp Val	Glu Ala Tyr Gln	Asp Ser Leu Lys Glu	Asn Glu	
1690		1695	1700	
gcg gga cag gag	gat acc gcc ccc	gcc gcc tcc gcc gcc	gcc gag	15198
Ala Gly Gln Glu	Asp Thr Ala Pro	Ala Ala Ser Ala Ala	Ala Glu	
1705		1710	1715	
cag ggc gag gat	gct gct gac acc	gcg gcc gcg gac ggg	gcg gaa	15243
Gln Gly Glu Asp	Ala Ala Asp Thr	Ala Ala Asp Gly Ala	Glu Glu	
1720		1725	1730	
gcc gat ccc gct	atg gtg gtg gag	gct gcc gag cag gag	gag gac	15288
Ala Asp Pro Ala	Met Val Val Glu	Ala Ala Glu Gln Glu	Glu Asp	
1735		1740	1745	
atg aat gac agt	gcg gtg cgc gga	gac acc ttc gtc acc	cgg ggg	15333
Met Asn Asp Ser	Ala Val Arg Gly	Asp Thr Phe Val Thr	Arg Gly	
1750		1755	1760	
gag gaa aag caa	gcg gag gcc gag	gcc gcg gcc gag gaa	aag caa	15378
Glu Glu Lys Gln	Ala Glu Ala Glu	Ala Ala Glu Glu Lys	Gln Gln	
1765		1770	1775	
ctg gcg gca gca	gcg gcg gcg gcg	gcg ttg gcc gcg gcg	gag gct	15423
Leu Ala Ala Ala	Ala Ala Ala Ala	Ala Leu Ala Ala Ala	Glu Ala	
1780		1785	1790	
gag tct gag ggg	acc aag cct gcc	aag gag ccc gtg att	aag ccc	15468
Glu Ser Glu Gly	Thr Lys Pro Ala	Lys Glu Pro Val Ile	Lys Pro	
1795		1800	1805	
ctg acc gaa gat	agc aag aag cgc	agt tac aac ctg ctc	aag gac	15513
Leu Thr Glu Asp	Ser Lys Lys Arg	Ser Tyr Asn Leu Leu	Lys Asp	
1810		1815	1820	
agc acc aac acc	gcg tac cgc agc	tgg tac ctg gcc tac	aac tac	15558
Ser Thr Asn Thr	Ala Tyr Arg Ser	Trp Tyr Leu Ala Tyr	Asn Tyr	
1825		1830	1835	
ggc gac ccg tcg	acg ggg gtg cgc	tcc tgg acc ctg ctg	tgc acg	15603
Gly Asp Pro Ser	Thr Gly Val Arg	Ser Trp Thr Leu Leu	Cys Thr	
1840		1845	1850	

ccg gac gtg acc tgc ggc tcg gag cag gtg tac tgg tcg ctg ccc Pro Asp Val Thr Cys Gly Ser Glu Gln Val Tyr Trp Ser Leu Pro 1855 1860 1865	15648
gac atg atg caa gac ccc gtg acc ttc cgc tcc acg cgg cag gtc Asp Met Met Gln Asp Pro Val Thr Phe Arg Ser Thr Arg Gln Val 1870 1875 1880	15693
agc aac ttc ccg gtg gtg ggc gcc gag ctg ctg ccc gtg cac tcc Ser Asn Phe Pro Val Val Gly Ala Glu Leu Leu Pro Val His Ser 1885 1890 1895	15738
aag agc ttc tac aac gac cag gcc gtc tac tcc cag ctc atc cgc Lys Ser Phe Tyr Asn Asp Gln Ala Val Tyr Ser Gln Leu Ile Arg 1900 1905 1910	15783
cag ttc acc tct ctg acc cac gtg ttc aat cgc ttt cct gag aac Gln Phe Thr Ser Leu Thr His Val Phe Asn Arg Phe Pro Glu Asn 1915 1920 1925	15828
cag att ctg gcg cgc ccg ccc gcc ccc acc atc acc acc gtc agt Gln Ile Leu Ala Arg Pro Pro Ala Pro Thr Ile Thr Thr Val Ser 1930 1935 1940	15873
gaa aac gtt cct gct ctc aca gat cac ggg acg cta ccg ctg cgc Glu Asn Val Pro Ala Leu Thr Asp His Gly Thr Leu Pro Leu Arg 1945 1950 1955	15918
aac agc atc gga gga gtc cag cga gtg acc gtt act gac gcc aga Asn Ser Ile Gly Gly Val Gln Arg Val Thr Val Thr Asp Ala Arg 1960 1965 1970	15963
cgc cgc acc tgc ccc tac gtt tac aag gcc ttg ggc ata gtc tcg Arg Arg Thr Cys Pro Tyr Val Tyr Lys Ala Leu Gly Ile Val Ser 1975 1980 1985	16008
ccg cgc gtc ctt tcc agc cgc act ttt tgagcaaacac caccatc atg tcc Pro Arg Val Leu Ser Ser Arg Thr Phe 1990 1995 Met Ser	16058
atc ctg atc tca ccc agc aat aac tcc ggc tgg gga ctg ctg cgc Ile Leu Ile Ser Pro Ser Asn Asn Ser Gly Trp Gly Leu Leu Arg 2000 2005 2010	16103
gcg ccc agc aag atg ttc gga ggg gcg agg aag cgt tcc gag cag Ala Pro Ser Lys Met Phe Gly Gly Ala Arg Lys Arg Ser Glu Gln 2015 2020 2025	16148
cac ccc gtg cgc gtg cgc ggg cac ttc cgc gcc ccc tgg gga gcg His Pro Val Arg Val Arg Gly His Phe Arg Ala Pro Trp Gly Ala 2030 2035 2040	16193
cac aaa cgc ggc cgc gcg ggg cgc acc acc gtg gac gac gcc atc His Lys Arg Gly Arg Ala Gly Arg Thr Thr Val Asp Asp Ala Ile 2045 2050 2055	16238
gac tcg gtg gtg gag cag gcg cgc aac tac agg ccc gcg gtc tct Asp Ser Val Val Glu Gln Ala Arg Asn Tyr Arg Pro Ala Val Ser	16283

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2060	2065	2070	
acc gtg gac gcg gcc atc cag acc Thr Val Asp Ala Ala Ile Gln Thr	gtg gtg cgg ggc gcg Val Val Arg Gly Ala	cgg cgg Arg Arg	16328
2075	2080	2085	
tac gcc aag ctg aag agc cgc cgg Tyr Ala Lys Leu Lys Ser Arg Arg	aag cgc gtg gcc cgc Lys Arg Val Ala Arg	cgc cac Arg His	16373
2090	2095	2100	
cgc cgc cga ccc ggg gcc gcc gcc Arg Arg Arg Pro Gly Ala Ala	aaa cgc gcc gcc gcg Lys Arg Ala Ala Ala	gcc ctg Ala Leu	16418
2105	2110	2115	
ctt cgc cgg gcc aag cgc acg ggc Leu Arg Arg Ala Lys Arg Thr	cgc cgc gcc gcc atg Arg Arg Ala Ala Met	agg gcc Arg Ala	16463
2120	2125	2130	
gcg cgc cgc ttg gcc gcc ggc atc Ala Arg Arg Leu Ala Ala Gly Ile	acc gcc gcc acc atg Thr Ala Ala Thr Met	gcc ccc Ala Pro	16508
2135	2140	2145	
cgt acc cga aga cgc gcg gcc gcc Arg Thr Arg Arg Arg Ala Ala	gcc gcc gcc gcc gcc Ala Ala Ala Ala Ala	atc agt Ile Ser	16553
2150	2155	2160	
gac atg gcc agc agg cgc cgg ggc Asp Met Ala Ser Arg Arg Arg Gly	aac gtg tac tgg gtg Asn Val Tyr Trp Val	cgc gac Arg Asp	16598
2165	2170	2175	
tcg gtg acc ggc acg cgc gtg ccc Ser Val Thr Gly Thr Arg Val Pro	gtg cgc ttc cgc ccc Val Arg Phe Arg Pro	ccg cgg Pro Arg	16643
2180	2185	2190	
act tgagatgatg tgaaaaaaca acactgagtc tcctgctgtt gtgtgtatcc Thr			16696
cagcggcggc ggcgcgcgca gcgtc atg tcc Met Ser	aag cgc aaa atc aaa Lys Arg Lys Ile Lys	gaa gag Glu Glu	16748
	2195	2200	
atg ctc cag gtc gtc gcg ccg gag Met Leu Gln Val Val Ala Pro	atc tat ggg ccc ccg Ile Tyr Gly Pro Pro	aag aag Lys Lys	16793
2205	2210	2215	
gaa gag cag gat tcg aag ccc cgc Glu Glu Gln Asp Ser Lys Pro Arg	aag ata aag cgg gtc Lys Ile Lys Arg Val	aaa aag Lys Lys	16838
2220	2225	2230	
aaa aag aaa gat gat gac gat gcc Lys Lys Lys Asp Asp Asp Asp Ala	gat ggg gag gtg gag Asp Gly Glu Val Glu	ttc ctg Phe Leu	16883
2235	2240	2245	
cgc gcc acg gcg ccc agg cgc ccg Arg Ala Thr Ala Pro Arg Arg Pro	gtg cag tgg aag ggc Val Gln Trp Lys Gly	cgg cgc Arg Arg	16928
2250	2255	2260	
gta aag cgc gtc ctg cgc ccc ggc acc gcg gtg gtc ttc		acg ccc	16973

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Val	Lys	Arg	Val	Leu	Arg	Pro	Gly	Thr	Ala	Val	Val	Phe	Thr	Pro	
		2265					2270					2275			
ggc	gag	cgc	tcc	acc	cgg	act	ttc	aag	cgc	gtc	tat	gac	gag	gtg	17018
Gly	Glu	Arg	Ser	Thr	Arg	Thr	Phe	Lys	Arg	Val	Tyr	Asp	Glu	Val	
		2280					2285					2290			
tac	ggc	gac	gaa	gac	ctg	ctg	gag	cag	gcc	aac	gag	cgc	ttc	gga	17063
Tyr	Gly	Asp	Glu	Asp	Leu	Leu	Glu	Gln	Ala	Asn	Glu	Arg	Phe	Gly	
		2295					2300					2305			
gag	ttt	gct	tac	ggg	aag	cgt	cag	cgg	gcg	ctg	ggg	aag	gag	gac	17108
Glu	Phe	Ala	Tyr	Gly	Lys	Arg	Gln	Arg	Ala	Leu	Gly	Lys	Glu	Asp	
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ctg	ctg	gcg	ctg	ccg	ctg	gac	cag	ggc	aac	ccc	acc	ccc	agt	ctg	17153
Leu	Leu	Ala	Leu	Pro	Leu	Asp	Gln	Gly	Asn	Pro	Thr	Pro	Ser	Leu	
		2325					2330					2335			
aag	ccc	gtg	acc	ctg	cag	cag	gtg	ctg	ccg	agc	agc	gca	ccc	tcc	17198
Lys	Pro	Val	Thr	Leu	Gln	Gln	Val	Leu	Pro	Ser	Ser	Ala	Pro	Ser	
		2340					2345					2350			
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Glu	Ala	Lys	Arg	Gly	Leu	Lys	Arg	Glu	Gly	Gly	Asp	Leu	Ala	Pro	
		2355					2360					2365			
acc	gtg	cag	ctc	atg	gtg	ccc	aag	cgg	cag	agg	ctg	gag	gat	gtg	17288
Thr	Val	Gln	Leu	Met	Val	Pro	Lys	Arg	Gln	Arg	Leu	Glu	Asp	Val	
		2370					2375					2380			
ctg	gag	aaa	atg	aaa	gta	gac	ccc	ggt	ctg	cag	ccg	gac	atc	agg	17333
Leu	Glu	Lys	Met	Lys	Val	Asp	Pro	Gly	Leu	Gln	Pro	Asp	Ile	Arg	
		2385					2390					2395			
gtc	cgc	ccc	atc	aag	cag	gtg	gcg	ccg	ggc	ctc	ggc	gtg	cag	acc	17378
Val	Arg	Pro	Ile	Lys	Gln	Val	Ala	Pro	Gly	Leu	Gly	Val	Gln	Thr	
		2400					2405					2410			
gtg	gac	gtg	gtc	atc	ccc	acc	ggc	aac	tcc	ccc	gcc	gcc	gcc	acc	17423
Val	Asp	Val	Val	Ile	Pro	Thr	Gly	Asn	Ser	Pro	Ala	Ala	Ala	Thr	
		2415					2420					2425			
act	acc	gct	gcc	tcc	acg	gac	atg	gag	aca	cag	acc	gat	ccc	gcc	17468
Thr	Thr	Ala	Ala	Ser	Thr	Asp	Met	Glu	Thr	Gln	Thr	Asp	Pro	Ala	
		2430					2435					2440			
gca	gcc	gca	gcc	gca	gcc	gcc	gcc	gcg	acc	tcc	tcg	gcg	gag	gtg	17513
Ala	Ala	Ala	Ala	Ala	Ala	Ala	Ala	Ala	Thr	Ser	Ser	Ala	Glu	Val	
		2445					2450					2455			
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Gln	Thr	Asp	Pro	Trp	Leu	Pro	Pro	Ala	Met	Ser	Ala	Pro	Arg	Ala	
		2460					2465					2470			
cgt	cgc	ggg	cgc	agg	aag	tac	ggc	gcc	gcc	aac	gcg	ctc	ctg	ccc	17603
Arg	Arg	Gly	Arg	Arg	Lys	Tyr	Gly	Ala	Ala	Asn	Ala	Leu	Leu	Pro	
		2475					2480					2485			

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gag tac gcc ttg cat cct tcc atc gcg ccc acc ccc ggc tac cga Glu Tyr Ala Leu His Pro Ser Ile Ala Pro Thr Pro Gly Tyr Arg 2490 2495 2500	17648
ggc tat acc tac cgc ccg cga aga gcc aag ggt tcc acc cgc cgt Gly Tyr Thr Tyr Arg Pro Arg Arg Ala Lys Gly Ser Thr Arg Arg 2505 2510 2515	17693
ccc cgc cga cgc gcc gcc gcc acc acc cgc cgc cgc cgc cgc aga Pro Arg Arg Arg Ala Ala Ala Thr Thr Arg Arg Arg Arg Arg Arg 2520 2525 2530	17738
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gac gga cac acc ctg gtg ctg ccc agg gcg cgc tac cac ccc agc Asp Gly His Thr Leu Val Leu Pro Arg Ala Arg Tyr His Pro Ser 2550 2555 2560	17828
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agg agg ggt ctg gcc ggc cgc ggc ctg agc gga ggc agc cgc cgc Arg Arg Gly Leu Ala Gly Arg Gly Leu Ser Gly Gly Ser Arg Arg 2590 2595 2600	17969
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tcg ctg gcc ccg cgt cac ggc tcg cgc ccg ttc ctg gga cac tgg Ser Leu Ala Pro Arg His Gly Ser Arg Pro Phe Leu Gly His Trp 2655 2660 2665	18262
aac gat atc ggc acc agc aac atg agc ggt ggc gcc ttc agt tgg Asn Asp Ile Gly Thr Ser Asn Met Ser Gly Gly Ala Phe Ser Trp 2670 2675 2680	18307
ggc tct ctg tgg agc ggc att aaa agt atc ggg tct gcc gtt aaa	18352

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Met Ala Thr Pro Ser Met Met Pro Gln Trp Ser Tyr	
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Met His Ile Ser Gly Gln Asp Ala Ser Glu Tyr Leu Ser Pro Gly	
2910 2915 2920	
ctg gtg cag ttc gcc cgc gcc acc gag agc tac ttc agc ctg agt	19189
Leu Val Gln Phe Ala Arg Ala Thr Glu Ser Tyr Phe Ser Leu Ser	
2925 2930 2935	
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Asn Lys Phe Arg Asn Pro Thr Val Ala Pro Thr His Asp Val Thr	
2940 2945 2950	
acc gac cgg tct cag cgc ctg acg ctg cgg ttc att ccc gtg gac	19279
Thr Asp Arg Ser Gln Arg Leu Thr Leu Arg Phe Ile Pro Val Asp	
2955 2960 2965	
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Arg Glu Asp Thr Ala Tyr Ser Tyr Lys Ala Arg Phe Thr Leu Ala	
2970 2975 2980	
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Val Gly Asp Asn Arg Val Leu Asp Met Ala Ser Thr Tyr Phe Asp	
2985 2990 2995	
atc cgc ggg gtg ctg gac cgg ggc ccc act ttc aag cct tac tct	19414
Ile Arg Gly Val Leu Asp Arg Gly Pro Thr Phe Lys Pro Tyr Ser	
3000 3005 3010	
ggc acc gcc tac aac tcc ctg gcc ccc aag ggc gct ccc aac tcc	19459
Gly Thr Ala Tyr Asn Ser Leu Ala Pro Lys Gly Ala Pro Asn Ser	
3015 3020 3025	
tgc gag tgg gag caa tta gaa gaa gcc cag gcc gct gtg gaa gac	19504
Cys Glu Trp Glu Gln Leu Glu Glu Ala Gln Ala Ala Val Glu Asp	
3030 3035 3040	
gaa gaa tta gaa gat gaa gac gag gaa cca cag gat gag gca cct	19549
Glu Glu Leu Glu Asp Glu Asp Glu Glu Pro Gln Asp Glu Ala Pro	
3045 3050 3055	
gtg aaa aaa acc cat gta tac gct cag gct ccc ctt tct gga gaa	19594
Val Lys Lys Thr His Val Tyr Ala Gln Ala Pro Leu Ser Gly Glu	
3060 3065 3070	
gaa att act aaa aac ggt ttg caa ata ggg tca gat aac aca gaa	19639
Glu Ile Thr Lys Asn Gly Leu Gln Ile Gly Ser Asp Asn Thr Glu	
3075 3080 3085	
gcc cag tct aag ccc ata tat gca gat cct aca ttc cag ccc gaa	19684
Ala Gln Ser Lys Pro Ile Tyr Ala Asp Pro Thr Phe Gln Pro Glu	
3090 3095 3100	
ccc caa atc ggg gaa tcc cag tgg aat gag gca gat gct aca gtt	19729

