

Supplementary Information

Dynamic Evolution of α -gliadin Prolamin Gene Family in Homeologous Genomes of Hexaploid Wheat

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Table S1 Chinese Spring genome sequence contigs in α -gliadin regions

Genome	FALCON Trit 1.0	seqlength(bp)	Triticum1.0	seqlength(bp)
A Genome	000887F	758692	scf7180004654949	29177
	047975F	78715	scf7180004978732	200255
	001925F	632550		
	012734F	283772		
	069750F	25153		
	003013F	536353		
B Genome	021496F	205976	scf7180004963015	196592
	017729F	237923	scf7180004947566	315253
	050439F	60131	scf7180004993810	114424
	042920F	95938	scf7180004934336	18128
	001809F	651181	scf7180004866629	31491
	048447F	67769	scf7180004469127	45100
	005515F	434302		
	007786F	376564		
	068739F	26815		
	041981F	98458		
	001873F	608954		
	006455F	384913		
D Genome	009235F	335483	scf7180004912608	28315
	024844F	172037	scf7180004992456	105122
	078736F	12137	scf7180004818604	26410
	045628F	86322		
	067696F	28741		
	030968F	147003		
	010991F	311522		
	022739F	196559		
	003775F	492209		

Note: FALCON Trit 1.0- PacBio only contigs, Triticum1.0- PacBio and Illumina hybrid contigs

Table S2 Annotation of Chinese Spring *a*-gliadin gene regions and comparison with *Ae. tauschii*

Annotation	<i>Ae. tauschii</i>			Chiese spring D			Chiese spring A			Chiese spring B		
	Gene Symol	Start	End	Gene Symol	start	end	Gene Symol	start	end	Gene Symol	start	end
protein canopy-1		92557	95727				409		3466	299		3686
F-box domain		104395	108735				3974		173415	7714		12006
60S ribosomal protein		109769	111335				9036		11928	12339		17053
hypothetical protein F775_01656		497767	501940	5225	7805		210539		216931	186306		198290
hypothetical protein TRIUR3_28025		521953	525063	33850	36982		225417		252483	203378		236032
E3 ubiquitin-protein ligase UPL4		525188	527750				241435		241830			
Minor histocompatibility antigen H13										245724		250223
Minor histocompatibility antigen H13		545148	551190	45134	51394		292703		298764	272102		277989
Glucan endo-1,3-beta-glucosidase 3		633728	638943	82825	87061		385619		390993	308802		312640
pentatricopeptide repeat-containing protein		640747	642820	87834	90669		391220		393671	314256		330245
F-box/FBD/LRR-repeat protein		667099	669661	114039	116600					352384		357710
RPM1										576772		583876
F-box/FBD/LRR-repeat protein		675390	677475	122376	126946					639698		643840
F-box/FBD/LRR-repeat protein		678045	680271	184946	186036							
F-box/FBD/LRR-repeat protein		751389	755472				669622		672868			
Adenosylhomocysteinase		755551	777421	202363	205691							
F-box/FBD/LRR-repeat protein		836363	840228	266734	271961		733298		736457	717334		720972
Chloroplastic		849400	852898	287670	289442		791123		793138	762820		767710
chaperone protein DnaJ							794801		795671			
Glutamate receptor 3.1	GLR-D'1	855554	859160	GLR-D1	290816	297037	GLR-A1	801093	805487	GLR-B1	768386	772142
Glutamate receptor 3.1	GLR-D'2	966212	969981	GLR-D2	421554	427327	GLR-A2	814531	820275	GLR-B2	832947	838631
hypothetical protein TRIUR3_04005							897112		903671			
<i>a</i> -gliadin	<i>a</i> -D'1	1001409	1002271	<i>a</i> -D1	458540	459403	<i>a</i> -A1	995875	996759	<i>a</i> -B1	870320	871228
<i>a</i> -gliadin							<i>a</i> -A2	1034005	1034961	<i>a</i> -B2	921475	922359
<i>a</i> -gliadin										<i>a</i> -B3	959814	960806
<i>a</i> -gliadin										<i>a</i> -B4	965651	966196
<i>a</i> -gliadin										<i>a</i> -B5	966197	966633
Glutamate receptor 3.1	GLR-D'3	1007729	1011532	GLR-D3	463781	468764	GLR-A3	1128596	1133528	GLR-B3	983220	986860
<i>a</i> -gliadin	<i>a</i> -D'2	1055096	1055342	<i>a</i> -D2	512055	512305	<i>a</i> -A3	1182025	1182889	<i>a</i> -B6	1004951	1005907
<i>a</i> -gliadin	<i>a</i> -D'3	1061229	1062082				<i>a</i> -A4	1218752	1219601	<i>a</i> -B7	1016169	1017110
<i>a</i> -gliadin	<i>a</i> -D'4	1095454	1096297	<i>a</i> -D4	518180	519055	<i>a</i> -A5	1314262	1315182	<i>a</i> -B8	1042234	1043184
<i>a</i> -gliadin	<i>a</i> -D'5	1137283	1138187	<i>a</i> -D5	553251	554177	<i>a</i> -A6	1423738	1424592	<i>a</i> -B9	1053446	1054387
<i>a</i> -gliadin	<i>a</i> -D'6	1163469	1164361	<i>a</i> -D6	578406	579290	<i>a</i> -A7	1517352	1518224	<i>a</i> -B10	1064645	1065586
<i>a</i> -gliadin	<i>a</i> -D'7	1186283	1187124	<i>a</i> -D7	602940	603791	<i>a</i> -A8	1581439	1582302	<i>a</i> -B11	1310666	1311544
<i>a</i> -gliadin	<i>a</i> -D'8	1210543	1211405	<i>a</i> -D8	627665	628543	<i>a</i> -A9	1633882	1634775	<i>a</i> -B12	1332444	1333340
<i>a</i> -gliadin	<i>a</i> -D'9	1242375	1243652	<i>a</i> -D9	659232	660092	<i>a</i> -A10	1689164	1690003	<i>a</i> -B13	1369120	1370001
<i>a</i> -gliadin	<i>a</i> -D'10	1265184	1266037	<i>a</i> -D10	684038	684907				<i>a</i> -B14	1381550	1382425
<i>a</i> -gliadin	<i>a</i> -D'11	1396535	1397817	<i>a</i> -D11	814221	815366				<i>a</i> -B15	1403073	1403945
<i>a</i> -gliadin	<i>a</i> -D'12	1547554	1548412	<i>a</i> -D12	904919	905767				<i>a</i> -B16	1418791	1419681
<i>a</i> -gliadin										<i>a</i> -B17	1429202	1430092
<i>a</i> -gliadin										<i>a</i> -B18	1439610	1440494
<i>a</i> -gliadin										<i>a</i> -B19	1465984	1466683
<i>a</i> -gliadin										<i>a</i> -B20	1494099	1494914
<i>a</i> -gliadin										<i>a</i> -B21	1503116	1503928
<i>a</i> -gliadin										<i>a</i> -B22	1523686	1606266
<i>a</i> -gliadin										<i>a</i> -B23	1630120	1630998
<i>a</i> -gliadin										<i>a</i> -B24	1635342	1635572
Glutamate receptor 3.1	GLR-D'4	1686662	1691883	GLR-D4	1039153	1042705	GLR-A4	1739408	1742963	GLR-B4	1667279	1672684
FKBP-type peptidyl-prolyl cis-trans isomerase 1		1692096	1693651		1043561	1044874		1743941	1745281		1672813	1674320
UTP--glucose-1-phosphate uridylyltransferase		1693974	1698030		1045218	1049278		1745624	1749592		1674684	1678697
LRR receptor-like serine/threonine-protein kinase		1706689	1709614		1056743	1060256						
autophagy-related protein 5b		1709869	1714699					1784221	1788290		1769246	1796599
autophagy-related protein 5b		1715457	1719914		1064533	1070359		1789079	1795854		1804110	1809147
autophagy-related protein 5b											1845256	1848786
protein trichome birefringence-like 12		1723285	1728123		1081013	1085814		1798743	1802183		1851349	1854749
RNA-binding protein 7											2039193	2044420
heat shock 70kDa protein 8, isoform CRA_c											2108931	2119210
nuclear cap-binding protein subunit 1											2222692	2234574
calcium-binding protein CML49											2368020	2369396
protein yippe-like At4g27745											2384604	2391732
protein trichome birefringence-like 12		1737536	1740991		1095117	1107589		1863321	1868273		2392699	2396187

Table S3. Estimation of α -gliadin transcript abundances in different developmental stages and tissues in Chinese Spring

	10WE	20AL	20SE	20 TC	30SE	30ALSE
Total α -gliadin gene reads	13392050	10936016	31592896	20866018	29630536	20236351
Total reads mapped to complete gene set	135836843	219235733	134302445	133453380	132547092	130940454
Total RNA-seq reads	221603358	375865316	227982060	218525346	227067144	225584234
% α -gliadin reads in total mapped gene reads	9.9	5.0	23.5	15.6	22.4	15.5
% α -gliadin reads in total RNA-seq reads	6.0	2.9	13.9	9.5	13.0	9.0

Note: RNA-seq data were downloaded from Pfeiffer *et al.*, (2014). 10WE –whole embryo at 10 days post anthesis, 20AL – Aleurone layer at 20 days, 20SE-seed endosperm at 20 days, 20TC- Transfer cells at 20 days, 30SE- seed endosperm at 30 days, 30ALSE- Aleurone + seed endosperm at 30 days

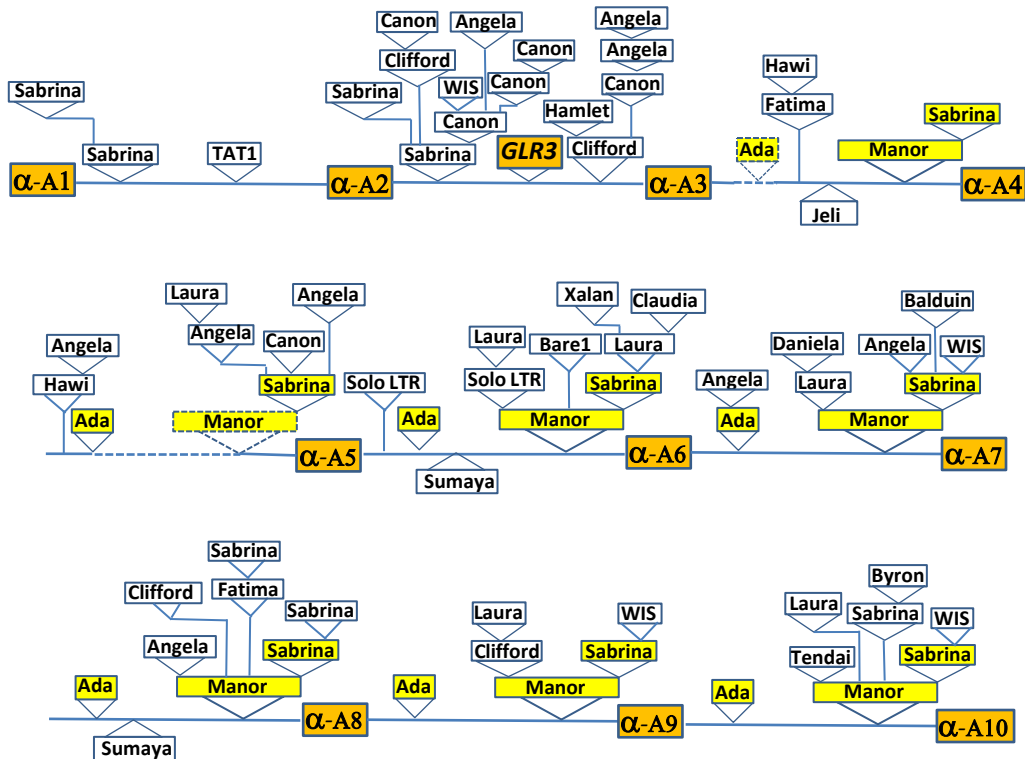


Figure S1. Genomic organization of the α -gliadin locus region in Chinese Spring A genome.

The genomic sequence containing α -gliadin genes was annotated as described in Materials and Methods. α -gliadin genes are represented by boxes filled with color. Retroelements are boxed with their names, and their insertion positions are indicated by triangles or solid vertical lines.

Retroelements shared in the intergenic regions between two α -gliadin genes are highlighted with yellow. Dashed lines indicate deleted sequences.

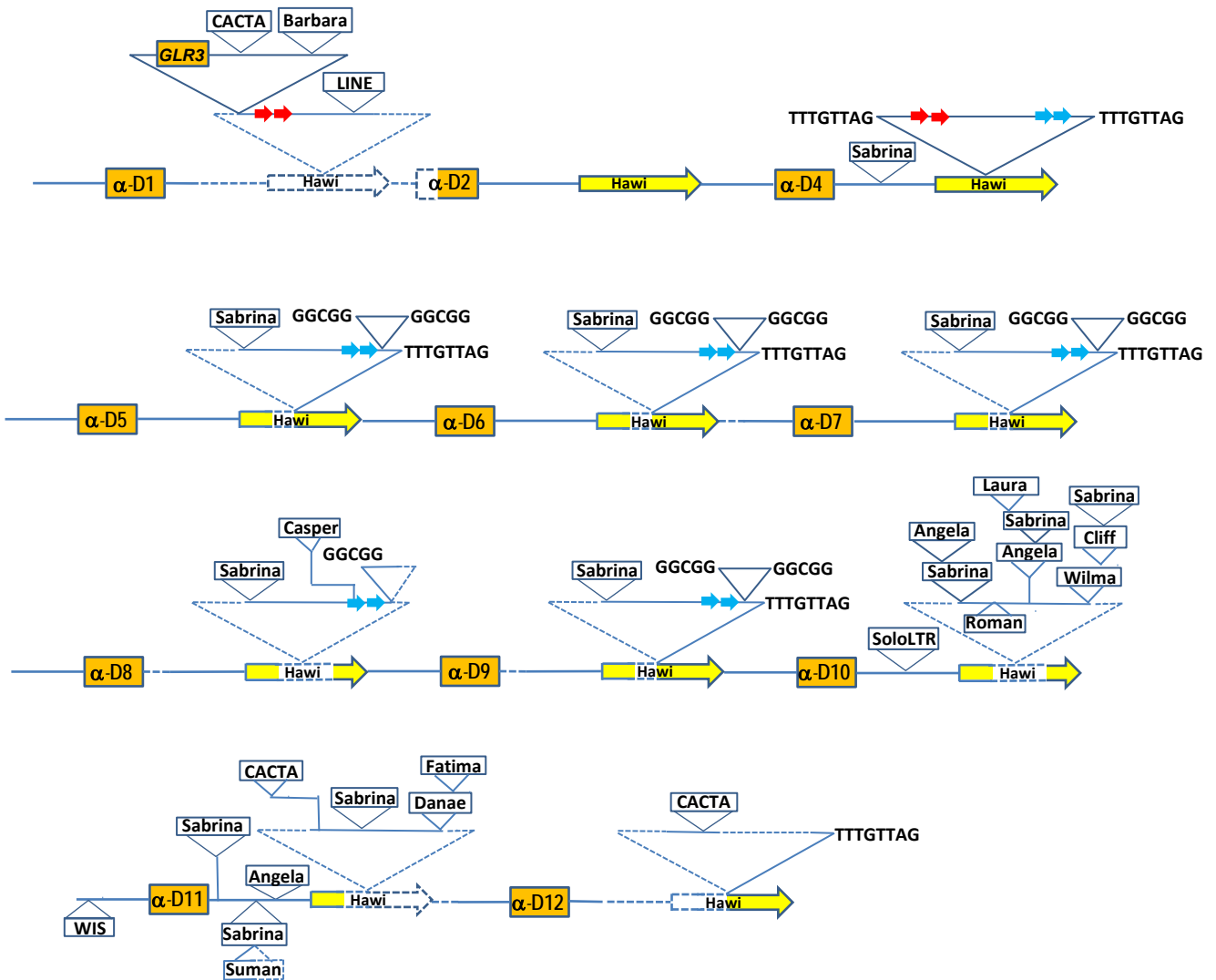


Figure S2. Genomic organization of the α -gliadin locus region in Chinese Spring D genome. The genomic sequence containing α -gliadin genes was annotated as described in Materials and Methods. α -gliadin genes are represented by boxes filled with color. *Hawi* repetitive DNA sequences are represented by yellow arrows. Two different tandem repeats in an inserted sequence and not found in the TREP repetitive element database, are indicated by the red- and blue-colored arrows. Dashed lines indicate deleted sequences. Retroelements are boxed with their names, and their insertion positions are indicated by triangles or solid vertical lines.

