



Lexicon Genetics Incorporated – Genentech Project Materials

Genentech ID:	UNQ536	Date of Submission:	11-11-04
Lexicon Contract Name:	DNA324	Mutation Type:	X Standard Knock out
LexVision Name:	MEM764N1		☐ Conditional
Reference accessions:	NM_029537	Is this gene X-linked?	No

Required Materials: X pKOS clone DNA(s) __pKOS13_____
X Target Vector DNA __pKOS13 TV_____
X Targeted ES Cell DNA __1H6_____
X Genomic Map

Southern Blot Analysis: *External/Internal Probe Strategies*

	<u>5' External</u>	<u>3' External</u>
Name of Probe:	11+15	13+14
Restriction Enzyme for Genomic Digest:	EcoRV	Bgl I
Predicted Wild-type Band (kb):	16.4 kb	7.3 kb
Predicted Mutant Band (kb):	14.5 kb	3.3 kb
Probe Size:	401 bp	288 bp

PCR Strategies:*For standard knockouts, give wildtype and mutant-specific strategies**For conditionals, give 5' loxP and cre-excision strategies*

Wild type-specific (absent in targeted allele)		Mutation-specific product (absent in wt)	
5' Primer Name:	DNA324-3	5' Primer Name:	Neo3A
3' Primer Name:	DNA324-4	3' Primer Name:	DNA324-4
Predicted Wild-type Band (bp):	279 bp	Predicted Wild-type Band (bp):	none
Predicted mutant band (bp)	none	Predicted mutant band (bp)	230 bp

5' loxP strategy		Distinguish Cre-excised and wt	
5' Primer Name:		5' Primer Name:	
3' Primer Name:		3' Primer Name:	
Predicted Wild-type Band (bp):		Predicted Wild-type Band (bp):	
Predicted mutant band (bp)		Predicted mutant band (bp)	

Primer sequences:**Southern probes**

DNA324-11 5' – AAAGCCAGTGTAGGACTACC
 DNA324-15 5' – CTTGTCCACTGTTGTTTCC
 DNA324-13 5' – TGCAATGGTCCCTTGTTAGC
 DNA324-14 5' – CTAAGTACAGGCTGTGTTCC

PCR Genotyping

DNA324-3 5' – GTGAGAAGAGGTTTCAGTCG
 DNA324-4 5' – GTCCAGTGGAGTGTTCTGT
 Neo3A 5' – GCAGCGCATCGCCTTCTATC

Genomic Sequence Deleted:

CCCCCTGGAAGCATGGAGACTGTGGTGATCGTCGCCATAGGTGTGCTGGCCACCATTTTCCTGGCCTCATTTGCTGCTTT
GGTGGTGGTCTGTAGGCAGCGTTACTGCCGGCCTCGAGACCTACTACAGCGTTATGATTCCAAGTGAGTAGACTGTGAT
GGGGTGGGGGTGGGGCAGGGAGCTGGGGGGCTGACAACAGGAAGCCCGAGGGACAGAAGGAATTTGGAGCTGGCCGC
TTCTGCCCAACTTATTCTCTCTTAAGCGGTTCTGTCAGGCCACACTTCATACTATAAAGACTCCAGAGCGTAAGAACATT
CCTTAAGCATCCCAGCATCCCAGAGGCACCTCTTTCTCTGTTTCATTAGGTCATGGAGAAGTCACTGAACGTGTGCACCTG
ACACGAAAGCCCTGACTTTGCGATGCTAGCTGCCTCATTTGGCAGAGGGATTAGCCAAAGCCCTTACCAGCCAAAACC
CTGGGAACGGACATCTGACACTTAGCCACACACCTAAGCAGCAGGTGTTCCAGATCATGCAGCCCCAGCACAGGGGTG
CCTGTCTCCTTGACAGATTTCTTCTTCATCATGCGTTGTTGTGTGAAATTGATTTTGTAAAGTAAGACCAGTGTAGGGA
TTTTGAGCAGAGAGATCCATAAGGGGTGTTAGCAACCAAACCTTAGGTTTCTGGTGTTCACCTTAACTCTGTCAGCATCTC
TTGTGAATGCCATTTATATGTCCCTGGAAGGCTATGCTTTGCAAAGAATGTTTCTGTAGCTTGGGTTCTACTGAACCCCT
GCTGTGAAGGTGGACATAGTGTCTCAGAGGGGTGATGCTGTACACACGTTATAGAGCATAGGTAGGCCTGGGTGAA
CAGTATGTCTTTCCATACTCACACAGGTTTGAAGGGGAGAGAAAGAGCATTGTTCTGTTTTTTTCCAAGATTGT
GTCTGTGTATAGCCTTGCTGTCTAGAACTTGTTCTCTAGACCAGGCTGGCCTCGAACTCACATTGAGATCTTCCCG
GCTCTGCCTCCCAGGGGCTGGGATTACAGGCTGTGCCAACCCCCACCCACACTCTGGCATCTTTGGAATCGCGCTGAC
TCTGCCCTCTCCAGCAGTTCAGCTTGTTTTGCTTCATTTGCGTGTGGTCTGCCTTCCTGACCCAGTGTTTAGCTGTGTG
CCCTTGCTTGTGTGTGTGGGCACATTACAGTTAGATCTGTACCCAGGGCAAGCATTCTGTCTCTACCTCTGTCACTATA
ACAGAATCCATAAGATAACTTACTGTAAAGAGAAAAAGGTTTCATGGGCTTAGAGATTCTGGGCCATGATCAGGTGGACT
TTCTGCGTCTAGAGATCTGATGGCGCTGCCAGATAGGAGTTCATGGAGAAACAAACTGCCCGGTTTCATGGTCAGCATCG
CAGAAAAAGAGACAAAGGAGAGAGCTAGTGTCTCACAGTCCCCTTTAGGGTCCGGACTTAAAGCCTTCCCCTAGGCT
GTACCTCTTCAAGGATCCATCTCCTAATATTGCCATCCAAGGGAACAAGCCGTTAACTCACAGGCCTTTGGGGGCCTTC
AAGATCTAAATTATAGCAGTGGCTGCGGTGAGAAGAGGTTGAGTCGGAGTCACTCATCGGAACTCTTAACGGTGGCT
CTCCCTTCCAGGCCCATCGTGGACCTCATTGGTGCTATGGAGACGCAGTCTGAACCCCTCCGAGCTGGAGCTGGATGATG
TCGTCATCACCAACCCCCACATCGAGGCCATCCTGGAGAATGAGGACTGGATCGAAGATGCCTCGTAAGGCCACAGGA
AGCTTC

Genomic Locus: *(The deleted sequence represents nt 10001-11824 in the sequence below. KOS13 used to generate the TV represents nt 3754-13159 in the sequence below.)*

