Gene: LEPRE1 - Sequence: NG_008123.1 Transcript: NM_001243246.1 - Protein: NP_001230175.1 Date : February 15, 2015

 1^{st} line: Base numbering. Full stops for intronic +/-5, 10, 15... 2^{nd} line: Base sequence. lower case Introns, upper case Exons 3^{rd} line: Amino acid sequence. Printed on FIRST base of codon 4^{th} line: Amino acid numbering. Numbered on 1^{st} and increments of 10 Exon 1 | Start: 5001 | End: 5578 | Length: 577 $\verb|cggcgtcctccatgacagcgccttatcctccccactccctgggctgtgcgagtaggaaga|\\$ $\verb|cgactgag| caaggcctgaggctccggggctccggctgacgccgggattcgctga|$ $\tt gggccggtgggggatccgggctgactgaaaggaaaaggaggtgcaagcctcgtgggc$ 1-69 $\tt ATGCGCCGGCTTGGAAGGTGGGGCTTCGCCCGGGGGCCTTCGCCGGGGGTAG$ 1-49 1-39 l-29 l-19 1-9 GACTCCGGCCTTGGTGGCGGTTGCCTGCCGTTAGGTCTGAGGGAGCGATGGCGG M A V |1 |31 |11 |21 |41 |51 TACGCGCGTTGAAGCTGCTGACCACACTGCTGGCTGTCGTGGCCGCTGCCTCCCAAGCCG R A L K L L T T L L A V V A A A S Q A E |11 121 171 181 |91 101 |111 1121 AGGTCGAGTCCGAGGCAGGATGGGGCATGGTGACGCCTGATCTGCTCTTCGCCGAGGGGA

V E S E A G W G M V T P D L L F A E G T

|31 |41

I	131			14	1		1	51		-	161			17	1		1	81	
CCGC	AGC	CTA	CGC	GCG	CGG	GGA	CTG	GCC	CGG	GGT	'GGT	CCT	GAG	CAT	GGA	ACG	GGC	GCT	'GC
Α	Α	Y	Α	R	G	D	W	P	G	V	V	L	S	М	E	R	Α	L	R
							15	1									16	1	
	191			120				11			221			123			12		
GCTC	CCG	GGC.	AGC													TGC	CGC	CGA	CT
S	R	Α	Α	L	R	Α			L	R	C	R	T	Q	С	Α			F
							7	1									18	1	
	251			126				71			281			129			13		
TCCC																			
P	W	Ε	L	D	P	D	W		P	S	P	A	Q	Α	S	G			A
							19	1									1	01	
	311	~~.		32		~		31			341		~~~	35		~ ~-	3		~
CCCT																			
L	R	D	L	S	F	F			L	L	R	R	A	A	С	L			С
							ΙI	11									1	21	
	271			Lao	1		١a	01			101			41	1		1.4	0 1	
GCCT	371	aaa	aaa	138		CCA		91 CCT			401		aa v			ረ ጥጥ	4:		aa
	G							L		E				L L		F	R		.GC R
ь	G	Г	Г	А	А	п		31	ы	E	E	M	E	ь	E	Г	л 1		n
							ΙI	31									11.	±1	
1	431			44	1		IΔ	51		ı	461								
GGAG						GCA			СΤΔ				oca •	σac	cto	cct	ຫຫລ	ecc	aσ
S	P				L			A	Y			ug v	504	.gu	006		55ª	400	щБ
	•	•	••	•	_	٩		51	•	•	••								
gcgg	ccg	ggg	tcc	ttc	tgg	gga	gag	gag	tgt	tgc	agg	gga	cct	gag	gag	ctt	ggg	gga	tc
0 00	, ,	000			00.	00	0 0	0	Ü	J	00	00		0 0			000	J	
gggg	aag	tgt	ccg	cag	gga	ggg	gaa	agt	ggc	ctc	ctg	gct	ggg	gag	ctc	tcc	tcg	gag	СС
	_	_	_	_			_	_				_					_		
gggg	aga	gct	gct	ссс	tgg	cag	gag	acc	ttc	ctc	gcc	cag	ttc	gca	tgg	gca	gat	gct	aa
cccc	aaa	ggt	cca	gcc	tgg	ggt	tag	ggc	aca	ggc	caa	gca	aaa	ctc	atg	gcc	att	ttg	tt
ccct	ggg	aaa	tct	cct	gga	agg	aat	taa	agc	ggc	agt	t							