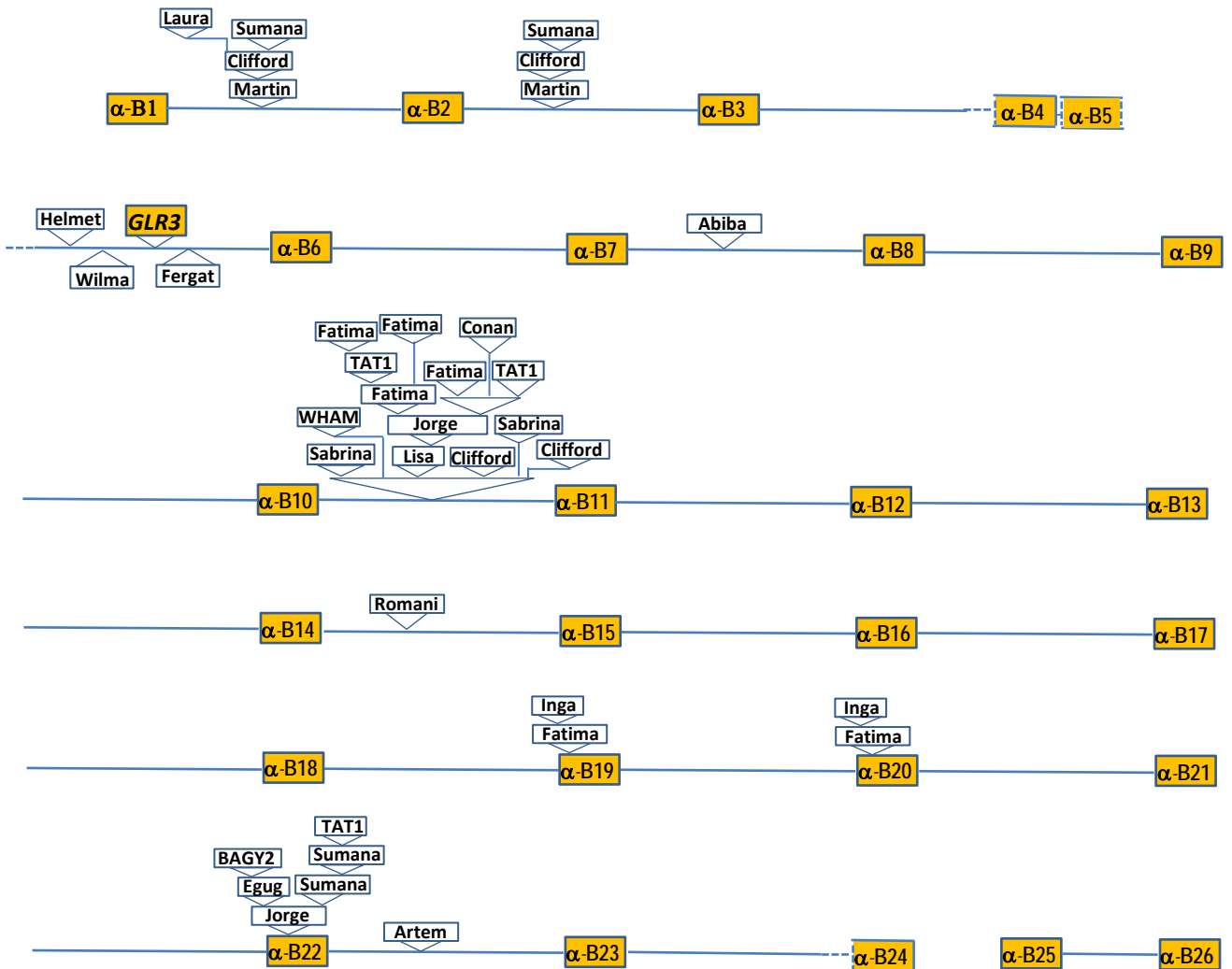


Figure S3. Genomic organization of the α -gliadin locus region in Chinese Spring B genome. The genomic sequence containing α -gliadin genes was annotated as described in Materials and Methods. α -gliadin genes are represented by boxes filled with color. Retroelements are boxed with their names, and their insertion positions are indicated by triangles or solid vertical lines. Dashed lines indicate deleted sequences.

Figure S4. Nucleotide and amino acid sequences of α -gliadin genes in Chinese Spring

α -A1 Nucleotide 885 bp

ATGAAGACTTTTCTCATCCTTGCCCTCCTTGCTATGTGGCGACCACTGCCACAACCTGCAGTTAGAGTTCCAGTGCCACAATTGCA
GCCGCAAAATCCATCTCTGCAGCAACCACAAGAGCAAGTTCCATTGGTGCAACAACAACAATTTCCAGGGCAGCAACAACATTTCC
CACCACAACAGCCATATCCGCAGCCGCAACCATTTCCAGCACAACAACCATATCCGCAGCCGCAACTATTTCCACAGCCGCAACCT
TTTCCGCCACAACCTCCATATCCGCAGCCGCAACCATTTCCCCCACAACAACCATATCCACAACCCGCAAAACACAGCATCTGCAACC
ACAACAACCAATTTTCGCAGCAACAAGCACA
AACAACCTGATTCCATGCAGGGATGTCATCGTCTTGCACAACAACAACATAGCGCATGAAAGCTCACAAGTATTGCAGCAAAAGTAGT
TACCAAGTGTGCAACAATTATGTTGTGTCAGCAGCTGCGGCAGATCCCCGAGCAGTCCGCGGTGCCAAGCCATCAACAATGTCGTTCA
TGCTATTATTCTGCATCAACAACAACAACAAGGACAACATCAACAGTTCGAGCCAGGTCTCCTACCAGCAGCCTCAGCAACAAT
ATCCATCAGGCCAGGGCTCCTTCCAGCCATCTCAGCAAAATCCACAGGCCAGGGCTTTGTCCAACCTCAACATCTGCCCAACTC
GAGGAAATAAGTAACCTAGCGCTGCAGACGCTACCAGCAATGTGCAATGTCTACATCCCTCCATATTGCTCGACCACCATTGCGCC
ATTTGGCATCTTCGGTACTAACTGA

α -A1 amino acid 295 aa

MKTFLLILALLAIVATTATTAVRVPVPLQLPQNPSLQQPQEQVPLVQQQQFPGQQQTFPPQQPYQPQPFPPAQQPYQPQLFPQPQP
FPPQLPYQPQPFPPQQPYQPQTQHLQPQPISQQQAQQQQQQQQQQILQQILQQQLIPCRDVIIVLQQHNI AHSSQVLQSS
YQVLQQLCCQQLRQIPEQSRCQAINNVVHAIILHQQQQQQGHQSSQVSYQQPQQQYPSGQSFQPSQQNPQAQGFVQPQHLPLQL
EEISNLALQTLPAMCNVYIPPYCSTTIAPFGIFGTN.

α -A2 nucleotide 957 bp

ATGAAGACATTTCTCATCATTTCCTCCTTGCTATCGTGGCGACCACCGCCACAACCTGCAGTTAGAGTTCCAGTGCCACAATTGCA
GCCGCAAAATCCATCTCTGCAACAACCACAAGAGCAAGTTCCATTGGTGCAACAACAACAATTTCCAGGGCAGCAACAACATTTCC
CACCACAACAACCATATCCGCAGCCGCAACCATTTCCAGGACAACAACCATATCCGCAGCCGCAACTATTTCCACAGCCGCAACCT
TTTCCGCCACAACCTCCATATCCGCAGCCGCAACCATTTCCCCCACAACAACCATATCCACAACCCGCAAAACACATCATCTGCAACC
ACAACAACCAATTTTCGCAGCAACAAGTACA
AACAACAACAACCTACTACTACAACAACAATCCTTCAACAATTTGCAACAACAACAACCTGATTCCATGCAGGGATGTCATCGTC
TTGCAACAACAACATAGCGCATGAAAGCTCACAAGTATTGCAGCAAAAGTAGTTACCAAGTGTGCAACAATTATGTTGTGTCAGCA
GCTGCGGCTGATCCCCGAGCAGTCCGCGGTGCCAAGCCATCCACAATGTCGTTTCATGCTATTATTCTACATCAACAACAACAACA
AACAACAACAACAACAAGGACAACATCAACCGTTCGAGCCAGGTCTCCTACCAGCAGCCTCAGCAACAATATCCATCAGGCCAG
GGCTCCTTCCAGCCATCTCAGCAAAATCCACAGGCCAGGGCTTTGTCCAACCTCAACATCTGCCCAACTCGAGGAAATAAGTAA
CCTAGCGCTGCAGACGCTACCAGCAATGTGCAATGTCTACATCCCTCCATATTGCTCGACCACCATTGCGCCATTTGGCATCTTCC
GTACTAACTGA

α -A2 amino acid 319 aa

MKTFLLIISLLAIVATTATTAVRVPVPLQLPQNPSLQQPQEQVPLVQQQQFPGQQQTFPPQQPYQPQPFPPAQQPYQPQLFPQPQP
FPPQLPYQPQPFPPQQPYQPQTTHLQPQPISQQVQQQQQQQQQQQQQQQQQQQLLLQQILQQILQQQLIPCRDVIIV
LQQHNI AHSSQVLQSSYQVLQQLCCQQLRLIPEQSRCQAIHNVVHAIILHQQQQQQGHQPSQVSYQQPQQQYPSGQ
GSFQPSQQNPQAQGFVQPQHLPLQLEEISNLALQTLPAMCNVYIPPYCSTTIAPFGIFGTN.

α -A3 nucleotide 865 bp

ATGAAGACATTTCTCATCCTTTCCCTCCTTGCTATCGTGGCAACCACCGCCACAACCTGCATTTAGAATTCTAGTGCCACAATTGCA
GCCACAATAATCCATCTTAGCAACAACCACAAGAGCAAGTTCCATTGGTACAACAACAGCAATTTCTAGGGCAGCAACAACCATTTCC
CACCACAACAACCATATCCACAGCCGCAACCATTTCCATCACAACAACCATATCTGCAGCTGCAACCATTTCCGCAGCCGCAACCA
CCATATTTCGCAGCCGCAACCATTTCCAGCACAATAACCATATCTCCACAACCCGCAACCACAGTATTTCGCAACCACAATAACCAATT
TCGCAGCAGCAACA
TGTTGTATTGCAGCAACAACATAGCGCATGGAAGATCACAAGTTTTCGCAACAAGTAGTTACCAGCTGTTGCAAGAATTGTGTT
TTCAGCACCTATGACAGATCCCTGAGCAGTCCGAGTCCGCAAGCCATCCACAATGTTGTCCATGCTATTATTCTGCATCAACAACA
AAACA
GGGCTCCTTCCGGCCATCTCTGCAAAATCCACAGGCCAGGGCTCGGTCCAGCCTCAACAGCTGCCAGTTCGAGGAAATAAGGAA

CCTAGCGCTACAGACGCTACCTGCAATGTGCAATCTCTACATCCCTCCATATTGCACCATCGCGCCATTTGGCATCTTCGGTACTA
ACTGA

α -A3 amino acid 295 aa

MKTFLLLSLLAIVATTATTAFRILVPLVQVPLVQQVFLGQQQPFPPQPPYPPQPPFPSQQPYLQLQVPPQPPQ
PYSQPQFFRPQ.PYL...QPQPQYSQPQ.PISQQQQQQQQQQQQILQQILQQQLIPCMDVVLQQHNIHGRSQVLQQSSYQLLQE
LCFQHL.QIPEQ...SQCQAIHNVVHAIILHQQQKQQQQQQKQQPSSQVVSFQQPQQQYPSGQGSFRPSLQNPQAQGSVQPQQLPS
S...IRNLALQTLPAMCNLYIPPYCTIAPFGIFGTN.

α -A4 nucleotide 852 bp

ATGAAGACATTTCTCATCCTTGCCCTCCTTGCTATCGTGGCGACCACCGCCACAACCTGCAGTTAGAGTTCCAGTGCCACAATTGCA
GCCACAAAATCCATCTCAGCAACAGTCACAAGAGCAAGTTCCATTGGTACAACAACAATTTCTAGGGCAGCAACAACCATTTTC
CACCACAACAACCATATCCACAGCCGCAACCATTTCCATCACAACAACCATATCTGCAGCTGCAACCATTTCCGAGCCGCAACTA
CCATATTCGAGCCACAACCATTTGACCACAACAACCATATCCACAACCGCAACCACAATATTCGCAACCACAACATCCAATTTTC
ACAGCAGCAGCAGCAGCAACAACAACAACAACAAGAACAACAATACTTCAACAAATTTTGAACAACAACCTGATTCCATGCA
TGGATGTTGATTGCAGCAACACAACATAGCGCATGGAAGATCACAAGTTTTGCAACAAGTACTTACCAGCTGTTGCAAGAATTG
TGTGTCAGCACCTATGGCAGATCCCTGAGCAGTCGAGTGCCAGGCCATCCACAATGTTGTTTCATGCTATTATTTCTGCGTCAACA
ACAAAAACAACAACAACCATCGAGCCAGGTCTCCTTCCAACAGCCTCAGCAACAATATCCATTAGGCCAGGGCTCCTTCCGGC
CATCTCAGCAAAACCCACAGGCCAGGGCTCTGTCCAGCCTCAACAACCTGCCCCAGTTTCGAGGAAATAAGGAACCTAGCGCTACAG
ACGCTACCTGCAATGTGCAATGTCTACATCCCTCCATATTGCACCATCGCGCCATTTGGCATCTTTGGTACTAACTAA

α -A4 amino acid 284 aa

MKTFLLLALLAIVATTATTAVRVPVPLVQVPLVQQVFLGQQQPFPPQPPYPPQPPFPSQQPYLQLQVPPQPPQ
PYSQPQFFRPQPPYPPQPPQYSQPQHPISQQQQQQQQQQQQEQQILQQILQQQLIPCMDVVLQQHNIHGRSQVLQQSTYQLLQEL
CCQHLWQIPEQSQCQAIHNVVHAIILRQQQKQQQQPSSQVVSFQQPQQQYPLGQGSFRPSQQNPQAQGSVQPQQLPFEEIRNLALQ
TLPAMCNVYIPPYCTIAPFGIFGTN.

α -A5 nucleotide 921 bp

ATGAAGACATTTCTCATCCTTGCCCTCCTTGCTATCGTGGCGACCACCGCCACAACCTGCAGTTAGAGTTCCAGTGCCACAATTGCA
GCCACAAAATCCATCTCAGCAACAGCCACAAGAGCAAGTTCCATTGGTACAACAACAATTTCTAGGGCAGCAACAACCATTTTC
CACCACAACAACCATATCCACAGCCGCAACCATTTCCATCACAACAACCATATCTGCAGCTGCAACCATTTCCGAGCCGCAACTA
CCATATTCGAGCCACAACCATTTGACCACAACAACCATATCCACAACCGCAACCACAGTATTCGCAACTACAACAACCAATTTTC
ACAGCAGCAGCAGCAGCAGCAACA
AACACAACAACAACAAGAACAACAATCCTTCAACAAATTTTGAACAACAACCTAATTCATGCATGGATGTTGTATTACAGCAA
CACAACATAGCGCATGGAAGATCACAAGTTTTGCAACAAGTACTTACCAGCTGTTGCAAGAATTGTGTTGTCAGCACCTATGGCA
GATCCCTGAGCAGTCGAGTGCCAGGCCATCCACAATGTTGTTTCATGCTATTATTTCTGCATCAACAACAACAACAACAACAACA
AACCATCGAGCCAGGTCTCCTTCCAACAGCCTCAACAACAATATCCATTAGGCCAGGGCTCCTTCCGGCCATCTCAGCAAAACCCA
CAGGCCAGGGCTCTGTCCAGCCTCAACAACCTGCCCCAGTTTCGAGGAAATAAGGAACCTAGCGCTACAGACGCTACCTGCAATGTG
CAATGTCTACATCCCTCCATATTGCACCATCGTGCCATTTGGCATCTTCGGTACTAACTGA

α -A5 amino acid 307 aa

MKTFLLLALLAIVATTATTAVRVPVPLVQVPLVQQVFLGQQQPFPPQPPYPPQPPFPSQQPYLQLQVPPQPPQ
PYSQPQFFRPQPPYPPQPPQYSQLQQPISQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQEQQILQQILQQQLIPCMDVVLQQ
HNIHGRSQVLQQSTYQLLQELCCQHLWQIPEQSQCQAIHNVVHAIILHQQQKQQQQPSSQVVSFQQPQQQYPLGQGSFRPSQQNP
QAQGSVQPQQLPFEEIRNLALQTLPAMCNVYIPPYCTIIVPFIFGTN.