GGATGTGGCACTAAACTAGAATGAGCGAGGCAGGCTGGGCAATCTGTCTGTAGAGCGCTCCCAGCAGTCATTTTAAAA
GGTTTAAAGATCTCTGCCAAGAGGATATTTCTCATTTCTCCAGTTGTTGTGGTATGACCGACCTGATGATTGTCAAGGG
ACACCCCTGAAGAGGGTCTCTATGTCTTTACTTCAGCTAAGTGAAGTGAAGGAAATGCAAACCTTGACCCCTAGCCCA
ACCGGGACCCCTGGCTAGCCTGCCCTGCTAGCTCTTAACCTTCTACCAGCTTTTCTGTCTCCCTGGCTTCTCTGGTCTTA
GTGGTTGTACTGTGGCCAGCTCTAGCAGTTGTTTGCTTGAGAAGTCAAGCTTGTCTGGCTTTGCTCCTGCAAGGGCCCA
AGAAGACCTGATCTGTGTGTATACACAAGACCCACCTGACTGGTGTGGCTTTCTTGGAAGCCGTTTGCAAGTCC
ATAAAAGGGCCCAGGCATTGAAAACAGACAGACTCAGAGTCCAACCAGGGATTTAAGATTGTGCCCTTTAATTCAGG
CCAGCCTTCTGTCTGTCTCAGTGCTGGTGCCTCAGCGTGCCCAACAGTTTCTGGGTGCTTATCTCTCCTGTCCCCCATG
GGTGAACCTTTCCATTAGGTTTTGCACAAGGGCTTATTTGGCACCAACTAAGGGCCAGGCTCTACTCTAGATTCCAGGGG
TCAGCAGAGAGCAAGATAGAAAAAAGTCCAGCCCTCAGAACCACAGAGGCAGTGATGTGCTCCAGTGACAACACAT
ATTAAGGCCTAGGAACAGGAATGACGGGCGGTGCCCCAGAGGGATTCTTCATGGAGGCACACGCAGACACCTGAGCA
GAGGGAGGGAGAGGCCACTGGGGGAATGGAGTGTTCCAGACAGAGGGAACACCAGTGCCTGACACTGGATAAGCAAT
GTTTGACCCACTTTTCTGTTCTATCCTATGACGAGCACTTACTTAATCATGAAGAGTATACAGAAGTTTACTATTTATTTT
GAATATACAGCTCACTGGCCTTAGGGCACTTGCATTTTGTACAGACACCATCGCAATCCACCCCCAACACTTTCTTTTTT
CCATTTTCTTCGACCAAACATCTGTACCCATCCATAATAAGACTTCCTAAGGCAAGGTAGGAAGCCAGGGGAAATTATG
AGGCATAGCAGAGGAAGGAACCTCTCCAGAGTCTGGCTGAGGCCTCTTTAGCCAGCAGAAAACCGAGAACTCTAACAT
AATTAACATTTGCTTTAAGACCTTTCCCACTCTTAGCTATGAAGCTGCAGTTTTCTAGGACTCTCGGCTGAAACCCCTT
TAACGGTGAAAGGACATACCCCAAGCCCCCATGGCTCCTGGTTCTATCGTATCACATTGTGACACCACTCAAGGCAACC
CTGGAGCCATCTAGTAATCTCATTGATCAAAGACTATTGAAAAAAATTTCTGGGGTACTGTGATGTCTGAGAGGGCAG
GGATGCTTGCCACCATTCTTAACGACCTGAGTCTGATGCCAGAGGAGAGAAAGGACTCCTGCAAGTTGTTCCCTCACC
CCACATATATGCCACAGCACATGTGTGCCAAAAGCCAACACATGCCAGATGCACAAGCACTAAATGAATGTTAAATTA
ATTTTAAAAAAAATTATTGGGTATTTTCTTTATTTACATTTCAAATGTTATCCCTTTTCCCAGTCCCTCCCCCGAAAC
TCCCTATCCCATGCTCCCCAACCTGCTTCTATGAGGGTGTTCCCTACCCACCCACCCACTCCACCTCCCTACCCTCA
AATCCCTTACACTGGAGTATCCATTGAGTCTTCCCAGTACCAAGGGCCCCCTCCTTCCATTGATGCCTGACAAGGTGGG
CCTCGCTTTTATGTGGATGCTAGGAATCCAGACTCGGGTCTCTGTTACATGTGCGGCTGGAGCCACGGGTTCCTCCATG
TGTACTCCTTGGTTGGTGGCTTAGTCCCTGGGAGCTCTTGGGGTCTGTTGTTGATATTGTTGTTCTTCTTCTATTGGGT
GCAAACCCCTTCAGCTCCTTCAGTCTTTCTCTAACTCCTCCATTGGAGACCCTGTGCTCAGTCCAATGGTTGGCTGAGA
GCACCCACCTCTGTCTGCAAGTTGTTACCTACCCCCACATATATGTCACGGCACATGTGTGCCAACGGCCAACATAC
ACATGCAATGGCTCATGAGCGCTAAATGAATGTAAATTAATTTTTTTCTTAGCAACCATTTGAGATATAACTAGAGAG