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Pro	Gln	Ile	Gly	Glu	Ser	Gln	Trp	Asn	Glu	Ala	Asp	Ala	Thr	Val	
	3105					3110					3115				
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Ala	Gly	Gly	Arg	Val	Leu	Lys	Lys	Ser	Thr	Pro	Met	Lys	Pro	Cys	
	3120					3125					3130				
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Tyr	Gly	Ser	Tyr	Ala	Arg	Pro	Thr	Asn	Ser	Asn	Gly	Gly	Gln	Gly	
	3135					3140					3145				
gtg	ctg	gtg	gct	gat	gat	aag	ggg	gtt	ctt	caa	tct	aaa	gtt	gaa	19864
Val	Leu	Val	Ala	Asp	Asp	Lys	Gly	Val	Leu	Gln	Ser	Lys	Val	Glu	
	3150					3155					3160				
ttg	caa	ttt	ttt	tca	aat	act	act	act	ctt	aat	cag	cgg	gag	ggg	19909
Leu	Gln	Phe	Phe	Ser	Asn	Thr	Thr	Thr	Leu	Asn	Gln	Arg	Glu	Gly	
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aac	gat	aca	aaa	cca	aaa	gtg	gtg	ctg	tat	agc	gaa	gat	gtg	cac	19954
Asn	Asp	Thr	Lys	Pro	Lys	Val	Val	Leu	Tyr	Ser	Glu	Asp	Val	His	
	3180					3185					3190				
atg	gaa	act	cca	gac	acc	cac	att	tct	tac	aag	ccc	aca	aaa	agc	19999
Met	Glu	Thr	Pro	Asp	Thr	His	Ile	Ser	Tyr	Lys	Pro	Thr	Lys	Ser	
	3195					3200					3205				
gat	gac	aat	tca	aaa	atc	atg	ctg	ggg	cag	cag	tcc	atg	ccc	aac	20044
Asp	Asp	Asn	Ser	Lys	Ile	Met	Leu	Gly	Gln	Gln	Ser	Met	Pro	Asn	
	3210					3215					3220				
aga	cct	aat	tac	atc	ggc	ttc	aga	gac	aac	ttt	atc	ggc	ctc	atg	20089
Arg	Pro	Asn	Tyr	Ile	Gly	Phe	Arg	Asp	Asn	Phe	Ile	Gly	Leu	Met	
	3225					3230					3235				
tat	tac	aat	agc	act	ggc	aac	atg	gga	gtg	ctt	gca	ggg	cag	gcc	20134
Tyr	Tyr	Asn	Ser	Thr	Gly	Asn	Met	Gly	Val	Leu	Ala	Gly	Gln	Ala	
	3240					3245					3250				
tct	cag	ttg	aat	gca	gtg	gtg	gac	ttg	caa	gac	aga	aac	aca	gaa	20179
Ser	Gln	Leu	Asn	Ala	Val	Val	Asp	Leu	Gln	Asp	Arg	Asn	Thr	Glu	
	3255					3260					3265				
ctg	tcc	tac	cag	ctc	ttg	ctt	gat	tcc	atg	ggg	gac	aga	acc	aga	20224
Leu	Ser	Tyr	Gln	Leu	Leu	Leu	Asp	Ser	Met	Gly	Asp	Arg	Thr	Arg	
	3270					3275					3280				
tac	ttt	tcc	atg	tgg	aat	cag	gca	gtg	gac	agt	tat	gac	cca	gat	20269
Tyr	Phe	Ser	Met	Trp	Asn	Gln	Ala	Val	Asp	Ser	Tyr	Asp	Pro	Asp	
	3285					3290					3295				
gtc	aga	att	att	gaa	aat	cat	gga	act	gaa	gac	gag	ctc	ccc	aac	20314
Val	Arg	Ile	Ile	Glu	Asn	His	Gly	Thr	Glu	Asp	Glu	Leu	Pro	Asn	
	3300					3305					3310				
tat	tgt	ttc	cct	ctg	ggc	ggc	ata	ggg	gta	act	gac	act	tac	cag	20359
Tyr	Cys	Phe	Pro	Leu	Gly	Gly	Ile	Gly	Val	Thr	Asp	Thr	Tyr	Gln	
	3315					3320					3325				

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gcc att	aaa acc	aat ggc	aat ggt	caa gaa	aac cca	acc tgg	gaa	20404
Ala Ile	Lys Thr	Asn Gly	Asn Gly	Gln Glu	Asn Pro	Thr Trp	Glu	
3330			3335		3340			
aaa gat	aca gag	ttt gca	gac cgc	aat gaa	ata ggg	gtg gga	aac	20449
Lys Asp	Thr Glu	Phe Ala	Asp Arg	Asn Glu	Ile Gly	Val Gly	Asn	
3345			3350		3355			
aat ttc	gct atg	gag atc	aac ctc	agt gcc	aac ctg	tgg aga	aac	20494
Asn Phe	Ala Met	Glu Ile	Asn Leu	Ser Ala	Asn Leu	Trp Arg	Asn	
3360			3365		3370			
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Phe Leu	Tyr Ser	Asn Val	Ala Leu	Tyr Leu	Pro Asp	Lys Leu	Lys	
3375			3380		3385			
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Tyr Asn	Pro Ser	Asn Val	Asp Ile	Ser Asp	Asn Pro	Asn Thr	Tyr	
3390			3395		3400			
gat tac	atg aac	aag cga	gtg gtg	gcc ccg	ggg ctg	gtg gac	tgc	20629
Asp Tyr	Met Asn	Lys Arg	Val Val	Ala Pro	Gly Leu	Val Asp	Cys	
3405			3410		3415			
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Tyr Ile	Asn Leu	Gly Ala	Arg Trp	Ser Leu	Asp Tyr	Met Asp	Asn	
3420			3425		3430			
gtg aac	ccc ttc	aac cac	cac cgc	aat gcg	ggc ctg	cgc tac	cgc	20719
Val Asn	Pro Phe	Asn His	His Arg	Asn Ala	Gly Leu	Arg Tyr	Arg	
3435			3440		3445			
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Ser Met	Leu Leu	Gly Asn	Gly Arg	Tyr Val	Pro Phe	His Ile	Gln	
3450			3455		3460			
gtg ccc	cag aag	ttc ttt	gcc atc	aag aac	ctc ctg	ctc ctg	ccg	20809
Val Pro	Gln Lys	Phe Phe	Ala Ile	Lys Asn	Leu Leu	Leu Leu	Pro	
3465			3470		3475			
ggc tcc	tac acc	tac gag	tgg aac	ttc agg	aag gat	gtc aac	atg	20854
Gly Ser	Tyr Thr	Tyr Glu	Trp Asn	Phe Arg	Lys Asp	Val Asn	Met	
3480			3485		3490			
gtc ctc	cag agc	tct ctg	ggt aac	gat ctc	agg gtg	gac ggg	gcc	20899
Val Leu	Gln Ser	Ser Leu	Gly Asn	Asp Leu	Arg Val	Asp Gly	Ala	
3495			3500		3505			
agc atc	aag ttc	gag agc	atc tgc	ctc tac	gcc acc	ttc ttc	ccc	20944
Ser Ile	Lys Phe	Glu Ser	Ile Cys	Leu Tyr	Ala Thr	Phe Phe	Pro	
3510			3515		3520			
atg gcc	cac aac	acg gcc	tcc acg	ctc gag	gcc atg	ctc agg	aac	20989
Met Ala	His Asn	Thr Ala	Ser Thr	Leu Glu	Ala Met	Leu Arg	Asn	
3525			3530		3535			
gac acc	aac gac	cag tcc	ttc aat	gac tac	ctc tcc	gcc gcc	aac	21034
Asp Thr	Asn Asp	Gln Ser	Phe Asn	Asp Tyr	Leu Ser	Ala Ala	Asn	
3540			3545		3550			

atg ctc tac ccc ata ccc gcc aac gcc acc aac gtc ccc atc tcc Met Leu Tyr Pro Ile Pro Ala Asn Ala Thr Asn Val Pro Ile Ser 3555 3560 3565	21079
atc ccc tcg cgc aac tgg gcg gcc ttc cgc ggc tgg gcc ttc acc Ile Pro Ser Arg Asn Trp Ala Ala Phe Arg Gly Trp Ala Phe Thr 3570 3575 3580	21124
cgc ctc aag acc aag gag acc ccc tcc ctg ggc tcg gga ttc gac Arg Leu Lys Thr Lys Glu Thr Pro Ser Leu Gly Ser Gly Phe Asp 3585 3590 3595	21169
ccc tac tac acc tac tcg ggc tcc att ccc tac ctg gac ggc acc Pro Tyr Tyr Thr Tyr Ser Gly Ser Ile Pro Tyr Leu Asp Gly Thr 3600 3605 3610	21214
ttc tac ctc aac cac act ttc aag aag gtc tcg gtc acc ttc gac Phe Tyr Leu Asn His Thr Phe Lys Lys Val Ser Val Thr Phe Asp 3615 3620 3625	21259
tcc tcg gtc agc tgg ccg ggc aac gac cgt ctg ctc acc ccc aac Ser Ser Val Ser Trp Pro Gly Asn Asp Arg Leu Leu Thr Pro Asn 3630 3635 3640	21304
gag ttc gag atc aag cgc tcg gtc gac ggg gag ggc tac aac gtg Glu Phe Glu Ile Lys Arg Ser Val Asp Gly Glu Gly Tyr Asn Val 3645 3650 3655	21349
gcc cag tgc aac atg acc aag gac tgg ttc ctg gtc cag atg ctg Ala Gln Cys Asn Met Thr Lys Asp Trp Phe Leu Val Gln Met Leu 3660 3665 3670	21394
gcc aac tac aac atc ggc tac cag ggc ttc tac atc cca gag agc Ala Asn Tyr Asn Ile Gly Tyr Gln Gly Phe Tyr Ile Pro Glu Ser 3675 3680 3685	21439
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agc cgg cag gtg gtg gac cag acc aag tac aag gac tac cag gag Ser Arg Gln Val Val Asp Gln Thr Lys Tyr Lys Asp Tyr Gln Glu 3705 3710 3715	21529
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ctc gcc ccc acc atg cgc gag gga cag gcc tac ccc gcc aac ttc Leu Ala Pro Thr Met Arg Glu Gly Gln Ala Tyr Pro Ala Asn Phe 3735 3740 3745	21619
ccc tat ccg ctc ata ggc aag acc gcg gtc gac agc atc acc cag Pro Tyr Pro Leu Ile Gly Lys Thr Ala Val Asp Ser Ile Thr Gln 3750 3755 3760	21664
aaa aag ttc ctc tgc gac cgc acc ctc tgg cgc atc ccc ttc tcc Lys Lys Phe Leu Cys Asp Arg Thr Leu Trp Arg Ile Pro Phe Ser 3765 3770 3775	21709

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3765		3770		3775	
agc aac ttc atg tcc atg ggt gcg ctc tcg gac ctg ggc cag aac					21754
Ser Asn Phe Met Ser Met Gly Ala Leu Ser Asp Leu Gly Gln Asn					
3780		3785		3790	
ttg ctc tac gcc aac tcc gcc cac gcc ctc gac atg acc ttc gag					21799
Leu Leu Tyr Ala Asn Ser Ala His Ala Leu Asp Met Thr Phe Glu					
3795		3800		3805	
gtc gac ccc atg gac gag ccc acc ctt ctc tat gtt ctg ttc gaa					21844
Val Asp Pro Met Asp Glu Pro Thr Leu Leu Tyr Val Leu Phe Glu					
3810		3815		3820	
gtc ttt gac gtg gtc cgg gtc cac cag ccg cac cgc ggc gtc atc					21889
Val Phe Asp Val Val Arg Val His Gln Pro His Arg Gly Val Ile					
3825		3830		3835	
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Glu Thr Val Tyr Leu Arg Thr Pro Phe Ser Ala Gly Asn Ala Thr					
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acc taaagaagca agccgcagtc atcgccgcct gc atg ccg tcg ggt tcc acc					21987
Thr				Met Pro Ser Gly Ser Thr	3860
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Glu Gln Glu Leu Arg Ala Ile Val Arg Asp Leu Gly Cys Gly Pro					
3865				3870	3875
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Tyr Phe Leu Gly Thr Phe Asp Lys Arg Phe Pro Gly Phe Val Ser					
3880				3885	3890
cca cac aag ctg gcc tgc gcc atc gtc aac acg gcc ggc cgc gag					22122
Pro His Lys Leu Ala Cys Ala Ile Val Asn Thr Ala Gly Arg Glu					
3895				3900	3905
acc ggg ggc gtg cac tgg ctg gcc ttc gcc tgg aac ccg cgc tcc					22167
Thr Gly Gly Val His Trp Leu Ala Phe Ala Trp Asn Pro Arg Ser					
3910				3915	3920
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Lys Thr Cys Phe Leu Phe Asp Pro Phe Gly Phe Ser Asp Gln Arg					
3925				3930	3935
ctc aag caa atc tac gag ttc gag tac gag ggc ttg ctg cgt cgc					22257
Leu Lys Gln Ile Tyr Glu Phe Glu Tyr Glu Gly Leu Leu Arg Arg					
3940				3945	3950
agc gcc atc gcc tcc tcg ccc gac cgc tgc gtc acc ctc gaa aag					22302
Ser Ala Ile Ala Ser Ser Pro Asp Arg Cys Val Thr Leu Glu Lys					
3955				3960	3965
tcc acc cag acc gtg cag ggg ccc gac tcg gcc gcc tgc ggt ctc					22347
Ser Thr Gln Thr Val Gln Gly Pro Asp Ser Ala Ala Cys Gly Leu					
3970				3975	3980
ttc tgc tgc atg ttt ctg cac gcc ttt gtg cac tgg cct cag agt					22392

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Tyr Met Leu Leu Glu Glu Glu Glu Glu Asp Trp Asp Ser Gln Ala	
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Glu Glu Val Ser Asp Glu Glu Gln Glu Glu Met Met Glu Asp Trp	
4095 4100 4105	
gag gag gac agc agc cta gac gag gaa gct tca gag gcc gaa gag	26770
Glu Glu Asp Ser Ser Leu Asp Glu Glu Ala Ser Glu Ala Glu Glu	
4110 4115 4120	
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Val Ala Asp Ala Thr Pro Ser Pro Ser Val Ala Ala Pro Ser Pro	
4125 4130 4135	
ggg ccc ctg aaa tcc tcc gaa ccc agc acc agc gct ata acc tcc	26860
Gly Pro Leu Lys Ser Ser Glu Pro Ser Thr Ser Ala Ile Thr Ser	

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4140	4145	4150	
gct cct ccg gcg ccg gcg cca ccc gcc cgc aga ccc aac cgt aga			26905
Ala Pro Pro Ala Pro Ala Pro Pro Ala Arg Arg Pro Asn Arg Arg			
4155	4160	4165	
tgg gac acc aca gga acc ggg gtc ggt aag tcc aag tgc ccg ccg			26950
Trp Asp Thr Thr Gly Thr Gly Val Gly Lys Ser Lys Cys Pro Pro			
4170	4175	4180	
ccg cca ccg cag cag cag cag cag cgc cag ggc tac cgc tcg			26995
Pro Pro Pro Gln Gln Gln Gln Gln Arg Gln Gly Tyr Arg Ser			
4185	4190	4195	
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Trp Arg Gly His Lys Asn Ala Ile Val Ala Cys Leu Gln Asp Cys			
4200	4205	4210	
ggg ggc aac atc tct ttc gcc cgc cgc ttc ctg cta ttc cac cac			27085
Gly Gly Asn Ile Ser Phe Ala Arg Arg Phe Leu Leu Phe His His			
4215	4220	4225	
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Gly Val Ala Phe Pro Arg Asn Val Leu His Tyr Tyr Arg His Leu			
4230	4235	4240	
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Tyr Ser Pro Tyr Cys Ser Gly Asp Pro Glu Ala Ala Ala Ala Ala			
4245	4250	4255	
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Thr Ala Ala Thr Thr			
4260			
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Met Ser Lys Glu Ile Pro Thr Pro Tyr Met Trp Ser Tyr			
4265	4270	4275	
cag ccg cag atg gga ctc gcg gcg gga gcg gcc cag gac tac tcc			27676
Gln Pro Gln Met Gly Leu Ala Ala Gly Ala Ala Gln Asp Tyr Ser			
4280	4285	4290	
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Thr Arg Met Asn Tyr Met Ser Ala Gly Pro His Met Ile Ser Gln			
4295	4300	4305	
gtc aac ggg atc cgc gcc cag cga aac caa ata ctg ctg gaa cag			27766