α -A6 nucleotide 855 bp

ATGAAGACCTTTCTCATCCTTGCCCTCCTTGCTATCGTGGCGACCACCGCCACAACCTGCAGTTAGAGTTCCAGTGCCACAATTGCA
GCCACAACATCCATCTCAGCAACAGCCACAAGAGCAAGTTCCATTGGTACAACAACAATTTCTAGGGCAGCAACAACCATTTTC
CACCACAACAACCATATCCACAGCCGCAACCATTTCCATCACAACAACCATATCTGCAACTACAACCATTTCCGAGCCGCAACTA

CCATATTCGCAGCCACAACCATTTCGACCACAACAACCATATCCACAACCGCAACCACAGTATTCGCAACCACAACAACCAATTC
ACAGCAGCAGCAGCAGCAGCAACAACAACAACAACAACAACAACAACAATCCTTCAACAAATTTTGAACAACAACACTGATTCCAT
GCATGGATGTTGTATTGCAGCAACAACATAGCGCATGGAAGATCACAAGTTTTGCAACAAAGTACTTACCAGCTGTTACAAGAA
TTGTGTTGTGCAGCACCTATGGCAGATCCCTGAGCAGTCGCAGTGCAGGCCATCCACAATGTTGTTTCATGCTATTATTCTGCATCA
ACAACAAAACCACAACAACAACCATCGAGCCAGGTCTCCTTCCAACAGCCTCTGCAACAATATCCATTAGGCCAGGGCTCCTTCC
GGCCATCTCAGCAAAACCCACAGGCCCGGGGCTCTGTCCAGCCTCAACAACCTGCCCCAGTTTCGAGGAAATAAGGAACCTAGCGCTA
CAGACGCTACCCGCAATGTGCAATGTCTACATCCCTCCATATTGCACCATCGCGCCATTTGGCATCTTCGGTACTAACTGA

α -A6 amino acid 285 aa

MKTFLLILALLAIVATTATTAVRVPVPLQLPQHPSQQQPQEQVPLVQQQQFLGQQQPFPPQQPYQPQPFPSQQPYLQLQPFPPQPQL
PYSQPQFRPQQPYQPQYSPQQPISQQQQQQQQQQQQQQQILQQILQQQLIPCMDVVLQQHNIAGRSQVLQQSTYQLLQE
LCCQHLWQIPEQSQCQAIHNVVHAIILHQQQKQQQPSSQVVSFQQPLQQYPLGQGSFRPSQQNPQARGSVQPQLPQFEEIRNLAL
QTLPAMCNVYIPPYCTIAPFGIFGTN.

α -A7 nucleotide 873 bp

ATGAAGACCTTTCTCATCCTTGCCCTCCTTGCTATCGTGGCGACCACCGCCACAACCGCAGTTAGAGTTCAGTGCCACAATTGCA
GCCACAAAATCCATCTCAGCAACAGCCACAAGAGCAAGTTCATTGGTACAACAACAACAATTTCTAGGGCAGCAACAACATTTTC
CACCACAACAACCATATCCACAGCTGCAACCATTTCATCACAACAACCATATCTACAGCTGCAACCATTTCCGCAGCCGCAACTA
CCATATTCGCAGCCACAACCATTTCGACCACAACAACCATATCCACAACCGCAACCACAGTATTCGCAACCACAACAACCAATTTTC
ACAGCATCAACAGCAGCAGCAGCAACAACAACAACAACAACAACAACAACAATCCTTCAACAAATTTTGAACAACAACACTGATTC
CATGCATGGATGTTGTATTGCAGCAACAACATAGCGCAAGGAAGATCACAAGTTTTGCAACAAAGTACTTACCAGCTGTTGCAA
GAATTGTGTTGTCAGCACCTATGGCAGATCCCTGAGCAGTCGCAGTGCAGGCCATCCACAATGTTGTTTCATGCTATTATTCTGCA
TCAACAACAACAACAACAACAACAACAACAACAACAACAACCATCGAGCCAGGTCTCCTTCCAACAGCCTCAGCAACAATATCCAT
TAGGCTAGGGCTCCTTCCGGCCATCTCAGCAAAACCCACAGGCCAGGGCTCTGTCCAGCCTCAACAACCTGCCCCAGTTTCGAGGAA
ATAAGGAACCTAGCGCTACAGACACTACCTGCAATTTGCAATGTCTACATCCCTCCATATTGCACCATCGCGCCATTTGGCATCTT
CGGTACTAACTGA

α -A7 amino acid 291 aa

MKTFLLILALLAIVATTATTAVRVPVPLQLPQNPSQQQPQEQVPLVQQQQFLGQQQTFPPQQPYQPQPFPSQQPYLQLQPFPPQPQL
PYSQPQFRPQQPYQPQYSPQQPISQHQQQQQQQQQQQQQQILQQILQQQLIPCMDVVLQQHNIAGRSQVLQQSTYQLLQE
ELCCQHLWQIPEQSQCQAIHNVVHAIILHQQQKQQQQQQQPSSQVVSFQQPQQQYPLG.GSFRPSQQNPQAQGSVQPQLPQFEE
IRNLALQTLPAICNVYIPPYCTIAPFGIFGTN.

α -A8 nucleotide 864 bp

ATGAAGACCTTTCTCATCCTTGCCCTcCCTGCTATCGTGGCGACCACCGCCACAACCTGCAGTTAGAGTTCAGTGCCACAATTGCA
GCCACAAAATCCATCTCAGCAACAGCCACAAGAGCAAGTTCATTGGTACAACAACAACAATTTCTAGGGCAGCAACAACCATTTTC
CACCACAACAACCATATCCACAGCCGCAACCATTTCATCACAACAACCATATCTGCAGCTGCAACCATTTCCGCAGCCGCAACTA
CCATATTCGCAGCCACAACCATTTCGACCACAACAACCATATCCACAACCGCAACCACAGTATTCGCAACCACAACAACCAATTTTC
ACAGCAGCAGCAGCAGCAGCAACA
TGATTCCATGCATGGATGTTGTATTGCAGCAACAACATAGCGCATGGAAGATCACAAGTTTTGCAACAAAGTACTTACCAGCTG
TTGCAAGAATTGTGTTGTCAGCACCTATGGCAGATCCCTGAGCAGTCGCAGTGCAGGCCATCCAAAATGTTGTTTCATGCTATTAT
TCTGCATCAACAACAACAACAACAACAACAACCATCGAGCCAGGTGTCTTCCAACAGCCTCTGCAACAATATCCATTAGGCCAGG
GCTCCTTCCGGCCATCTCAGCAAAACCCACAGGACCAGGGCTCTGTCCAGCCTCAACAACCTGCCCCAGTTTCGAGGAAATAAGGAAC
CTAGCGCTACAGATGCTACCTGCAATGTGCAATGTCTACATCCCTCCATATTGCACAATCGCGCCATTTGGCATCTTCGGTACTAA
CTGA

α -A8 amino acid 288 aa

MKTFLLILALPAIVATTATTAVRVPVPLQLPQNPSQQQPQEQVPLVQQQQFLGQQQPFPPQQPYQPQPFPSQQPYLQLQPFPPQPQL
PYSQPQFRPQQPYQPQYSPQQPISQQQQQQQQQQQQQQQKQILQQILQQQLIPCMDVVLQQHNIAGRSQVLQQSTYQL
LQELCCQHLWQIPEQSQCQAIQNVVHAIILHQQQKQQQPSSQVVSFQQPLQQYPLGQGSFRPSQQNPQDQGSVQPQLPQFEEIRN
LALQMLPAMCNVYIPPYCTIAPFGIFGTN.

α -A9 nucleotide 894 bp

ATGAAGACCTTTCTCATCCTTGCCCTCCTTGCTATCGTGGCGACCACCGCCACAACCTGCAGTTAGAGTTCCAGTGCCACAATTGCA
GCCACAAAATCCATCTCAGCAACAGCCACAGGAGCAAGTTCAGTGGTACAACAACAACAATTTCTAGGGCAGCAACAACCATTTCC
CACCACAACAACCATATCCACAGCCGCAACCATTTCCATCACAACAACCATATCTGCAGCTGCAACCATTTCCGCAGCCGCAACTA
CCATATTCGCAGCCACAACCATTTCAACCACAACAACCATATCCACAACCGCAACCACAGTATTCGCAACCACAACAACAATTTCC
ACAGCAGCAGCAGCAGCAGCAGCAGCAGCAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACA
TTTTGCAACAACAACCTGATTCCATGCATGGATGTTGTATTGCAGCAACAACAACAACAACAACAACAACAACAACAACAACAACA
AGTACTTACCAGCTGTTGCAAGAATTTGTGTTGTCTAGCAGCCTATGGCAGATCCCTGAGCAGTGCAGTGCAGGCCATCCACAATGT
TGTTCATGCTATTATTTCTGCATCAACA
AGCCTCAGCAACAATATCCATTAGGCCAGGGCTCCTTCCGGCCATCTCAGCAAAAACCCACAGGCCAGGGCTCTGTCCAGCCTCAA
CAACTGCCCCAGTTCGAGGAAATAAGGAACCTAGCGCTACAGACACTACCTGCAATTTGCAATGTCTACATCCCTCCATATTGCAC
CATCGCGCCATTTGGCATCTTCGGTACTAACTGA

α -A9 amino acid 298 aa

MKTFLLILLALLAIVATTATTAVRVPVLPQLPQNPSQQQPQEQVPLVQQQFLGQQQFPFPQQPYQPQPFPSQQPYLQLQFPFPQPL
PYSQPQFPFPQQPYQPQPYSPQYSPQEPISQQQQQQQQQQQQQQQQQQQQQQILQQILQQQLIPCMDVVLQQHNIHQGRSQVLQQ
STYQLLQELCCQHLWQIPEQSQCQAIHNVVHAILLHQQQKQQQQPSSQVFSFQQPQQYPLGQGSFRPSQQNPDQGSVQPPQ
QLPQFEEIRNLALQTLPAICNVYIPYCTIAPFGIFGTN.

α -A10 nucleotide 840 bp

ATGAAGACCTTTCTCATCCTTGCCCTCCTTGCTATCGTGGCGACCACCGCCACAACCTGCAGTTAGAGTTCCAGTGCCACAATTGCA
GCCACAAAATCCATCTCAGCAACAGCCACAAGAGCAAGTTCATTGGTACAACAACAACAATTTCTAGGGCAGCAACAACCATTTCC
CACCACAACAACCATATCCACAGCCGCAACCATTTCCATCACAACAACCATATCTGCAGCTGCAACCATTTCCGCAGCCGCAACTA
CCATATTCGCAGCCACAACCATTTGACCACAACAACCATATCCACAACCGCAACCACAGTATTCGCAACCACAAGAACAATTTCC
ACAGCAGCAGCAACA
TGCAGCAACA
CTATGGCAGATCCCTGAGCAGTGCAGTGCAGGCCATCCAAAATGTTGTTTCATGCTATTATTTCTGCATCAACAACAACAACAACA
ACAACAACCATCGAGCCAGGTCTCCTTCCAACAGCCTCTGCAACAATATCCATTAGGCCAGGGCTCCTTCCGGCCATCTCAGCAAAA
ACCCACAGGACCAGGGCTCTGTCCAGCCTCAACAACCTGCCCCAGTTCGAGGAAATAAGGAACCTAGCGCTACAGACGCTACCTGCA
ATGTGCAATGTCTACATCCCTCCATATTGCACCATCGCGCCATTTGGCATCTTCGGTACTAACTGA

α -A10 amino acid 280 aa

MKTFLLILLALLAIVATTATTAVRVPVLPQLPQNPSQQQPQEQVPLVQQQFLGQQQFPFPQQPYQPQPFPSQQPYLQLQFPFPQPL
PYSQPQFPFPQQPYQPQPYSPQYSPQEPISQQQQQQQQQQQQQQQQQQQQQQILQQILQQQLIPCMDVVLQQHNIHQGRSQVLQQ
LWQIPEQSQCQAIQNVVHAILLHQQQKQQQQPSSQVFSFQQPQQYPLGQGSFRPSQQNPDQGSVQPPQQLPQFEEIRNLALQTLPA
MCNVYIPYCTIAPFGIFGTN.

α -B1 Nucleotide 909 bp

ATGAAGACCTTTCTCATCTTTTCCCTCCTTGCTATCGTGGCGACCCTGCAACAACCTGCAGTTAGAGTTCCAGTGCCACAATTGCA
GCCGCAAAAATCCATCTCAGCAACAACCACAAGAGCAAGTTCGGTGGTGAACAACAACAATATCCAGGGCAGCAACAACCATTTCC
CACCACAACAACCATATCCGCAGCCGCAACCATTTCCATCACAACAACCATTTCTGCAGCCGCAACCATTTCTGTACAACCTACCA
TATCCGCAGCCACAACCATTTCCACCACAACAACCATATCCACAACCGCAACCACAGTATCCGCACCAACAACAACAATTTCCACA
GCAACAAGCGCAACAAGCACA
AGTAGTTACCAACTGTTGCAACAATATGTTGTCAACGGTTGTGGCAGATCCCCGAGCAGTCCGGTGCCAAGCCATCCACAATGT
CGTTCATGCTATTATTTCTGCAACA
CCTACCAGCAGCCTCAGCAACAATATCCATCGGGCCAGGGCTCCTTCCAGCCATCTCAGCAGAACCATAGGCCAGGGCTCTGTCT
CAGTCTCAACAACCTCCCCAGTTCGAGGAAATAAGGAACCTAGTGTGCAGACGCTACCGCAATGTGCAATGTCTACATCCCTCC
ATATTGCTCGACCACCATTGCGCCATCTGGCATCTTCGGTACTAACTGA

α -B1 amino acid 303 aa

MKTFLIFSLLAIVATTATTAVRVPVPLQLPQNPSQQQPQEQVPLVQQQQYPGQQQPFPPQQPYQPQPFPSQQPFLQPQPFLQLLP
YPQPQFPFPQQPYQPQPQYQPQQPISQQQAQQAQQQQQQQQQQ.Q.QQQQILQQILQQQQLIPCRDVLVQQHNI AHASSQVLQQ
SSYQLLQQQLCCQRLWQIPEQSRQAIHNVVHAIILQQQQQQQQQQQQQQQQQQPSSQVSYQQPQQQYPSGQGSFQPSQQNP.A.QGSV
QSQQLPQFEEIRNLVLQTL PAMCNVYIPPYCSTTIAPSGIFGTN.

α -B2 nucleotide 885 bp

ATGAAGACCTTTTCTCATCTTTTCCCTCCTTGCTATCGTGGCGACCACTCCAACAACCTGCAGTTAGATTTCCAGTGCCACAATTGCA
GCCGCAAAAATCCATCTCAGCAACAACCAAGAGCAAGTTCCGTTGGTGCAACAACCTACAATATCCAAGGCAACAACAACCATTTTC
CACCACAACAGCCATATCCGCAGCCGCAACCATTTCCATCACAACAACCATTTGCCGCAACGGCAACCATTTCTGCCACAACCTACCA
TATCCGCAGCCACAACCATTTCCACCACAACAACCATATCCACAACCGCAACCACAGTATCCACAACCACAACAACCAATTTTCCACA
GCAACAAGCACAATAAGCACA
AACAACTAATTCCATGCAGGGATGTCGTCTTGCAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACA
CAACTGTTGCAACAATTATGTTGTCAACGGTTGTGGCAGATCCCCGAGCAGTCGCGGTGCCAAGCCATCCACAATGTTGTTTCATGC
TATTATTTCTGCAACAACAACAACAACAACAACAACAACAACAACAACAACCGTCGAGCCAGGTCTCCTACCAGCAGCCTCAGCAACAAT
ATCCATCGGGCCAGGGCTCCTTCCAGCCATCTCAGCAGAACCATAGGCCTAGGGCTCTGTCCAGTCTCAACAACCTCCCCAGTTC
GAGGAAATAAGGAACCTAGCGCTGCAGACGCTACCGGCAATGTGCAATGTCTACATCCCTCCATATGCTCGACCACCATTGGCC
ATCTGGCATCTTTCGGTACTAACTGA

α -B2 amino acid 295 aa

MKTFLIFSLLAIVATTPTTAVRFPVPLQLPQNPSQQQPQEQVPLVQQQLQYPRQQQPFPPQQPYQPQPFPSQQPLPQRQPFLPQLP
YPQPQFPFPQQPYQPQPQYQPQQPISQQQAQ.AQQQQQQQQQQQQQQQILQQILQQQQLIPCRDVLVQQHNI AHASSQVLQQSSY
QLLQQQLCCQRLWQIPEQSRQAIHNVVHAIILQQQQQQQQQQQQQQPSSQVSYQQPQQQYPSGQGSFQPSQQNP.A.GSVQSQQLPQF
EEIRNLALQTL PAMCNVYIPPYCSTTIAPSGIFGTN.