ACACTACTGCTAGAACCCCTTCAGTGTGGCTCTGTCTTTGAGAAGGCCATATCCATGTTCTCAGGCTTGCTTTATTCTTTC
CTGAATGTGTGAGTGCGAGTGTGAGTGTGTGTGTGTGTGTGTGCCCTTATTGCCGCCACCTTATTTTTCTTTA
TTTTAATTTTTGATGCCCATGAGTGTTTTGCCTACATGAATGGATGTGCAACACGTGTGCCGATGCCTAAGGAGGCCAC
AAGAGGGCATTGGATCCCATGGGACTGGAGTTACAGACAGTTGTCAGCCACTGTCTGGGTGCTGATAATTGAACCTG
GTCCTCTGGAAGAGCTGTCAGGACTCTTAACCACTGGGCCATCTCTCAGCTCCTGTCCACCTTATTTAACAGACAAGGC
CTCTCACTGAGCCCAGAGCTCCTCACTTTGACTACGCTGGCTGGTCAGTGAGCATCAGGGAGCCTTCTGTCTCTGCATCC
CCAGAAATGGGCTTAAGGCCACCGGGCCTAGGTTTTACGTGGATGCTAGGAATCCAAACTCGGGCTCTCAAGCCTTTAC
AGCAGGCACATATTGACTGAGCCATCTCCCCAGCCATTTCTATTTTTAATAAACTCCAACTCTGCTGCACACTGACTTGT
CCACTGTTGTTTTCTGTACTGAAGTCAAGAATTCTGTTTACCTGAAAGGGGTTCTTAGAAGATTAAGGACGCCCCCTCA
GGCTACTGAAGGCAGTAGTGTGGAGCTGTGACTCTGTCCCTAGCACCACTTAATACCCTTTCCCTCTCCAAATTCCTGG
CTACCATATTTTACTTTTATGTAATAGACGTGTTATGTTTTGAGTTTTGTTTATAGGAAGTTTCTCTAGAGGGACAGA
GTCAAGGAGATGAAAATTTATATATATGTGAACCTTTATTAAGTCAGTTTAAATAATACCAAGAGCCAAATCACACCCG
AGAAGCTGAGAATCATGTAGTTACATGGTCCTTGAGGCCGAACGCTTCAACAGTTAGGGTAGTCTACACTGGCTTTCT
CATTGGGTTTGACAACCTGGTAAATCTTTTAGTCCATAAAGTAGGGGACCTCAGGAGTTCCAATCTGGCATTGGAGGTCC
AGAATTTTCTGGAGAGCTGAGAGCTACTTGTTCTAGTCCATGAGGAAAGTTCAGAAACAGTTCTGCTATTAATGAAG
GAATTATCATCATCATCACCACCACCACCATCAGCATCATCATCATCATCAGCAGCAGCAGGACAAATCAAGT
CTGAGATATGAGGAAAGGCCAAGAGAGCAAAAGGCAAGATGACCTTCCTTCTGACATACCCTTTTTACAAATTAATAA
TTTATTTGTTTGTATTCACTTTATGCATATGCCTGTGCTTGACTGCATATATATATGCACCACATGCACACCTGGTGTGG
AAGGGGTCAGAAGAAAGCATCAGATCCCCTGTAAGTACAGTCAAGACTGTGAGCCACCATGTGGCTGGTGGGAA
CTGAACCCACGTCCTCTGGAAGAGCACCAAAATGATTTTATTTAGGTATGCTGAGCATAGCCCCAGCTCCCTGTTGTACT
CCTTGTTCCCTTTAGTAAAAATCTGAGCTGCTACCAGAAGGTACCACCCACACTTGGGGTGGGTCTTCTCATGTCAATCA
AACCATCAGGACAGTTCTTCAATTGAGGCTTCTACAGGTGATTCTAATTTGTGACAAGTTGCCATTGAAACCAACCA
TGATAGATAAGAAATGTCCTTCAAAGCTCAGACACTGAAGGTGTGGTCCCCGGTACAGCAGTGTTCAGAGGGGAGGC
ATTTGGGAGGGGATTGGATCATGAGGACTCTGACTTCATCAGTGAGCAATCCGTTTCATAGGTAGATTGATAGCTTAAA
GGTCTACTGTGGGGAGATGGAAGCATTAGAATGTGGAACCCAGTCAAAGAAGTAGGTCACTGAGGCATGTCCTTGAAT
GGTACTGTGTCCCTTGCTCTGTGTCCCTTCTCTGTCCCTTCTGCCCCACCCTGTCTCTTTCTGCTTCTTAGGACTTAAAG
GGTGAGTGGCTTTGCTCCCTGAAAGCTCCCTGCTCTCCCATTTGTCTCAACACAGGCTTAAGACCAAAAGGATGGAATG
ATCACAGACTCAAACCTCTAAATGCAAAGTAAACCTTTCTCCTCCTCCTCCCCCTCCTCCTCCTCAATTGACTCTT
CAAGTATTATGGTACAGCAATGGAGAGCTAACACAAATGCCACACCAGCTATCTTATTCCATCTTTCAAACACGGATCA
GCAGTAAGTGTCAATTATTATGCCCATTCACAGAGGAGGAGACTGAGGAGTATCCAGGATTGTACAGCTACTCCATAC
ACAGGGGAAGAAGGGTTTAGATGGCGCTTCTCTGATTTAGGCTTCTGTTCTTACCCAGCTCTCTGGTGGAATGAAGC
ATTCGGTCTGCTAGGGCTTCGTGTGGGTGACAGATGTTGCTAGGAGCATTGTACAGGGACAGGAAGGGCTTTGCTG
CATCTGGTCTGTGCACAGTCACCGCTTATATGGAGTAAATAGAATAGTGTTAGGAAGAGTCACCCAGGAGGCACACA
TGACCCAGAGGCAGCGATGCAGCTGCTAACAGAAGGGAAAGGCCAATGTGTGTTAGGAAGGAAGTACAGGAAGTG
CAAAGCCTCAGATACACTCAGGACCAGGGTGGAATGTGGTACATATGAAGTTGATGTTAAGTGGCTCCATTTATTGCA
CTTGGGACAGGACAGATGCTGTGTTCCAACAGACAGTAAGTACAGAGCTGTTAGCTTCTGGTTTGGTGGCTCTGGC
TGTGGCGTCAGCAAGCGTTGAGTTCTCTCCCTGTCTACTGTGTATCAGTACAGGCCAGTGAATTGCTTACCCGTTT
AAGGATCCTTCTTTAGAAATGTAAGCACATTAACATTTAGGGTTGGTGACAGGATCAAAAGGTCTATGCTGTGCCAG
ATGCTCAATATAGATGCTCAACAAATGTTCTTTTCTGATGTGAGTAGAGCGTGAACCTTGCATCCGTTAAGGCTAGGAAC
CACGCCTATCTTTTTCTTCTCACCCTCGTCAGCATCTAACCCGCTTCTCTTCTCTAGTTATGGGCCTCATCTCTGGATTT
GGAGATGCCTGCTACATGGTTTGATGTTCACTTCTGATGAAGTGTGGCCATATTTGGGGGTATTTGAATTTTGGTGAGA
CTTCCAGGATACTGCCTCCGCTTCAACTCCCCTGTGAAGGCTGAATGTTACAGGCCTTCACAGCACTTGGGATCAGAG
TACAAGGTTAAAGGGGATGGTCAGAATCCTCCAGGTCTATGGTGTGCAGAGAAGCCTGATCACTTCTAACAGGGATC
CTTACTCTCCTGGTCATTATTTGGGCACTGATGTCTTCCATAGGTTTCCATTTCCACGGGGGACACGGCACTGGGTTCTG
TAACTTGCAGGGGGAGAGGGTGGGGGGATACTGAATGCCAGACAGTCTTCTCTGATGGCACTAGAGATGCTTCAGTGG
GGGTTGGAATGGCAGAAGTTCTGGAATAGTGGGTGACAGCGGGCTGGGAAAGGTATGCAGTATCCAGGACCCCTTCT
CTGCTTAGCGGGTGGGTAGCATGTGGTTCATCGGGGGAACCTCACATCATCTGCTCTGGGTGGCTGCTTGTATGTTGGTT
TCTCTTTCGAAAATGTTCAATTGTGTTACATCTCTGTGTAGTCATAAAACCTCAGAGCTGGCCACGGAGGTACATAG
TTGAACCTCCAGCTTAAGCCCATCTGTCATCCAGCCACCAAGGCAAACAGAAACAGTTTCATCTAGGAGACTCTCCAGG
ATATGAAGACACTGCCCTAGTGCCTTTTTCTGATATTTGCTGCTGTGCTGTGACCTTTCCCTCACTGATAGGCACAGAG
CTCCAAAGGTCTGCATGAAAGCACTTCAGAGGGTGATAAAACCACTCCCCAGCCTTCTCTTCCAGATAGGACGCCAAG
AATTGGAAGCAAAGGTCTCTCCCCCTCCTCCTTCCCCCTACCCCTCCTCCTCCCCCTCCCAAGTGCTGGGGATCAAAC
ATGGCTTGTGCATGTTGGGTTCACTCTACCACTAGGCTGTGCGGTGCATACGAAGACTGGATGTTGACATTCAGTGTCC
TCTTGCCTCGGTAGGTTTCTATTGCTGTGAATACCATTGCCAAAAGCAACTTGAGGAACAAAGGATTTCATCTCACCTT
ACAGGCTTCAGTCTGAAAGGAAGTCAGGGAAGGAACCTCAGCAGGAACCTGGAGGCAGGAAGTGAAGCACAGACCTC
AGAGGAGTGTAGCTTACTGGCTTGCTCCTCATGGGATGCTCAACCTGCTTCTTATACAACCTAGGACTGCTTGTCTGGA
GGTGACATCCCTTGCATTGGGTAGAACACTTGTATCACATGCAAGAAGTCTGCATCCAACCTCTAGCAGGGCAAAAA
AGGAGCACAAACAAACACACCAAACTAAACAAAAAAGACTGGGGTCTGGAGGAGACTATAGGCTCTGGTTTGCAGATA
CTGCATCGAGTTGATGGAGAAATCACCTGCATCCTTTGGTTCTTGTATCTTAGGTCCTTGCAAGTGGGGTTGTTTTAGA