agcactccccatacaatatgacctttgttttaaaatggaacattgctacttcctgtaatctggggaacccctaaatctgacttgggaaagagctacaaatctgcccagggcactatgctc $\verb|ctaatctgtcgtgggtagttcctgcaataggtgtgcttcctgggggctggcaggggctggg|\\$ $\verb|cacgctgagtgagggctcagggaggcagggatttcctgtttatgtggactgctcatgtg|\\$ $\tt gacacaaacgttcagagattggatgtgagcattatccaccttctcatgcttcattcttag$ 471 481 |491 |501 |511 ATCAACAAGTTGGAGAAAGCTGTTGCTGCAGCACACCTTCTTCGTGGGCAATCCTGAG I N K L E K A V A A A H T F F V G N P E |161 1171 |531 |541 |551 |561 |571 |581 ${\tt CACATGGAAATGCAGCAGAACCTAGACTATTACCAAACCATGTCTGGAGTGAAGGAGGCC}$ H M E M Q Q N L D Y Y Q T M S G V K E A 181 |191 |601 |611 . ${\tt GACTTCAAGGATCTTGAGACTCAACCCCATATGgtgaaaaaaactttatccccttctttc}$ D F K D L E T Q P H M 201 $\verb|tttctttttttaaatttattttagagacagagtcttgctctgtcacccaggctggagt|\\$ $\tt gcagtggcttgatcatagctcactgtaacctcaaattcccggactcaagagaccctctag$

Exon 2 | Start: 9610 | End: 9762 | Length: 152

cattac	ctaagg	ttgttt	tct	aati	tac	atta	aca	gaa	gta	atg	aat	gtt	cat	tgt	ata	acat
tgtaga	naatgt	aggtaa	gta	taaa	aat	aaaa	aag	t								
Exon 3		art: 1 his se												ex	on	
			+ ~ ~ ~	·		c+ ~		++~			+ ~ ~	•	665			~~~~
acccag	ggaggi	ggaggt	ugu	agu	gag	cug	aga	uug	ugu	cac	ugc	agı	cca	gcc	rggi	gcaa
. cagagt	gagac	tctgtc	tca	aaaa	aaa	gaaa	aaa	aag	agc	taa	atg	ttt	tta	aat	ttc	caga
 gctaaa	ntattt	tgtaaa	.gac	cati	tta	caaa	aag	gcc	ttc	att	tta	tag	tgg	tac	cca	ggtc
	ttcca	tccata	acc1	tgag	gga	aca	gga	aat	tag	gac	ccc	tgt	gaa	ggt	ggc	tgag
				_												
ggcaag	ggagag	agggtt	cct	cct	ctg	tgg	cct	gca	ttt	gag	tgc	tcc	ttc	ttc	cca	gtag
621		631 ACTGGG	л ст		641 ACT			65		۸۵۸		61 ^C^	CCA		671 тст(accc
Q E		L G	V										E		V	
		211									12	21				
681		691						71				21			731	
		GGCGCT A L				CTT: F					GGA E		CCG R		CCT(L	
		231	4	_	•	-	•	••	•	_	12			••	_	Ū
741	L	751		17	761			77	1		7	81		1	791	
GAAGGG	GCCCTA	TGACTA	CGA'	TGG(CTA					GTA	CAA	CGC	TGA	CCT	CTT	CCAG
E G	Р Ү	D Y 251	D	G	Y	N	Y	L	Е	Y	N 2	A 61	D	L	F	Q
801	L															
		tgcgtg	cag	ttca	aga	gcca	aga	cct	tca	gcc	agg	cct	cct	ggg	act	ctaa
A I	T D															

ggtcctcaactgtaagcagaactgtgtcacggagcttgctt
gccctttgaa
Exon 4 Start: 13102 End: 13233 Length: 131
811
871