α -B3 nucleotide 993 bp

ATGAAGACCTTTTCTCATCCTTTCCCTCCTTGCTATCGTGGCGACCACTGCCACAACCTGCAGTTAGATTTCCAGTGCCACAATTGCA
GCCGCAAAAATCCATCTCAGCAACAACCAAGAGCAAGTTCCGTTGGTGCAACAACCTACAATATCCAGGGCAACAACAACCATTTTC
CACCACAACAGCCATATCCGCAGCCGCAACCATTTCCATCACAACAACCATTTGCCGCAACCGCAACCATTTCTGCCACAACCTACCA
TATCCGCAGCCACAACCATTTCCACCACAACAACCATATCCACAACCGCAACCACAGTATCCGCAACCACAACAACCAATTTTCCACA
GCAACAAGCACAACAAGCACA
TGCAACAACAACAACCTGATTCCATGCAGGGATGTCGTCTTGCAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACA
AGTAGTTACCAACTGTTGCAACAATTATGTTGTCAACGTTTGTGGCAGATCCCCGAGCAGTCGCGGTGCCAAGCCATCCACAATGT
CGTTCATGCTATTATTTCTGCAACA
AACACA
TACCAGCAGCCTCAGCAACAATATCCATCGGGCCAGGGATCCTTCCAGCCATCTCAGCAGAACCACAGGCCCAGGCTCTGTCCA
GCCTCAACAACCTCCCAGTTCCGAGGAAATAAGGAATCTAGCACGGCAGACGCTACCGGCAATGTGCAATGTCTACATCCCTCCAT
ATTGCTCGACCACCATTGCGCCATCTGGCATCTTTGGTACTAACTGA

α -B3 amino acid 331 aa

MKTFLILSLLAIVATTATTAVRFPVPLQLPQNPSQQQPQEQVPLVQQQLQYPGQQQPFPPQQPYQPQPFPSQQPLPQPQPFLPQLP
YPQPQFPFPQQPYQPQPQYQPQQPISQQQAQQAQQQQQQQQQQQQQQQQQQILQQILQQQQLIPCRDVLVQQHNI AHASSQVLQQ
SSYQLLQQQLCCQRLWQIPEQSRQAIHNVVHAIILQQPSSQV
YQQPQQQYPSGQGSFQPSQQNPQAQASVPQQLPQFEEIRNLARQTL PAMCNVYIPPYCSTTIAPSGIFGTN.

α -B4 nucleotide 546 bp

CAACA
CGTCTTGAACA
AACGGTTGTGGCAGATCCCCGAGCAGTCGCGGTGCCAGCCATCCACAATGTCTCCATGCTATTATTCTGCAACAACAACAACAACA
CAACA
ACAGTATCCATCAGGCCAGGGCTCCTTCCAGCCATCTCAGCAAAAACCACAGGCCAGGGCTCTGTCCAGCCTCAACAACCTGCC
AGTTCGAGGAAATAAAGAACCTAGCGCTGCAGACGCTACCGGCAATGTGCAATTTCTACATCCCTCCATATTGCTCGACCACCATT
GCGCCATTTGGCATCTTTCGGTACTAACTGA

α -B4 amino acid 182 aa

QQQQQQILQQILQQILQQQQQLIPCRDVLKQHNIAHASSQVLQQSSYQLLQQLCCQRLWQIPEQSRCQAIHNVVHAIILQQQQQ
QQQQQQQQQQQQQQPSSQISLQQPQQQYPSGQGSFQPSQQNPQAQGSVQPQQLPQFEEIKNLALQTLPAMCNFYIPPYCSTTI
APFGIFGTN.

α -B5 nucleotide 437 bp

TGATTCCATGCAGGGATGTCGTCTTGAACAACACAACATAGCGCATGCAAGCTCACAAGTATTGCAACAAAGTAGTTACCAACTA
TTGCAACAATTATGTTGTCAACGGTGTGGCAGATCCCCGAGCAGTCGCGGTGCCAGGCCATCCACAATGTCGTCCATGCTATTAT
TCTGCAACCCTCGAGCCAGATCT
CCCTCCAGCAGCCTCAACAACAGTATCCATCAGGCCAGGGCTCCTTCCAGCCATCTCAGCAAAACCCACAGGCCAGGGCTCTGTC
CAGCCTCAACAACCTGCCCCAGTTCGAGGAAATAAAGAACCTAGCGCTGCAGACGCTACCGGCAATGTGCAATTTCTACATCCCTCC
ATATTGC

α -B5 Amino acid 145 aa

IPCR DVLKQHNIAHASSQVLQQSSYQLLQQLCCQRLWQIPEQSRCQAIHNVVHAIILQQQQQQQQQQQQQQQQQQQQPSSQIS
LQQPQQQYPSGQGSFQPSQQNPQAQGSVQPQQLPQFEEIKNLALQTLPAMCNFYIPPYC

α -B6 nucleotide 957 bp

ATGAAGACCTTTCTCATCCTTGCCCTCGTGGCGACCACCGCCACAACCTGCAGTTAGAGTTCAGTGCCACAATTGCAGCCACAAAA
TCCATCTCAGCAACAGCCACAAGAGCAAGTTCATTGGTACAACAACAACAATTTCAGGGCAGCAACAACAATTTCACCACAAC
AGCCATATCCGAGCCGCAACCATTTCCATCACAACAACCATATCTGCAGCTGCAACCATTTCCGAGCCGCAACCATTTCTGCCA
CAACTACCATATCCGAGCCGCAATCATTTCACCACAACAACCATATCCACAACAGCGACCAAGTATCTACAACCACAACAACC
AATTTGCGAGCAACAAGCACA
AAATTTGCAACAACAACCTGATTCCATGCAGGGATGTTATCTTGAACAACAACAACAACAACAACAACAACAACAACAACAACA
CAAAGTACTTACCAGCTATTGCAACAATTGTGTTGTCAACAACCTGTTGCAGATCCCTGAGCAGTCGAGGTGCCAAGCCATACATA
TGTGTTTCATGCTATTATTATGCATCAACAAGAACAACAACAACAGTTGCAACAACAACAACAACAGCAACTGCAACAACAACA
AACACAACAACAACAACAACAACAACAACAACAACAACCTCAAGCCAGGTCTCCTTCCACAGCCTCAGCAGCAATATCCATCAAGCCAG
GTCTCCTTCCAGCCATCTTAGCTAAACCCACAAGCTCAGGGCTCCGTCCAACCTCAACAACCTGCCCCAGTTCGCGGAAATAAGGAA
CCTAGCGCTACAGACGCTACCTGCAATGTGCAATGTCTACATCCCTCCACATTGCTCGACCACCATTTGCGCCATTTGGCATCTTTG
GTACCAACTGA

α -B6 amino acid 319 aa

MKTFLLILALVATTATTAVRVPVLPQPNPSQQQPQEQVPLVQQQFPGQQQFPPQQPYPQPQFPFSSQQPYLQLQFPFPQPFLP
QLPYPQPQSFPPQQPYPQQRPKYLQPPQISQQQAQQQQQQQQQQQQQQQQQQQQILQQILQQQLIPCRDVLKQHNIAHASSQVLQ
QSTYQLLQQLCCQQLLQIPEQSRCQAIHNVVHAIIMHQEQEQQQQLQQQQQQQLQQQQQQQQQQQQQQPSSQVVSFQPPQQQYPSQ
VSFQPS.LNPPQAQGSVQPQQLPQFAEIRNLALQTLPAMCNVYIPPHCSTTIAPFGIFGTN.

α -B7 nucleotide 942 bp

ATGAAGACCTTTCTCATCCTTGCCCTCCTTGCTATCGTGGCGACCACCGCCACAACCTGCAGTTAGAGTTCAGTGCCACAATTGCA
GCCACAAAATCCATCTCAGCAACAGCCACAAGAGCAAGTTCATTGGTACAACAACAACAATTTCAGGGCAGCAACAACAATTTC
CACCACAACAGCCATATCCGAGCCGCAACCATTTCCATCACAACAACCATATCTGCAACTGCAACCATTTCCGAGCCGCAACCA
TTTCCGCCACAACCTACCATATCCGAGCCGCAATCATTTCACCACAACAACCATATCCACAACAGCAACCACAGTATCTACAACC
ACAACAACCAATTTGCGAGCAACAAGCACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACA
TTTTGCAACAACAACCTGATTCCATGCAGGGATGTTGTCTTGAACAACAACAACAACAACAACAACAACAACAACAACAACA
AGTACTTACCAGCTATTGCAACAATTGTGTTGTCAACAACCTGTTGCAGATCCCTGAGCAGTCGAGGTGCCAAGCCATCCATAATGT
TGCTCATGCTATTATTATGCATCAACA
AACACAACGACAACAACCGTTCGAGCCAGGTCTCCTTCCAACAGCCTCAGCAGCAATATCCATCAAGCCAGGTCTCCTTCCAGCCA
TCTCAGCTAAACCCACAGGCTCAGGGCTCCGTCCAACCTCAACAACCTGCCCCAGTTCGCGGAAATAAGGAACCTAGCGCTACAGAC
GCTACCTGCAATGTGCAATGTCTACATCCCTCCACATTGCTCGACCACCATTTGCGCCATTTGGCATCTTTGGTACCAACTGA

α -B7 amino acid 314 aa

MKTFLLILALLAI VATTATTAVRVPVLPQPNPSQQQPQEQVPLVQQQFPGQQQFPPQQPYPQPQFPFSSQQPYLQLQFPFPQP
FPPQLPYPQPQSFPPQQPYPQQRPKYLQPPQISQQQAQQQQQQQQQQQQQQQQQQQQILQQILQQQLIPCRDVLKQHNIAHASSQVLQQ
STYQLLQQLCCQQLLQIPEQSRCQAIHNVVHAIIMHQEQEQQQQLQQQQQQQLQQQRQQPSSQVVSFQPPQQQYPSQVVSFQ
SFLNPPQAQGSVQPQQLPQFAEIRNLALQTLPAMCNVYIPPHCSTTIAPFGIFGTN.

α -B8 nucleotide 951 bp

ATGAAGACCTTTTCTCATCCTTGCCCTCGTGGCGACCACCGCCACAACCTGCAGTTAGAGTTCAGTGCCACAATTGCAGCCAAAAA
TCCATCTCAGCAACAGCCACAAGAGCAAGTTCATTGGTACAACAACAATTTCCAGGGCAGCAACAACAATTTCCACCACAAC
AGCCATATCCGCAGCCGCAACCATTTCCATCACAACAACCATATCTGCAGCTGCAACCATTTCCGCAGCCGCAACCATTTCTGCCA
CAACTACCATATCCGCAGCCGCAATCATTCCACCACAACAACCATATCCACAACAGCGACCAAAGTATCTACAACCACAACAACC
AATTTTCGCAGCAACAAGCACAATCCTTC
AACAAATTTTGCAACAACAACCTGATTCATGCAGGGATGTTGTCTTGCAACAACAACATAGCGCATGCAAGCTCACAAGTTTTG
CAACAAAGTACTTACCAGCTATTGCAACAATGTGTGTGCAACAACCTGTTGCAGATCCCTGAGCAGTCGAGGTGCCAAGCCATCCA
TAATGTTGTTTCATGCTATTATTATGCATCAACAAGAACAACAACAACAGTTGCAACAACAACAACAACAGCAACTGCAACAACAAC
AACACAACAACAACAACAACAACAACCGTCAAGCCAGGTCTCCTTCCAACAGCCTCAGCAGCAATATCCATCAAGCCAGGTCTCC
TTCAGCCATCTCAGCTAAACCCACAAGCTCAGGGTCCGTCCAACCTCAACAACCTGCCCCAGTTCGCGGAAATAAGGAACCTAGC
GCTACAGACGCTACCTGCAATGTGCAATGTCTACATCCCTCCACATTGCTCGACCACCATTGCGCCATTTGGCATCTTTGGTACCA
ACTGA

α -B8 amino acid 317 aa

MKTFLLILALVATTATTAVRVPVPLQPKNPSQQQPQEQVPLVQQQQFPGQQQFPPQQPYQPQPFPSQQPYLQLQPPFPQPFLP
QLPYPQPSFPPQQPYPQQRPKYLPQQPISQQQAQQQQQQQQQQQQQQQQQQILQQILQQQLIPCRDVLVQQHNIHASSQVLQ
QSTYQLLQQLCCQQLLQIPEQSRQAIHNVVHAIIMHQEQQQQLQQQQQQQLQQQQQQQQQQPSSQVSVFQQPQQQYPSQVSV
FQPSQLNPQAQGSVQPQQLPQFAEIRNLALQTLPAMCNVYIPPHCSTTIAPFGIFGTN.

α -B9 nucleotide 942 bp

ATGAAGACCTTTTCTCATCCTTGCCCTCCTTGCTATCGTGGCGACCACCGCCACAACCTGCAGTTAGAGTTCAGTGCCACAATTGCA
GCCACAAAATCCATCTCAGCAACAGCCACAAGAGCAAGTTCATTGGTACAACAACAATTTCCAGGGCAGCAACAACAATTTTC
CACCACAACAGCCATATCCGCAGCCGCAACCATTTCCATCACAACAACCATATCTGCAACTGCAACCATTTCCGCAGCCGCAACCA
TTTCCGCCACAACCTACCATATCCGCAGCCGCAATCATTCCACCACAACAACCATATCCACAACAGCAACCCACAGTATCTACAACC
ACAACAACCAATTTTCGCAGCAACAAGCACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAATCCTTCAACAAA
TTTTGCAACAACAACCTGATTCCATGCAGGGATGTTGTCTTGCAACAACAACATAGCGCATGCAAGCTCACAAGTTTTGCAACAA
AGTACTTACCAGCTATTGCAACAATGTGTGTGCAACAACCTGTTGCAGATCCCTGAGCAGTCGAGGTGCCAAGCCATCCATAATGT
TGCTCATGCTATTATTATGCATCAACAACAACAACAACAAGAACAACAACAACAGTTGCAACAACAACAACAGCAGCAACTGC
ATCAACAACGACAACAACCTCAGCCAGGTCTCCTTCCAACAGCCTCAGCAGCAATATCCATCAAGCCAGGTCTCCTTCCAGCCA
TCTCAGCTAAACCCACAGGCTCTGTCCAACCTCAACAACCTGCCCCAGTTCGCGGAAATAAGGAACCTAGCGCTACAGCA
GCTACCTGCAATGTGCAATGTCTACATCCCTCCACATTGCTCGACCACCATTGCGCCATTTGGCATCTTTGGTACCAACTGA

α -B9 amino acid 314 aa

MKTFLLILALLAIVATTATTAVRVPVPLQPKNPSQQQPQEQVPLVQQQQFPGQQQFPPQQPYQPQPFPSQQPYLQLQPPFPQP
FPPQLPYPQPSFPPQQPYPQQRPKYLPQQPISQQQAQQQQQQQQQQQQQQQQILQQILQQQLIPCRDVLVQQHNIHASSQVLQ
STYQLLQQLCCQQLLQIPEQSRQAIHNVVHAIIMHQEQQQQLQQQQQQQLHQRRQQPSSQVSVFQQPQQQYPSQVSVFQ
SQLNPQAQGSVQPQQLPQFAEIRNLALQTLPAMCNVYIPPHCSTTIAPFGIFGTN.

α -B10 nucleotide 942 bp

ATGAAGACCTTTTCTCATCCTTGCCCTCCTTGCTATCGTGGCGACCACCGCCACAACCTGCAGTTAGAGTTCAGTGCCACAATTGCA
GCCACAAAATCCATCTCAGCAACAGCCACAAGAGCAAGTTCATTGGTACAACAACAATTTCCAGGGCAGCAACAACAATTTTC
CACCACAACAGCCATATCCGCAGCCGCAACCATTTCCATCACAACAACCATATCTGCAACTGCAACCATTTCCGCAGCCGCAACCA
TTTCCGCCACAACCTACCATATCCGCAGCCGCAATCATTCCACCACAACAACCATATCCACAACAGCAACCCACAGTATCTACAACC
ACAACAACCAATTTTCGCAGCAACAAGCACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAATCCTTCAACAAA
TTTTGCAACAACAACCTGATTCCATGCAGGGATGTTGTCTTGCAACAACAACATAGCGCATGCAAGCTCACAAGTTTTGCAACAA
AGTACTTACCAGCTATTGCAACAATGTGTGTGCAACAACCTGTTGCAGATCCCTGAGCAGTCGAGGTGCCAAGCCATCCATAATGT
TGCTCATGCTATTATTATGCATCAACAACAACAACAACAAGAACAACAACAACAGTTGCAACAACAACAGCAGCAGCAACTGC
AACACAATGACAACAACCGTTCAGCCAGGTCTCCTTCCAACAGCCTCAGCAGCAATATCCATCAAGCCAGGTCTCCTTCCAGCCA
TCTCAGCTAAACCCACAGGCTCCGTCCAACCTCAACAACCTGCCCCAGTTCGCGGAAATAAGGAACCTAGCGCTACAGCA
GCTACCTGCAATGTGCAATGTCTACATCCCTCCACATTGCTCGACCACCATTGCGCCATTTGGCATCTTTGGTACCAACTGA

α -B10 amino acid 314 aa

MKTFLLILALLAIVATTATTAVRVPVPLQPKNPSQQQPQEQVPLVQQQQFPGQQQFPPQQPYQPQPFPSQQPYLQLQPPFPQP
FPPQLPYPQPSFPPQQPYPQQRPKYLPQQPISQQQAQQQQQQQQQQQQQQQQILQQILQQQLIPCRDVLVQQHNIHASSQVLQ

STYQLLQQLCCQQLLQIPEQSRQAIHNVHAHAIIMHQOQQOQQEQOQQQLQOQQOQQQLQQO .QQPSSQVVSFQQPQQQYPSSQVFFQP
SQLNPPAQGSVQPPQQLPQFAEIRNLALQTLPAMCNVYIPPHCSTTIAPFGIFGTN .