TCTGGACAGGCCACCCACGTTTTACTCGGCCTATGCAGGCTCTGCCTTTTCCTCAGGGCAGATCAGGATATAACTAACC
ATCCAAAGCCCACACTCACTTCTCATTGTAACATGGTCTTTATAGACTTTGGGATCCTTACCCAGAATAGTCTGCTCCGT
AAGCCTTTGCGGGGGGGGGGGGGGGGGGGGGAGGGGGGGCCTGGAATCCTAAACTGCTGCTATCAGCTGGCATCTTTAG
GCCCCAAAGCAGCCTATTGGTGACTGTCAACAGCCTGGACTGCGTCTGACCCGTGAGGTATGTTCTCTCTGCAGTAGG
ATTTTTAGAACGCACGACTGCCTGCCAGGGTCTGGCTAGGCAGTGTTTAGCAAGACTCTTTAAGTTAGGCTACTGGTT
CACTTTTAGCCCTGGGCCAGGCTCTTGCCCCAAAATGTGTGCAGTGTGTCACTGACCCTGACACCAGTTTCCAGGGTCA
TTACAGAGGAGGGCGGCAAGGCCACAGAGAAGTGAGGTCAAATCGCTCACAGCTATTGAGTCCTTACAATCAATCTGCA
CACAGCAGCTAGGGCAGCGACCCAGCACTGTGTAACTGTGGGAGCTCCTACCCCCACCCCAGGCTGTCCAGCTGGA
GGGCAGTGGGTGTGGATGCATCCTGCCCTGGCTTCCGTGGGTGCACGTGGAGGGGTCTCCGATCGTCAGTGACTGTCT
CCCAGCTGGCCTGGCCTCCCGGGACGCCAATCCCCAGGCGGCCAGGGGCTGGCGGGGACGGCGGGCCTGGCAGCGG
GGGATTTGGGTGCGTGGCTGGGCGCCCGCCGGGGGTGGATCTGGGTGCTCGGCGCCCGCCCGCTCCCGGCATGCC
TGCTGCTGGCGCTGCGGGCAGCACTCGGACTTGGCCTTGGGGGGGATCGCGGGGAGCCGGCCTACCCCGAGCTGC
AATTGAGGTGGGTGAGCACGCGGGGCGGTGGCGGGTGGCGGGTGGCGGGAAGGCTCTCTGTGGGCTGCTGGGACACT
GCTTTGTTCTGCCCTGCGGAAACGGAGCAGCGCGCAAGTTGGGGACCAAAGTTGAGCGCGCGTACCAGCCTTCCCTGG
GGGCGGCAGGCGGGCCAAAGAAGGGAGAGAGTTGGATCTTGATGGGTTTAAAATCAAATGGAGGGGAAAGCTAAGAG
GGAGATGGAACGAGAAAGAGAGATGCAGGGAGAGAGGAAAAGTCACGGAGATACAGAGAACACACAAAGAAAGAAA
AGCGCACAAAGGAACGCCACACCGAGGGATCGCAGAAGGCGGCTGAGGGAAAGTTCAAGAAAGCAAAGACCTCAA
AGAAAGTACTGAAAAAGAGAGAAGAGGAAAGCGGCACTCTCTTGCGGGATGGTGGTGGAGCTTGGAGAAATAGGGGC
GTGGAAGGGAATATGTGGGGAGCCTGGAGAAGGGATACATTGGAGGAAAACATCTAGAGAGGAAGACATAAAAAATA
GGAGGAAAGAAAACGGTTAATATTGCTAGACAGAGAAGGACAGCACAGAGTGTCTAGAGAACTAAGGCAAACCTGT
TCCCTCCCCTTCTGCTTTCCCAACAGAGTATAAGATCAAAACAAAACAAAACAAAATAAAAAACAAAAAACT
CTGTGAGAGAGCAGCGTTTGCAGACTGCTGAGGAGGCTTCCTTGCCAACCTTAAGCCAGTAAAGTCCCCACCCTGTTTAC
CCGTTCTCTCAAAATTCAGCTCAATTATCCCCAGGTTTGCGAAGGAGGCTTTTCTAGAAAGTGCCATGCAATTGCAGTC
TCTTTATTACCCAAGCCTGCACATAGCCACCTACACAGCTGCATCCTTCTTCCCCACCAGTTCATTGTTCATGGGGGAGG
GGGATCTGTGTCTTCTGTCTCTAGTCTTCAGAAATTCAGTGTTGCTGTAAGCAGATGGTCAATCTGTGCTCCCCGAGTGA
CCATCAAGAGAGTTTGAATTCTGGGAGACATAAACATCACACATAGACTAAGTACTGTGGCGAGCCAGCCTGGGGTCC
TACAGACTGCTGAGGCATAGCACTCCTTTCTGTAGGTAAAGAACTAAACCCAGGGAGGGGAGGAAACTTTTTCAAAG
GTATGCCTATGGGAGGTCTGCCCTGAAAGGATGCTGTGAAGACCACTTCTCTGAGAGGCTCTGGCCTGAGTTTAAACACA
GCTTGATAGGCTGCGTCACGCTGCAGGAAGTAATGGCTCACGTTACAGGATGGTGGTCCCAAAGGATTGCATCGTGTGAT
GATGTCCTAGCTGGTCTTAGTTTGTCTAAGTTTCGGTCTGGGTGTTTGACAATGACCACAATACCTGACAGTGCATTTCTC
AGAACGGAAAAGCATCTTGTTAAGCCATACCTGACTGTTGGTGTGAGAGAAGCTGCCAGATGGTGTCTGCACAAGGAAT
ACTCCACTCTGCTTCTAAGTTTTCAACTCTCAAAGTGTGGTTCGGTCCGTCACAACCCATCCCAGGGTTCTCACTCTTCCTTAG
AAAGGAAAAGGAAGGTGACTCTTCACTTTGGACCAATGGCTTTCTGATGGCCAGCTATGTAGACCTGGACGAATTCTTT
AACCTCCTGGAAACTCAGTTTCTTACCATAACATAGAGATGCCCCATACGATCCTTGCTAGGCTCCACCCGGAGTATC
TGACACAGGAGGTAGTCTCTGAGTACAACCTTCTTCTGTCTGCGCATTATTTCACTTACATGACTTACAGCATGAAGT
CATCAAGGCAGGTGCAAATGTGTCTTAAGCTTCAAACCTAGCTCATTCTAACTGGAAAATAACCACTTACCATAAATAG
AGAAGGGAAATTTCGGCGTGGTCTAAGATGCCCTTGGGTTTGCAAGGGGATGTGAGGGAGCCTTGCTACCCTTTCCATC
CCCATTGGCCATTGTCAGCAGGTAAGACCCGGCCGCCCTCCCCACACCTGCCGTATCTTTACCAGGTCTGCTTGACTTT
ATGTTCCCCACAGCTTCCACCTGCTCAGAGGATGTGAGTGGACTGAGGCTGGGAGCCCCTGGAAGCATGGAGACTGTG
GTGATCGTCGCCATAGGTGTGCTGGCCACCATTTTCTGGCCTCATTGCTGCTTTGGTGGTGGTCTGTAGGCAGCGTTA
CTGCCGGCCTCGAGACCTACTACAGCGTTATGATTCCAAGTGAGTAGACTGTGATGGGGTGGGGGTGGGGCAGGGAGC
TGGGGGGCTGACAACAGGAAGCCCCGAGGGACAGAAGGAATTTGGAGCTGGCCGCTTCTGCCCAACTTATTCTCTCTTA
AGCGGTTCTGCAAGGCCACACTTCATACTATAAAGACTCCAGAGCGTAAGAACATTCTTAAGCATCCCAGCATCCCGA
GGCACCTCTTTCTCTGTTCAATTAGGTATGGAGAAGTCACTGAACGTGTGCACCTGACACGAAAGCCCTGACTTTGCGA
TGCTAGCTGCCTCATTTGGCAGAGGGATTAGCCAAAGCCCTTACCAGCCAAAACCCTGGGAACGGACATCTGACACTT
AGCCACACACCTAAGCAGCAGGTGTTCCAGATCATGCAGCCCCAGCACAGGGGTGCCTGTCTCCTTGACACAGATTTCTT
CTTCATCATGCGTTGTTGTGTGAAATTGATTTTGTTAAGTAAGACCAGTGTAGGGATTTTGAGCAGAGAGATCCATAAG
GGGTGTTAGCAACCAAACCTTAGGTTTCTGGTGTTTACCTTAACCTCTGTCTCAGCATCTCTTGTTGAATGCCATTTATATGTC
CCTGGAAGGCTATGCTTTGCAAAGAATGTTTCTGTAGCTTGGGTTCTACTGAACCCTGCTGTGAAGGTGGACATAGTGT
TTCTCAGAGGGGTGATGCTGTACACACGTTATAGAGCATAGGTAGGCCTGGGTGAACAGTATGTCTTTCCATACTCACA
CAGGTTTGAAGGGAGAAGAAAAGAAGAGCATTTGTTCTGTTTTTTTCCAAGATTGTGTCTCTGTGTATAGCCTTGGCTGT
CCTAGAACCTTGTCTCTAGACCAGGCTGGCCTCGAACTCACATTGAGATCTTCCCGGCTCTGCCTCCCAGGGGCTGGGA
TTACAGGCTGTGCCAACCCCCACCCACACTCTGGCATCTTTGGAATCGCGCTGACTCTGCCCTCTCCAGCAGTTTCCAGC
TTGTTTTGCTTCATTTGCGTGTGGTCTGCCTTCTGACCCAGTGTTTAGCTGTGTGCCCTTGTCTGTGCTGTGGGCACA
TTACAGTTAGATCTGTACCCAGGGCAAGCATTCTGTCTCTACCTCTGTCACTATAACAGAATCCATAAGATAACTTACT
GTAAAGAGAAAAGGTTTCATGGGCTTAGAGATTCTGGGCCATGATCAGGTGGACTTTCTGCGTCTAGAGATCTGATGGC
GCTGCCAGATAGGAGTTCATGGAGAAACAACTGCCCGTTTCATGGTCAGCATCGCAGAAAAAGAGACAAAGGAGAG
AGCTAGTGTCTCACAGTCCCCTTTAGGGTCCGGACTTAAAGCCTTCCCCTAGGCTGTACCTCTTCAAGGATCCATCTCC
TAATATTGCCATCCAAGGGAACAAGCCGTAACTCACAGGCCTTTGGGGGCCTTCAAGATCTAAATTATAGCAGTGGCT