291			301		
	AACAgtaagg N I	gcctactttco		tctgctggct	aactaag
	ggtgggcagg	gattacagco		 tcaaggtgtt	tggctta
 gtagctat	 gggaggcaco	:atgccaagt@	 gatccctgggt	 agtttgttat	aaacaac
 taggaagc	 caataccago	 :aacccaaaa	agctgggggag	 ggagacttag	gacctca
 tgtccctt	ctataacttg	 gtaatctatti	 tttgcttttga	 attaaagtta	atagcaa
 gggtatgc	caca				
Exon 5	Start: 14	163 End	: 14302 L	ength: 139	
Exon 5	Start: 14	4163 End	: 14302 L	ength: 139	
			: 14302 L gcatgcagaga		
 attatttg	 tgaatcttaa	.aagatgtggg		attctgattc	ttttctg
attatttg	 tgaatcttaa cagccctgag	naagatgtggg gacattgaco	gcatgcagaga	attctgattc aaaattaatc	ttttctg acacatt
ttgttagg	tgaatcttaa cagccctgag ttaactcctg	.aagatgtggg ggacattgaco gcccctgaaa		attctgattc aaaattaatc	ttttctg acacatt caggcac
tgtattact	tgaatcttaa cagccctgag ttaactcctg	aagatgtggg		attctgattc aaaattaatc tgttaagtag acactaagtg	. ttttctg . acacatt . caggcac . gtccctg

|321 |331

1100			10				021			103			10			-	051		
ACGA			GAA(CCA	AAA										AGA	AGA			CA
E	V	M	N	Q	N		A 41	Y	Y	A	A	M	L	G	Ε	E 3!	H 51	Т	R
1106			10			_													
GATC(CAT(CGG G	CCC(P	CCG R	TGA E	Ggt	gag	aga	ctt	cct	tct	gtt	atg	aca	gct	gcc	agct	gaa	ac
tcag	acc	tga	ggg	cgg	aag	gagt	ggg	gta	gca	gag	ggg	agt	agg	cgc	tgt	gcg	tgca	ıgg	gc
agggg	gcc	aga	tgt	cag	tgt	tgg	ggc	cag	atg	tga	gtt	cag	tca	ctc	ggc	ttg	ttat	tca	ag
2 mm2			2 W C :		~~~		mam	+ cr+ c		m e m	+ac		enn		+c2			r++·	
agga	gaa	565	age	aca	656	.∝88	Sas	og o	565	გოგ	uac	aca	55ª	500	oca	a 0 0 0	ag c	5000	40
ctgg	· gcc	cag	aag	tct	att	ctc	tga	gtc	ccg	cag	aac	tgc	gcg	gtg	agc	ata	ttct	tt	cc
cctc	ttgį	gca	ccc	cta	.act	t													
Exon BE A													_			g e:	xon		
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gaat	cat	cag	atta	atc	tgt	cct	aga	gac ⁻	taa	tgg	ggg	ttg	gga	tgg	ggg	agg	agca	ıggı	gc
tttt	tcc	ctt	aag	gaa	.agc	ctg	gtt	att	cca	gta	.cct	cag	agg	tac	tgt	tgc	ttgt	gc	ca
ggca	gagį	gac	acaį	gaa	att.	aga	.ctt	ttg	tct	caa	act	ggg	gaa	cag	aca	gaga	agca	ittį	gg
. ggcag													•						

tcccagaggttaaaagacagggctgagttctgggggatttgtttg
1081 1091 1101 1111 1121 1131 AGTGCCAAGGAGTACCGACAGCGAAGCCTACTGGAAAAAGAACTGCTTTTCTTCGCTTAT S A K E Y R Q R S L L E K E L L F F A Y 361 371
1141 1151 1161
agacacctggaagattaagtagatcatctt
Exon 7 Start: 16868 End: 16920 Length: 52 BE AWARE: This section overlaps with the following exon