α -B11 nucleotide 879 bp

ATGAAGACCTTTTCTATCCTTGCCCTCCTTGCTATCGTGGCGACCACCACCACAACCTGCAGTTAGAGTTCCAGTGCACATAATTGCA
GCCACAAAATCCATCTCAGCAACAACCACAAGAGCAAGTTCATTGGTGAACAACAACAATTTCTAGGGCAGCAACAACAACAAT
TTCCAGGGCAACAACAACCATTTCACCACAACAGCCATATCCGAGCCGCAACCAATTTCTGCCACAACCTACCATATCCGAGCCG
CAACCATTTCACCACAACAATCATATCCACAACCACAACCACAATATCCGCAACCACAACAACCAATTTTCGACAGCAACAAGCACA
ACTACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAATCCTTCAACAATTTCTGCAACAACAACCTGATTCCATGCAGGG
ATGTCGTCTTGCAACAACCAATATAGCACATGCAAGCTCAAAGTATCGCAACAAGTTACCACTGTTGCAACAATTATGTTGT
CTGCAACTGTGGCAGACCCCGAGCAGTCACGGTCCAAGCCATCCACAATGTCAATCATGCTATTATTTGTCATCATCAACAACA
ACAACAACAACAACAACAACAACAACAACAACAACAACCCTGAGCCAGGTCCTACCAGCAGCCTCAGCAACAATATCCAT
CAGGCCAGGGCTTCTTCCAGCCATCTCAGCAAAACCCACAGGCCAGGGCTTTGTCCAACCTCAGCAACTGCCGAGTTCGAGGAA
ATAAGGAACCTAGCGTGCAGACGCTACCAGCAATGTGCAATGTCTACATCCCTCCATATTGCTCGACCACCATTGCGCCATTG
CATCATGAGTACTAACTGA

α -B11 amino acid 293 aa

MKTFLILALLAIVATTTTTAVRVPVLPQNPSSQQQPQEQVPLVQQQQFLGQQQQQFPQQQPPFPQQPPYPQPQPFLPQLPYPQP
QPPFPQQSYPPQPYPQPQQPISQQQAQLQQQQQQQQQQQQQILQQILQQQLIPCRDVVLLQPNIAHASSKVSQQSYQLLQQLCC
LQLWQTPEQSRQAIHNVIAHAIILHHQQOQQOQQOQQOQQQPPSSQVSYQQPQQQYPSGGQGFQPSQQNPQAQGFVQPQLPQFEE
IRNLALQTLPAMCNVYIPPYCSTTIAPFGIMSTN .

α -B12 nucleotide 897 bp

ATGAAGACCTTTTCTATCCTTGCCCTCCTTGCTATCGTGGCGACCACCACCACAACCTGCAGTTAGAGTTCCAGTGCACATAATTGCA
GCCACAAAATCCATCTCAGCAACAACCACAAGAGCAAGTTCATTGGTGAACAACAACAATTTCTAGGGCAGCAACAACAACAAT
TTCCAGGGCAACAACAACCATTTCACCACAACAGCCATATCCGAGCCGCAACCAATTTCTGCCACAACCTACCATATCCGAGCCG
CAACCATTTCACCACAACAATCATATCCACAACCACAACCACAATATCCGCAACCACAACAACCAATTTTCGACAGCAACAAGCACA
ACTACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAATCCTTCAACAATTTCTGCAACAACAAC
TGATTCCATGYAGGGATGTGCTCTTGCAACAACCAACATAGCACATGCAAGCTCAAAGTATYGAACAAGTTACCAACTGTTG
CAACAATTATGTTGTCAGCAACTGTGGCAGACCCCCGAGCAGTCACGGTGCCAAGCCATCCACAATGTCAATCATGCTATTATTTT
GCATCAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACCCTGAGCCAGGTCCTTACCAGCAGC
CTCAGCAACAATATCCATCAGGCCAGGGCTCGTTCCAGCCATCTCAGCAAAACCCACAGGCCAGGGCTTTGTCCAACCTCAGCAA
CTGCCGAGTTCGAGGAAATAAGGAACCTAGCGCTACAGACGCTACCAGCAATGTGCAATGTCTACATCCCTCCATATTGCTCGAC
CACCATTGCGCCATTGGCATCATGAGTACTAACTGA

α -B12 amino acid

MKTFLILALLAIVATTTTTAVRVPV .LQPQNPSQQQPQEQVPLVQQQQFLGQQQQQFPQQQPPFPQQPPYPQPQPFLPQLPYPQP
QPPFPQQSYPPQPYPQPQQPISQQQAQLQQQQQQQQQQQQQILQQILQQQLIPCRDVVLLQPNIAHASSQVXQQSYQLL
QQLCCQQLWQTPEQSRQAIHNVIAHAIILHQOQQOQQOQQOQQOQQOQPPSSQVSYQQPQQQYPSGGQSFQPSQQNPQAQGFVQPQQ
LPQFEEIRNLALQTLPAMCNVYIPPYCSTTIAPFGIMSTN .

α -B13 nucleotide 882 bp

ATGAAGACCTTTTCTATCCTTGCCCTCCTTGCTATCGTGGCGACCACCACCACAACCTGCAGTTAGAGTTCCAGTGCACATAATTGCA
GCCACAAAATCCATCTCAGCAACAACCACAAGAGCAAGTTCATTGGTGAACAACAACAATTTCTAGGGCAGCAACAACAACAAT
TTCCAGGGCAACAACAACCATTTCACCACAACAGCCATATCCGAGCCGCAACCAATTTCTGCCACAACCTACCATATCCGAGCCG
CAACCATTTCACCACAACAATCATATCCACAACCACAACCACAATATCCGCAACCACAACAACCAATTTTCGACAGCAACAAGCACA
ACTACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAATCCTTCAACAATTTCTGCAACAACAACCTGATTCCATGTAGGG
ATGTCGTCTTGCAACAACCAACATAGCACATGCAAGCTCACAGTATCGCAACAAGTTACCACTGTTGCAACAATTATGTTGT
CAGCAACTGTGGCAGACCCCGAGCAGTCACGGTCCAAGCCATCCACAATGTCAATCATGCTATTATTTGTCATCAACAACAACA
ACAACAACAACAACAACAACAACAACAACAACAACAACCCTGAGCCAGGTCCTTACCAGCAGCCTCAGCAACAATATC
CATCAGGCCAGGGCTCGTTCCAGCCATCTCAGCAAAACCCACAGGCCAGGGCTTTGTCCAACCTCAGCAACTGCCGAGTTCGAG
GAAATAAGGAACCTAGCGCTACAGACGCTACCAGCAATGTGCAATGTCTACATCCCTCCATATTGCTCGACCACCATTGCGCCATT
TGGCATCATGAGTACTAACTGA

α -B13 amino acid 294 aa

MKTFLLILALLAIVATTTTTAVRVVPLVQPPQNPSSQQQPQEQVPLVQQQQFLGQQQQQFPGQQQPFPFPQPPYPQPPFLPQLPYPQP
QPFPPQSSYPPQPPQYPQPPQPPISQQQAQLQQQQQQQQQQQQQILQQILQQQLIPCRDVLVQQPNIAHASSQVSSQSYQLLQQLCC
QQLWQTPEQSRCAIHNVIHAIILHQQQQQQQQQQQQQQQPPSSQVSYQQPQQQYPSGQGSFQPSQQNPQAQGFVQPQQLPQFE
EIRNLALQTLPAMCNVYIPPYCSTTIAPFGIMSTN.

α -B14 nucleotide 876 bp

ATGAAGACCTTTTCTCATCCTTGCCCTCCTTGCTATCGTGGCGACCACCACCACAACCTGCAGTTAGAGTTCAGTGCCACAATTGCA
GCCACAAAATCCATCTCAGCAACAACCAAGAGCAAGTTCCATTGGTGAACAACAACAATTTCTAGGGCAGCAACAACAACAAT
TTCCAGGGCAACAACAACCAATTTCCACCACAACAGCCATATCCGAGCCGCAACCAATTTCTGCCACAACCTACCATATCCGAGCCG
CAACCAATTTCCACCACAACAATCATATCCACAACCACAACCAACAATATCCGCAACCACAACAACCAATTTCCGAGCAACAAGCACA
ACTACA
ATGTCGTCTTGCAACAACCAATATAGCACATGCAAGCTCAAAAGTATCGCAACAAGTTACCAACTGTTGCAACAATTATGTTGT
CAGCAACTGTGGCAGACCCCGAGCAGTCACGGTGCCAAGCCATCCACAATGTCAATTCATGCTATTATTTTGCATCAACAACAACA
ACA
GCCAGGGCTTCTTCCAGCCATCTCAGCAAAACCCACAGGCCAGGGCTTTGTCCAACCTCAGCAACTGCCGAGTTCGAGGAAATA
AGGAACCTAGCGCTGCAGACGCTACCAGCAATGTGCAATGTCTACATCCCTCCATATTGCTCGACCACCATTGCGCCATTTGGCAT
CATGAGTACTAACTGA

α -B14 amino acid 292 aa

MKTFLLILALLAIVATTTTTAVRVVPLVQPPQNPSSQQQPQEQVPLVQQQQFLGQQQQQFPGQQQPFPFPQPPYPQPPFLPQLPYPQP
QPFPPQSSYPPQPPQYPQPPQPPISQQQAQLQQQQQQQQQQQQQILQQILQQQLIPCRDVLVQQPNIAHASSKVSQSYQLLQQLCC
QQLWQTPEQSRCAIHNVIHAIILHQQQQQQQQQQQQQQQPPSSQVSYQQPQQQYPSGQGFQPSQQNPQAQGFVQPQQLPQFE
EIRNLALQTLPAMCNVYIPPYCSTTIAPFGIMSTN.

α -B15 nucleotide 873 bp

ATGAAGACCTTTTCTCATCCTTGCCCTCCTTGCTATCATGGCGACCACCACCACAACCTGCAGTTAGAGTTCAGTGCCACAATTGCA
GCCACAAAATCCATCTCAGCAACAACCAAGAGCAAGTTCCATTGGTGAACAACAACAATTTCTAGGGCAGCAACAACAACAAT
TTCCAGGGCAACAACAACCAATTTCCACCACAACAGCCATATCCGAGCCGCAACCAATTTCTGCCACAACCTACCATATCCGAGCCG
CAACCAATTTCCACCACAACAATCATATCCACAACCACAACCAACAATATCCGCAACCACAACAACCAATTTCCGAGCAACAAGCACA
ACTACA
TCTTGCAACAACCAATATAGCACATGCAAGCTCACAAGTATCGCAACAAGTTACCAACTGTTGCAACAATTATGTTGTGTCAGCAA
CTGTGGCAGACCCCGAGCAGTCACGGTGCCAAGCCATCCACAATGTCAATTCATGCTATTATTTTGCATCAACAACAACAACAACA
ACA
AGGGCTTCTTCCAGCCATCTCAGCAAAACCCACAGGCCAGGGCTTTGTCCAACCTCAGCAACTGCCGAGTTCAGGAAATAAGG
AACCTAGCGCTGCAGACGCTACCAGCAATGTGCAATGTCTACATCCCTCCATATTGCTCGACCACCATTGCGCCATTTGGCATCAT
GAGTACTAACTGA

α -B15 amino acid 291 aa

MKTFLLILALLAIMATTTTTAVRVVPLVQPPQNPSSQQQPQEQVPLVQQQQFLGQQQQQFPGQQQPFPFPQPPYPQPPFLPQLPYPQP
QPFPPQSSYPPQPPQYPQPPQPPISQQQAQLQQQQQQQQQQQQQILQQILQQQLIPCRDVLVQQPNIAHASSQVSSQSYQLLQQLCCQQ
LWQTPEQSRCAIHNVIHAIILHQQQQQQQQQQQQQQQPPSSQVSYQQPQQQYPSGQGFQPSQQNPQAQGFVQPQQLPQFE
EIRNLALQTLPAMCNVYIPPYCSTTIAPFGIMSTN.

α -B16 nucleotide 891 bp

ATGAAGACCTTTTCTCATCCTTGCCCTCCTTGCTATCGTGGCGACCACCACCACAACCTGCAGTTAGAGTTCAGTGCCACAATTGCA
GCCACAAAATCCATCTCAGCAACAACCAAGAGCAAGTTCCATTGGTGAACAACAACAATTTCTAGGGCAGCAACAACAACAAT
TTCCAGGGCAACAACAACCAATTTCCACCACAACAGCCATATCCGAGCCGCAACCAATTTCTGCCACAACCTACCATATCCGAGCCG
CAACCAATTTCCACCACAACAATCATATCCACAACCACAACCAACAATATCCGCAACCACAACAACCAATTTCCGAGCAACAAGCACA
ACTACA
TCTTGCAACAACCAATATAGCACATGCAAGCTCACAAGTATCGCAACAAGTTACCAACTGTTGCAACAATTATGTTGTGTCAGCAA
CTGTGGCAGACCCCGAGCAGTCACGGTGCCAAGCCATCCACAATGTCAATTCATGCTATTATTTTGCATCAACAACAACAACAACA
ACA
AACATATCCATCAGGCCAGGGCTTCTTCCAGCCATCTCAGCAAAACCCACAGGCCAGGGCTTTGTCCAACCTCAGCAACTGCCG
CAGTTCGAGGAAATAAGGAACCTAGCGCTGCAGACGCTACCAGCAATGTGCAATGTCTACATCCCTCCATATTGCTCGACCACCAT
TGGCCATTTGGCATCATGAGTACTAACTGA

α -B16 amino acid 297 aa

MKTFLILALLAIVATTTTTAVRVPVLPQLQPQNPSQQQPQEQVPLVQQQQFLGQQQQFPGQQQPFPPQPPYPQPFPFLPQLPYPQP
QPFPPQSSYPQPQPYPQPQQPISQQQAQLLQQQQQQQQQQQILQQILQQQLIPCRDVVLQQPNIAHASSQVSSQSYQLLQQLCCQQ
LWQTPEQRSRCQAIHNVIHAIILHQQQQQQQQQQQQQQQQQQPSQVSYQQPQQQYPSGQGFQPSQQNPQAQGFVQPQQLP
QFEIRNLALQTLPAMCNVYIPPYCSTTIAPFGIMSTN.

α -B17 nucleotide 891 bp

ATGAAGACCTTTCTCATCCTTGCCCTCCTTGCTATCGTGGCGACCACCACCACAACCTGCAGTTAGAGTTCCAGTGCCACAATTGCA
GCCACAAAATCCATCTCAGCAACAACCAAGAGCAAGTTCCATTGGTGAACAACAACAATTTCTAGGGCAGCAACAACAACAAT
TTCCAGGGCAACAACAACCATTTCCACCACAACAGCCATATCCGCAGCCGCAACCATTTCTGCCACAACCTACCATATCCGCAGCCG
CAACCATTTCCACCACAACAATCATATCCACAACCACAACCAATATCCGCAACCACAACAACCAATTTCCAGCAACAACAAGCACA
ACTACTACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAATCCTTCAACAATTTCTGCAACAACA
ACTGATTCATGCAGGGATGTCGTCTTGCAACAACCCAATATAGCACATGCAAGCTCACAAGTATCGCAACAAGTTACCAACTGTTGCA
AACAATTATGTTGTCAGCAACTGTGGCAGACCCCCGAGCAGTCACGGTGCCAAGCCATCCACAATGTCTCATGCTATTATTTGTCAT
ACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACCGTCGAGCCAGGTCTCCTACCAGCAGCCTCAGC
AACATATCCATCAGGCCAGGGCTTCTTCCAGCCATCTCAGCAAAACCCACAGGCCAGGGCTTTGTCCAACCTCAGCAACTGCCG
CAGTTCGAGGAAATAAGGAACCTAGCGCTGCAGACGCTACCAGCAATGTGCAATGTCTACATCCCTCCATATTGCTCGACCACCAT
TGCGCCATTTGGCATCATGAGTACTAACTGA

α -B17 amino acid 297 aa

MKTFLILALLAIVATTTTTAVRVPVLPQLQPQNPSQQQPQEQVPLVQQQQFLGQQQQFPGQQQPFPPQPPYPQPFPFLPQLPYPQP
QPFPPQSSYPQPQPYPQPQQPISQQQAQLLQQQQQQQQQQQQQILQQILQQQLIPCRDVVLQQPNIAHASSQVSSQSYQLLQQL
LCCQQLWQTPEQRSRCQAIHNVIHAIILHQQQQQQQQQQQQQQQQQQPSQVSYQQPQQQYPSGQGFQPSQQNPQAQGFVQPQQLP
QFEIRNLALQTLPAMCNVYIPPYCSTTIAPFGIMSTN.