CGCTGTGAGAAGAGGTTTCAGTTCGGAGTCACTCATCGGAAACTCTTAACGGTGGCTCTCCCTTCCAGGCCCATCGTGGACC
TCATTGGTGCTATGGAGACGCAGTCTGAACCCCTCCGAGCTGGAGCTGGATGATGTGTCATCACCAACCCCCACATCGA
GGCCATCCTGGAGAATGAGGACTGGATCGAAGATGCCTCGTAAGGCCACAGGAAGCTTTCGCTTTCTAGTCCTCTGGGA
TGGCAAAGGGACTTCTGGGTTCTTCACAGAACTCCACTGGACACCCAGAGCTCTTCCCCTTCCCCCGTCATGAGGA
ATGTCAGCATGAGGCATGGCCATGTTTGTCTTGTCTGTCTTTCACCTTTGTAGTCTTGAAGACCCAGGCAGTAAGAT
GTGTGGCAGACATCATTATAAAGCACCCCCCGCCCCGTGAGGTTGGGTCATTCTTGGACTGCCCAAGGATTTTGAGTT
AGCTCCAGGCAGCCTTTGCTTTCAGTGTCTCAACAGGGGCTGTCTGTTTAACAGGACAGTTCTTTGTGAAGTGTGTACCA
CTTCTTTTCATAATCCTTTTATCTTCTTGTCTTACTGACACACACTTATATCAGGGTGCTATATACAGGGTGTGGGGCCAG
GCCTTGAAGATGTCAAAATGACAGGAGATAGAACTGTACCAAAGCCAGTGTCATAGAGGTTTTAGGGAGTCTCCGTGT
ATGGCGAGTGGCACAGGGAGTTAGCAGGGTTCAGATCTGCCTGGGGTAAGAAGATCAAGGTAGCTTTGAGGAAACATA
TCCCAAAGGGGTGCATTTGAAGAAATGTTTAAAAATTGTGCTTGTGCTTCATGTTGACATTTTCATACATGTTTATCATGT
ATTTTAAACCACACTCCCTCCCCATTACCATCTCCCATCCACCTCCTACTTCTATAATACCCTTCTCTCCCTAAGTAGTCTA
CTTCTATCTTTTTCTTTTATGTTGAGA
AAGAGAGACAGACAGACAGACAGACAGACAGACAGAAACGAGCCCCATTTAATTTAACTAGGATTGCTTATAGGAGCCTG
GCCATCCCAATAGTAGCCACACAACCTAGCTAAGAAAATGCCTCTCCTTTTCTTTACTTTAACAACCATTAACCTACTTATA
AGCCCTTATGGAGCATGGGGCCTCATAAACCCCTCCCCTGAGTGGGTGCTTTTTGACTTGGGTTTGCAAAGGGGAACCTC
ACCAGGCTGAGTCTAAGGAAAAGGACATGTTGGACATCGGAGACATCAAACGTTGAACCTGGCAGGTGGTGACAGA
GCTGGCTGGAGGAGTGGGTGGCTGTGTATGTCTATAGCATGAGTGAGGAATTCTGTGTGGAGCGCTTGTCTGTGTGAGGCAAT
CTGGTGCCGGCTGAAGGACAGAGGGGGGAGCTGGATGGAGATGGGCACCTTCAGAACAGTACTGATAACTTTCCTCTTG
TCTCCCCAGGGGCTCATGTCCCACTGCATCGCCATCTTGAAGGTAATATTAGATCTCCCTGTGAGGTCATGGGCAGTT
GTGGGAGCGCCTCCAGTATACATGGAGCACTGCAGGTGTACATGGAGTTGACCTTGCAATGGTCCCTTGTAGCCTCAT
GCTATATTTCTTCTGTCTGTCTGCCATCTCTCCCTATCGGGTCTGTTTTACATTATCATTATAAACATCCTCTTTAGGCTTTT
CCCCAGTCTAGTCATCTTAAACACAGTGACTTATGGAAAGGACGGCTTGGGGGTCTCCAGTGATAATTTTCCAACCATGG
AGAAGGCTGGGTGTCTGAGACCATGGAGCTGCAGCAGCAAGGGCCTCCCTGGGATCCTTTATGAATTCTGAGCTCAGTC
CAGGGAACACAGCCTGTACTTAGGTTTCAGTTACTACAGGGTTCCTTTTGGCTTCTTGGTGACAATAGTCAGACAAAC
AGGACAATCAGAGTTACCAAAAACCCAAATTACAAGCTCTTCCACTTGGAGGCAGACTTTGGTCTTGAAGGCTTGGGA
AGATCACATCCAAGTTCCTGTTTCCAGCCGCATGGTTCTTGCCTTCGTTTCTCAACTCTCGCCTGATATCGTCTCTCCT
AATAGAATAATAACAACATGCAAATACTTAACAAAATGCAAATATGAGCTTCTGCACATCAGCGACCTTATCTCTTTGT
CTACTAATTATTAGTATTTCAAAAGAGACAACTCGCTCTTTTCTCTAAGGTCACTCCATACAGGATATTAaaaaaacctt
GTATTTGCTTCTTCTTTGGCTATCTCTGTAGAAAACGGTGGCCTCAGAATCAGGAAGTTCCTTGGATGTATAAATATGGC
TACACATACAAATATGGTTATAGGCAAAGGTAGCTAGGTTACAGATTGGAGCAGGAAGCCATATTACATTTACCTTTG
TCCAGACATGATATGTCCTGGGCCTTGTTTTTCTCCTGTCCTTTTTTCATCAAAGGGGGAGGGGCCCTTCTTCTTGGATTGG
GGAGCTCAGATAAAGAAAAGGGCTTCTGAGCTTCCCTCTTGAGACCCCAGGATGCCTTTGCTCCCCATTCTCCCCTGTGG
TGGGAGAGTGGAGAGCGTGGATCTTCTCCTCAGTGGCCTCTTGACCACTCTTCTTCTGCTTCTTAGCCTCGAGTACCA
GCAGGTAACGGGGCTTCTTTGCAGGGATAGAGGCATGCTTGTTTTAGCATAAGGGAATACAGAAAAGAACCACACGC
CTTGGAGCTGGCCAGTGGTGCGGGAGGAAGAGGAAGAAGCCACGTGTTGCCATTTTGCCTTTGGCCTGTCTTTTCCAG
GGCCCTTTTATCATCACTCGGAAAAACGTACAATAAACCCACAACCCCTCAAAAACCTGCAGCATAGTTGCTTTTATTG
GAGAATGTGCCTAAGAAAAACAGTTGCCCTTTGTCCAGGCCACATTTCTGTAGACCCCCACTGGAGATATTAGCCATT
TAGAAGTCTAAACCATGAAGTAATAGAAAGTTTTCTCCCCCAAGTCAAGGTGGTAAAATTGGAGCGCGTGATTTTTCTTA
GATGGATTATTCCAGCTTAGTCCTCTTTGAGCTGAAGGTCTGTCCTTGATCTCAGAGCCCTTCCCCCTACAGCTTCCACC
CAGGCTATTGGCTTTTTGCCTCTTTCCACCCCATTTTCTCTCATCACTAGGGTAGGAGCCAGTTTACCAGCGGTGCCAGG
TTGGGGCCGTGTTTCATCTTTTTCAGGGTGCCAGAGCCCTTGGTGTGGGGTTGGGGAGCCAGGTCACCCACATCACATCT
TGTCTCCTTGTTATATTAGATTTGTACACTCTGACAGAAAACTCGTTGCCATGACAATGGGTTCTGGGGCCAAGATG
AAGACGTCAGCAAGTGTCAGTGACATCATTGTGGTGGCCAAACGGATTAGCCCCAGGTGAGTGGTCAGTGGATGTGAG
GTCCCACAACGCCACAGGGGAACTGGGGTAGCCAGCAAGGCCAAGTACTGCTTTAAACAGTAGGTCTGCAGTCTCAG
TTATCCGAACCCCCAGTGCATACAGAACTGCCTCCCGTGGGTATTCTTAAGCTGAGGTGGTCACTCATCATTTTCTCTTGC
CAGCATAAGCCCTTTAAACAGCTCGGTATAACTGGGCTGACAGAGCCTGCACTCAACAGTGACAGCTCCTACCCTTACCG
GTCAGCCTCCCTTACCCTGCTACGAAGTGGCTGTCAGCAGGCGCAGTTCCCACTGGCTCCTATGTTATAGCTTCATAGA
CTTTTCAGCCAGGCCCTTAGGTCCAACCCTATAAGTATACTGGGGACTGGTTTGAGAGATAGATACCTTTCTTCCATGGT
GGCTCTCATTCACTGCTTGATTCCCATCCTAGCACTGGGTGGGAAGGGAAGCCACAGCACATTCAGACCTCCTGAATTC
CTGGCTGTCTGCAAAATCCCCTGTGGGAGGTACCCGGCAGGGCCTCAGTCAACAACTACACCCCTCAGTTGGACTGGA
TTTTGCAAAGAAAAATAAGGCCCTTTTCTTAGAGCAAAAGGACCTGCTAAATGCATGCTGCCACCTGGTGGCTGGTATG
TGGATTGGCTATCAAATGACGGGATTCCAGGAAAGTGTTCTTATCAAGTCACCTGACCCCTCTGCCTGGAATGGCCTCC
GCTGTGCATTCTTGGTGTCTGGGTAAAGTCACAAGCAACCAGGCTTTTCTGTCTCAAGAATAACCTAGTGGGGCTCAGG
AGGAGCCATGTGGCGAATCCTCTGGGAAATACAAGACTTGGAGTACTGAACTCTGTCTAGGTAGTCAGTGAGTGGAG
ACGCTGAGAGGAGGATGCAGGCCGGAATAGCTCTGGCTCTGGAGTTCCCCCTAGGTTAAATATCTGGTTAGCAT
CAGCGGCTTTCATGAGACAGCCCCACCTCCCAAGCTCCAGTCTGTGCCAGGCGTTGCCGCTACTCTCCACCATATTTA
GACCGTGCAGTGCCCTATCTCCTGGGCCCTTCTTGTGCATTTTGTACTCTTGAGATCCGCCCCGAGGTGCAGGTTA
TAAGTAGGGTGTTAGGGTGCTGATTTCTGAGAGGGGACAGGGTTTTTAAACAGTGTGCCAAGGTGAGAGTGTGGCATTGT