agacac	ctgga	agatt	taagta	agatca	tctt	cacctt	tttt	cattt	cttc	ctga	acctac	ttag
1171 GATTCA	-	1181 TCCA(1191 AGTGAT	TCC	1201 CAAGAC		12 GCAAG			1221 GAAgtg	agga
D S 391	W T	P I	ЕЕ	V I	P	K R 401	L	Q E	K	Q	K	
ccttga	Iagaaa	ctgca	atggtt	tggatc	agto	ctgate	gaago	cactt	gagg	ctto	cctgag	ccca
ggcaga	itgtga	actc	ctggca	aagggg	tggg	gcaggt	cca	gtttg	ggaa	gtcg	ggggtg	gagc
ccaggg	gctggc	cctg	gaatgo	cagtcc	tcag	gagcgg	gctgi	tgctc	atag	gtca	agaacg	ggaa
acagco	gtacg	catci	tcccag	ggagat	tggg	gaacct	tatg	gaagg	aaat	cgag	gaccct	tgtg
gaagag	gaagac	caagg	gagtca	actgga	tgtg	gagcag	gactg	gaccc	ggga	aggt	Ega	
Exon 8	3 St	art:	17095	5 En	d: 1	17216	Le	ength	: 12	1		
atttta	itgcat	tgaga	acacct	.ggaag	atta	nagtag	gatca	atctt	acct	tttt	cattt	cttc
ctgacc	tactt	aggat	ttcat@	ggactc	caga	aagaag	gtgat	tccc	aaga	gatt	Egcaag	agaa
 acagaa	ıgtgag	gacct	ttgaag	gaaact	gcat	Eggttg	ggato	cagtc	tgat	gaag	gcactt	gagg
cttcct	gagcc	caggo	cagate		tcct	ggcaa	ngggg					ggaa
gtcggg												atag
	123	1	124	11	12	251	1:	1261		127	71	1281

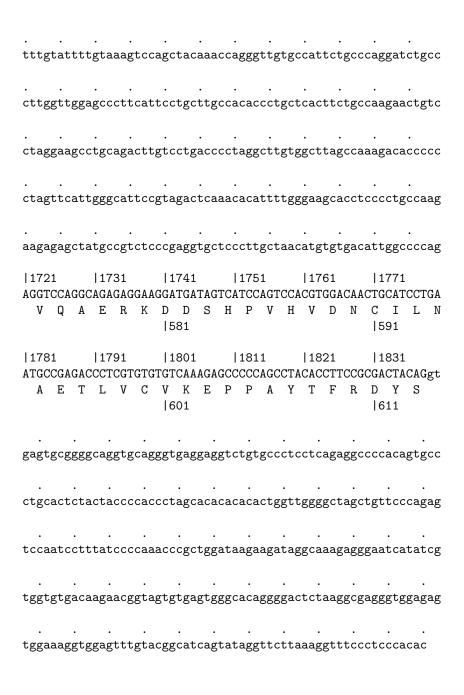
GTC	AGA/	ACGO	GGA <i>I</i>	AAC <i>I</i>	AGC	CGT	ACGO	CATO	CTC	CCAG	GAG	ATT	'GGG	AAC	CTT	ATO	AAG	GAA	AT
S	Е	R 41	_	Т	A	V	R	Ι	S	Q	Е	I 42		N	L	M	K	E	Ι
CGA		CCTT		GGA <i>I</i>	AGAC	JAA(GACC	CAAC	GGA(CTC	GAT	'GTG	AGC	CAGA	CTC		CGG	1341 GA
E	Т	L 43	•	Е	E	K	T	K	Е	S	L	D 44		S	R	L	Т	R	E
AGg† G	tgag	gagg	gaca	agaa	nata	aggg	ggca	itgt	ctg	ggct	gtt	gtc	agg	gag	gcca	uggo	agg	tca	cc
cca	cati	ttgo	ccag	ggca	agcg	gcto	ccad	ccc	cago	catt	gca	ıgag	ctc	acc	atg	gago	cag	cca	.cc
ctta	aggg	gtgo	caag	gtto	cagt	gga	acat	cct	tco	ctaa	icto	acc	ago	ggg	gact	ttc	agc	tgg	aa
agaį	gca	ctga	agaa	atca	agco	ctti	tggo	ctca	agaa	aato	aga	ictc	cag	gat	gta	ıgtg	gtg	cac	ac
ccg	taat	tcc	cago	ctac	cttg	ggca	aggo	Etga	aggo	cagg	agg	gato	gct	tga	igcc	cag	ggag	ttt	ga
at																			
Exoi BE													_			ıg e	exon		
gtt	ctto	ccto	cgt1	tccc	gag	gcto	cate	gttt	tag		tgt	gtt	tct	gat	gtt	tcc			gt
gtgʻ																			tc
ttt																			ga