α -B18 nucleotide 885 bp

ATGAAGACCTTTCTCATCCTTGCCCTCCTTGCTATCGTGGCGACCACCACCACAACCTGCAGTTAGAGTTCCAGTGCCACAATTGCA
GCCACAAAATCCATCTCAGCAACAACCAAGAGCAAGTTCCATTGGTGAACAACAACAATTTCTAGGGCAGCAACAACAACAAT
TTCCAGGGCAACAACAACCATTTCCACCACAACAGCCATATCCGCAGCCGCAACCATTTCTGCCACAACCTACCATATCCGCAGCCG
CAACCATTTCCACCACAACAATCATATCCACAACCACAACCAATATCCGCAACCACAACAACCAATTTCCAGCAACAACAAGCACA
ACTACTACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAATCCTTCAACAATTTCTGCAACA
ACAACTGATTCATGCAGGGATGTCGTCTTGCAACAACCCAATATAGCACATGCAAGCTCACAAGTATCGCAACAAGTTACCAACTGTT
GCAACAATTATGTTGTCAGCAACTGTGGCAGACCCCCGAGCAGTCACGGTGCCAAGCCATCCACAATGTCTCATGCTATTATTTGTC
ATCAATCGTCATCAACAACAACAACAACAACAACAACAACAACAACAACAACAACCGTCGAGCCAGGTCTCCTACCAGCAGCCTCAG
CAACAATATCCATCAGGCCAGGGCTTCTTCCAGCCATCTCAGCAAAACCCACAGGCCAGGGCTTTGTCCAACCTCAGCAACTGCCG
CAGTTCGAGGAAATAAGGAACCTAGCGCTGCAGACGCTACCAGCAATGTGCAATGTCTACATCCCTCCATATTGCTCGACCACCAT
TTGCGCCATCATGAGTACTAACTGA

α -B18 amino acid 295 aa

MKTFLILALLAIVATTTTTAVRVPVLPQLQPQNPSQQQPQEQVPLVQQQQFLGQQQQFPGQQQPFPPQPPYPQPFPFLPQLPYPQP
QPFPPQSSYPQPQPYPQPQQPISQQQAQLLQQQQQQQQQQQQQILQQILQQQLIPCRDVVLQQPNIAHASSQVSSQSYQLLQQL
LCCQQLWQTPEQRSRCQAIHNVIHAIILHHRHQQQQQQQQQQQQQPSQVSYQQPQQQYPSGQGFQPSQQNPQAQGFVQPQQLPQF
EIRNLALQTLPAMCNVYIPPYCSTTIAPFGIMSTN.

α -B19 nucleotide 744 bp

ATGAAGACCTTTCTCATCCTTGCCCTCCTTGCTATCGTGGCGATGCGACCACCGCCACAACCTGCAGTTAGAGTTCCAGTGCCACAA
TTGCGACCCACAAAATCCATCTCAGCAACAACCAAGAGCAAGTTCCATTGGTGAACAACAACAATTTCTAGGGCAGCAATAACC
ATTTCCAGCCACAACAACCATATCCACAGCCGCAACCATTTCTCCACAACCTACCATGTCCGCAGCCGCAACCATTTCCACCACAAC
AATCATATCCACAACCACAACCAAGTATCCGCAACCACAACAACAACAATTTCCAGCAACAACAAGCACAACAACAACAACAACA
CAACAACAACAATCCTTCAACAATTTCAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACA
GCCAAGTCTATCCACAATGTGTTTCTATGCTATTATTTCTCCATCAACAACAACAACAACAACAACAACAACAACAACAACAACA
CAGGTCTTCTACCAGCAGCCTCAGCAACAATATCCATCAGGCCAGGGTCTCCTTCCAGCCATCTCAGCAAAACCCACAGGCCATGG
CTTTGTCCAACCTCAGCAACTGCCACAGTTTGGAGAAATAAGGAACCTAGCGCTACAGACACTACCAGCAATGTGCAATGTCTACA
TCCCTCCATATTGCTCGACCACCATTTGCGCCATTTGGCATCGTACTAACTGA

α -B19 amino acid 298 aa

MKTFLLILALLAIVAMRPPPLQLQL...VPVPQLQPQNPSQQQPQEQVPLVQQQQFLGQQ.PFRPQQPYPQPFPFPQLPCPQPQFPF
PQQSYPPQPQPYPQPQQTISQQQAQQQQ.QQQQILQQILQQQLIPCRDVLVQQPRAVTVPSHPQCRSCYYS...QQQQKQQQQQ
QPSQVQFYQQPQQQYPSGQGSFQPSQQNPQAHGFVQFQQLPQFEEIRNLALQTLPAMCNVYIPPYCSTTIAPFGIVSTN.

α -B20 nucleotide 860 bp

ATGAAGACCTTTCTCATCCTTGCCCTCCTTGCTATCATGGCAATGCGACCACCGCCACAACCTGCAGTTAGAGTTCAGTGCCACAA
TTGCAACCAGAAAATCCATCTCAGCAACAACCACAAGAGCAAGTTCCATTGGTGCAACAACAACAAATTTCTAGGGCAGCAACAACA
ACAATTTCCAGGGCAGCAATAACCATTTTCGACCACAACAGCCATATCCGCAGCCGCAACCATTTCTCCACAACCTACCATGTCCGC
AACCGCAACCATTTCCACCACAACAATCATATCCACAACCACAACCACAGTATCCGCAACCACAACAACAATTTTCGAGCAACA
GCACAACAACAACAATGACAACCACAACAACAATCCTTCAACAATTTCAAAAAACAACCTGATCCATGCAGGGATGTCTGCTCTT
GCAACAACCCAACATAGCACATGCAAGCTCACAAGTATCACAACAAGTTACCATCTGTTGCAACAATTATGTTGTTAGCAACTGT
GGCAGACCCCGAGCTGTACGGTGCCAAGTCTCCACAATGTCGTTTATGCTATTATTCTCCATCAACAACAACAACAACAACA
CAACAACAACAACAACAACAACCGTTCGAGCCAGGTTCTTAGCAGCAACCTCAGCAACAATATCCATCAGCCCAGGGCTCCTTCCA
GCCATCTGAGCAAAACCCACAGGCCGATGGCTTTGTCCAACCTCAGCAACTGCCCGAGTTTGAGTAAATAAGGAACCTAGCGCTGC
AGACACTACCAGCAATGTGCAATGTCTACATCCCTCCATATTGCTCGACCACCATTTGCGCCATTTGGCATCGTGAGTACTAATTGA

α -B20 amino acid 295 aa

MKTFLLILALLAIMAMRPPPLQLLEFQCHNC...PVPQLQPENPSQQQPQEQVPLVQQQQFLGQQQQQFPQQ.PFRPQQPYPQPQP
FPPQLPCPQPFPFPQQSYPPQPQPYPQPQQTISQQQAQQQQ.QPQQQILQQILQKQLIPCRDVLVQQPNIAHASSQVSQQSYHLL
QQLCC.QLWQTPELSRCQVIHNVVHAIILHQQQQQKQQQQQQQPSQV.F.PPQQQYPSAQGSFQSEQNPQADGFVQPQQLPQF
E.IRNLALQTLPAMCNVYIPPYCSTTIAPFGIVSTN.

α -B21 nucleotide 834 bp

ATGAACCTTCTCCTTGCCCTCGCCCTCCTTGCTATCGTGGCGACCACCGCCACAACCTGCAGTTAGAGTTCAGTGCCACAATTGCA
GCCACAAAATCCATCTCAGCAACAACCACAAGAGCAAGTTCTATTGGTGCAACAACAACCATTTCTAGGGCAGCAACAACAACAAT
TTCCAGGGCAGCAATAACCATTTTCGACCACAACAGCCATATCCGCAGCCGCAACTATTTCTCCAAAACCTACCATATCCGCAGCCG
CAACCATTTACACCACATCAATCATATCCACAACCACAACCACAGTATCCGCAACCACAACAAGCAATTTTCGAGCAACAAGGACA
ACAACAACAACAACAACAATCCTTCAACAATTTGCAACAACAACCTGATTCATGCAGGGATGTCTGTTGCAACAACCCCAACA
TAGCACATGCAAGCTACAAGTATCTCAACAAGTTACCATCTATTGCAACAATTATGTTGTCAGCAACTGTGGCAGACCCCGAG
CTGTACAGTGCCAAGTCAATCCACAATGTCGTTTATGCTATTATTCTGCATCATCAATAACAACAACAACAACAACAACAACCGTC
GAGCCAGGTTCTTACCAGCAGCCTCAGCAACAATATCCATCAGGCCACGGCTCCTTCCAGCCATCTCAGCAAAACCCACAGACCC
AGGGCTTTGTCCAACCTCAGCAACTGCTGCAGTTTGAGGAAATAAGGAACGTAGCGCTGCAGACACTACCAGCAATGTGCAATGT
TACATCCCTCCATATTGCTCGACCACCATTTGCGCCATTTGGCATCGTGAGTACTAACTGA

α -B21 amino acid 278 aa

MNLLLALALLAIVATTATTAVRVPVPLQPLQNPSQQQPQEQVLLVQQQPFLGQQQQQFPQQ.PFRPQQPYPQPQLFPPKLPYPQP
QPFTPHQSYPPQPQPYPQPQQAISQQQGQQQQQQILQQILQQQLIPCRDVLVQQPNIAHASSQVSQQSYHLLQQLCCQQLWQTPE
LSQCQVIHNVVHAIILHHQ.QQQQQQPSQVQFYQQPQQQYPSGHGSFQPSQQNPQTQGFVQPQQLLQFEEIRNVALQTLPAMCNV
YIPPYCSTTIAPFGIVSTN.

α -B22 nucleotide 2087 bp

ATGAAGACCTTTCTCATCCTTGCCCTCCTTGCTATCGCGGTGACCACCGCCACTACTGCAGTGAGAGTTCAGTGCCATAATTGCA
GCCACAAAATCCATCTCAGCAACAACCACAAGAGCAAGTTCCATTGGTGCAACAACAACAATTTCTAGGGCAGCAACAACAACACT
TTCCAGGGCAGCAACAACCATTTCCACCACAACAGCCATATCCGCAGCCGCAACCATTTCCACCACAACCTACCATATCTGCAGCCG
CAACCATTTCCACCACAACAATCATATCCACAACCACAACCACAGTATCCGCAATCACAACAACAACAATTTCCAGCAACAACA
ACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAATCCTTCAACAATTTGCAACAACAATTGATTCATGCA
GGGATGTCTTTGCAACAACCCAACATAGCACATGCAAGCTCACAAGTATCGCAACAAGTTACCAACTTTTTCGCAACAATTATGT
TGTGCAACTGTGGCAGACCCCTGAGCAGTACGGTGCCAAGCCATCCACAATGTCGTTTATGCTATTATTCTGCATCATCATCA
TCATCATCAACA
AACACAACAGCAACAACAACAACAGCAACAACAACAGCAGCAACAACAACAGCAGCAACAACAACAGCAGCAACAACAACAGCAA
CAACAACAGCAACAACAACAGCAACAACAACAGCAACAACAACAGCAGCAACAACAACAGCAGCAGCAACAACAACAGCAGCAACAACA
GCAGCAACA
AACACA
CAACA
ACAACAACAACAACGACACAACAACAACGACAACAACAACGACAACAACAACGACCACAACAACAACAACGACAACAACAACGACAACA

TGCAACAACACAACATAGCGCATGCAAGCTCACAAGTTTTGCAACAAAGTACTTACCAGTTGTTGCAACAATTGTGTTGTCAGCAG
CTGTGGCAGATCCCCGAGCAGTCGCGGTGCCAAGCCATCCAGAATGTTGTTTCATGCTATTATTCTGCATCAACAACAACAACGACA
ACAGC
AGCAACAACCGTCGAGCCAGGTCTCCTTCCAACAGCCTCAGCAACAATATCCATCAGGCCAGGGCTCCTTCCAGCCATCTCAGCAA
AACCACAGGCCAGAGCTCTGTCCAACATCAACAACCTACCCCAATTTGAGGAAATAAGGAACCTAGCACTGCAGACGCTACCAGC
AGTGTGCAATGTCTACATCCCTCCATATTGCTCGACCACCATTGCGCCATTTGGCATCTTCGGTACTAACTGA

α -B25 amino acid 311 aa

MKTFILALLAIVATTATTAVTVVPVQLQPQNPSQQQPQKQVPLVQQQQFLGQQQPFPPQQPYQPQPFPSQQPYQPQPFPLPQLP
YPRPQFPLPQQPYQPPEPQYPPQPPISQQQQQQQQQQQILQQILQQQLIPCRDVILQQHNIHASSQVLLQSSYQLLQQLCCQQ
LWQIPEQSRQAIQNVVHAIILHQQQQRQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQPSSQVSVFQQPQQQYPSGQGSFQPSQQ
NPQAQSSVQHQLPQFEEIRNLALQTLPAVCNVYIPPYCSTTIAPFGIFGTN.

α -B26 nucleotide 852 bp

ATGAAGACCTTTCTCATCCTTGCCCTCCTTGCTATCGCGGCGACCACCGCCACAACCTGCAGTTAGAGTTCCAGTGCCACAATTGTA
GCCGCAAAATCCATCTCAACAACGACCACAATAGTAATTTCCGTTGGTGCAACAACAACAATTTCCAGGGCAGCAACAACCATTTCC
CACCACAACAGCCATATCCGAGCCGCAACCGTTTCTGTCAACAACAACCATATTCGCAACCGTAACCATTTCCGCCACAACCTACCA
TATCCACAAGCGCAACATTTCCAACAACAACAACATATCCACAACCGCAACCCAGTATCCGCAACCACAACAACAATTTCCGCA
GCAGCAGCAGCAGCAACAACAACAACAACAACAACAACAACAACAACAATCCTTCAACAATTTGCAACAACAATGATTCCATGCA
GGGATGTCGTCTTGCAACAACAACATTGCATATGCAAGCTCACAAGTATTGCAACAAGTAGTTACCAACTGTTGCAACAATTA
TGTTGTCAGCAGCTGTGGCAGATCCCGAGCAGTCGCGGCGCCAAGCCATCCACAGTGTCTGTTTCATGCTATTATTTCCATCATCA
TCAACAACAACAACCGTCGAGCCAGGTCTCCTACCAGCAGCCTCAACAACAATATCCATCAAGCCAGGGCTCCTTCTAGCCATCTC
AGCTAAACCCACAGGCCAGGGCTCTGTCCAGCCTCAACAACCTGCCCCGGTTCAAGGAAATAAGTAACCTAGCGCTGCAGATGCTG
CCAGCAATGTGCAATGTCTACATCCCTCCATATTGCTTGAGCACCATTGTGCCATTTGGCATCTTCGGTACTAACTAA

α -B26 amino acid 284 aa

MKTFILALLAIAATTTATTAVRVPVQL.PQNPSQQRPQ..FPLVQQQQFPGQQQPFPPQQPYQPQPFLSQQPYSP.PFPPQLP
YPQAQPFPTQQPYQPQYPPQPPISQQQQQQQQQQQQQQQILQQILQQQMIPCRDVVLQQHNIAYASSQVLLQSSYQLLQQL
CCQQLWQIPEQSRRAIHSVVHAIIFHHHQQQPSSQVSVYQQPQQQYPSQGSF.PSQLNPQAQGSVQPQLPRFKEISNLALQML
PAMCNVYIPPYCLSTIVPFIFGTN.