CAGGAGGGCAGAGCTCTCTGCAGAGTGCCCTGGACAACCTCACTCATGTTTCTTGCCAGAATCCTCTTGTTTTCTTCATT
TGGCCTCATGAGTTCGCCCTCTGGCTGATATTTGTCCCATGTCTTCCTGTTTAAATTTCTCCATCTGTACGATGATGA
TTTATTATTTTCAGGGAGAGCAGTTTCTGCCTTGGGCTCTGCAGAGGGGGAAGGGGCTAGTTGGGTGGGACAGACACAT
GCTGAAGACCGCCGTGCTCACCAGCTCCTCCGGCCTGAGAGTGAGGGCTGTGTATTTTTCTTAGTGCTTTTAGAAATCA
AATTATACAGTTTTTTTTCTTTGTACCAAGTGATCATGGGAGCAAAATCTTGTACCCACAAAATCAGAACAGGTAGGAA
TGTAACCTAAAAATATTAGCCATGGACTGACTATCCAGGACGGAAAAACACACACACATACACACAGTGGAGAGGTTTGA
ACTCAAATTAAGAGGTGAAGTGACTTTTTTGGGGGGGGTAGTGTTCTATATCACTGTATTTGTATCTTTAAAAAAACCC
ACAAAAGTAATAAATGCTTATAAAAGTTAACTACTTCAGGAATAGATTATCTGAAAAGTGAGGTGCTCCCTAATTCCA
CCCCCTCCCAATTTGGGGAGATTGGCCACCATAAGTGGAAGCATCCCCTTAGACGTCCCCTCTTGCAATTCATAGCTTT
AGTTTACTGTTTATATATATACACATATATATACATATACACATACACACACACACACACATATATATATGTT
AAAGGGTACAGCATGCTCATGCTTGGTAGTAACCTTTTCAGTGTGCTAGTTATCTCAGCATCGCTCCCTATGTGTGACC
TCACACATTTTAACCATTTGGGATGAAAACAAAAACAGAGAGCAGGGATATTCCCAAGTAGAATCTGAAGTCTTTCTGT
TAGACTCCACTGGGTATGCAGAAGCAGGTAGAGAAAGGACTCCTAAAGGTGGGTGTGTAACAGCACCAGAGAAAGTCTG
GAGTGACAACAGCAAGGAAGGAGGAGGAAAAAGGGACTAGGAAAATGCTCACAATTGTCCCATTGCCTCCCCTCAGAG
TGGACGACGTCGTGAAGTCAATGTACCCTCCACTGGACCCCAAGCTCCTGGATGCACGGTGAGAGGGAGGAAGTGTGA
CTCATCTTGTCTCACTTCAGGGTCGCTATTATCAACCATGTCAGGTGGGCTGCTTGGGTATGAAGAGAGGATGTTTTTC
CAGATTTCCAACCACCCCTGGCTCTGGGTGAGCCATTCAGTGAGCTGAGCCTGGCAGGTGATAGAGCCCAATCTTCCTC
CTGAATCCCTAAGAGGAAGGTGCCAGCCATGTGTCAGCCTTGGCTCTGCAGGCTTAAGTATGCTAACTGGGCCTCCCTG
CCCTCCACGCCCCATTCTTCTCTGATCTTTGGACTTACCCAGGTGCCACACCTTGCTGGAAGCACTGCCCAGTGGGGC
TGTGGTGAGGTGAACCCAGCAATGAGAACATGTAATACCTCAGCCACAGTGGAAGACACTCCCCATCAGGTGTTTCGG
GAACCCCTCCTCCTCCACTCCCCAGAATGTACTCAGCCCTATCGAATGTAAACCCATAAAATACCTACCTGCTGTCTCC
ATTTGATTGGTGAGGCTCCCACTGACATGTTGTGTAATGGTTGCCAGGTGGCGAGTAAGTCATGACACGTTTCTCTGCC
CACTCTTAGTGTTGTTTCAGCTTTTCCCATGGGTAGTAATTGGTAATGGAGCCCTGAATACATCTAGCACCATATAAAAT
CATTTTCAGAGTGAATCTTTCAACAAAAAACCACAGATCAAATAAAAAAACCACACAAAAACCA
AAGAAACAACAACAAAACCTTCCTTCTCAATTTGATTTTCAATTACATTTTCTTTAGCGTTGAATAAGCCAGCCCCAGGC
TTATTGATTTGTGATCAATAAGGGATGCTCACTGAAGAGGGATATATAGCCCATCTTTAAGTGGGCTGCAGTTAGAGAT
CTGCTCATCCAATTGACCACATCCAAACTGTTTCATAAAACACCCCTTCTGGGAGCTGTTAATGGGTGTGTTGCAGAAAG
CCTCTTCTACTACCCGAAAAGCTCCCGTTTCCCCATGGAGTTATGTTAATCTCATCAAAGGCTCTGAGACCTTCTGTTTA
AAGCCAGCCATCCCCCTATGTGTGGCTCCATTGTGTTAAGTAACTGCTCACCTTCCAGGGAAGGGTCTCCGGTTTGGGG
AACACTAACCTAGAGTGTGTACTCATTTGGACTTCTGTGCAAAGTTCACCACTTCTACAGAGTCTGATCTCTTCTCC
CCCCCCCCCCCCAGGACAACCGCCCTGCTGCTGTCCGTTAGTCACTTGGTGCTAGTGACCAGGAACGCCTGCCATCTAA
CCGGGGGCTGGACTGGATTGACCAATCACTGTCTGCCGCTGAGGAGCACCTGGAAGTCCTTCGAGAGGCAGCCCTGG
CTTCTGAGCCAGATAAAAGCCTCCCCAACCTGAGGGCTTCTGCAGGAACAGTCGGCCATTTAATCATCTCCGAGGCC
CCATTTCCGCCCCCTGGGCGAGCCTTCTACTTCTGTAGATTTAGTTGTTCTCTAGAGCTCTGTCCGCCAGCCCTGGGTGC
AGGGTAAAGCCGAGAGCCTCAGCTGGACAGGCTCTGCTGCAATGGCAAAACAGTGGCTGGAGAGTGGCAGTGTAATCC
CACAGTTAGGGAGAGCGCTGTGTACCTCTACAGCAGAGCGCAGAAAGCTGCCGGGCTCGCTGCTACATTTAGTTCACTT
AATGTTTCCAAGAAAATCGAGTTGCCCTCTAAGAATTGAGAGACTTCATATCAAATTAGAATTTCCGGCTTCTGAAAAT
CAAGGCGTGGCAACATGGACAATCAGAACTAAGTGGCTAGGTCGAGATAGTCTCTTCGGGTGACCCTTGTGCTCCCCTT
GCTAATTTGTTTGTGTTTCAGTGCTTTGGTTTCTGAAGCATCAGAGCTCCCCACCCCCACCCGCTTCCCATGTATCTTCC
GCTTTCCCATTTGTGTTAGAAGCTGAGGAAATGCGAAGTCAATTGTTTCTTTTATCACTATGCCTGCAATTTGCTTT
ACAACCACCAGGCGAATAGTAACTTGTCTTCTGTTTTCTCAAGTGTGTAGTTACCGAGTCAAGTGATTTGTTGGGT
ATGCGGTGGAATGTGTAAGAACTGAGGACGGATGGAAGGGGCCAAGAATCCTGAAGGTGCTCTGTGTGTGTGTGTGT
GT
TCTGGAATCTGTCTTGCAAATACAAAAAAGAAAGGTTCAATTTTTTTTATTGTTTGGTTTCTGTTTTTTTTTAAATTTAAATA
TTTATTTATTTTCATGTATATGAGTACACTGTCACTGTCTTCAGGCACACAAGAAGAGAGAATCCCTGGGCTGGAGAGAT
GGCTCAGTGGTAAAAGCCACTGACTGCTCTTCCAGAGGTCCTGAGTTCAACTCCCTGCAACCACATGGTGGCTCAAAA
TCATCTGTAAGTGGATCTGATGCCCTCTTATAGTGTGTCTGAAGACAGCTACAGTGTACTCATGTCCATGAAATAAATAT
ATAATTCTTAAAAAAGGGGCATCCCATTACAGAGGGTTGTTTGCCACCATATGGTTGTTGGGAATTGAACTCAG
GACCTCTGGAAGAGCAGTTGGTGCTCTTAACCACTGAGCCACCTCTCCAGTCTCTTCTGCAGAGATCTTGTCCTCACCT
GACCCTTGAAGTGCATCAATTGTTTCTGTGACCTGGGCTCCAGGCTCCATCCAATGGTCTCAACAGGACTTCAAAG
CATGTCTACTAGTTTGAAGGTTTCTCAGGTTTGGCAGGAACCATGTGGACAAAAGTCTTGACAGAGATAGCACCTTGG
GCAGTCTAGTGACCAGATTACAGCCTCTGAGTTTTTGGGATTAGGCACGTAGACTTCTTTCGTGTAGCAGACTATCCCC
TCCTCCAGGGCATAACAGGCACTTGTTCCTCCCAAGTCCCACATGAGCGCTGGGTGTCACCTAACTGATGCTAAGTGC
CAAGGATGTTGCCAGCATGAACGTAGTGACCTTCCATTTTCTTGATGCCATAGTGATTTCCACCAAGGTTCTTAGAGCT
GCCACCTGTCTTCTTGATGCGTGTCTGACAGCAAGTGTGTAGGTGCTGTGGGACTCAGAAGGGCTGTCACTGCTGCC
CGAGTCTCAGCATAAGCACTGCCCTGGCCACCCTGCCATATTTGCCTCACATTCCTTGTCTTCTAAATTGTAGCCTTG
AATTTGAGATCCTCCTGCCTCAGCTTCCACAGTGTGGGATCACTGGCATCTAATACCACCCTCACTGATAATGGGCAC
TTCTCTGACCTGAGAACTCAGTGGGACCCAGCTCGAGGCCCATACTCCAGATCTTGTCAATCCCATCCCATTTCATGTAG
GGGAGCCTGAAGGATCTTCTTTCCACAGGCCTGGATGTTGGGACTGGCTTGCTGTTGTCTGGGTCTATCTCTGTCAATTA