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Val	Asn	Gly	Ile	Arg	Ala	Gln	Arg	Asn	Gln	Ile	Leu	Leu	Glu	Gln	
				4310					4315					4320	
gcg	gcc	atc	acc	gcc	acg	ccc	cgc	cat	aat	ctc	aac	ccc	cga	aat	27811
Ala	Ala	Ile	Thr	Ala	Thr	Pro	Arg	His	Asn	Leu	Asn	Pro	Arg	Asn	
				4325					4330					4335	
tgg	ccc	gcc	gcc	ctc	gtg	tac	cag	gaa	acc	ccc	tcc	gcc	acc	acc	27856
Trp	Pro	Ala	Ala	Leu	Val	Tyr	Gln	Glu	Thr	Pro	Ser	Ala	Thr	Thr	
				4340					4345					4350	
gta	cta	ctt	ccg	cgt	gac	gcc	cag	gcc	gaa	gtc	cag	atg	act	aac	27901
Val	Leu	Leu	Pro	Arg	Asp	Ala	Gln	Ala	Glu	Val	Gln	Met	Thr	Asn	
				4355					4360					4365	
tca	ggg	gcg	cag	ctc	gcg	ggc	ggc	ttt	cgt	cac	ggg	gcg	cgg	ccg	27946
Ser	Gly	Ala	Gln	Leu	Ala	Gly	Gly	Phe	Arg	His	Gly	Ala	Arg	Pro	
				4370					4375					4380	
ctc	cga	cca	ggg	ata	aga	cac	ctg	atg	atc	aga	ggc	cga	ggg	atc	27991
Leu	Arg	Pro	Gly	Ile	Arg	His	Leu	Met	Ile	Arg	Gly	Arg	Gly	Ile	
				4385					4390					4395	
cag	ctc	aac	gac	gag	tcg	gtg	agc	tct	tcg	ctc	ggg	ctc	cgt	ccg	28036
Gln	Leu	Asn	Asp	Glu	Ser	Val	Ser	Ser	Ser	Leu	Gly	Leu	Arg	Pro	
				4400					4405					4410	
gac	gga	act	ttc	cag	ctc	gcc	gga	tcc	ggc	cgc	tct	tcg	ttc	acg	28081
Asp	Gly	Thr	Phe	Gln	Leu	Ala	Gly	Ser	Gly	Arg	Ser	Ser	Phe	Thr	
				4415					4420					4425	
ccc	cgc	cag	gcg	tac	ctg	act	ctg	cag	acc	tcg	tcc	tcg	gag	ccc	28126
Pro	Arg	Gln	Ala	Tyr	Leu	Thr	Leu	Gln	Thr	Ser	Ser	Ser	Glu	Pro	
				4430					4435					4440	
cgc	tcc	gga	ggc	atc	gga	acc	ctc	cag	ttc	gtg	gag	gag	ttc	gtg	28171
Arg	Ser	Gly	Gly	Ile	Gly	Thr	Leu	Gln	Phe	Val	Glu	Glu	Phe	Val	
				4445					4450					4455	
ccc	tcg	gtc	tac	ttc	aac	ccc	ttc	tcg	gga	cct	ccc	gga	cgc	tac	28216
Pro	Ser	Val	Tyr	Phe	Asn	Pro	Phe	Ser	Gly	Pro	Pro	Gly	Arg	Tyr	
				4460					4465					4470	
ccc	gac	cag	ttc	att	ccg	aac	ttt	gac	gcg	gtg	aag	gac	tcg	gcg	28261
Pro	Asp	Gln	Phe	Ile	Pro	Asn	Phe	Asp	Ala	Val	Lys	Asp	Ser	Ala	
				4475					4480					4485	
gac	ggc	tac	gac	tga	atg	tca	ggg	gcc	gag	gca	gag	cag	ctt	cgc	28306
Asp	Gly	Tyr	Asp		Met	Ser	Gly	Ala	Glu	Ala	Glu	Gln	Leu	Arg	
					4490					4495					
ctg	aga	cac	ctc	gag	cac	tgc	cgc	cgc	cac	aag	tgc	ttc	gcc	cgc	28351
Leu	Arg	His	Leu	Glu	His	Cys	Arg	Arg	His	Lys	Cys	Phe	Ala	Arg	
4500					4505					4510					
ggg	tcc	ggg	gag	ttc	tgc	tac	ttt	cag	cta	ccc	gag	gag	cat	acc	28396
Gly	Ser	Gly	Glu	Phe	Cys	Tyr	Phe	Gln	Leu	Pro	Glu	Glu	His	Thr	
4515					4520					4525					

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gag Glu 4530	ggg Gly	ccg Pro	gcg Ala	cac His	ggc Gly 4535	gtc Val	cgc Arg	ctg Leu	acc Thr	acc Thr 4540	cag Gln	ggc Gly	gag Glu	gtt Val	28441
acc Thr 4545	tgt Cys	tcc Ser	ctc Leu	atc Ile	cgg Arg 4550	gag Glu	ttc Phe	acc Thr	ctc Leu	cgt Arg 4555	ccc Pro	ctg Leu	cta Leu	gtg Val	28486
gag Glu 4560	cgg Arg	gag Glu	cgg Arg	ggt Gly	ccc Pro 4565	tgt Cys	gtc Val	cta Leu	act Thr	atc Ile 4570	gcc Ala	tgc Cys	aac Asn	tgc Cys	28531
cct Pro 4575	aac Asn	cct Pro	gga Gly	tta Leu	cat His 4580	caa Gln	gat Asp	ctt Leu	tgc Cys	tgt Cys 4585	cat His	ctc Leu	tgt Cys	gct Ala	28576
gag Glu 4590	ttt Phe	aat Asn	aaa Lys	cgc Arg	tgagatcaga atctactggg gctcctgtcg ccatcctgtg									28631	
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cggaggggcca agaagtacct cacctggtac ttcaacggca ccccttttgt ggttttacaac															28751
agcttcgacg gggacggagt ctccctgaaa gaccagctct ccgggtctcag ctactccatc															28811
cacaagaaca ccaccctcca actctttccct ccctacctgc cgggaaccta cgagtgcgtc															28871
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atcaaagctt ccttgagatt tgttctttcc ttctacgtgt atgaacacct cagcctccaa															29111
taactctacc ctttcttcgg aatcaggtga cttctctgaa atcgggcttg gtgtgctgct															29171
tactctgttg atttttttcc ttatcatact cagccttct gtg cct cag gct cgc Val Pro Gln Ala Arg 4595															29225
cgc Arg 4600	ctg Leu	ctg Leu	cgc Arg	aca Thr	cat His 4605	cta Leu	tat Tyr	cta Leu	ctg Leu	ctg Leu 4610	gtt Val	gct Ala	caa Gln	gtg Val	29270
cag Gln 4615	ggg Gly	tcg Ser	cca Pro	ccc Pro	aag Lys 4620	atg Met	aac Asn	agg Arg	tac Tyr	atg Met 4625	gtc Val	cta Leu	tcg Ser	atc Ile	29315
cta Leu 4630	ggc Gly	ctg Leu	ctg Leu	gcc Ala	ctg Leu 4635	gcg Ala	gcc Ala	tgc Cys	agc Ser	gcc Ala 4640	gcc Ala	aaa Lys	aaa Lys	gag Glu	29360
att Ile 4645	acc Thr	ttt Phe	gag Glu	gag Glu	ccc Pro 4650	gct Ala	tgc Cys	aat Asn	gta Val	act Thr 4655	ttc Phe	aag Lys	ccc Pro	gag Glu	29405
ggt	gac	caa	tgc	acc	acc	ctc	gtc	aaa	tgc	gtt	acc	aat	cat	gaq	29450

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Gly 4660	Asp	Gln	Cys	Thr	Thr 4665	Leu	Val	Lys	Cys	Val 4670	Thr	Asn	His	Glu	
agg	ctg	cgc	atc	gac	tac	aaa	aac	aaa	act	ggc	cgg	ttt	gcg	gtc	29495
Arg	Leu	Arg	Ile	Asp	Tyr	Lys	Asn	Lys	Thr	Gly	Arg	Phe	Ala	Val	
4675					4680					4685					
tat	agt	gtg	ttt	acg	ccc	gga	gac	ccc	tct	aac	tac	tct	gtc	acc	29540
Tyr	Ser	Val	Phe	Thr	Pro	Gly	Asp	Pro	Ser	Asn	Tyr	Ser	Val	Thr	
4690					4695					4700					
gtc	ttc	cag	ggc	gga	cag	tct	aag	ata	ttc	aat	tac	act	ttc	cct	29585
Val	Phe	Gln	Gly	Gly	Gln	Ser	Lys	Ile	Phe	Asn	Tyr	Thr	Phe	Pro	
4705					4710					4715					
ttt	tat	gag	ttg	tgc	gat	gcg	gtc	atg	tac	atg	tca	aaa	cag	tac	29630
Phe	Tyr	Glu	Leu	Cys	Asp	Ala	Val	Met	Tyr	Met	Ser	Lys	Gln	Tyr	
4720					4725					4730					
aac	ctg	tgg	cct	ccc	tct	ccc	cag	gcg	tgt	gtg	gaa	aat	act	ggg	29675
Asn	Leu	Trp	Pro	Pro	Ser	Pro	Gln	Ala	Cys	Val	Glu	Asn	Thr	Gly	
4735					4740					4745					
tct	tac	tgc	tgt	atg	gct	ttc	gca	atc	act	acg	ctc	gct	cta	atc	29720
Ser	Tyr	Cys	Cys	Met	Ala	Phe	Ala	Ile	Thr	Thr	Leu	Ala	Leu	Ile	
4750					4755					4760					
tgc	acg	gtg	cta	tat	ata	aaa	ttc	agg	cag	agg	cga	atc	ttt	atc	29765
Cys	Thr	Val	Leu	Tyr	Ile	Lys	Phe	Arg	Gln	Arg	Arg	Ile	Phe	Ile	
4765					4770					4775					
gat	gaa	aag	aaa	atg	cct	tgatcgctaa	caccggccttt	ctatctgcag	a	atg					29817
Asp	Glu	Lys	Lys	Met	Pro					Met					
4780					4785										
aat	gca	atc	acc	tcc	cta	cta	atc	acc	acc	acc	ctc	ctt	gcg	att	29862
Asn	Ala	Ile	Thr	Ser	Leu	Leu	Ile	Thr	Thr	Thr	Leu	Leu	Ala	Ile	
				4790				4795					4800		
gcc	cat	ggg	ttg	aca	cga	atc	gaa	gtg	cca	gtg	ggg	tcc	aat	gtc	29907
Ala	His	Gly	Leu	Thr	Arg	Ile	Glu	Val	Pro	Val	Gly	Ser	Asn	Val	
				4805				4810					4815		
acc	atg	gtg	ggc	ccc	gcc	ggc	aat	tcc	acc	ctc	atg	tgg	gaa	aaa	29952
Thr	Met	Val	Gly	Pro	Ala	Gly	Asn	Ser	Thr	Leu	Met	Trp	Glu	Lys	
				4820				4825					4830		
ttt	gtc	cgc	aat	caa	tgg	gtt	cat	ttc	tgc	tct	aac	cga	atc	agt	29997
Phe	Val	Arg	Asn	Gln	Trp	Val	His	Phe	Cys	Ser	Asn	Arg	Ile	Ser	
				4835				4840					4845		
atc	aag	ccc	aga	gcc	atc	tgc	gat	ggg	caa	aat	cta	act	ctg	atc	30042
Ile	Lys	Pro	Arg	Ala	Ile	Cys	Asp	Gly	Gln	Asn	Leu	Thr	Leu	Ile	
				4850				4855					4860		
aat	gtg	caa	atg	atg	gat	gct	ggg	tac	tat	tac	ggg	cag	cgg	gga	30087
Asn	Val	Gln	Met	Met	Asp	Ala	Gly	Tyr	Tyr	Tyr	Gly	Gln	Arg	Gly	
				4865				4870					4875		

gaa atc att aat	tac tgg cga ccc cac	aag gac tac atg ctg	cat	30132
Glu Ile Ile Asn	Tyr Trp Arg Pro His	Lys Asp Tyr Met	Leu His	
4880	4885	4890		
gta gtc gag gca	ctt ccc act acc acc	ccc act acc acc tct	ccc	30177
Val Val Glu Ala	Leu Pro Thr Thr Thr	Pro Thr Thr Thr Ser	Pro	
4895	4900	4905		
acc acc acc act	act act act acc act	acc gct gcc cgt cat	acc	30222
Thr Thr Thr Thr	Thr Thr Thr Thr Thr	Thr Ala Ala Arg His	Thr	
4910	4915	4920		
cgc aaa agc acc	atg att agc aca aag	ccc cct cgt gct cac	tcc	30267
Arg Lys Ser Thr	Met Ile Ser Thr Lys	Pro Pro Arg Ala His	Ser	
4925	4930	4935		
cac gcc ggc ggg	ccc atc ggt gcg acc	tca gaa acc acc gag	ctt	30312
His Ala Gly Gly	Pro Ile Gly Ala Thr	Ser Glu Thr Thr Glu	Leu	
4940	4945	4950		
tgc ttc tgc caa	tgc act aac gcc agc	gct cat gaa ctg ttc	gac	30357
Cys Phe Cys Gln	Cys Thr Asn Ala Ser	Ala His Glu Leu Phe	Asp	
4955	4960	4965		
ctg gag aat gag	gat gcc cag cag agc	tcc gct tgc ctg acc	cag	30402
Leu Glu Asn Glu	Asp Ala Gln Gln Ser	Ser Ala Cys Leu Thr	Gln	
4970	4975	4980		
gag gct gtg gag	ccc gtt gcc ctg aag	cag atc ggt gat tca	ata	30447
Glu Ala Val Glu	Pro Val Ala Leu Lys	Gln Ile Gly Asp Ser	Ile	
4985	4990	4995		
att gac tct tct	tct ttt gcc act ccc	gaa tac cct ccc gat	tct	30492
Ile Asp Ser Ser	Ser Phe Ala Thr Pro	Glu Tyr Pro Pro Asp	Ser	
5000	5005	5010		
act ttc cac atc	acg ggt acc aaa gac	cct aac ctc tct ttc	tac	30537
Thr Phe His Ile	Thr Gly Thr Lys Asp	Pro Asn Leu Ser Phe	Tyr	
5015	5020	5025		
ctg atg ctg ctg	ctc tgt atc tct gtg	gtc tct tcc gcg ctg	atg	30582
Leu Met Leu Leu	Leu Cys Ile Ser Val	Val Ser Ser Ala Leu	Met	
5030	5035	5040		
tta ctg ggg atg	ttc tgc tgc ctg atc	tgc cgc aga aag aga	aaa	30627
Leu Leu Gly Met	Phe Cys Cys Leu Ile	Cys Arg Arg Lys Arg	Lys	
5045	5050	5055		
gct cgc tct cag	ggc caa cca ctg atg	ccc ttc ccc tac ccc	ccg	30672
Ala Arg Ser Gln	Gly Gln Pro Leu Met	Pro Phe Pro Tyr Pro	Pro	
5060	5065	5070		
gat ttt gca gat	aac aag ata tgagctcgct	gctgacacta accgctttac		30723
Asp Phe Ala Asp	Asn Lys Ile			
5075				
tagcctgcgc tctaaccctt	gtcgcttgcg actcgagatt	ccacaatgtc acagctgtgg		30783
caggagaaaa tgttactttc	aactccacgg ccgataccca	gtggctcgtgg agtggctcag		30843

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aatgcaatgc cagcctgttc accctcatca acgcttccac cctggacaat ggactctatg	30963
taggctatgt acccttttgt gggcaaggaa agaccacgc ttacaacctg gaagtctgcc	31023
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cagaaacgac caccgccacc accctacaca cctccagcga tcagatgccg accaacaatca	31263
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gaccccccat ctatagaccc atcattgtcc tgaaccccg taatgatggg atccatagat	31503
tggatggcct gaaaaaccta cttttttctt ttacagtatg ataaattgag ac atg	31558
	Met
cct cgc att ttc ttg tac atg ttc ctt ctc cca cct ttt ctg ggg	31603
Pro Arg Ile Phe Leu Tyr Met Phe Leu Leu Pro Pro Phe Leu Gly	
5080 5085 5090	
tgt tct acg ctg gcc gct gtg tct cac ctg gag gta gac tgc ctc	31648
Cys Ser Thr Leu Ala Val Ser His Leu Glu Val Asp Cys Leu	
5095 5100 5105	
tca ccc ttc act gtc tac ctg ctt tac gga ttg gtc acc ctc act	31693
Ser Pro Phe Thr Val Tyr Leu Leu Tyr Gly Leu Val Thr Leu Thr	
5110 5115 5120	
ctc atc tgc agc cta atc aca gta atc atc gcc ttc atc cag tgc	31738
Leu Ile Cys Ser Leu Ile Thr Val Ile Ile Ala Phe Ile Gln Cys	
5125 5130 5135	
att gat tac atc tgt gtg cgc ctc gca tac ttc aga cac cac ccg	31783
Ile Asp Tyr Ile Cys Val Arg Leu Ala Tyr Phe Arg His His Pro	
5140 5145 5150	
cag tac cga gac agg aac att gcc caa ctt cta aga ctg ctc taatc	31830
Gln Tyr Arg Asp Arg Asn Ile Ala Gln Leu Leu Arg Leu Leu	
5155 5160 5165	
atg cat aag act gtg atc tgc ctt ctg atc ctc tgc atc ctg ccc	31875
Met His Lys Thr Val Ile Cys Leu Leu Ile Leu Cys Ile Leu Pro	
5170 5175 5180	
acc ctc acc tcc tgc cag tac acc aca aaa tct ccg cgc aaa aga	31920
Thr Leu Thr Ser Cys Gln Tyr Thr Thr Lys Ser Pro Arg Lys Arg	
5185 5190 5195	

cat gcc tcc tgc cgc ttc acc caa ctg tgg aat ata ccc aaa tgc	31965
His Ala Ser Cys Arg Phe Thr Gln Leu Trp Asn Ile Pro Lys Cys	
5200 5205 5210	
tac aac gaa aag agc gag ctc tcc gaa gct tgg ctg tat ggg gtc	32010
Tyr Asn Glu Lys Ser Glu Leu Ser Glu Ala Trp Leu Tyr Gly Val	
5215 5220 5225	
atc tgt gtc tta gtt ttc tgc agc act gtc ttt gcc ctc atg atc	32055
Ile Cys Val Leu Val Phe Cys Ser Thr Val Phe Ala Leu Met Ile	
5230 5235 5240	
tac ccc tac ttt gat ttg gga tgg aac gcg atc gat gcc atg aat	32100
Tyr Pro Tyr Phe Asp Leu Gly Trp Asn Ala Ile Asp Ala Met Asn	
5245 5250 5255	
tac ccc acc ttt ccc gca ccc gag ata att cca ctg cga caa gtt	32145
Tyr Pro Thr Phe Pro Ala Pro Glu Ile Ile Pro Leu Arg Gln Val	
5260 5265 5270	
gta ccc gtt gtc gtt aat caa cgc ccc cca tcc cct acg ccc act	32190
Val Pro Val Val Val Asn Gln Arg Pro Pro Ser Pro Thr Pro Thr	
5275 5280 5285	
gaa atc agc tac ttt aac cta aca ggc gga gat gac tgacgcccta	32236
Glu Ile Ser Tyr Phe Asn Leu Thr Gly Gly Asp Asp	
5290 5295 5300	
gatctagaaa tggacggcat cagtaccgag cagcgtctcc tagagaggcg caggcaggcg	32296
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agaggcatct tttgtctggt aaagcaggcc aaagtcacct acgagaagac cggcaacagc	32416
caccgcctca gttacaaatt gccacccag cgccagaagc tgggtgctcat ggtgggtgag	32476
aatcccatca ccgtcaccca gcactcggta gagaccgagg ggtgtctgca ctccccctgt	32536
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Met Ser Asp Ser	
tgc tcc tgt ccc tcc gca ccc act atc ttc atg ttg ttg cag atg	32816
Cys Ser Cys Pro Ser Ala Pro Thr Ile Phe Met Leu Leu Gln Met	
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aag cgc acc aaa acg tct gac gag agc ttc aac ccc gtg tac ccc	32861
Lys Arg Thr Lys Thr Ser Asp Glu Ser Phe Asn Pro Val Tyr Pro	
5320 5325 5330	
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Tyr Asp Thr Glu Ser Gly Pro Pro Ser Val Pro Phe Leu Thr Pro	
5335 5340 5345	