$\verb tttgctggtgaaaaggaaacagctggaatttctatttgtgacgaggaggcaatatccaa \\$
**Sagagaeooooggoodgooggoodgaeoooggagoooggooog
1351 1361 1371 1381 1391 1401 GTGGCCCCCTGCTGTATGAAGGCATCAGTCTCACCATGAACTCCAAACTCCTGAATGGTT G P L L Y E G I S L T M N S K L L N G S 451 461
1411
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$
tggagaaa
Exon 10 Start: 19716 End: 19811 Length: 95

•		•			•			•		•					•			•	
gag	gac	tga	cca	atg	taa	ggg	aag	ccca	agt	gact	tgca	acc	ttcc	ccc	aag	gg	tcca	agca	tcc
cc	cca	cca	agt	acc	cct	tgg	gtg	gtag	rcct	ttce	rcct	ttc	ctct	tcc	tgg	rcc	acas	rtte	acc
			0-	0		-00	0-0	5 6	5		5				-00	5 ·		5 6	,
•		•	. •		•		•	•		•		•	•		•		•		
ac	ctc	ttc	tca	agc	cct	cag	ctg	CCC1	tgg	ctaa	aca	tca	cctt	gtg	ttt	tg	ggc	cttg	gtag
			148	1		14	91		15	501			1511	_		15:	21		1531
GT(GC	AGC	AAC	CTC	AGG	AGA	TGG	CTAC	CCG	GGG.	ГСА	GAC	CTCC	CCCA	.CAT	'AC	TCC	CAAT	GAA
V	Α	Α	Т	S	G	D	G	Y	R.	G	Ŋ	Т	S	Р	Н	Т	Р	N	E
-			_	-	-	_	-	_	150		`	_	-	_		_	_		_ 511
									100	71									1011
			. – .																
			154			15				561			•		•		•	•	
AA(TT	CTA	TGG	TGT	CAC	TGT	CTT	CAA	AGC	CCT	CAA	Ggt	aaga	itca	aca	act	ggg	catt	cta
K	F	Y	G	V	T	V	F	K	Α	L	K								
									152	21									
•		· 			•		•	•		•		•			•			•	
gag	gtg	тgg	aga	aag	ggg	rgg	gga	aggg	ggg	aago	CTC	agg	cttt	gag	gaa	iga	gttg	gggg	ctg
•								•											
gt	ggc	agg	aaa	ggt	gaa	gag	ggt	cca	cctg	gcca	aaca	att	cttg	gttg	cca	agg	aago	cgag	gat
٠.	r++	2+~	++~	c &+		·~++	•	+++1	+ ~~ ~		-+ «+	++ >			· + ~+		· tcar		
ga	366	aug	uug	cgi	gag	guu	cac	666	ugad	1666	Legi	lla	gaco	gag	ugi	aa	lCac	aaac	aaa
•			•		•		•	•		•			•		•		•	•	
gt	gag	cag	gat	aag	act	gtt	cgc	caaa	agct	tate	gaga	aat	gctt	tct	tta	aga	aagg	gctg	att
c+:	ດຕລ	നനന	ct a	+ & C	++c	tgt	ແດລ	ora 1	taca		rt or	-							
C 0 0	ıga	888	Cug	ugc	000	ugu	gca	ggai	ugu	ıca	S C S	·							
Exc	on	11	I S	tar	t:	217	49	Er	nd:	218	399		Leng	th:	15	50			
•													•					•	
ac	ggg	gtg	gct	ggc	cgg	gct	gag	ggg	ctc	ctca	acti	tcc	cagt	agg	ggo	gg	ccgg	ggca	ıgag
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1571 1581 1591 1601 1611 1621 CTGGGGCAAGAAGGCAAAGTTCCTCTGCAGAGTGCCCACCTGTACTACAACGTGACGGAG L G Q E G K V P L Q S A H L Y Y N V T E 531 541
1631
1691 1701 1711
ttaatggggaagctggtgctaaaccattcat