AGCATGGTTGGAGCTACCTCTGACCTCAGTTCCATTTTCTCTGCTAAAACCTCAAGTCAGCAGGCTCTTTAGTTTGATATT
GAGGTACCAGGAACCTCAGTCCTTAGGCCAGGATCTTGTTTGTCTGTGATTGGCATATTTTCATTCTCTCCTGGCAAGAAG
GCAGCTCTGACCAGAACTGTATGTACCCCTTTTCAGACTGCAGGCTGGATTCCAGGGGAAACTTGTTAAATGTCTCCTTC
CATCAGTCCTAAAAGTGTGTTATGCTGTTACCTCCTGCCCTGCTGGAAGCCGTGACTGGGAAACGTCCAAGAAAACAAA
AACAAACAAACAAAAACCCCATTTCTGCCTTTTTTACTTAAGGTCTCCACGGACAGTTCTCAGGGCCTGACTTTTGTCTCT
GTTCTTCTCTTTTAAGATCCGGTAGCATCACTGGACATCTGAGGTGCGAGTGGCTGCTACTGTGGTAAATGTCTCTG
ATCTGAACCCTTGTCTGAGCTCGAGAGAAGCAAGTCTAAATTGGGATCTCAGTTGTCAATTTACTCCGGGTGGAGGATG
GGGTGGGTGCTCAGAGTTCTTTAAGGTAATATCTGCCATTGCTTACCTTTCTGAGCCTGGGAGGCCTCCCACCCATC
CTGGTATACCCTCTGTCAGGAGGACAGATTGCTCAGGACCTGAGGAGTGTCTGGGGTTGGGGGAGAAGAAAGGAGAGA
GGAAGGGAGGGAGGGAGGGAGGGAGGGAGGGAGAGAGTGGGGGAGGGAATTCGTGCATGCACAGGCATGTGT
GATATTACACAGGCCAGCTTTCCAGTGCTGTGCAAAGGAAAAGCCTCTAGACAATGGCCACTGTATACAGGACCCA