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ctg Leu 5365	tct Ser 5365	ctg Leu 5365	aac Asn 5365	ctg Leu 5365	gcc Ala 5370	gag Glu 5370	ccc Pro 5370	ctg Leu 5370	gtc Val 5370	act Thr 5375	tcc Ser 5375	cac His 5375	ggc Gly 5375	atg Met 5375	32996
ctc Leu 5380	gcc Ala 5380	ctg Leu 5380	aaa Lys 5380	atg Met 5380	gga Gly 5385	agt Ser 5385	ggc Gly 5385	ctc Leu 5385	tcc Ser 5385	ctg Leu 5390	gac Asp 5390	gac Asp 5390	gct Ala 5390	ggc Gly 5390	33041
aac Asn 5395	ctc Leu 5395	acc Thr 5395	tct Ser 5395	caa Gln 5395	gat Asp 5400	atc Ile 5400	acc Thr 5400	acc Thr 5400	gct Ala 5405	agc Ser 5405	cct Pro 5405	ccc Pro 5405	ctc Leu 5405	aaa Lys 5405	33086
aaa Lys 5410	acc Thr 5410	aag Lys 5410	acc Thr 5410	aac Asn 5410	ctc Leu 5415	agc Ser 5415	cta Leu 5415	gaa Glu 5415	acc Thr 5415	tca Ser 5420	tcc Ser 5420	ccc Pro 5420	cta Leu 5420	act Thr 5420	33131
gtg Val 5425	agc Ser 5425	acc Thr 5425	tca Ser 5425	ggc Gly 5425	gcc Ala 5430	ctc Leu 5430	acc Thr 5430	gta Val 5430	gca Ala 5435	gcc Ala 5435	gcc Ala 5435	gct Ala 5435	ccc Pro 5435	ctg Leu 5435	33176
gcg Ala 5440	gtg Val 5440	gcc Ala 5440	ggc Gly 5440	acc Thr 5440	tcc Ser 5445	ctc Leu 5445	acc Thr 5445	atg Met 5445	caa Gln 5445	tca Ser 5450	gag Glu 5450	gcc Ala 5450	ccc Pro 5450	ctg Leu 5450	33221
aca Thr 5455	gta Val 5455	cag Gln 5455	gat Asp 5455	gca Ala 5455	aaa Lys 5460	ctc Leu 5460	acc Thr 5460	ctg Leu 5460	gcc Ala 5465	acc Thr 5465	aaa Lys 5465	ggc Gly 5465	ccc Pro 5465	ctg Leu 5465	33266
acc Thr 5470	gtg Val 5470	tct Ser 5470	gaa Glu 5470	ggc Gly 5470	aaa Lys 5475	ctg Leu 5475	gcc Ala 5475	ttg Leu 5475	caa Gln 5475	aca Thr 5480	tcg Ser 5480	gcc Ala 5480	ccg Pro 5480	ctg Leu 5480	33311
acg Thr 5485	gcc Ala 5485	gct Ala 5485	gac Asp 5485	agc Ser 5485	agc Ser 5490	acc Thr 5490	ctc Leu 5490	aca Thr 5490	gtc Val 5490	agt Ser 5495	gcc Ala 5495	aca Thr 5495	cca Pro 5495	ccc Pro 5495	33356
ctt Leu 5500	agc Ser 5500	aca Thr 5500	agc Ser 5500	aat Asn 5500	ggc Gly 5505	agc Ser 5505	ttg Leu 5505	ggt Gly 5505	att Ile 5505	gac Asp 5510	atg Met 5510	caa Gln 5510	gcc Ala 5510	ccc Pro 5510	33401
att Ile 5515	tac Tyr 5515	acc Thr 5515	acc Thr 5515	aat Asn 5515	gga Gly 5520	aaa Lys 5520	cta Leu 5520	gga Gly 5520	ctt Leu 5520	aac Asn 5525	ttt Phe 5525	ggc Gly 5525	gct Ala 5525	ccc Pro 5525	33446
ctg Leu 5530	cat His 5530	gtg Val 5530	gta Val 5530	gac Asp 5530	agc Ser 5535	cta Leu 5535	aat Asn 5535	gca Ala 5535	ctg Leu 5535	act Thr 5540	gta Val 5540	gtt Val 5540	act Thr 5540	ggc Gly 5540	33491
caa Gln 5545	ggt Gly 5545	ctt Leu 5545	acg Thr 5545	ata Ile 5545	aac Asn 5550	gga Gly 5550	aca Thr 5550	gcc Ala 5550	cta Leu 5550	caa Gln 5555	act Thr 5555	aga Arg 5555	gtc Val 5555	tca Ser 5555	33536
ggt Gly 5555	gcc Ala 5555	ctc Leu 5555	aac Asn 5555	tat Tyr 5555	gac Asp 5555	aca Thr 5555	tca Ser 5555	gga Gly 5555	aac Asn 5555	cta Leu 5555	gaa Glu 5555	ttg Leu 5555	aga Arg 5555	gct Ala 5555	33581

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Ala	Gly Gly Met Arg Val	Asp Ala Asn Gly Gln	Leu Ile Leu Asp			
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Val	Ala Tyr Pro Phe Asp	Ala Gln Asn Asn Leu	Ser Leu Arg Leu			
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Gly	Gln Gly Pro Leu Phe	Val Asn Ser Ala His	Asn Leu Asp Val			
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aac	tac aac aga ggc ctc	tac ctg ttc aca tct	gga aat acc aaa	33761		
Asn	Tyr Asn Arg Gly Leu	Tyr Leu Phe Thr Ser	Gly Asn Thr Lys			
5620		5625		5630		
aag	cta gaa gtt aat atc	aaa aca gcc aag ggt	ctc att tat gat	33806		
Lys	Leu Glu Val Asn Ile	Lys Thr Ala Lys Gly	Leu Ile Tyr Asp			
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gac	act gct ata gca atc	aat gcg ggt gat ggg	cta cag ttt gac	33851		
Asp	Thr Ala Ile Ala Ile	Asn Ala Gly Asp Gly	Leu Gln Phe Asp			
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tca	ggc tca gat aca aat	cca tta aaa act aaa	ctt gga tta gga	33896		
Ser	Gly Ser Asp Thr Asn	Pro Leu Lys Thr Lys	Leu Gly Leu Gly			
5665		5670		5675		
ctg	gat tat gac tcc agc	aga gcc ata att gct	aaa ctg gga act	33941		
Leu	Asp Tyr Asp Ser Ser	Arg Ala Ile Ile Ala	Lys Leu Gly Thr			
5680		5685		5690		
ggc	cta agc ttt gac aac	aca ggt gcc atc aca	gta ggc aac aaa	33986		
Gly	Leu Ser Phe Asp Asn	Thr Gly Ala Ile Thr	Val Gly Asn Lys			
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Asn	Asp Asp Lys Leu Thr	Leu Trp Thr Thr Pro	Asp Pro Ser Pro			
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Asn	Cys Arg Ile Tyr Ser	Glu Lys Asp Ala Lys	Phe Thr Leu Val			
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Leu	Thr Lys Cys Gly Ser	Gln Val Leu Ala Ser	Val Ser Val Leu			
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Ser	Val Lys Gly Ser Leu	Ala Pro Ile Ser Gly	Thr Val Thr Ser			
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gct	cag att gtc ctc aga	ttt gat gaa aat gga	gtt cta cta agc	34211		
Ala	Gln Ile Val Leu Arg	Phe Asp Glu Asn Gly	Val Leu Leu Ser			
5770		5775		5780		
aat	tct tcc ctt gac cct	caa tac tgg aac tac	aga aaa ggt gac	34256		

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ctt	aca	gag	ggc	act	gca	tat	acc	aac	gca	gtg	gga	ttt	atg	ccc	34301	
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Asn	Leu	Thr	Ala	Tyr	Pro	Lys	Thr	Gln	Ser	Gln	Thr	Ala	Lys	Ser		
5815					5820					5825						
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Asn	Ile	Val	Ser	Gln	Val	Tyr	Leu	Asn	Gly	Asp	Lys	Ser	Lys	Pro		
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atg	acc	ctc	acc	att	acc	ctc	aat	gga	act	aat	gaa	aca	gga	gat	34436	
Met	Thr	Leu	Thr	Ile	Thr	Leu	Asn	Gly	Thr	Asn	Glu	Thr	Gly	Asp		
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Ala	Thr	Val	Ser	Thr	Tyr	Ser	Met	Ser	Phe	Ser	Trp	Asn	Trp	Asn		
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gga	agt	aat	tac	att	aat	gaa	acg	ttc	caa	acc	aac	tcc	ttc	acc	34526	
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Phe	Ser	Tyr	Ile	Ala	Gln	Glu										
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 <212> PRT
 <213> Simian adenovirus 34

<400> 64

Met Val Cys Leu Thr Trp Ala Glu Ser Ala Gly Tyr Ile Ser Phe Pro
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Gly Leu Asn Leu Val Thr Leu Asp Leu Met Glu Ala Trp Glu Cys Leu
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Glu Asn Phe Ala Gly Val Arg Ala Leu Leu Asp Glu Ser Ser Asn Asn
 35 40 45

Thr Ser Trp Trp Trp Arg Tyr Leu Trp Gly Ser Pro Gln Gly Lys Leu
 50 55 60

Val Cys Arg Ile Lys Glu Asp Tyr Lys Trp Glu Phe Glu Glu Leu Leu
 65 70 75 80

Lys Ser Cys Gly Glu Leu Leu Asp Ser Leu Asn Leu Gly His Gln Ala
 85 90 95

Leu Phe Gln Glu Lys Val Ile Arg Thr Leu Asp Phe Ser Thr Pro Gly
 100 105 110

Arg Ile Ala Ala Ala Val Ala Phe Leu Ala Phe Leu Lys Asp Arg Trp
 115 120 125

Ser Glu Glu Thr His Leu Ser Ser Gly Tyr Val Leu Asp Phe Leu Ala
130 135 140

Met Gln Leu Trp Arg Ala Trp Ile Arg His Lys Asn Arg Leu Gln Leu
145 150 155 160

Leu Ser Ser Val Arg Pro Leu Leu Ile Pro Ala Glu Glu Gln Gln Ala
165 170 175

Gly Ser Glu Asp Arg Ala Arg Arg Asp Pro Glu Glu Arg Ala Pro Arg
180 185 190

Pro Gly Glu Arg Ser Ala Pro Asn Leu Gly Thr Gly Leu Ser Gly His
195 200 205

Pro His Arg Glu
210

<210> 65
<211> 155
<212> PRT
<213> Simian adenovirus 34

<400> 65

Met Ser Gly Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ala Leu Asp
1 5 10 15

Gly Ser Ile Val Ser Pro Tyr Leu Thr Thr Arg Met Pro His Trp Ala
20 25 30

Gly Val Arg Gln Asn Val Met Gly Ser Ser Ile Asp Gly Arg Pro Val
35 40 45

Leu Pro Ala Asn Ser Ala Thr Leu Thr Tyr Ala Thr Val Ala Gly Thr
50 55 60

Pro Leu Asp Ala Thr Ala Ala Ala Ala Ala Thr Ala Ala Ala Ser Ala
65 70 75 80

Val Arg Ser Leu Ala Thr Asp Phe Ala Phe Leu Gly Pro Leu Ala Thr
85 90 95

Gly Ala Thr Ser Arg Ala Ala Ala Ala Ala Val Arg Asp Asp Lys Leu
100 105 110

Thr Ala Leu Leu Ala Gln Leu Asp Ala Leu Thr Arg Glu Leu Gly Asp
115 120 125

Leu Ser Gln Gln Val Met Ala Leu Arg Gln Gln Val Ser Ser Leu Gln
130 135 140

Ala Gly Gly Asn Ala Ser Pro Thr Asn Ala Val
145 150 155

<210> 66

<211> 419

<212> PRT

<213> Simian adenovirus 34

<400> 66

Met His Pro Val Leu Arg Gln Met Arg Pro Pro Pro Gln Gln Gln Gln
1 5 10 15

Gln His Gln Gln Glu Arg Gln Gln Gln Gln Arg Glu Ser Cys Arg Ala
20 25 30

Pro Ser Pro Thr Leu Gly Gly Pro Ala Thr Ser Ala Ser Ala Ala Val
35 40 45

Ser Gly Ala Cys Gly Gly Gly Gly Gly Pro Ala Asp Asp Pro Glu Glu
50 55 60

Pro Pro Arg Arg Arg Ala Arg His Tyr Leu Asp Leu Glu Glu Gly Glu
65 70 75 80

Gly Leu Ala Arg Leu Gly Ala Pro Ser Pro Glu Arg His Pro Arg Val
85 90 95

Gln Leu Lys Arg Asp Ser Arg Glu Ala Tyr Val Pro Arg Gln Asn Leu
100 105 110

Phe Arg Asp Arg Ala Gly Glu Glu Pro Glu Glu Met Arg Asp Arg Arg
115 120 125

Phe Ser Ala Gly Arg Glu Leu Arg Gln Gly Leu Asn Arg Glu Arg Leu
130 135 140

Leu Arg Glu Glu Asp Phe Glu Pro Asp Ala Arg Thr Gly Ile Ser Pro
145 150 155 160

Ala	Arg	Ala	His	Val	Ala	Ala	Ala	Asp	Leu	Val	Thr	Ala	Tyr	Glu	Gln	165	170	175
Thr	Val	Asn	Gln	Glu	Ile	Asn	Phe	Gln	Lys	Ser	Phe	Asn	Asn	His	Val	180	185	190
Arg	Thr	Leu	Val	Ala	Arg	Glu	Glu	Val	Thr	Ile	Gly	Leu	Met	His	Leu	195	200	205
Trp	Asp	Phe	Val	Ser	Ala	Leu	Val	Gln	Asn	Pro	Asn	Ser	Lys	Pro	Leu	210	215	220
Thr	Ala	Gln	Leu	Phe	Leu	Ile	Val	Gln	His	Ser	Arg	Asp	Asn	Glu	Ala	225	230	235
Phe	Arg	Asp	Ala	Leu	Leu	Asn	Ile	Thr	Glu	Pro	Glu	Gly	Arg	Trp	Leu	245	250	255
Leu	Asp	Leu	Ile	Asn	Ile	Leu	Gln	Ser	Ile	Val	Val	Gln	Glu	Arg	Ser	260	265	270
Leu	Ser	Leu	Ala	Asp	Lys	Val	Ala	Ala	Ile	Asn	Tyr	Ser	Met	Leu	Ser	275	280	285
Leu	Gly	Lys	Phe	Tyr	Ala	Arg	Lys	Ile	Tyr	Gln	Thr	Pro	Tyr	Val	Pro	290	295	300
Ile	Asp	Lys	Glu	Val	Lys	Ile	Asp	Gly	Phe	Tyr	Met	Arg	Met	Ala	Leu	305	310	315
Lys	Val	Leu	Thr	Leu	Ser	Asp	Asp	Leu	Gly	Val	Tyr	Arg	Asn	Glu	Arg	325	330	335
Ile	His	Lys	Ala	Val	Ser	Val	Ser	Arg	Arg	Arg	Glu	Leu	Ser	Asp	Arg	340	345	350
Glu	Leu	Met	His	Ser	Leu	Gln	Arg	Ala	Leu	Ala	Gly	Ala	Gly	Ser	Gly	355	360	365
Asp	Arg	Glu	Val	Glu	Ser	Tyr	Phe	Asp	Ala	Gly	Ala	Asp	Leu	Arg	Trp	370	375	380
Ala	Pro	Ser	Arg	Arg	Ala	Leu	Glu	Ala	Ala	Gly	Val	Arg	Glu	Asp	Tyr			

385 390 395 400

Asp Glu Asp Gly Glu Glu Asp Glu Glu Tyr Glu Leu Glu Glu Gly Glu
405 410 415

Tyr Leu Asp

<210> 67
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<212> PRT
<213> Simian adenovirus 34

<400> 67

Met Gln Asp Pro Asn Val Val Asp Pro Ala Leu Arg Ala Ala Leu Gln
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20 25 30