α -D1 nucleotide 864 bp

ATGAAGACtTTTCTCATCCTTGCCCTCCTTGCTATtGTGGCGACCACTGCCACAACCTGCAGTTAGAGTTCCAGTGCCACAATTGCA
GCCGCAAAATCCATCTCAGCAACAACCACAAGAGCAAGTTCCATTGGTGCAACAACAACAATTTCCAGGGCAGCAACAACCATTTCC
CACCACAACAGCCATATCCGAGCCGCAACCATTTCCATCACAACAACCATATCCGAGCCGCAACCATTTCCGTCACAACCTACCA
TATCCGAGCCGCAACCATTTCCACCACAACAACCTATCCACAACCGCAACCCACAATATCCGCAACCACAACAACCAATTTCCGCA
GCAACAAGCACAACAACAACAACAACAACAACAACAACAACAATCCTTCAACAATTTGCAACAACAACCTGATTCCATGCAGGGATG
TCGTCTTGCAACAACAACATAGCGCATGCAAGCTCACAAGTATTGCAACAAGTAGTTACCAACTGTTGCAACAATTTATGTTGT
CAGCAGCTGTGGCAGATCCCCGAGCAGTCGCGGTGCCAAGCCATCCACAATGTCGTTCATGCTATTATTCTGCATCAACAACAACA
ACAACAACAACAACAACAACAACAACCATCGAGCCAGGTTTCTTACCAGCAGCCTCAGCAACAATATCTATCAGGCCAGGGCTCCT
TCCAGCCATCTCAGCAAAACCCACAGGCCAGGGCTCTGTCCAGCCTCAACAACCTGCCCCAGTTCCGAGGAAATAAGGAACCTAGCG
CTACAGAGCTACCAGCAACCTGCAATGTCTACATCCCTCCATATTGCTCGACCACCATTGCGCCATTTGGCATCTTCGGTACTAA
CTGA

α -D1 amino acid 288 aa

MKTFILALLAIVATTATTAVRVPVQLQPQNPSQQQPQEQVPLVQQQQFPGQQQPFPPQQPYQPQPFPSQQPYQPQPFPSQLP
YPQPQPFPPQQPYQPQYPPQPPISQQQAQQQQQQQQQILQQILQQQLIPCRDVVLQQHNIHASSQVLLQSSYQLLQQLCC
QQLWQIPEQSRQAIHNVVHAIILHQQQQQQQQQQQPSSQVSVYQQPQQQYLSGQGSFQPSQQNPQAQGSVQPQLPQFEEIRNLAL
LQTLPATCNVYIPPYCSTTIAPFGIFGTN.

α -D2 nucleotide 251 bp

AACAACAACAACAACAACAACCGTTGAGCCAGGTCTCCTTCCAGCAGCCTCAGCAACAATATCCATCAGGCCAGGGCTCCTTCCAG
CCATCTCAGCAAAACCCACAGGCCAGGGCTCTTTCCAGCCTCAACAACCTGCCAGTTTGGAGAAATAAGGAACCTAGCGCTACA
GACGCTACTTGCAATGTGCGATGTCTATATCCCTCCATATTGCACCATTGCTCCATTTGGCATCTTTGGTACTAACTGA

α -D2 amino acid 83 aa

QQQQQPLSQVVSFQQPQQYPSGQGSFQPSQQNPQAQGSFQPQQLPQFEEIRNLALQTLAMCDVYIPPYCTIAPFGIFGTN.

α -D4 nucleotide 876 bp

ATGAAGACCTTTCTCATCCTTGCCCTCCTTGCTATTGTGGCGACCACCGCCACAACCTGCAGTTAGAGTTCCAGTGCCACAATTGCA
GCTACAAAATCCATCTCAGCAACAGCCACAAGAGCAAGTTCCATTGGTACAAGAACAACAATTTCCAGGGCAGCAACAACCATTTTC
CACCACAACAGCCATATCCGCAGCCGCAACCATTTCCATCACAACAACCATATCTGCAGCTGCAACCATTTCCACAGCCGCAACTA
CCATATCCGCAGCCGCAACCATTTGACCACAACAACCATATCCACAGCCGCAACCACAGTATTGCAACCACAACAACCAATTTTC
GCAGCAGCAGCAGCAGCAGCAACAACAACAACAACAACAATCCTACAACAATTTTGCAACAACAACCTGATTCCATGCA
GGGATGTTGTATTGCAACAACAACAATAGCGCATGGAAGCTCACAAGTTTTGCAAGAAAGTACTTACCAGCTGGTGAACAATG
TGTTGTCAGCAGCTGTGGCAGATCCCCGAGCAGTCGCGGTGCCAAGCCATCCACAATGTTGTTTCATGCTATTATTTGTCATCAACA
ACACCACCACCACAACAACAACAACAACAACAACAACCGTTGAGCCAAGTCTCCTTCCAACAGCCTCAGCAACAATATC
CATCAGGCCAGGGCTTCTTCCAACCATCTCAGCAAAACCCACAGGCCAGGGCTCTTTCCAGCCTCAACAACCTGCCAGTTTGGAG
GCAATAAGGAACCTAGCGCTACAGACGCTACCTGCAATGTGCAATGTGTATATCCCTCCATATTGCACCATTGCTCCATTTGGCAT
CTTCGGTACTAACTGA

α -D4 amino acid 292 aa

MKTFILILALLAIVATTATTAVRVPVPLQLQLQNPSSQQPQEQVPLVQEQFPQQQFPFPQQPYPQPQFPFSSQPYLQLQFPFPQPL
PYPQPQFPFPQQPYPQPQYSQPQPISQQQQQQQQQQQQQQLLQQLLQQLLIPCRDVLVQQHNIAGSSQVLQESTYQLVQQ
CCQLWQIPEQSRQAIHNVVHAIILHQHHHHQQQQQQQQQPLSQVVSFQQPQQYPSGQGFQPSQQNPQAQGSFQPQQLPQFE
AIRNLALQTLAMCDVYIPPYCTIAPFGIFGTN.

α -D5 nucleotide 927 bp

ATGAAGACCTTTCTCATCCTTGCCCTCCTTGCTATTGTAGCAACCACCGCCACAATTCAGTTAGAGTTCCAGTGCCACAATTGCA
GCCACAAAATCCATCTCAGCAACAACCACAAGAGCAAGTTCCATTGGTACAACAACAACAATTTCCAGGGCAGCAACAACCATTTTC
CACCACAACAGCCATATCCGCAGCCGCAACCATTTCCATCACAACAACCATATCTGCAGCTGCAACCATTTCCGCAGCCGCAACTA
CCATATCCGCAGCCGCAACTACCATATCCGCAGCCGCAACTACCATATCCGCAGCCGCAACCATTTGACCACAACAACCATATCC
ACAATCGCAACCACAGTATTGCAACCACAACAACAATTTGCGCAGCAGCAGCAACAACAACAACAACAACAACAACAACAACA
AACACAACAACAACAACAGATCCTTCAACAATTTTGCAACAACAACCTGATTCCATGCAGGGATGTTGTATTGCAACAACACAGC
ATAGCGTATGGAAGCTCACAAGTTTTGCAACAAGTACTTACCAGCTGGTGAACAATTTGTGTTGTCAGCAGCTGTGGCAGATCCC
CGAGCAGTCGCGGTGCCAAGCCATCCACAATGTTGTTTCATGCTATTATTCTGCATCAACAGCAACAACAACAACAACAACAACA
AAAAACAACCATTTGAGCCAGGTCTCCTTCCAACAGCCTCAACAACAATATCCATCAGGCCAGGGCTCCTTCCAGCCATCTCAGCAA
AACCCACAGGCCAGGGCTCTGTCCAGCCTCAACAACCTGCCAGTTTGGAGAAATAAGGAACCTAGCGCTAGAGACGCTACCTGC
AATGTGCAATGTCTATATCCCTCCATATTGCACCATTGCTCCAGTTGGCATCTTCGGTACTAACTGA

α -D5 amino acid 309 aa

MKTFILILALLAIVATTATIIVRVPVPLQPLQNPSSQQPQEQVPLVQQQQFPQQQFPFPQQPYPQPQFPFSSQPYLQLQFPFPQPL
PYPQPQLPYPQPQLPYPQPQFPFPQQPYPQSQPQYSQPQPISQQQQQQQQQQQKQQQQQQQQQLLQQLLQQLLIPCRDVLVQQHS
IAYGSSQVLQQSTYQLVQQQLCCQLWQIPEQSRQAIHNVVHAIILHQHHHHQQQQQQQKQPLSQVVSFQQPQQYPSGQGSFQPSQQ
NPQAQGSVQPQQLPQFEEIRNLALQTLAMCDVYIPPYCTIAPVGFIFGTN.

α -D6 nucleotide 885 bp

ATGAAGACCTTTCTCATCCTTGCCCTCCTTGCTATTGTAGCAACCACCGCCACAATTCAGTTAGAGTTCCAGTGCCACAATTGCA
GCCACAAAATCCATCTCAGCAACAACCACAAGAGCAAGTTCCATTGGTACAACAACAACAATTTCCAGGGCAGCAACAACCATTTTC

CACCACAACAGCCATATCCGCAGCTGCAACCATTTCCATCACAACAACCATATATGCAGCTGCAACCATTTCCGCAGCCGCAACTA
CCATATCCGCAGCCGCAACTACCATATCCGCAGCCGCAACCATTTGCACCACAACAATCATATCCACAACCCGCAACCACAGTATTC
GCAACCACAACAACCAATTTTCGCAGCAGCAGCAGCAGCAGCAGCAGCAACAACAACAACAGATCCTTCAACAAATTTTGCAACAAC
AACTGATTCCATGCAGGGATGTTGTATTGCAACAACACAGCATAGCGCATGGAAGCTCACAAGTTTTGCAACAAAGTACTTACCAG
CTGGTGCAACAATTTGTGTTGTCAGCAGCTGTGGCAGATCCCCGAGCAGTCGCGGTGCCAAGCCATCCACAATGTTGTTTCATGCTAT
TATTTGTCATCAACAACAACAACAACAACAACAACAACAACAACAACCGTTGAGCCAGGTCTGCTTCCAACAGTCTCAAC
AACAATATCCATCAGCCAGGGCTCCTTCCAGCCATCTCAGCAAAACCCACAGGCCAGGGCTCTGTCCAGCCTCAACAACCTGCC
CAGTTTGAGGAAATAAGGAACCTAGCGCTAGAGACGCTACCTGCAATGTGCAATGTCTATATCCCTCCATATTGCACCATTGCTCC
AGTTGGCATCTTCGGTACTAAGTGA

α -D6 amino acid 295 aa

MKTFLLILALLAIIVATTATIAVRVVPVQLQPQNPSQQQPQEQVPLVQQQQFPGQQQPFPPQPPYPQLQPFPSQQPYMQLQPFPPQPL
PYPQPQLPYPQPPFRPQQSYPQPQYSQPQQPISQQQQQQQQQQQQQILQQILQQQLIPCRDVVLQQHSIAHGSSQVLLQSTYQ
LVQQLCCQQLWQIPEQSRCAIHNVVHAILLHQQQQQQQQQQPLSQVCFQQSQQQYPSGQGSFQPSQQNPQAQGSVQPQQLP
QFEEIRNLALETLPAMCNVYIPPYCTIAPVGIPTN.

α -D7 nucleotide 852 bp

ATGAAGACCTTTTCTCATCCTTGGCCCTCCTTGCTATTGTAGCAACCACCGCCACAATTCAGTTAGAGTTCCAGTGCCACAATTGCA
GCCACAAAATCCATCTCAGCAACAACCAAGAGCAAGTTCCATTGGTACAACAACAGCAATTTCCAGGGCAGCAACAACCATTTT
CACCACAACAGCCATATCCGCAGCCGCAACCATTTCCATCACAACAACCATATCTGCAGCTGCAACCATTTCCGCAGCCGCAACTA
CCATATCCGCAGCCGCAACCATTTTCGACCACAACAACCATATCCACAACCGCAACCACAGTATTCGCAACCACAACAACCAATTT
ACAGCAGCAGCAGCAGCAGCAACAACAACAACAACAACAACAGATCCTTCAACAAATTTTGCAACAATAACTGATTCCATGCA
GGGATGTTGTATTGCAACAACACAGCATAGCGCATGGAAGCTCACAAGTTTTGCAACAAAGTACTTACCAGCTGGTGCAACAATTG
TGTGTCACAGCTGTGGCAGATCCCCGAGCAGTCGCGGTGCCAAGCCATCCACAATGTTGTTTCATGCTATTATTTTCATGCTCAACA
ACAACAACAACAACAACAACCGTTGAGCCAGGTCTGCTTCCAACAGCCTCAACAACAATATCCATCAGGCCAGGGCTCCTTCCAGC
CATCTTAGCAAAACCCACAGGCCAGGGCTCTGTCCAGCCTCAACAACCTGCCCCAGTTTGAGGAAATAAGGAACCTAGCGCTAGAG
ACGCTACCTGCAATGTGCAATGTCTATATCCCTCCATATTGCACCATTGCTCCAGTTGGCATCTTCGGTACTAAGTGA

α -D7 amino acid 284 aa

MKTFLLILALLAIIVATTATIAVRVVPVQLQPQNPSQQQPQEQVPLVQQQQFPGQQQPFPPQPPYPQPQPFPSQQPYLQQLPFPQPL
PYPQPQPFPPQPPYPQPPQYSQPQQPISQQQQQQQQQQQQQILQQILQQ . LIPCRDVVLQQHSIAHGSSQVLLQSTYQLVQQL
CCQQLWQIPEQSRCAIHNVVHAILLHQQQQQQQQPLSQVCFQQPQQYPSGQGSFQPS . QNPQAQGSVQPQQLPQFEEIRNLALE
TLPAMCNVYIPPYCTIAPVGIPTN.

α -D8 nucleotide 879 bp

ATGAAGACCTTTTCTCATCCTTGGCCCTCCTTGCTATTGTAGCAACCACCGCCACAATTCAGTTAGAGTTCCAGTGCCACAATTGCA
GCCACAAAATCCATCTCAGCAACAACCAAGAGCAAGTTCCATTGGTACAACAACAACAATTTCCAGGGCAGCAACAACCATTTT
CACCACAACAGCCATATCCGCAGCCGCAACCATTTCCATCACAACAACCATATCTGCAGCTGCAACCATTTCCGCAGCCGCAACTA
CCATATCCGCAGCCGCAACTACCATATCCGCAGCCGCAACCATTTTCGACCACAACAACCATATCCACAACCGCAACCACAGTATTC
GCAACCACAACAACCAATTTTCGCAGCAGCAGCAGCAGCAACAACAACAACAACAACAACAGATCCTTCAACAAATTTTGCAAC
AACAACCTGATTCCATGCAGGGATGTTGTATTGCAACAACACAGCATAGCGCATGGAAGCTCACAAGTTTTGCAACAAAGTACTTAC
CAGCTGGTGCAACAATTTGTGTTGTCAGCAGCTGTGGCAGATCCCCGAGCAGTCGCGGTGCCAAGCCATCCACAATGTTGTTTCATGC
TATTATTTCTGCATCAACAACAACAACAACAACAACAACAACAACAACCGTTGAGCCAGGTCTGCTTCCAACAGCCTCAACAACAAT
ATCCATCAGGCCAGGGCTCCTTCCAGCCATCTCAGCAAAACCCACAGGCCAGGGCTCTGTCCAGCCTCAACAACCTGCCCCAGTTT
GAGGAAATAAGGAACCTAGCGCTAGAGACGCTACCTGCAATGTGCAATGTCTATATCCCTCCATATTGCACCATTGCTCCAGTTGG
CATCTTCGGTACTAAGTGA

α -D8 amino acid 293 aa

MKTFLLILALLAIIVATTATIAVRVVPVQLQPQNPSQQQPQEQVPLVQQQQFPGQQQPFPPQPPYPQPQPFPSQQPYLQQLPFPQPL
PYPQPQLPYPQPPFRPQQPYPQPQYSQPQQPISQQQQQQQQQQQQQILQQILQQQLIPCRDVVLQQHSIAHGSSQVLLQSTYQ

QLVQQLCCQQLWQIPEQSRQAIHNVVHAIILHQQQQQQQQQPLSQVCFQQPQQYPSGQGSFQPSQQNPQAQGSVQPQQLPQF
EEIRNLALETLPAMCNVYIPPYCTIAPVGIFGTN.