Exon 12 | Start: 23768 | End: 23885 | Length: 117 BE AWARE: This section overlaps with the following exon



Exon 13 | Start: 24287 | End: 24362 | Length: 75
BE AWARE: This section overlaps with the following exon

tgggg	ctag	ctg	ttc	cca	gag	tcc	aat	cct	tta	tco	ccc	aaa	ccc	gct	gga	ta	.aga	aga	ıta
ggcaa	agagį	gga	atc	ata	tcg	tgg	tgt	gac	aag	gaa	cgg	tag	tgt	gag	tgg	gc	aca	ggg	ga
ctcta	aggcį	gag	ggt	gga	gag	tgg	aaa	ggt	gga	ıgti	ttg	tac	ggc	atc	agt	at	agg	ttc	:tt
aaagg	tttc	cct	ccc	aca	caa	agc	cac	cct	cct	gct	tgc	tgg	ttg	aga	gca	.cc	tgg	agg	tg
aaggc	tcag	ggg	aaa	ggg	agg	cag	gga	agg	gcc	at	gat	gag	atg	tct	ctg	;cc	ttt	ccc	ag
18 CGCCA A I	TCCT	ГТА	18 CCT L	AAA	TGG G		F			187 GCG(GAA.				TCA			CTG L	GA D
19 TGCCA A K	AGAC		19 GAC T		gag	tgc [.]	tcc	ctt	gto	cti	tgt	ccc	tgg	gag	ata	.aa	.aag	tct	gt
tttct	acag	ctg	atg	ttc	cca	aag	tgc	agt	gga	ıca	aaa	ata	acc	aac	tgg	gc	ttc	cca	ıgt
gggcg	gtac	cct	tcc	ccc	atc	cag	agg	ggc	ttt	gag	gac	gtg	tcc	atc	act	сс	tct	aac	ca
gtcac	cctt	tct	ctt	tag	ttc	tgg	tct	tag	gga	ago	cca	tac	tga	.aga	gct	gc	cct	cgg	tc
gtgag	ccct	aat	gag	ccc	atg	tct	ctt	ctg	aga	ıgt	gga [.]	tta	cag	tct	ttg	tc	ctg	tgc	aa
ccccc	ctcc	ctt	tct	g															