Asp Arg Ile Met Ser Leu Thr Ala Arg Asn Pro Asp Ala Phe Arg Gln
35 40 45

Gln Pro Gln Ala Asn Arg Leu Ser Ala Ile Leu Glu Ala Val Val Pro
50 55 60

Ala Arg Ser Asn Pro Thr His Glu Lys Val Leu Ala Ile Val Asn Ala
65 70 75 80

Leu Ala Glu Asn Arg Ala Ile Arg Pro Asp Glu Ala Gly Leu Val Tyr
85 90 95

Asp Ala Leu Leu Gln Arg Val Ala Arg Tyr Asn Ser Gly Asn Val Gln
100 105 110

Thr Asn Leu Asp Arg Leu Val Gly Asp Val Arg Glu Ala Val Ala Gln
115 120 125

Arg Glu Arg Ala Asp Arg Gln Gly Asn Leu Gly Ser Met Val Ala Leu
130 135 140

Asn Ala Phe Leu Ser Thr Gln Pro Ala Asn Val Pro Arg Gly Gln Glu
145 150 155 160

Asp Tyr Thr Asn Phe Val Ser Ala Leu Arg Leu Met Val Thr Glu Thr

				165						170						175
Pro	Gln	Ser	Glu	Val	Tyr	Gln	Ser	Gly	Pro	Asp	Tyr	Phe	Phe	Gln	Thr	
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Ser	Arg	Gln	Gly	Leu	Gln	Thr	Val	Asn	Leu	Ser	Gln	Ala	Phe	Lys	Asn	
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Leu	Arg	Gly	Leu	Trp	Gly	Val	Lys	Ala	Pro	Thr	Gly	Asp	Arg	Ala	Thr	
	210					215					220					
Val	Ser	Ser	Leu	Leu	Thr	Pro	Asn	Ser	Arg	Leu	Leu	Leu	Leu	Leu	Ile	
225					230					235					240	
Ala	Pro	Phe	Thr	Asp	Ser	Gly	Ser	Val	Ser	Arg	Asp	Thr	Tyr	Leu	Gly	
				245					250					255		
His	Leu	Leu	Thr	Leu	Tyr	Arg	Glu	Ala	Ile	Gly	Gln	Ala	Gln	Val	Asp	
			260					265					270			
Glu	His	Thr	Phe	Gln	Glu	Ile	Thr	Ser	Val	Ser	Arg	Ala	Leu	Gly	Gln	
		275					280					285				
Glu	Asp	Thr	Ser	Ser	Leu	Glu	Ala	Thr	Leu	Asn	Tyr	Leu	Leu	Thr	Asn	
	290					295					300					
Arg	Arg	Gln	Lys	Ile	Pro	Ser	Leu	His	Ser	Leu	Thr	Ser	Glu	Glu	Glu	
305					310					315					320	
Arg	Ile	Leu	Arg	Tyr	Val	Gln	Gln	Ser	Val	Ser	Leu	Asn	Leu	Met	Arg	
				325					330					335		
Asp	Gly	Val	Thr	Pro	Ser	Val	Ala	Leu	Asp	Met	Thr	Ala	Arg	Asn	Met	
			340					345					350			
Glu	Pro	Gly	Met	Tyr	Ala	Ala	His	Arg	Pro	Tyr	Ile	Asn	Arg	Leu	Met	
		355					360					365				
Asp	Tyr	Leu	His	Arg	Ala	Ala	Ala	Val	Asn	Pro	Glu	Tyr	Phe	Thr	Asn	
	370					375					380					
Ala	Ile	Leu	Asn	Pro	His	Trp	Leu	Pro	Pro	Pro	Gly	Phe	Tyr	Ser	Gly	
385					390					395					400	

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Gly Phe Glu Val Pro Glu Ala Asn Asp Gly Phe Leu Trp Asp Asp Met
405 410 415

Asp Asp Ser Val Phe Ser Pro Arg Pro Gln Ala Leu Ala Glu Ala Ser
420 425 430

Leu Leu Arg Pro Lys Lys Glu Glu Glu Ala Ser Arg Arg Arg Arg Gly
435 440 445

Ser Ser Gly Val Ala Ser Leu Ser Glu Leu Gly Ala Ala Ala Ala Ala
450 455 460

Arg Pro Gly Ser Leu Gly Gly Ser Pro Phe Pro Ser Leu Val Gly Ser
465 470 475 480

Leu His Ser Glu Arg Thr Thr Arg Pro Arg Leu Leu Gly Glu Asp Glu
485 490 495

Tyr Leu Asn Asn Ser Leu Leu Gln Pro Val Arg Glu Lys Asn Leu Pro
500 505 510

Pro Ala Phe Pro Asn Asn Gly Ile Glu Ser Leu Val Asp Lys Met Ser
515 520 525

Arg Trp Lys Thr Tyr Ala Gln Glu His Arg Asp Ala Pro Ala Leu Arg
530 535 540

Pro Pro Thr Arg Arg Gln Arg His Asp Arg Gln Arg Gly Leu Val Trp
545 550 555 560

Asp Asp Glu Asp Ser Ala Asp Asp Ser Ser Val Leu Asp Leu Gly Gly
565 570 575

Ser Gly Asn Pro Phe Ala His Leu Arg Pro Arg Leu Gly Arg Met Phe
580 585 590

<210> 68
<211> 617
<212> PRT
<213> Simian adenovirus 34

<400> 68

Met Met Gln Lys Leu Asn Lys Thr His Gln Gly His Gly Asp Arg Ala
1 5 10 15

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Leu Val Ser Cys Val Pro Phe Ser Met Arg Arg Ala Ala Met Tyr Gln
20 25 30

Glu Gly Pro Pro Pro Ser Tyr Glu Ser Val Val Gly Ala Ala Ala Ala
35 40 45

Ala Pro Ser Ser Pro Phe Ala Ser Gln Leu Leu Glu Pro Pro Tyr Val
50 55 60

Pro Pro Arg Tyr Leu Arg Pro Thr Gly Gly Arg Asn Ser Ile Arg Tyr
65 70 75 80

Ser Glu Leu Ala Pro Leu Phe Asp Thr Thr Arg Val Tyr Leu Val Asp
85 90 95

Asn Lys Ser Ala Asp Val Ala Ser Leu Asn Tyr Gln Asn Asp His Ser
100 105 110

Asn Phe Leu Thr Thr Val Ile Gln Asn Asn Asp Tyr Ser Pro Ser Glu
115 120 125

Ala Ser Thr Gln Thr Ile Asn Leu Asp Asp Arg Ser His Trp Gly Gly
130 135 140

Asp Leu Lys Thr Ile Leu His Thr Asn Met Pro Asn Val Asn Glu Phe
145 150 155 160

Met Phe Thr Asn Lys Phe Lys Ala Arg Val Met Val Ser Arg Ser His
165 170 175

Thr Lys Glu Asp Arg Val Glu Leu Lys Tyr Glu Trp Val Glu Phe Glu
180 185 190

Leu Pro Glu Gly Asn Tyr Ser Glu Thr Met Thr Ile Asp Leu Met Asn
195 200 205

Asn Ala Ile Val Glu His Tyr Leu Lys Val Gly Arg Gln Asn Gly Val
210 215 220

Leu Glu Ser Asp Ile Gly Val Lys Phe Asp Thr Arg Asn Phe Arg Leu
225 230 235 240

Gly Leu Asp Pro Val Thr Gly Leu Val Met Pro Gly Val Tyr Thr Asn
245 250 255

Glu Ala Phe His Pro Asp Ile Ile Leu Leu Pro Gly Cys Gly Val Asp
260 265 270

Phe Thr Tyr Ser Arg Leu Ser Asn Leu Leu Gly Ile Arg Lys Arg Gln
275 280 285

Pro Phe Gln Glu Gly Phe Arg Ile Thr Tyr Glu Asp Leu Glu Gly Gly
290 295 300

Asn Ile Pro Ala Leu Leu Asp Val Glu Ala Tyr Gln Asp Ser Leu Lys
305 310 315 320

Glu Asn Glu Ala Gly Gln Glu Asp Thr Ala Pro Ala Ala Ser Ala Ala
325 330 335

Ala Glu Gln Gly Glu Asp Ala Ala Asp Thr Ala Ala Ala Asp Gly Ala
340 345 350

Glu Ala Asp Pro Ala Met Val Val Glu Ala Ala Glu Gln Glu Glu Asp
355 360 365

Met Asn Asp Ser Ala Val Arg Gly Asp Thr Phe Val Thr Arg Gly Glu
370 375 380

Glu Lys Gln Ala Glu Ala Glu Ala Ala Ala Glu Glu Lys Gln Leu Ala
385 390 395 400

Ala Ala Ala Ala Ala Ala Ala Leu Ala Ala Ala Glu Ala Glu Ser Glu
405 410 415

Gly Thr Lys Pro Ala Lys Glu Pro Val Ile Lys Pro Leu Thr Glu Asp
420 425 430

Ser Lys Lys Arg Ser Tyr Asn Leu Leu Lys Asp Ser Thr Asn Thr Ala
435 440 445

Tyr Arg Ser Trp Tyr Leu Ala Tyr Asn Tyr Gly Asp Pro Ser Thr Gly
450 455 460

Val Arg Ser Trp Thr Leu Leu Cys Thr Pro Asp Val Thr Cys Gly Ser
465 470 475 480

Glu Gln Val Tyr Trp Ser Leu Pro Asp Met Met Gln Asp Pro Val Thr
485 490 495

Phe Arg Ser Thr Arg Gln Val Ser Asn Phe Pro Val Val Gly Ala Glu
500 505 510

Leu Leu Pro Val His Ser Lys Ser Phe Tyr Asn Asp Gln Ala Val Tyr
515 520 525

Ser Gln Leu Ile Arg Gln Phe Thr Ser Leu Thr His Val Phe Asn Arg
530 535 540

Phe Pro Glu Asn Gln Ile Leu Ala Arg Pro Pro Ala Pro Thr Ile Thr
545 550 555 560

Thr Val Ser Glu Asn Val Pro Ala Leu Thr Asp His Gly Thr Leu Pro
565 570 575

Leu Arg Asn Ser Ile Gly Gly Val Gln Arg Val Thr Val Thr Asp Ala
580 585 590

Arg Arg Arg Thr Cys Pro Tyr Val Tyr Lys Ala Leu Gly Ile Val Ser
595 600 605

Pro Arg Val Leu Ser Ser Arg Thr Phe
610 615

<210> 69
<211> 198
<212> PRT
<213> Simian adenovirus 34

<400> 69

Met Ser Ile Leu Ile Ser Pro Ser Asn Asn Ser Gly Trp Gly Leu Leu
1 5 10 15

Arg Ala Pro Ser Lys Met Phe Gly Gly Ala Arg Lys Arg Ser Glu Gln
20 25 30

His Pro Val Arg Val Arg Gly His Phe Arg Ala Pro Trp Gly Ala His
35 40 45

Lys Arg Gly Arg Ala Gly Arg Thr Thr Val Asp Asp Ala Ile Asp Ser
50 55 60

Val Val Glu Gln Ala Arg Asn Tyr Arg Pro Ala Val Ser Thr Val Asp
65 70 75 80

Ala Ala Ile Gln Thr Val Val Arg Gly Ala Arg Arg Tyr Ala Lys Leu
85 90 95

Lys Ser Arg Arg Lys Arg Val Ala Arg Arg His Arg Arg Arg Pro Gly
100 105 110

Ala Ala Ala Lys Arg Ala Ala Ala Ala Leu Leu Arg Arg Ala Lys Arg
115 120 125

Thr Gly Arg Arg Ala Ala Met Arg Ala Ala Arg Arg Leu Ala Ala Gly
130 135 140

Ile Thr Ala Ala Thr Met Ala Pro Arg Thr Arg Arg Arg Ala Ala Ala
145 150 155 160

Ala Ala Ala Ala Ala Ile Ser Asp Met Ala Ser Arg Arg Arg Gly Asn
165 170 175

Val Tyr Trp Val Arg Asp Ser Val Thr Gly Thr Arg Val Pro Val Arg
180 185 190

Phe Arg Pro Pro Arg Thr
195

<210> 70
<211> 371
<212> PRT
<213> Simian adenovirus 34

<400> 70

Met Ser Lys Arg Lys Ile Lys Glu Glu Met Leu Gln Val Val Ala Pro
1 5 10 15

Glu Ile Tyr Gly Pro Pro Lys Lys Glu Glu Gln Asp Ser Lys Pro Arg
20 25 30

Lys Ile Lys Arg Val Lys Lys Lys Lys Lys Asp Asp Asp Asp Ala Asp
35 40 45

Gly Glu Val Glu Phe Leu Arg Ala Thr Ala Pro Arg Arg Pro Val Gln
50 55 60

Trp Lys Gly Arg Arg Val Lys Arg Val Leu Arg Pro Gly Thr Ala Val
65 70 75 80

Val Phe Thr Pro Gly Glu Arg Ser Thr Arg Thr Phe Lys Arg Val Tyr
85 90 95

Asp Glu Val Tyr Gly Asp Glu Asp Leu Leu Glu Gln Ala Asn Glu Arg
100 105 110

Phe Gly Glu Phe Ala Tyr Gly Lys Arg Gln Arg Ala Leu Gly Lys Glu
115 120 125

Asp Leu Leu Ala Leu Pro Leu Asp Gln Gly Asn Pro Thr Pro Ser Leu
130 135 140

Lys Pro Val Thr Leu Gln Gln Val Leu Pro Ser Ser Ala Pro Ser Glu
145 150 155 160

Ala Lys Arg Gly Leu Lys Arg Glu Gly Gly Asp Leu Ala Pro Thr Val
165 170 175

Gln Leu Met Val Pro Lys Arg Gln Arg Leu Glu Asp Val Leu Glu Lys
180 185 190

Met Lys Val Asp Pro Gly Leu Gln Pro Asp Ile Arg Val Arg Pro Ile
195 200 205

Lys Gln Val Ala Pro Gly Leu Gly Val Gln Thr Val Asp Val Val Ile
210 215 220

Pro	Thr	Gly	Asn	Ser	Pro	Ala	Ala	Ala	Thr	Thr	Thr	Ala	Ala	Ser	Thr
225					230					235					240