α -D9 nucleotide 861 bp

ATGAAGACCTTTCTCATCCTTGCCCTCCTTGCTATTGTAGCAACCACCGCCACAATTGCAGTTAGAGTTCCAGTGCCACAATTGCA
GCCACAAAATCCATCTCAGCAACAACCAAGAGCAAGTTCCATTGGTACAACAACAGCAATTTCCAGGGCAGCAACAACCATTTCC
CACCACAACAACCATATCCGCGAGCCGCAACCATTTCATCACAACAACCATATCTGCAGCTGCAACCATTTCACAGCCGCAACTA
CCATATCCGCGAGCCGCAACTACCATATCCGCGAGCCGCAACCATTTCGACCACAACAACCATATCCACAACCGCAACCACAGTATTC
GCAACCACAACAACCAATTTGCGAGCAGCAACAACAACAACAACAACAATCCTTCAACAATTTTGCAACAACAACACTGATTCCAT
GCAGGGATGTTGTATTGCAACAACAACATAGCGCATGGAAGGTACAAGTTTTGCAACAAGTACTTACCAGCTGGTGCAACAA
TTGTGTTGTGTCAGCAGCTGTGGCAGATCCCCGAGCAGTCGCGGTGCCAAGCCATCCACAATGTTGTTCATGCTATATTCTGCATCA
TCATCAACAACAACAACAACAACAACCGTTGACCCAGGTCTCCTTCCAACAGCCTCAACAACAATATCCATCAGGCCAGGGCT
CCTTCCAGCCATCTCAGCAAAAACCCACAGGCCAGGGCTCTGTCCAGCCTCAACAACCTGCCCCAGTTTGAGGAAATAAGGAACCTA
GCGCTAGAGACGCTACCTGCAATGTGCAATGTCTATATCCCTCCATATTGCACCATTGCTCAAGTTGGCATTCTCGGTACTAACTG
A

α -D9 amino acid 287 aa

MKTFLILALLAIVATTATI AVRVPV PQLQPQNPSQQQPQEQVPLVQQQQFPGQQQPFPPQQPYPQPQPFPSQQPYLQQLQFPQPQL
PYPQPQLPYPQPQPFPPQQPYPQPQPQYSQPQQPISQQQQQQQQQILQQILQQQLIPCRDVVLQQHNI AHGRSQVLQQSTYQLVQQ
LCCQQLWQIPEQSRQAIHNVVHAIILHHHQQQQQQQPLTQVSFQQPQQYPSGQGSFQPSQQNPQAQGSVQPQQLPQFEEIRNL
ALETLPAMCNVYIPPYCTIAQVGIFGTN.

α -D10 nucleotide 870 bp

ATGAAGACCTTTCTCATCCTTGCCCTCCTTGCTATTGTAGCAACCACCGCCACAATTGCAGTTAGAGTTCCAGTGCCACAATTGCA
GCCACAAAATCCATCTCAGCAACAACCAAGAGCAAGTTCCATTGGTACAACAACAACAATTTCCAGGGCAGCAACAACCATTTCC
CACCACAACAGCCATATCCGCGAGCTGCAACCATTTCATCACAACAACCATATATGCAGCTGCAACCATTTCGCGAGCCGCAACTA
CCATATCCGCGAGCCGCAACTACCATATCCGCGAGCCGCAACCATTTCGACCACAACAACCATATCCACAACCGCAACCACAGTATTC
GCAACCACAACAACCAATTTGCGAGCAGCAGCAACAACAACAACAACAACAACAACAACAACAACAACAATCCTTCAACAATTTTGC
AACAAACTGATTCCATGCAGGGATGTTGTATTGCAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACA
TACCAGCTGGTGCAACAATTTGTGTTGTCAGCAGCTGCGGTAGATCCCCAAGCAGTCGCGGTGCCAAGCCATCCACAATGTTGTTCA
TGCTATTATTCTGCATCAACAACAACAACAACAACAACCGTTGAGCCAGGTCTCCTTCCAACAGCCTCAACAACAATATCCATCAG
GCCAGGGCTCCTTCCAGCCATCTCAGCAAAAACCCACAGGCCAGGGCTCTGTCCAGCCTCAACAACCTGCCCCAGTTTGAGGAAATA
AGGAACCTAGCGCTAGAGACGCTACCTGCAATGTGCAATGTCTATATCCCTCCATATTGCACCATTGCTCAAGTTGGCATTCTTGG
TACTAACTGA

α -D10 amino acid 290 aa

MKTFLILALLAIVATTATI AVRVPV PQLQPQNPSQQQPQEQVPLVQQQQFPGQQQPFPPQQPYPQLQPFPSQQPYMQLQFPQPQL
PYPQPQLPYPQPQPFPPQQSYPQPQPQYSQPQQPISQQQQQQQQQQQQQILQQILQQQLIPCRDVVLQQHNI AHGSSQVLQQST
YQLVQQLCCQQLR. IPKQSRQAIHNVVHAIILHQQQQQQQPLSQVFSFQQPQQYPSGQGSFQPSQQNPQAQGSVQPQQLPQFEEI
RNLALETLPAMCNVYIPPYCTIAQVGIFGTN.

α -D11 nucleotide 1146 bp

ATGAAGACCTTTCTCATCCTTGCCCTCCTTGCTATTGTAGCAACCACCGCCACAATTGCAGTTAGAGTTCCAGTGCCACAATTGCA
GCCACAAAATCCATCTCAGCAACAGCCACAAGAGCAAGTTCCATTGGTACAACAACAACAATTTCCAGGGCAGCAACAACCATTTCC
CACCACAACAGCCATATCCGCGGCGCAACCATTTCATCACAACAACCATATCTGCAGCTGCAACCATTTCGCGAGCCGCAACTA
CCATATCCGCGAGCCGCAACCATTTCGACCACAACAACCATATCCACAACCGCAACCACAGTATTAGCAACCACAACAACCAATTTCC
GCAGCTGCAGCAGCAACAACAACAATAGCAACAACAACAGCAACAAAACAGCAGCAACAACAACAGCAGCAGCAACAACAAC
AACACAGCAACAACACAGCAACAACAGCACCACAGCAGTAGCAGCAGCAGCAACAACAACAACAACAACAACAACAACAACAACA
CAGCAGCAGCAGCAGCAGCAGCAGCAGCAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACAACA
GCAGCAGCAGCAGCAGCAGCAGCAACA
AACAAACAACAACAACAATTTTGCAACA
TCACAAGTTTTGCAACAAGTACTTACCAGCTGGTGTAACAATTTGTGTTGTGTCAGCAGCTGTGGCAGATTCCCGAGCAGTCGCGGTG

CCAAGCCATCCACAATGTTGTTTCATGCTATTATTCTGCATCAACAACAACAACAACCGTCGAGCCAGGTCTCCTTCCAACAGCCTC
AACAACAATATCCATCAGGCCAAGGCTCCTTCCAGCCATCTCTGCAAAACCCACAGGCCCATGGCTCTGTCCAGCCTCAACAAC TG
CCCCAGTTTGAGGAAATAAGGAACCTAGCGCTACAGACGCTACCTGCAATGTGCAATGTCTACATCCCTCCATATTGCACCATTGC
TCCATTTGGCATCTTCGGTACTA ACTGA

α -D11 amino acid 382 aa

MKTFLLALLAIIVATTATI AVRVPVPLQLPQNPSQQQPQEQVPLVQQQQFPGQQQFPPQPPYPRPQPFSSQQPYLQLQFPFPQPL
PYPQPQPFPRPQQPYQPQPQY. QPQPISQLQQQQQQ. QQQQQKQQQQQQQQQQQQQQHQQQQHQQ. QQQQQQQQQQQQ
QQQQQQQQQQQQQQQQQQHNNNKQQQQQQQQQQQQ. QQILQQQQQILQQQQQILQQQLIPCRDVVLQQHNI AHGS
SQVLQQSTYQLV. QLCCQLWQIPEQSRCQAIHNVVHAIILHQQQQPSSQVVSFQQPQQQYPSGQGSFQPSLQNPQA HGSVQPQQL
PQFEEIRNLALQTL PAMCNVYIPPYCTIAPFGIFGTN.

α -D12 nucleotide 849 bp

ATGAAGACCTTTCTCATCCTAGCCCTCCTTGCTATCGTGGCGACCACCGCCACAAGTGCAGTTAGAGTTCCAGTGC CACAATTGCA
GCCGAAAATCCATCTCAACAACAACCACAAGAGCAAGTTCCATTGATGCAACAACAACAATTTCCAGGGCAGCAAGAACAAT
TTCCACCACAACAGCCATATCCGCATCAGCAACCATTTCCATCACAACAACCATATCCGCAGCCGCAACCATTTCCGCCACA ACTA
CCATATCCGCAGACGCAACCATTTCCACCACAACAACCATATCCACAACCGCAACCACAGTATCCGCAACCACAACAACCAATTTTC
GCAGCAACAAGCACAACAACAACAACAACAACAATCCTTCAACAATTTCTGCAACAACAAC T GATTCCATGCAGGGATGTTG
TCTTGCAACAACAACATAGCGCATGCAAGCTCACAAGTATTGCAACAAGTAGTTACCAACAGTTGCAACAATTATGTTGT CAG
CAACTGTTTCAGATCCCCGAGCAGTCGCGGTGCCAAGCCATCCACAATGTGCTTCATGCTATTATTCTGCATCATCATCAACAACA
ACAACAACAACCGTCGAGCCAGGTCCTACCAGCAGCCTCAGGAACAATATCCATCAGGCCAGGGCTCCTTCCAGTCATCTCAGC
AAAACCCACAGGCCAGGGCTCTGTCCAGCCTCAACAAC T GCCCAGTTCCAGGAAATAAGGAACCTAGCGCTGCAGACGCTGCCA
GCAATGTGCAATGTCTACATCCCTCCATATTGCTCGACCACCATTTGCCCATTTGGCATCTTCGGTACTA ACTGA

α -D12 amino acid 283 aa

MKTFLLALLAIIVATTATS AVRVPVPLQLPQNPSQQQPQEQVPLMQQQQFPGQQEQFPPQPPYPHQQPFPSQQPYQPQPFPFPQL
PYPQTQPFPPQPPYQPQPQYQPQPISQQQAQQQQQQQILQQILQQQLIPCRDVVLQQHNI AHASSQVLQQSSYQQLQLCCQ
QLFQIPEQSRCQAIHNVVHAIILHHHQQQQQPSSQVSYQQPQEQYPSGQGSFQSSQNPQAQGSVQPQQLPQFQ EIRNLALQTL P
AMCNVYIPPYCSTTIAPFGIFGTN.

Note: --- represents deletion in the sequence that had resulted in frameshift mutation. In the sequences presented here, the frameshift has been manually corrected to provide a putative sequence without the deletion.

. in the middle of the sequences represents premature stop codon caused by nucleotide substitution.

A

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α-D5 1 ATGAAGACCTTTCTCATCTTGCCCTCCTTGCTATTGTAGCAACCACCGCCACAATTGCA 60
α-D5 1 ATGAAGACCTTTCTCATCTTGCCCTCCTTGCTATTGTAGCAACCACCGCCACAATTGCA 60
α-D5 61 GTTAGAGTTCAGTGCCACAATTGCAGCCACAAAATCCATCTCAGCAACAACCACAAGAG 120
α-D5 61 GTTAGAGTTCAGTGCCACAATTGCAGCCACAAAATCCATCTCAGCAACAACCACAAGAG 120
α-D5 121 CAAGTTCATTGGTACAACAACAACAATTTCCAGGGCAGCAACAACCATTTCCACCACAA 180
α-D5 121 CAAGTTCATTGGTACAACAACAACAATTTCCAGGGCAGCAACAACCATTTCCACCACAA 180
α-D5 181 CAGCCATATCCGCAGCCGCAACCATTTCCATCACAACAACCATATCTGCAGCTGCAACCA 240
α-D5 181 CAGCCATATCCGCAGCCGCAACCATTTCCATCACAACAACCATATCTGCAGCTGCAACCA 240
α-D5 241 TTTCCGCAAGCCGCAATACCATATCCGCAGCCGCAACTACCATATCCGCAGCCGCAACTA 300
α-D5 241 TT-----TCCGCAGCCGCAACTACCATATCCGCAGCCGCAACTA 279
Indel
α-D5 301 CCATATCCGCAGCCGCAACCATTTCCAGCCACACAACCATATCCACAATCgcaaccacag 360
α-D5 280 CCATATCCCAGCCGCAACCATTTCCAGCCACACAACCATATCCACAACCCGCAACCAAG 339
α-D5 361 tattcgcaaccacaacaacaatttcgagcagcagcagcaacaacaacaacaacaaca 420
α-D5 340 TATTCCGAACCAACAACAATTTCCGCAGCAGCAGCAACAACAACAACAACAACA-- 397
α-D5 421 aaacaacaacaacaacaacaacaacaacagatccttcaacaattttgcaacaacaacTG 480
α-D5 398 -AACAAAAACAACAACAACAACAACAAGATCCTTCAACAATTTGCAACAACAACCTG 456
α-D5 481 ATTCCATGCAGGGATGTTGATTGCAACAACACAGCATAGCGTATGGAAGCTCACAAGTT 540
α-D5 457 ATTCCATGCAGGGATGTTGATTGCAACAACACAGCATAGCGCATGGAAGCTCACAAGTT 516
α-D5 541 TTGCAACAAGTACTTACCAGCTGGTGCAACAATTTGTTGTTGTCAGCAGCTGTGGCAGATC 600
α-D5 517 TTGCAACAAGTACTTACCAGCTGGTGCAACAATTTGTTGTTGTCAGCAGCTGTGGCAGATC 576
α-D5 601 CCCGAGCAGTCGCGGTGCCAAGCCATCCACAATGTTGTTTATGCTATTATTCGTCATcaa 660
α-D5 577 CCCGAGCAGTCGCGGTGCCAAGCCATCCACAATGTTGTTTATGCTATTATTCGTCATCAA 636
α-D5 661 cagcaacaacaacaacaacaacaacaaca--a-aacaacCATTGAGCCAGGTCTCCTTC 717
α-D5 637 CAGCAACAACAACAACAACAACAACAACAACAACAACAACCGTTGAGCCAGGTCTCCTTC 696
α-D5 718 CAACAGCCTCAACAACAATATCCATCAGGCCAGGGCTCCTTCCAGCCATCTCAGCAAAAC 777
α-D5 697 CAACAGCCTCAACAACAATATCCATCAGGCCAGGGCTCCTTCCAGCCATCTCAGCAAAAC 756
α-D5 778 CCACAGGCCCAGGGCTCTGTCCAGCCTCAACAACAGTCCCAAGTTGAGGAAATAGGAAAC 837
α-D5 757 CCACAGGCCCAGGGCTCTGTCCAGCCTCAACAACAGTCCCAAGTTGAGGAAATAGGAAAC 816
α-D5 838 CTAGCGCTAGAGACGCTACCTGCAATGTGCAATGTCTATATCCCTCCATATTGCACCATT 897
α-D5 817 CTAGCGCTAGAGACGCTACCTGCAATGTGCAATGTCTATATCCCTCCATATTGCACCATT 876
α-D5 898 GCTCCAGTTGGCATCTTCGGTACTAACTGA 927
α-D5 877 GCTCCAGTTGGCATCTTCGGTACTAACTGA 906

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B

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α-D5 1 MKTFLILALLAIVATTATIIVRVVPVQLQPONPSQQQPQEQVPLVQQQQFPGQQQPFPPQ 60
α-D5 1 MKTFLILALLAIVATTATIIVRVVPVQLQPONPSQQQPQEQVPLVQQQQFPGQQQPFPPQ 60
α-D5 61 QYPYQPQPFPSQQPYLQLQPFPPQQLPYPQQLPYPQQLPYPQQLPYPQQLPFRPQQYPYQSQPQ 120
α-D5 61 QYPYQPQPFPSQQPYLQLQPF PQQQLPYPQQLPYPQQLPYPQQLPFRPQQYPYQ QPQ 113
33-mer
α-D5 121 YSQPQQPISQQQQQQQQQQKQQQQQQQQILQQILQQQLIPCRDVLQQHSIAYGSSQV 180
α-D5 114 YSQPQQPISQQQQQQQQQQQ Q+QQQQQQQILQQILQQQLIPCRDVLQQHSIA+GSSQV 172
α-D5 181 LQQSTYQLVQQLCCQQLWQIPEQSRCAIHNVVHAILH-QQQQQQQQQQKQPLSQVFS 239
α-D5 173 LQQSTYQLVQQLCCQQLWQIPEQSRCAIHNVVHAILHQQQQQQQQQQQQKQPLSQVFS 232
α-D5 240 QQPQQQYPSGQGSFQPSQQNPAQGSVQPQLPQFEEIRNLALETLPAMCNVYIPPYCTI 299
α-D5 233 QQPQQQYPSGQGSFQPSQQNPAQGSVQPQLPQFEEIRNLALETLPAMCNVYIPPYCTI 292
α-D5 300 APVGFIFGTN 308
α-D5 293 APVGFIFGTN 301

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Figure S5. Alignments of nucleotide and amino acid sequences of α -D5 and α -D⁵ homologues
The indel in the nucleotide sequence and the corresponding 33-mer peptide region in the protein are indicated