Exon 14 | Start: 24673 | End: 25750 | Length: 1077

$\verb ccttgtccttgtccctgggagataaaaagtctgttttctacagctgatgttcccaaagtg \\$																		
ggg	gctt	tgaga	cgte	gtc	cat	cact	tcc	tct	aac	cagt	tcad	cct	tttc	:tct	tta	agti	tct	ggtc
		1921			193:			194			19				1961	_		1971
		GTGCA																
A	Е	V Q 641	P	Q	С	G	R	A	V	G	F 65	S 51	S	G	Т	E	N	P
		1981		1:	199:	1		200	01		120)11		12	202:	1		2031
CA	TGGA	GTGAA	GGC1	GT(CAC	CAG	GGG	GCA(CTG	rgc(CAT	CGCC	CTC	GTG(CAC	CCTG
Н	G	V K 661	A	V	T	R	G	Q	R	С	A 67	I 1	A	L	W	F	T	L
		2041			205:			20				2071 2081 2091						
		CGACA																
D	P	R H 681	S	E	R	V	R	A	A	R	A 69	G 91	Е	S	S	W	С	С
		2101		12	211:	1		21:	21		121	.31		2	214:	1		2151
GG	TGAC	CCGTT	CCCA	GA(GCG(CCCI	ΓTG	GTT'	rgc(CTT:	ГСТО	CTT	CCCC	CAA	ATC	CCAT	ГТG	CCAG
G	D	P F 701	P	E	R	P	W	F	A	F	L 71	-	P	K	S	Н	С	Q
		2161		12	217:	1		218	31		121	91		12	220	1		2211
$\tt TGGCTGAGACACGAAAGGAGCACTTGGGACACCAGCTCCAACGCCCTGTCATTATGGTCA$																		
W	L	R H 721	Е	R	S	T	W	D	T	S	S 73	N 31	A	L	S	L	W	S
		2221		12	223	1		224	41		122	251		12	226:	1		2271
${\tt CATTGCCTTGTCCTCCCTGGGCCTGTGAACGGGATCCAGGTGGGGAAAGAGGTCAAG}$																		
H	С	L V 741	L	P	G	P	A	٧	N	G	I 75	Q 51	V	G	K	E	V	K
		1141									110	, т						

```
12281
            12291
                     12301
                             2311
                                     12321
                                              2331
{\tt ACAGGGAGCGATGCTGAGTTCTTGGTTCCCTCCTTGGGCCCCACTTCAGCTGTCCTTTTC}
T G S D A E F L V P S L G P T S A V L F
     |761
                             771
            2351
                     |2361
                             2371
     2341
                                     12381
                                             2391
Q R V G P A G K E M S L G P L R N L P C
    1781
                             1791
     2401
            |2411|+1
                                 |+21
                        +11
                                         l+31
\tt CCCCTGGGAAGTAGCAGCTGAGAGATAGCGAGTGTCTGGAGCGGAGGCCTCTCTGAATGG
P L G S S S *
    801
         +51
                |+61
                        +71
                                 |+81
                                         |+91
\tt GCAGGGGTTTGTCCTTGCAGGACAGGGTGCAGGCAGATGACCTGGTGAAGATGCTCTTCA
1+101
        1+111
                +121
                        l+131
                                 l+141
GCCCAGAAGAGATGGACCTCTCCCAGGAGCAGCCCCTGGATGCCCAGCAGGGCCCCCCCG
        +171
                |+181
                        |+191
                                 1+201
+161
                                         +211
AACCTGCACAAGAGTCTCTCTCAGGCAGTGAATCGAAGCCCAAGGATGAGCTATGACAGC
+221
        |+231
                +241
                        +251
                                +261
                                          1 + 271
\tt GTCCAGGTCAGACGGATGGGTGACTAGACCCATGGAGGGAACTCTTCTGCACTCTGAGC
                 +301
         +291
                         +311
                                 +321
TGGCCAGCCCTCGGGGCTGCAGAGCAGTGAGCCTACATCTGCCACTCAGCCGAGGGGAC
l+341
        l+351
                +361
                        l+371
                                 l+381
                                         1+391
CCTGCTCACAGCCTTCTACATGGTGCTACTGCTCTTGGAGTGGACATGACCAGACACCGC
+401
        +411
                +421
                        |+431
                                 +441
                                         +451
{\tt ACCCCCTGGATCTGGCTGAGGGCTCAGGACACAGGCCCAGCCACCCCCAGGGGCCTCCAC}
                +481
                        +491
                                 |+501
I+461
        l+471
                                         I+511
AGGCCGCTGCATGACAGCGATACAGTACTTAAGTGTCTGTGTAGACAACCAAAGAATAAA
l+521
         l+531
                 l+541
                        l+551
                                 l+561
                                          1+571
```

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agaggtctcacttgataaaaattgctctaggcaggacccagtggcaggtgtgggacgaga

agtcct	ggctt	ggcac	ctggc	tcaac	gctgt@	cacag	gccaga	acactt	aac
cttcag	gcacct				tgggga		tccct	ctgcto	cacc
ttctgg	gggcag								acgg
taaago	ctctgg				ttaato		caggga	agcggo	eg

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