Asp Met Glu Thr Gln Thr Asp Pro Ala Ala Ala Ala Ala Ala Ala
245 250 255

Ala Ala Thr Ser Ser Ala Glu Val Gln Thr Asp Pro Trp Leu Pro Pro
260 265 270

Ala Met Ser Ala Pro Arg Ala Arg Arg Gly Arg Arg Lys Tyr Gly Ala
275 280 285

Ala Asn Ala Leu Leu Pro Glu Tyr Ala Leu His Pro Ser Ile Ala Pro
290 295 300

Thr Pro Gly Tyr Arg Gly Tyr Thr Tyr Arg Pro Arg Arg Ala Lys Gly

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305 310 315 320

Ser Thr Arg Arg Pro Arg Arg Arg Ala Ala Ala Thr Thr Arg Arg Arg
325 330 335

Arg Arg Arg Arg Gln Pro Ala Leu Ala Pro Val Ser Val Arg Arg Val
340 345 350

Ala Arg Asp Gly His Thr Leu Val Leu Pro Arg Ala Arg Tyr His Pro
355 360 365

Ser Ile Val
370

<210> 71
<211> 81
<212> PRT
<213> Simian adenovirus 34

<400> 71

Met Ala Leu Thr Cys Arg Leu Arg Phe Pro Val Pro Gly Tyr Arg Gly
1 5 10 15

Gly Arg Ser Arg Arg Arg Arg Gly Leu Ala Gly Arg Gly Leu Ser Gly
20 25 30

Gly Ser Arg Arg Ala His Arg Arg Arg Arg Ala Thr Ser Arg Arg Met
35 40 45

Arg Gly Gly Val Leu Pro Leu Leu Ile Pro Leu Ile Ala Ala Ala Ile
50 55 60

Gly Ala Val Pro Gly Ile Ala Ser Val Ala Leu Gln Ala Ser Gln Arg
65 70 75 80

His

<210> 72
<211> 251
<212> PRT
<213> Simian adenovirus 34

<400> 72

Met Glu Asp Ile Asn Phe Ala Ser Leu Ala Pro Arg His Gly Ser Arg
1 5 10 15

Pro Phe Leu Gly His Trp Asn Asp Ile Gly Thr Ser Asn Met Ser Gly
20 25 30

Gly Ala Phe Ser Trp Gly Ser Leu Trp Ser Gly Ile Lys Ser Ile Gly
35 40 45

Ser Ala Val Lys Asn Tyr Gly Ser Arg Ala Trp Asn Ser Ser Thr Gly
50 55 60

Gln Met Leu Arg Asp Lys Leu Lys Glu Gln Asn Phe Gln Gln Lys Val
65 70 75 80

Val Glu Gly Leu Ala Ser Gly Ile Asn Gly Val Val Asp Leu Ala Asn
85 90 95

Gln Ala Val Gln Asn Lys Ile Asn Ser Arg Leu Asp Pro Arg Pro Pro
100 105 110

Val Glu Glu Val Pro Pro Ala Leu Glu Thr Val Ser Pro Asp Gly Arg
115 120 125

Gly Glu Lys Arg Pro Arg Pro Asp Arg Glu Glu Thr Thr Leu Val Thr
130 135 140

Gln Thr Asp Glu Pro Pro Pro Tyr Glu Glu Ala Leu Lys Gln Gly Leu
145 150 155 160

Pro Thr Thr Arg Pro Ile Ala Pro Met Ala Thr Gly Val Val Gly Arg
165 170 175

His Thr Pro Ala Thr Leu Asp Leu Pro Pro Pro Ala Asp Val Pro Gln
180 185 190

Gln Gln Lys Ala Ala Gln Pro Gly Pro Pro Ala Thr Ala Ser Arg Ser
195 200 205

Ser Ala Gly Pro Leu Arg Arg Ala Ala Ser Gly Pro Arg Gly Gly Val
210 215 220

Ala Arg His Gly Asn Trp Gln Ser Thr Leu Asn Ser Ile Val Gly Leu
225 230 235 240

Gly Val Arg Ser Val Lys Arg Arg Arg Cys Tyr

245

250

<210> 73
 <211> 958
 <212> PRT
 <213> Simian adenovirus 34

 <400> 73

Met Ala Thr Pro Ser Met Met Pro Gln Trp Ser Tyr Met His Ile Ser
 1 5 10 15

Gly Gln Asp Ala Ser Glu Tyr Leu Ser Pro Gly Leu Val Gln Phe Ala
 20 25 30

Arg Ala Thr Glu Ser Tyr Phe Ser Leu Ser Asn Lys Phe Arg Asn Pro
 35 40 45

Thr Val Ala Pro Thr His Asp Val Thr Thr Asp Arg Ser Gln Arg Leu
 50 55 60

Thr Leu Arg Phe Ile Pro Val Asp Arg Glu Asp Thr Ala Tyr Ser Tyr
 65 70 75 80

Lys Ala Arg Phe Thr Leu Ala Val Gly Asp Asn Arg Val Leu Asp Met
 85 90 95

Ala Ser Thr Tyr Phe Asp Ile Arg Gly Val Leu Asp Arg Gly Pro Thr
 100 105 110

Phe Lys Pro Tyr Ser Gly Thr Ala Tyr Asn Ser Leu Ala Pro Lys Gly
 115 120 125

Ala Pro Asn Ser Cys Glu Trp Glu Gln Leu Glu Glu Ala Gln Ala Ala
 130 135 140

Val Glu Asp Glu Glu Leu Glu Asp Glu Asp Glu Glu Pro Gln Asp Glu
 145 150 155 160

Ala Pro Val Lys Lys Thr His Val Tyr Ala Gln Ala Pro Leu Ser Gly
 165 170 175

Glu Glu Ile Thr Lys Asn Gly Leu Gln Ile Gly Ser Asp Asn Thr Glu
 180 185 190

Ala Gln Ser Lys Pro Ile Tyr Ala Asp Pro Thr Phe Gln Pro Glu Pro

Page 242

195

200

205

Gln Ile Gly Glu Ser Gln Trp Asn Glu Ala Asp Ala Thr Val Ala Gly
210 215 220

Gly Arg Val Leu Lys Lys Ser Thr Pro Met Lys Pro Cys Tyr Gly Ser
225 230 235 240

Tyr Ala Arg Pro Thr Asn Ser Asn Gly Gly Gln Gly Val Leu Val Ala
245 250 255

Asp Asp Lys Gly Val Leu Gln Ser Lys Val Glu Leu Gln Phe Phe Ser
260 265 270

Asn Thr Thr Thr Leu Asn Gln Arg Glu Gly Asn Asp Thr Lys Pro Lys
275 280 285

Val Val Leu Tyr Ser Glu Asp Val His Met Glu Thr Pro Asp Thr His
290 295 300

Ile Ser Tyr Lys Pro Thr Lys Ser Asp Asp Asn Ser Lys Ile Met Leu
305 310 315 320

Gly Gln Gln Ser Met Pro Asn Arg Pro Asn Tyr Ile Gly Phe Arg Asp
325 330 335

Asn Phe Ile Gly Leu Met Tyr Tyr Asn Ser Thr Gly Asn Met Gly Val
340 345 350

Leu Ala Gly Gln Ala Ser Gln Leu Asn Ala Val Val Asp Leu Gln Asp
355 360 365

Arg Asn Thr Glu Leu Ser Tyr Gln Leu Leu Leu Asp Ser Met Gly Asp
370 375 380

Arg Thr Arg Tyr Phe Ser Met Trp Asn Gln Ala Val Asp Ser Tyr Asp
385 390 395 400

Pro Asp Val Arg Ile Ile Glu Asn His Gly Thr Glu Asp Glu Leu Pro
405 410 415

Asn Tyr Cys Phe Pro Leu Gly Gly Ile Gly Val Thr Asp Thr Tyr Gln
420 425 430

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Ala Ile Lys Thr Asn Gly Asn Gly Gln Glu Asn Pro Thr Trp Glu Lys
435 440 445

Asp Thr Glu Phe Ala Asp Arg Asn Glu Ile Gly Val Gly Asn Asn Phe
450 455 460

Ala Met Glu Ile Asn Leu Ser Ala Asn Leu Trp Arg Asn Phe Leu Tyr
465 470 475 480

Ser Asn Val Ala Leu Tyr Leu Pro Asp Lys Leu Lys Tyr Asn Pro Ser
485 490 495

Asn Val Asp Ile Ser Asp Asn Pro Asn Thr Tyr Asp Tyr Met Asn Lys
500 505 510

Arg Val Val Ala Pro Gly Leu Val Asp Cys Tyr Ile Asn Leu Gly Ala
515 520 525

Arg Trp Ser Leu Asp Tyr Met Asp Asn Val Asn Pro Phe Asn His His
530 535 540

Arg Asn Ala Gly Leu Arg Tyr Arg Ser Met Leu Leu Gly Asn Gly Arg
545 550 555 560

Tyr Val Pro Phe His Ile Gln Val Pro Gln Lys Phe Phe Ala Ile Lys
565 570 575

Asn Leu Leu Leu Leu Pro Gly Ser Tyr Thr Tyr Glu Trp Asn Phe Arg
580 585 590

Lys Asp Val Asn Met Val Leu Gln Ser Ser Leu Gly Asn Asp Leu Arg
595 600 605

Val Asp Gly Ala Ser Ile Lys Phe Glu Ser Ile Cys Leu Tyr Ala Thr
610 615 620

Phe Phe Pro Met Ala His Asn Thr Ala Ser Thr Leu Glu Ala Met Leu
625 630 635 640

Arg Asn Asp Thr Asn Asp Gln Ser Phe Asn Asp Tyr Leu Ser Ala Ala
645 650 655

Asn Met Leu Tyr Pro Ile Pro Ala Asn Ala Thr Asn Val Pro Ile Ser
660 665 670

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Ile Pro Ser Arg Asn Trp Ala Ala Phe Arg Gly Trp Ala Phe Thr Arg
675 680 685

Leu Lys Thr Lys Glu Thr Pro Ser Leu Gly Ser Gly Phe Asp Pro Tyr
690 695 700

Tyr Thr Tyr Ser Gly Ser Ile Pro Tyr Leu Asp Gly Thr Phe Tyr Leu
705 710 715 720

Asn His Thr Phe Lys Lys Val Ser Val Thr Phe Asp Ser Ser Val Ser
725 730 735

Trp Pro Gly Asn Asp Arg Leu Leu Thr Pro Asn Glu Phe Glu Ile Lys
740 745 750

Arg Ser Val Asp Gly Glu Gly Tyr Asn Val Ala Gln Cys Asn Met Thr
755 760 765

Lys Asp Trp Phe Leu Val Gln Met Leu Ala Asn Tyr Asn Ile Gly Tyr
770 775 780

Gln Gly Phe Tyr Ile Pro Glu Ser Tyr Lys Asp Arg Met Tyr Ser Phe
785 790 795 800

Phe Arg Asn Phe Gln Pro Met Ser Arg Gln Val Val Asp Gln Thr Lys
805 810 815

Tyr Lys Asp Tyr Gln Glu Val Gly Ile Ile His Gln His Asn Asn Ser
820 825 830

Gly Phe Val Gly Tyr Leu Ala Pro Thr Met Arg Glu Gly Gln Ala Tyr
835 840 845

Pro Ala Asn Phe Pro Tyr Pro Leu Ile Gly Lys Thr Ala Val Asp Ser
850 855 860

Ile Thr Gln Lys Lys Phe Leu Cys Asp Arg Thr Leu Trp Arg Ile Pro
865 870 875 880

Phe Ser Ser Asn Phe Met Ser Met Gly Ala Leu Ser Asp Leu Gly Gln
885 890 895

Asn Leu Leu Tyr Ala Asn Ser Ala His Ala Leu Asp Met Thr Phe Glu
900 905 910

Val Asp Pro Met Asp Glu Pro Thr Leu Leu Tyr Val Leu Phe Glu Val
915 920 925

Phe Asp Val Val Arg Val His Gln Pro His Arg Gly Val Ile Glu Thr
930 935 940

Val Tyr Leu Arg Thr Pro Phe Ser Ala Gly Asn Ala Thr Thr
945 950 955

<210> 74
<211> 209
<212> PRT
<213> Simian adenovirus 34

<400> 74

Met Pro Ser Gly Ser Thr Glu Gln Glu Leu Arg Ala Ile Val Arg Asp
1 5 10 15

Leu Gly Cys Gly Pro Tyr Phe Leu Gly Thr Phe Asp Lys Arg Phe Pro
20 25 30

Gly Phe Val Ser Pro His Lys Leu Ala Cys Ala Ile Val Asn Thr Ala
35 40 45

Gly Arg Glu Thr Gly Gly Val His Trp Leu Ala Phe Ala Trp Asn Pro
50 55 60

Arg Ser Lys Thr Cys Phe Leu Phe Asp Pro Phe Gly Phe Ser Asp Gln
65 70 75 80

Arg Leu Lys Gln Ile Tyr Glu Phe Glu Tyr Glu Gly Leu Leu Arg Arg
85 90 95

Ser Ala Ile Ala Ser Ser Pro Asp Arg Cys Val Thr Leu Glu Lys Ser
100 105 110

Thr Gln Thr Val Gln Gly Pro Asp Ser Ala Ala Cys Gly Leu Phe Cys
115 120 125

Cys Met Phe Leu His Ala Phe Val His Trp Pro Gln Ser Pro Met Asp
130 135 140

Arg Asn Pro Thr Met Asn Leu Leu Thr Gly Val Pro Asn Ser Met Leu
145 150 155 160

Gln Ser Pro Gln Val Glu Pro Thr Leu Arg Arg Asn Gln Glu Gln Leu
165 170 175

Tyr Ser Phe Leu Glu Arg His Ser Pro Tyr Phe Arg Arg His Ser Ala
180 185 190

Gln Ile Arg Arg Ala Thr Ser Phe Cys His Leu Gln Glu Met Gln Glu
195 200 205

Gly

<210> 75
<211> 199
<212> PRT
<213> Simian adenovirus 34

<400> 75

Met Ala Pro Arg Lys Lys Gln Gln Pro Pro Pro Gln Pro Tyr Met Leu
1 5 10 15

Leu Glu Glu Glu Glu Glu Asp Trp Asp Ser Gln Ala Glu Glu Val Ser
20 25 30

Asp Glu Glu Gln Glu Glu Met Met Glu Asp Trp Glu Glu Asp Ser Ser
35 40 45

Leu Asp Glu Glu Ala Ser Glu Ala Glu Glu Val Ala Asp Ala Thr Pro
50 55 60

Ser Pro Ser Val Ala Ala Pro Ser Pro Gly Pro Leu Lys Ser Ser Glu
65 70 75 80

Pro Ser Thr Ser Ala Ile Thr Ser Ala Pro Pro Ala Pro Ala Pro Pro
85 90 95

Ala Arg Arg Pro Asn Arg Arg Trp Asp Thr Thr Gly Thr Gly Val Gly
100 105 110

Lys Ser Lys Cys Pro Pro Pro Pro Pro Gln Gln Gln Gln Gln Gln Arg
115 120 125

Gln Gly Tyr Arg Ser Trp Arg Gly His Lys Asn Ala Ile Val Ala Cys
130 135 140

Leu Gln Asp Cys Gly Gly Asn Ile Ser Phe Ala Arg Arg Phe Leu Leu
145 150 155 160

Phe His His Gly Val Ala Phe Pro Arg Asn Val Leu His Tyr Tyr Arg
165 170 175

His Leu Tyr Ser Pro Tyr Cys Ser Gly Asp Pro Glu Ala Ala Ala Ala
180 185 190

Ala Thr Ala Ala Thr Thr Thr
195

<210> 76

<211> 227

<212> PRT

<213> Simian adenovirus 34

<400> 76

Met Ser Lys Glu Ile Pro Thr Pro Tyr Met Trp Ser Tyr Gln Pro Gln
1 5 10 15

Met Gly Leu Ala Ala Gly Ala Ala Gln Asp Tyr Ser Thr Arg Met Asn
20 25 30

Tyr Met Ser Ala Gly Pro His Met Ile Ser Gln Val Asn Gly Ile Arg
35 40 45

Ala Gln Arg Asn Gln Ile Leu Leu Glu Gln Ala Ala Ile Thr Ala Thr
50 55 60

Pro Arg His Asn Leu Asn Pro Arg Asn Trp Pro Ala Ala Leu Val Tyr
65 70 75 80

Gln Glu Thr Pro Ser Ala Thr Thr Val Leu Leu Pro Arg Asp Ala Gln
85 90 95

Ala Glu Val Gln Met Thr Asn Ser Gly Ala Gln Leu Ala Gly Gly Phe
100 105 110

Arg His Gly Ala Arg Pro Leu Arg Pro Gly Ile Arg His Leu Met Ile
115 120 125

Arg Gly Arg Gly Ile Gln Leu Asn Asp Glu Ser Val Ser Ser Ser Leu
130 135 140

Gly Leu Arg Pro Asp Gly Thr Phe Gln Leu Ala Gly Ser Gly Arg Ser
145 150 155 160

Ser Phe Thr Pro Arg Gln Ala Tyr Leu Thr Leu Gln Thr Ser Ser Ser
165 170 175

Glu Pro Arg Ser Gly Gly Ile Gly Thr Leu Gln Phe Val Glu Glu Phe
180 185 190

Val Pro Ser Val Tyr Phe Asn Pro Phe Ser Gly Pro Pro Gly Arg Tyr
195 200 205

Pro Asp Gln Phe Ile Pro Asn Phe Asp Ala Val Lys Asp Ser Ala Asp
210 215 220

Gly Tyr Asp
225

<210> 77
<211> 105
<212> PRT
<213> Simian adenovirus 34

<400> 77

Met Ser Gly Ala Glu Ala Glu Gln Leu Arg Leu Arg His Leu Glu His
1 5 10 15

Cys Arg Arg His Lys Cys Phe Ala Arg Gly Ser Gly Glu Phe Cys Tyr
20 25 30

Phe Gln Leu Pro Glu Glu His Thr Glu Gly Pro Ala His Gly Val Arg
35 40 45

Leu Thr Thr Gln Gly Glu Val Thr Cys Ser Leu Ile Arg Glu Phe Thr
50 55 60

Leu Arg Pro Leu Leu Val Glu Arg Glu Arg Gly Pro Cys Val Leu Thr
65 70 75 80

Ile Ala Cys Asn Cys Pro Asn Pro Gly Leu His Gln Asp Leu Cys Cys
85 90 95

His Leu Cys Ala Glu Phe Asn Lys Arg
100 105

<210> 78
 <211> 191
 <212> PRT
 <213> Simian adenovirus 34

<400> 78

Val Pro Gln Ala Arg Arg Leu Leu Arg Thr His Leu Tyr Leu Leu Leu
 1 5 10 15

Val Ala Gln Val Gln Gly Ser Pro Pro Lys Met Asn Arg Tyr Met Val
 20 25 30

Leu Ser Ile Leu Gly Leu Leu Ala Leu Ala Ala Cys Ser Ala Ala Lys
 35 40 45

Lys Glu Ile Thr Phe Glu Glu Pro Ala Cys Asn Val Thr Phe Lys Pro
 50 55 60

Glu Gly Asp Gln Cys Thr Thr Leu Val Lys Cys Val Thr Asn His Glu
 65 70 75 80

Arg Leu Arg Ile Asp Tyr Lys Asn Lys Thr Gly Arg Phe Ala Val Tyr
 85 90 95

Ser Val Phe Thr Pro Gly Asp Pro Ser Asn Tyr Ser Val Thr Val Phe
 100 105 110

Gln Gly Gly Gln Ser Lys Ile Phe Asn Tyr Thr Phe Pro Phe Tyr Glu
 115 120 125

Leu Cys Asp Ala Val Met Tyr Met Ser Lys Gln Tyr Asn Leu Trp Pro
 130 135 140

Pro Ser Pro Gln Ala Cys Val Glu Asn Thr Gly Ser Tyr Cys Cys Met
 145 150 155 160

Ala Phe Ala Ile Thr Thr Leu Ala Leu Ile Cys Thr Val Leu Tyr Ile
 165 170 175

Lys Phe Arg Gln Arg Arg Ile Phe Ile Asp Glu Lys Lys Met Pro
 180 185 190

<210> 79
 <211> 293

<212> PRT

<213> Simian adenovirus 34

<400> 79

Met Asn Ala Ile Thr Ser Leu Leu Ile Thr Thr Thr Leu Leu Ala Ile
 1 5 10 15

Ala His Gly Leu Thr Arg Ile Glu Val Pro Val Gly Ser Asn Val Thr
 20 25 30

Met Val Gly Pro Ala Gly Asn Ser Thr Leu Met Trp Glu Lys Phe Val
 35 40 45

Arg Asn Gln Trp Val His Phe Cys Ser Asn Arg Ile Ser Ile Lys Pro
 50 55 60

Arg Ala Ile Cys Asp Gly Gln Asn Leu Thr Leu Ile Asn Val Gln Met
 65 70 75 80

Met Asp Ala Gly Tyr Tyr Tyr Gly Gln Arg Gly Glu Ile Ile Asn Tyr
 85 90 95

Trp Arg Pro His Lys Asp Tyr Met Leu His Val Val Glu Ala Leu Pro
 100 105 110

Thr Thr Thr Pro Thr Thr Thr Ser Pro Thr Thr Thr Thr Thr Thr
 115 120 125

Thr Thr Thr Ala Ala Arg His Thr Arg Lys Ser Thr Met Ile Ser Thr
 130 135 140

Lys Pro Pro Arg Ala His Ser His Ala Gly Gly Pro Ile Gly Ala Thr
 145 150 155 160

Ser Glu Thr Thr Glu Leu Cys Phe Cys Gln Cys Thr Asn Ala Ser Ala
 165 170 175

His Glu Leu Phe Asp Leu Glu Asn Glu Asp Ala Gln Gln Ser Ser Ala
 180 185 190

Cys Leu Thr Gln Glu Ala Val Glu Pro Val Ala Leu Lys Gln Ile Gly
 195 200 205

Asp Ser Ile Ile Asp Ser Ser Ser Phe Ala Thr Pro Glu Tyr Pro Pro
 210 215 220

Asp Ser Thr Phe His Ile Thr Gly Thr Lys Asp Pro Asn Leu Ser Phe
225 230 235 240

Tyr Leu Met Leu Leu Leu Cys Ile Ser Val Val Ser Ser Ala Leu Met
245 250 255

Leu Leu Gly Met Phe Cys Cys Leu Ile Cys Arg Arg Lys Arg Lys Ala
260 265 270

Arg Ser Gln Gly Gln Pro Leu Met Pro Phe Pro Tyr Pro Pro Asp Phe
275 280 285

Ala Asp Asn Lys Ile
290

<210> 80
<211> 90
<212> PRT
<213> Simian adenovirus 34

<400> 80

Met Pro Arg Ile Phe Leu Tyr Met Phe Leu Leu Pro Pro Phe Leu Gly
1 5 10 15

Cys Ser Thr Leu Ala Ala Val Ser His Leu Glu Val Asp Cys Leu Ser
20 25 30

Pro Phe Thr Val Tyr Leu Leu Tyr Gly Leu Val Thr Leu Thr Leu Ile
35 40 45

Cys Ser Leu Ile Thr Val Ile Ile Ala Phe Ile Gln Cys Ile Asp Tyr
50 55 60

Ile Cys Val Arg Leu Ala Tyr Phe Arg His His Pro Gln Tyr Arg Asp
65 70 75 80

Arg Asn Ile Ala Gln Leu Leu Arg Leu Leu
85 90

<210> 81
<211> 132
<212> PRT
<213> Simian adenovirus 34

<400> 81

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Met His Lys Thr Val Ile Cys Leu Leu Ile Leu Cys Ile Leu Pro Thr
1 5 10 15

Leu Thr Ser Cys Gln Tyr Thr Thr Lys Ser Pro Arg Lys Arg His Ala
20 25 30

Ser Cys Arg Phe Thr Gln Leu Trp Asn Ile Pro Lys Cys Tyr Asn Glu
35 40 45

Lys Ser Glu Leu Ser Glu Ala Trp Leu Tyr Gly Val Ile Cys Val Leu
50 55 60

Val Phe Cys Ser Thr Val Phe Ala Leu Met Ile Tyr Pro Tyr Phe Asp
65 70 75 80

Leu Gly Trp Asn Ala Ile Asp Ala Met Asn Tyr Pro Thr Phe Pro Ala
85 90 95

Pro Glu Ile Ile Pro Leu Arg Gln Val Val Pro Val Val Val Asn Gln
100 105 110

Arg Pro Pro Ser Pro Thr Pro Thr Glu Ile Ser Tyr Phe Asn Leu Thr
115 120 125

Gly Gly Asp Asp
130

<210> 82
<211> 596
<212> PRT
<213> Simian adenovirus 34

<400> 82

Met Ser Asp Ser Cys Ser Cys Pro Ser Ala Pro Thr Ile Phe Met Leu
1 5 10 15

Leu Gln Met Lys Arg Thr Lys Thr Ser Asp Glu Ser Phe Asn Pro Val
20 25 30

Tyr Pro Tyr Asp Thr Glu Ser Gly Pro Pro Ser Val Pro Phe Leu Thr
35 40 45

Pro Pro Phe Val Ser Pro Asp Gly Phe Gln Glu Ser Pro Pro Gly Val
50 55 60

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Leu Ser Leu Asn Leu Ala Glu Pro Leu Val Thr Ser His Gly Met Leu
65 70 75 80

Ala Leu Lys Met Gly Ser Gly Leu Ser Leu Asp Asp Ala Gly Asn Leu
85 90 95

Thr Ser Gln Asp Ile Thr Thr Ala Ser Pro Pro Leu Lys Lys Thr Lys
100 105 110

Thr Asn Leu Ser Leu Glu Thr Ser Ser Pro Leu Thr Val Ser Thr Ser
115 120 125

Gly Ala Leu Thr Val Ala Ala Ala Ala Pro Leu Ala Val Ala Gly Thr
130 135 140

Ser Leu Thr Met Gln Ser Glu Ala Pro Leu Thr Val Gln Asp Ala Lys
145 150 155 160

Leu Thr Leu Ala Thr Lys Gly Pro Leu Thr Val Ser Glu Gly Lys Leu
165 170 175

Ala Leu Gln Thr Ser Ala Pro Leu Thr Ala Ala Asp Ser Ser Thr Leu
180 185 190

Thr Val Ser Ala Thr Pro Pro Leu Ser Thr Ser Asn Gly Ser Leu Gly
195 200 205

Ile Asp Met Gln Ala Pro Ile Tyr Thr Thr Asn Gly Lys Leu Gly Leu
210 215 220

Asn Phe Gly Ala Pro Leu His Val Val Asp Ser Leu Asn Ala Leu Thr
225 230 235 240

Val Val Thr Gly Gln Gly Leu Thr Ile Asn Gly Thr Ala Leu Gln Thr
245 250 255

Arg Val Ser Gly Ala Leu Asn Tyr Asp Thr Ser Gly Asn Leu Glu Leu
260 265 270

Arg Ala Ala Gly Gly Met Arg Val Asp Ala Asn Gly Gln Leu Ile Leu
275 280 285

Asp Val Ala Tyr Pro Phe Asp Ala Gln Asn Asn Leu Ser Leu Arg Leu
290 295 300

Gly Gln Gly Pro Leu Phe Val Asn Ser Ala His Asn Leu Asp Val Asn
305 310 315 320

Tyr Asn Arg Gly Leu Tyr Leu Phe Thr Ser Gly Asn Thr Lys Lys Leu
325 330 335

Glu Val Asn Ile Lys Thr Ala Lys Gly Leu Ile Tyr Asp Asp Thr Ala
340 345 350

Ile Ala Ile Asn Ala Gly Asp Gly Leu Gln Phe Asp Ser Gly Ser Asp
355 360 365

Thr Asn Pro Leu Lys Thr Lys Leu Gly Leu Gly Leu Asp Tyr Asp Ser
370 375 380

Ser Arg Ala Ile Ile Ala Lys Leu Gly Thr Gly Leu Ser Phe Asp Asn
385 390 395 400

Thr Gly Ala Ile Thr Val Gly Asn Lys Asn Asp Asp Lys Leu Thr Leu
405 410 415

Trp Thr Thr Pro Asp Pro Ser Pro Asn Cys Arg Ile Tyr Ser Glu Lys
420 425 430

Asp Ala Lys Phe Thr Leu Val Leu Thr Lys Cys Gly Ser Gln Val Leu
435 440 445

Ala Ser Val Ser Val Leu Ser Val Lys Gly Ser Leu Ala Pro Ile Ser
450 455 460

Gly Thr Val Thr Ser Ala Gln Ile Val Leu Arg Phe Asp Glu Asn Gly
465 470 475 480

Val Leu Leu Ser Asn Ser Ser Leu Asp Pro Gln Tyr Trp Asn Tyr Arg
485 490 495

Lys Gly Asp Leu Thr Glu Gly Thr Ala Tyr Thr Asn Ala Val Gly Phe
500 505 510

Met Pro Asn Leu Thr Ala Tyr Pro Lys Thr Gln Ser Gln Thr Ala Lys
515 520 525

Ser Asn Ile Val Ser Gln Val Tyr Leu Asn Gly Asp Lys Ser Lys Pro

530	535	540	
Met Thr Leu Thr Ile Thr Leu Asn Gly Thr Asn Glu Thr Gly Asp Ala			
545	550	555	560
Thr Val Ser Thr Tyr Ser Met Ser Phe Ser Trp Asn Trp Asn Gly Ser			
	565	570	575
Asn Tyr Ile Asn Glu Thr Phe Gln Thr Asn Ser Phe Thr Phe Ser Tyr			
	580	585	590
Ile Ala Gln Glu			
	595		
<210>	83		
<211>	1530		
<212>	DNA		
<213>	Simian adenovirus 34		
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<400>	83		
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Met Glu Arg Arg Asp Pro Leu Glu Phe Gly Leu Arg Pro Gly			
1 5 10			
ttt tct ggc cat gca act gtg gag agc atg gat cag aca caa gaa cag			99
Phe Ser Gly His Ala Thr Val Glu Ser Met Asp Gln Thr Gln Glu Gln			
15 20 25 30			
gct gca act gtt gtc ttc cgt ccg ccc gtt gct gat tcc ggc gga gga			147
Ala Ala Thr Val Val Phe Arg Pro Pro Val Ala Asp Ser Gly Gly Gly			
35 40 45			
gca aca ggc cgg gtc aga gga ccg ggc ccg tcg gga tcc gga gga gag			195
Ala Thr Gly Arg Val Arg Gly Pro Gly Pro Ser Gly Ser Gly Gly Glu			
50 55 60			
ggc acc gag gcc ggg cga gag gag cgc gcc gaa cct ggg aac cgg gct			243
Gly Thr Glu Ala Gly Arg Glu Glu Arg Ala Glu Pro Gly Asn Arg Ala			
65 70 75			
gag cgg cca tcc aca tcg gga gtg aat gtc ggg cag gtg gtg gat ctt			291
Glu Arg Pro Ser Thr Ser Gly Val Asn Val Gly Gln Val Val Asp Leu			
80 85 90			
ttt cca gaa ctg cgg cgg att ttg act att agg gag gat ggg caa ttt			339
Phe Pro Glu Leu Arg Arg Ile Leu Thr Ile Arg Glu Asp Gly Gln Phe			
95 100 105 110			

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Ser Gln Met Leu Thr Cys Thr Asp Gly Asn Cys His Leu Leu Lys Thr	
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Phe	Asn	Gly	Thr	Val	Phe	Leu	Gly	Asn	Thr	Asn	Leu	Val	Leu	His	Gly	260	265	270
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ggc tcc tgt cgc cat cct gtg aac gcc acc gtc ttc acc cac ccc gac			4268
Gly Ser Cys Arg His Pro Val Asn Ala Thr Val Phe Thr His Pro Asp			
850	855	860	
cag gcc cag gcg aac ctc acc tgc ggt ctg cat cgg agg gcc aag aag			4316
Gln Ala Gln Ala Asn Leu Thr Cys Gly Leu His Arg Arg Ala Lys Lys			
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Tyr Leu Thr Trp Tyr Phe Asn Gly Thr Pro Phe Val Val Tyr Asn Ser			
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Phe Asp Gly Asp Gly Val Ser Leu Lys Asp Gln Leu Ser Gly Leu Ser			
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tac tcc atc cac aag aac acc acc ctc caa ctc ttc cct ccc tac ctg			4460
Tyr Ser Ile His Lys Asn Thr Thr Leu Gln Leu Phe Pro Pro Tyr Leu			
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ccg gga acc tac gag tgc gtc acc ggc cgc tgc acc cac ctc acc cgc			4508
Pro Gly Thr Tyr Glu Cys Val Thr Gly Arg Cys Thr His Leu Thr Arg			
930	935	940	
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Leu Ile Val Asn Gln Ser Phe Pro Gly Thr Asp Asn Ser Leu Phe Pro			
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Arg Thr Gly Gly Glu Leu Arg Lys Leu Pro Gly Asp Gln Gly Gly Asp			
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Tyr Glu His Leu Ser Leu Gln			
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tcg ctg ctg aca	cta acc gct tta	cta gcc tgc gct cta	acc ctt			6353
Ser Leu Leu Thr	Leu Thr Ala Leu	Leu Ala Cys Ala Leu	Thr Leu			
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gtc gct tgc gac	tcg aga ttc cac	aat gtc aca gct gtg	gca gga			6398
Val Ala Cys Asp	Ser Arg Phe His	Asn Val Thr Ala Val	Ala Gly			
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gaa aat gtt act	ttc aac tcc acg	gcc gat acc cag tgg	tcg tgg			6443
Glu Asn Val Thr	Phe Asn Ser Thr	Ala Asp Thr Gln Trp	Ser Trp			
1050		1055	1060			
agt ggc tca ggt	agc tac tta act	atc tgc aat agc tcc	act tcc			6488
Ser Gly Ser Gly	Ser Tyr Leu Thr	Ile Cys Asn Ser Ser	Thr Ser			
1065		1070	1075			
ccc agc atatacc	cca acc aag tac	caa tgc aat gcc agc	ctg ttc			6533
Pro Ser Ile Ser	Pro Thr Lys Tyr	Gln Cys Asn Ala Ser	Leu Phe			

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Thr Leu Ile Asn Ala Ser Thr Leu Asp Asn Gly Leu Tyr Val Gly			
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tat gta ccc ttt ggt ggg caa gga aag acc cac gct tac aac ctg			6623
Tyr Val Pro Phe Gly Gly Gln Gly Lys Thr His Ala Tyr Asn Leu			
1110	1115	1120	
gaa gtt cgc cag ccc aga acc act acc caa gct tct ccc acc acc			6668
Glu Val Arg Gln Pro Arg Thr Thr Thr Gln Ala Ser Pro Thr Thr			
1125	1130	1135	
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Thr Thr Thr Thr Thr Ile Thr Ser Ser Ser Ser Ser Ser Ser His			
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Ser Ser Ser Ser Arg Leu Leu Thr Leu Val Leu Ala Ser Ser Ser			
1155	1160	1165	
gcc gct acc cag gcc atc tac agc tct gtg ccc gaa acc act cag			6803
Ala Ala Thr Gln Ala Ile Tyr Ser Ser Val Pro Glu Thr Thr Gln			
1170	1175	1180	
atc tac cgc cca gaa acg acc acc gcc acc acc cta cac acc tcc			6848
Ile Tyr Arg Pro Glu Thr Thr Thr Ala Thr Thr Leu His Thr Ser			
1185	1190	1195	
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Ser Asp Gln Met Pro Thr Asn Ile Thr Pro Leu Ala Leu Gln Met			
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Gly Leu Thr Ser Pro Thr Pro Lys Pro Val Asp Ala Ala Glu Val			
1215	1220	1225	
tcc gcc ctc gtc aat gac tgg gcg ggg ctg gga atg tgg tgg ttc			6983
Ser Ala Leu Val Asn Asp Trp Ala Gly Leu Gly Met Trp Trp Phe			
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gcc ata ggc atg atg gcg ctc tgc ctg ctt ctg ctc tgg ctc atc			7028
Ala Ile Gly Met Met Ala Leu Cys Leu Leu Leu Leu Trp Leu Ile			
1245	1250	1255	
tgc tgc ctc cac cgc agg cga gcc aga ccc ccc atc tat aga ccc			7073
Cys Cys Leu His Arg Arg Arg Ala Arg Pro Pro Ile Tyr Arg Pro			
1260	1265	1270	
atc att gtc ctg aac ccc gat aat gat ggg atc cat aga ttg gat			7118
Ile Ile Val Leu Asn Pro Asp Asn Asp Gly Ile His Arg Leu Asp			
1275	1280	1285	
ggc ctg aaa aac cta ctt ttt tct ttt aca gta tgataaattg			7161
Gly Leu Lys Asn Leu Leu Phe Ser Phe Thr Val			
1290	1295		
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Met Thr Asp Ala Leu Asp Leu Glu Met Asp Gly Ile Ser	
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acc gag cag cgt ctc cta gag agg cgc agg cag gcg gct gag caa	7915
Thr Glu Gln Arg Leu Leu Glu Arg Arg Arg Gln Ala Ala Glu Gln	
1315 1320 1325	
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Glu Arg Leu Asn Gln Glu Leu Arg Asp Leu Val Asn Leu His Gln	
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tgc aaa aga ggc atc ttt tgt ctg gta aag cag gcc aaa gtc acc	8005
Cys Lys Arg Gly Ile Phe Cys Leu Val Lys Gln Ala Lys Val Thr	
1345 1350 1355	
tac gag aag acc ggc aac agc cac cgc ctc agt tac aaa ttg ccc	8050
Tyr Glu Lys Thr Gly Asn Ser His Arg Leu Ser Tyr Lys Leu Pro	
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acc cag cgc cag aag ctg gtg ctc atg gtg ggt gag aat ccc atc	8095
Thr Gln Arg Gln Lys Leu Val Leu Met Val Gly Glu Asn Pro Ile	
1375 1380 1385	
acc gtc acc cag cac tcg gta gag acc gag ggg tgt ctg cac tcc	8140
Thr Val Thr Gln His Ser Val Glu Thr Glu Gly Cys Leu His Ser	
1390 1395 1400	
ccc tgt cgg ggt cca gaa gac ctc tgc acc ctg gta aag acc ctg	8185
Pro Cys Arg Gly Pro Glu Asp Leu Cys Thr Leu Val Lys Thr Leu	
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Cys Gly Leu Arg Asp Leu Val Pro Phe Asn	
1420 1425	

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Asp Asp Ala Pro Thr Glu Thr Thr Ala Ser Thr Thr Leu Pro Ser Asp
 35 40 45

Ala Pro Pro Leu Glu Asn Glu Val Leu Ile Glu Gln Asp Pro Gly Phe
 50 55 60

Val Ser Gly Glu Glu Asp Glu Val Asp Glu Lys Glu Lys Glu Glu Val
 65 70 75 80

Ala Ala Ser Val Pro Lys Glu Asp Lys Lys Gln Asp Gln Asp Asp Ala
 85 90 95

Asp Lys Asp Glu Thr Ala Val Gly Arg Gly Asn Gly Ser His Asp Ala
 100 105 110

Asp Asp Gly Tyr Leu Asp Val Gly Asp Asp Val Leu Leu Lys His Leu
 115 120 125

His Arg Gln Cys Val Ile Val Cys Asp Ala Leu Gln Glu Arg Cys Glu
 130 135 140

Val Pro Leu Asp Val Ala Glu Val Ser Arg Ala Tyr Glu Arg His Leu
 145 150 155 160

Phe Ala Pro His Val Pro Pro Lys Arg Arg Glu Asn Gly Thr Cys Glu
 165 170 175

Pro Asn Pro Arg Leu Asn Phe Tyr Pro Val Phe Ala Val Pro Glu Val
 180 185 190

Leu Ala Thr Tyr His Ile Phe Phe Gln Asn Cys Lys Ile Pro Leu Ser
 195 200 205

Cys Arg Ala Asn Arg Thr Arg Ala Asp Lys Thr Leu Thr Leu Arg Gln

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210		215		220
Gly Ala His Ile Pro Asp Ile Ala Ser Leu Glu Glu Val Pro Lys Ile				
225		230		235 240
Phe Glu Gly Leu Gly Arg Asp Glu Lys Arg Ala Ala Asn Ala Leu His				
		245		250 255
Gly Asp Ser Glu Asn Glu Ser His Ser Gly Val Leu Val Glu Leu Glu				
		260		265 270
Gly Asp Asn Ala Arg Leu Ala Val Leu Lys Arg Ser Ile Glu Val Thr				
		275		280 285
His Phe Ala Tyr Pro Ala Leu Asn Leu Pro Pro Lys Val Met Ser Val				
		290		295 300
Val Met Gly Glu Leu Ile Met Arg Arg Ala Gln Pro Leu Ala Ala Asp				
305		310		315 320
Ala Asn Leu Gln Glu Ser Ser Glu Glu Gly Leu Pro Ala Val Ser Asp				
		325		330 335
Glu Gln Leu Ala Arg Trp Leu Glu Thr Arg Asp Pro Ala Gln Leu Glu				
		340		345 350
Glu Arg Arg Lys Leu Met Met Ala Ala Val Leu Val Thr Val Glu Leu				
		355		360 365
Glu Cys Leu Gln Arg Phe Phe Ala Asp Pro Glu Met Gln Arg Lys Leu				
		370		375 380
Glu Glu Thr Leu His Tyr Thr Phe Arg Gln Gly Tyr Val Arg Gln Ala				
385		390		395 400
Cys Lys Ile Ser Asn Val Glu Leu Cys Asn Leu Val Ser Tyr Leu Gly				
		405		410 415
Ile Leu His Glu Asn Arg Leu Gly Gln Asn Val Leu His Ser Thr Leu				
		420		425 430
Lys Gly Glu Ala Arg Arg Asp Tyr Ile Arg Asp Cys Ala Tyr Leu Phe				
		435		440 445

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Leu Cys Tyr Thr Trp Gln Thr Ala Met Gly Val Trp Gln Gln Cys Leu
450 455 460

Glu Glu Arg Asn Leu Lys Glu Leu Glu Lys Leu Leu Lys Arg Thr Leu
465 470 475 480

Arg Asp Leu Trp Thr Gly Phe Asn Glu Arg Ser Val Ala Ala Ala Leu
485 490 495

Ala Asp Ile Ile Phe Pro Glu Arg Leu Leu Lys Thr Leu Gln Gln Gly
500 505 510

Leu Pro Asp Phe Thr Ser Gln Ser Met Leu Gln Asn Phe Arg Thr Phe
515 520 525

Ile Leu Glu Arg Ser Gly Ile Leu Pro Ala Thr Cys Cys Ala Leu Pro
530 535 540

Ser Asp Phe Val Pro Ile Lys Tyr Arg Glu Cys Pro Pro Pro Leu Trp
545 550 555 560

Gly His Cys Tyr Leu Phe Gln Leu Ala Asn Tyr Leu Ala Tyr His Ser
565 570 575

Asp Leu Met Glu Asp Val Ser Gly Glu Gly Leu Leu Glu Cys His Cys
580 585 590

Arg Cys Asn Leu Cys Thr Pro His Arg Ser Leu Val Cys Asn Pro Gln
595 600 605

Leu Leu Ser Glu Ser Gln Ile Ile Gly Thr Phe Glu Leu Gln Gly Pro
610 615 620

Ser Pro Asp Glu Lys Ser Ala Ala Pro Gly Leu Lys Leu Thr Pro Gly
625 630 635 640

Leu Trp Thr Ser Ala Tyr Leu Arg Lys Phe Val Pro Glu Asp Tyr His
645 650 655

Ala His Glu Ile Arg Phe Tyr Glu Asp Gln Ser Arg Pro Pro Lys Ala
660 665 670

Glu Leu Thr Ala Cys Val Ile Thr Gln Gly His Ile Leu Gly Gln Leu
675 680 685

Gln Ala Ile Asn Lys Ala Arg Arg Glu Phe Leu Leu Lys Lys Gly Arg
690 695 700

Gly Val Tyr Leu Asp Pro Gln Ser Gly Glu Glu Leu Asn Pro Leu Pro
705 710 715 720

Pro Pro Pro Pro Gln Gln Arg Asp Leu Ala Ser Gln Asp Gly Thr Gln
725 730 735

Lys Glu Ala Ala Ala Ala Ala Ala Ile His Ala Ser Gly Gly Arg
740 745 750

Gly Gly Gly Leu Gly Gln Ser Gly Arg Gly Gly Phe Gly Arg Gly Ala
755 760 765

Gly Gly Asp Asp Gly Arg Leu Gly Gly Gly Gln Gln Pro Arg Arg Gly
770 775 780

Ser Phe Arg Gly Arg Arg Gly Gly Arg Arg Asn Thr Ile Thr Leu Gly
785 790 795 800

Arg Ser Pro Leu Ala Gly Ala Pro Glu Ile Leu Arg Thr Gln His Gln
805 810 815

Arg Tyr Asn Leu Arg Ser Ser Gly Ala Gly Ala Thr Arg Pro Gln Thr
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Gln Pro

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<400> 87

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Ala Asn Leu Thr Cys Gly Leu His Arg Arg Ala Lys Lys Tyr Leu Thr
35 40 45

Trp Tyr Phe Asn Gly Thr Pro Phe Val Val Tyr Asn Ser Phe Asp Gly
50 55 60

Asp Gly Val Ser Leu Lys Asp Gln Leu Ser Gly Leu Ser Tyr Ser Ile
65 70 75 80

His Lys Asn Thr Thr Leu Gln Leu Phe Pro Pro Tyr Leu Pro Gly Thr
85 90 95

Tyr Glu Cys Val Thr Gly Arg Cys Thr His Leu Thr Arg Leu Ile Val
100 105 110

Asn Gln Ser Phe Pro Gly Thr Asp Asn Ser Leu Phe Pro Arg Thr Gly
115 120 125

Gly Glu Leu Arg Lys Leu Pro Gly Asp Gln Gly Gly Asp Val Pro Ser
130 135 140

Thr Leu Val Gly Leu Gly Phe Phe Ile Thr Gly Leu Leu Ala Leu Leu
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Ile Lys Ala Ser Leu Arg Phe Val Leu Ser Phe Tyr Val Tyr Glu His
165 170 175

Leu Ser Leu Gln
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<212> PRT
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<400> 88

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Leu Val Ala Cys Asp Ser Arg Phe His Asn Val Thr Ala Val Ala Gly
20 25 30

Glu Asn Val Thr Phe Asn Ser Thr Ala Asp Thr Gln Trp Ser Trp Ser
35 40 45

Gly Ser Gly Ser Tyr Leu Thr Ile Cys Asn Ser Ser Thr Ser Pro Ser
50 55 60

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Ile Ser Pro Thr Lys Tyr Gln Cys Asn Ala Ser Leu Phe Thr Leu Ile
65 70 75 80

Asn Ala Ser Thr Leu Asp Asn Gly Leu Tyr Val Gly Tyr Val Pro Phe
85 90 95

Gly Gly Gln Gly Lys Thr His Ala Tyr Asn Leu Glu Val Arg Gln Pro
100 105 110

Arg Thr Thr Thr Gln Ala Ser Pro Thr Thr Thr Thr Thr Thr Thr Ile
115 120 125

Thr Ser Ser Ser Ser Ser Ser Ser His Ser Ser Ser Ser Arg Leu Leu
130 135 140

Thr Leu Val Leu Ala Ser Ser Ser Ala Ala Thr Gln Ala Ile Tyr Ser
145 150 155 160

Ser Val Pro Glu Thr Thr Gln Ile Tyr Arg Pro Glu Thr Thr Thr Ala
165 170 175

Thr Thr Leu His Thr Ser Ser Asp Gln Met Pro Thr Asn Ile Thr Pro
180 185 190

Leu Ala Leu Gln Met Gly Leu Thr Ser Pro Thr Pro Lys Pro Val Asp
195 200 205

Ala Ala Glu Val Ser Ala Leu Val Asn Asp Trp Ala Gly Leu Gly Met
210 215 220

Trp Trp Phe Ala Ile Gly Met Met Ala Leu Cys Leu Leu Leu Leu Trp
225 230 235 240

Leu Ile Cys Cys Leu His Arg Arg Arg Ala Arg Pro Pro Ile Tyr Arg
245 250 255

Pro Ile Ile Val Leu Asn Pro Asp Asn Asp Gly Ile His Arg Leu Asp
260 265 270

Gly Leu Lys Asn Leu Leu Phe Ser Phe Thr Val
275 280

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<400> 89

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Gln Glu Leu Arg Asp Leu Val Asn Leu His Gln Cys Lys Arg Gly Ile
35 40 45

Phe Cys Leu Val Lys Gln Ala Lys Val Thr Tyr Glu Lys Thr Gly Asn
50 55 60

Ser His Arg Leu Ser Tyr Lys Leu Pro Thr Gln Arg Gln Lys Leu Val
65 70 75 80

Leu Met Val Gly Glu Asn Pro Ile Thr Val Thr Gln His Ser Val Glu
85 90 95

Thr Glu Gly Cys Leu His Ser Pro Cys Arg Gly Pro Glu Asp Leu Cys
100 105 110

Thr Leu Val Lys Thr Leu Cys Gly Leu Arg Asp Leu Val Pro Phe Asn
115 120 125

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<221> CDS

<222> (662)..(960)

<223> label=Ela

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Met Arg His Phe Thr Tyr Asp Gly Gly Val Leu Thr Gly Gln
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ctg gct gct gag gtc ctg gac acc ctg atc gag gag gta ttg gcc gat 98

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Leu	Ala	Ala	Glu	Val	Leu	Asp	Thr	Leu	Ile	Glu	Glu	Val	Leu	Ala	Asp	
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aat	tat	cct	ccc	tcg	act	cct	ttt	gag	cca	cct	aca	ctt	cac	gaa	ctc	146
Asn	Tyr	Pro	Pro	Ser	Thr	Pro	Phe	Glu	Pro	Pro	Thr	Leu	His	Glu	Leu	
				35				40						45		
tac	gat	ctg	gat	gtg	gtg	ggg	ccc	agc	gat	ccg	aac	gag	cag	gcg	gtt	194
Tyr	Asp	Leu	Asp	Val	Val	Gly	Pro	Ser	Asp	Pro	Asn	Glu	Gln	Ala	Val	
			50					55					60			
tcc	agt	ttt	ttt	cca	gag	tcc	atg	ttg	ttg	gcc	agc	cag	gag	ggg	gtc	242
Ser	Ser	Phe	Phe	Pro	Glu	Ser	Met	Leu	Leu	Ala	Ser	Gln	Glu	Gly	Val	
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gaa	ctt	gag	acc	cct	cct	ccg	atc	gtg	gat	tcc	ccc	gat	ccg	ccg	cag	290
Glu	Leu	Glu	Thr	Pro	Pro	Pro	Ile	Val	Asp	Ser	Pro	Asp	Pro	Pro	Gln	
	80					85					90					
ctg	act	agg	cag	ccc	gag	cgc	tgt	gcg	gga	cct	gag	act	atg	ccc	cag	338
Leu	Thr	Arg	Gln	Pro	Glu	Arg	Cys	Ala	Gly	Pro	Glu	Thr	Met	Pro	Gln	
95				100						105					110	
ctg	cta	cct	gag	gtg	atc	gat	ctc	acc	tgt	aat	gag	tct	ggg	ttt	cca	386
Leu	Leu	Pro	Glu	Val	Ile	Asp	Leu	Thr	Cys	Asn	Glu	Ser	Gly	Phe	Pro	
				115					120					125		
ccc	agc	gag	gat	gag	gac	gaa	gag	ggg	gag	cag	ttt	gtg	tta	gat	tct	434
Pro	Ser	Glu	Asp	Glu	Asp	Glu	Glu	Gly	Glu	Gln	Phe	Val	Leu	Asp	Ser	
			130					135					140			
gtg	gaa	caa	ccc	ggg	cga	gga	tgc	agg	tct	tgt	caa	tat	cac	cgg	aaa	482
Val	Glu	Gln	Pro	Gly	Arg	Gly	Cys	Arg	Ser	Cys	Gln	Tyr	His	Arg	Lys	
		145				150						155				
aac	aca	gga	gac	tcc	cag	att	atg	tgt	tct	ctg	tgt	tat	atg	aag	atg	530
Asn	Thr	Gly	Asp	Ser	Gln	Ile	Met	Cys	Ser	Leu	Cys	Tyr	Met	Lys	Met	
	160					165					170					
acc	tgt	atg	ttt	att	tac	a	gtaagtttat	catcggtggg	caggtgggct							579
Thr	Cys	Met	Phe	Ile	Tyr											
175				180												
atagtgtggg	tggtggtcct	tggggggtttt	ttaatatatg	tcaggggtta	tgctgaagac											639
ttttttattg	tgatttttaa	ag	gt	cca	gtg	tct	gag	ccc	gag	caa	gaa	cct				690
				Ser	Pro	Val	Ser	Glu	Pro	Glu	Gln	Glu	Pro			
								185				190				
gaa	ccg	gag	cct	gag	cct	tct	cgc	ccc	agg	aga	aag	cct	gtg	atc	tta	738
Glu	Pro	Glu	Pro	Glu	Pro	Ser	Arg	Pro	Arg	Arg	Lys	Pro	Val	Ile	Leu	
				195				200					205			
act	aga	ccc	agc	gca	ccg	gta	gcg	aga	ggc	ctc	agc	agc	gcg	gag	acc	786
Thr	Arg	Pro	Ser	Ala	Pro	Val	Ala	Arg	Gly	Leu	Ser	Ser	Ala	Glu	Thr	
			210					215					220			
acc	gac	tcc	ggg	gct	tcc	tca	tca	ccc	ccg	gag	att	cac	ccc	ctg	gtg	834
Thr	Asp	Ser	Gly	Ala	Ser	Ser	Ser	Pro	Pro	Glu	Ile	His	Pro	Leu	Val	

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225	230	235	
ccc ctg tgt ccc gtt aag	ccc gtt gcc gtg aga gtc	agt ggg cgg cgg	882
Pro Leu Cys Pro Val Lys	Pro Val Ala Val Arg	Val Ser Gly Arg Arg	
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Ser Ala Val Glu Cys Ile	Glu Asp Leu Leu Phe Asp	Ser Gln Glu Pro	
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Pro Pro Ser Thr Pro Phe	Glu Pro Pro Thr Leu His	Glu Leu Tyr Asp	
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Leu Asp Val Val Gly Pro	Ser Asp Pro Asn Glu Gln	Ala Val Ser Ser	
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Phe Phe Pro Glu Ser Met	Leu Leu Ala Ser Gln Glu	Gly Val Glu Leu	
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Glu Thr Pro Pro Pro Ile	Val Asp Ser Pro Asp Pro	Pro Gln Leu Thr	
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Arg Gln Pro Glu Arg Cys	Ala Gly Pro Glu Thr Met	Pro Gln Leu Leu	
100	105	110	
Pro Glu Val Ile Asp Leu	Thr Cys Asn Glu Ser Gly	Phe Pro Pro Ser	
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Glu Asp Glu Asp Glu Glu	Gly Glu Gln Phe Val Leu	Asp Ser Val Glu	
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Gln Pro Gly Arg Gly Cys	Arg Ser Cys Gln Tyr His	Arg Lys Asn Thr	

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Gly Asp Ser Gln Ile Met Cys Ser Leu Cys Tyr Met Lys Met Thr Cys						
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Met Phe Ile Tyr Ser Pro Val Ser Glu Pro Glu Gln Glu Pro Glu Pro						
		180		185		190
Glu Pro Glu Pro Ser Arg Pro Arg Arg Lys Pro Val Ile Leu Thr Arg						
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Pro Ser Ala Pro Val Ala Arg Gly Leu Ser Ser Ala Glu Thr Thr Asp						
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Ser Gly Ala Ser Ser Ser Pro Pro Glu Ile His Pro Leu Val Pro Leu						
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Cys Pro Val Lys Pro Val Ala Val Arg Val Ser Gly Arg Arg Ser Ala						
		245		250		255
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Val Ser Asp Glu Glu Gln Glu Glu Met Met Glu Asp Trp Glu Glu Asp	
35 40 45	
agc agc cta gac gag gaa gct tca gag gcc gaa gag gtg gca gac gca	192
Ser Ser Leu Asp Glu Glu Ala Ser Glu Ala Glu Glu Val Ala Asp Ala	
50 55 60	
aca cca tca ccc tcg gtc gca gcc ccc tcg ccg ggg ccc ctg aaa tcc	240
Thr Pro Ser Pro Ser Val Ala Ala Pro Ser Pro Gly Pro Leu Lys Ser	
65 70 75	
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Ser Glu Pro Ser Thr Ser Ala Ile Thr Ser Ala Pro Pro Ala Pro Ala	
80 85 90	
cca ccc gcc cgc aga ccc aac cgt aga tgg gac acc aca gga acc ggg	336
Pro Pro Ala Arg Arg Pro Asn Arg Arg Trp Asp Thr Thr Gly Thr Gly	
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aacatctctt tcgcccgcgc ctctctgcta ttccaccacg gggtcgcctt tccccgaat	516
gtcctgcatt actaccgtca tctctacagc ccctactgca gcggcgaccc agaggcggca	576
gcggcagcca cag cgg cga cca cca cct agg aag ata tcc tcc gcg ggc	625
Arg Arg Pro Pro Pro Arg Lys Ile Ser Ser Ala Gly	
115 120	
aag aca gcg gca gca gcg gcc agg aga ccc gcg gca gca gcg gcg gga	673
Lys Thr Ala Ala Ala Ala Ala Arg Arg Pro Ala Ala Ala Ala Ala Gly	
125 130 135	
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Ala Val Gly Ala Leu Arg Leu Ser Pro Asn Glu Pro Leu Ser Thr Arg	
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Glu Leu Arg His Arg Ile Phe Pro Thr Leu Tyr Ala Ile Phe Gln Gln	
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Ser Arg Gly Gln Glu Gln Glu Leu Lys Ile Lys Asn Arg Ser Leu Arg	
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Ser Leu Thr Arg Ser Cys Leu Tyr His Lys Ser Glu Asp Gln Leu Arg	
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cgc acg ctg gag gac gcg gag gca ctc ttc agc aaa tac tgc gcg ctc	913
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Ser Pro Ser Val Ala Ala Pro Ser Pro Gly Pro Leu Lys Ser Ser Glu
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Pro Ser Thr Ser Ala Ile Thr Ser Ala Pro Pro Ala Pro Ala Pro Pro
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 145 150 155 160

Phe Pro Thr Leu Tyr Ala Ile Phe Gln Gln Ser Arg Gly Gln Glu Gln
 165 170 175

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	ctgctccctg cttgtgtgtt ggaggtcgct gagtagtgcg cgagcaaaat ttaagctaca	180

acaaggcaag gcttgaccga caattgcatg aagaatctgc ttagggttag gcgttttgcg 240
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