Selection Cassette:

CGCTCTAGAGGCCATAGCGGCCATGATCCTCGAGGCGCGCCGGATCCCGGGCCGCTCTAGCTAGACTAGTCTAGCTAG
AGAATTCCGCCCCCTCTCCCTCCCCCCCCCTAACGTTACTGGCCGAAGCCGCTTGGAATAAGGCCGGTGTGCGTTTGTCT
ATATGTTATTTTCCACCATATTGCCGTCTTTTGGCAATGTGAGGGCCCGGAAACCTGGCCCTGTCTTCTTGACGAGCATT
CCTAGGGGTCTTTCCCTCTCGCCAAAGGAATGCAAGGTCTGTTGAATGTCGTGAAGGAAGCAGTTCTCTGGAAGCTT
CTTGAAGACAAACAACGTCTGTAGCGACCCTTTGCAGGCAGCGGAACCCCCACCTGGCGACAGGTGCCTCTGCGGCC
AAAAGCCACGTGTATAAGATACACCTGCAAAGGCGGCACAACCCACGTGCCACGTTGTGAGTTGGATAGTTGTGAAAA
GAGTCAAATGGCTCTCCTCAAGCGTATTCAACAAGGGGTGAAGGATGCCAGAAGGTACCCCATTTGTATGGGATCTG
ATCTGGGGCCTCGGTGCACATGCTTTACATGTGTTTAGTCGAGGTAAAAAAACGTCTAGGCCCCCGAACCACGGGGA
CGTGGTTTTCTTTGAAAAACACGATGATAAGCTTGCCACAACCATGGAAGATCCCGTCGTTTTACAACGTCGTGACTG
GGAAAACCTGGCGTTACCCAACCTAATCGCCTTGCCAGCACATCCCCCTTTCGCCAGCTGGCGTAATAGCGAAGAGGCC
CGCACCGATCGCCCTTCCCAACAGTTGCGCAGCCTGAATGGCGAATGGCGCTTTGCCTGGTTCCGGCACCCAGAAGCGG
TGCCGGAAGCTGGCTGGAGTGCGATCTTCTGAGGCCGATACTGTGCTCGTCCCTCAAACCTGGCAGATGCACGGTTA
CGATGCGCCCATCTACACCAACGTAACCTATCCCATTTACGGTCAATCCGCCGTTTGTTCACCGGAGAATCCGACGGGT
TGTTACTCGCTCACATTTAATGTTGATGAAAGCTGGCTACAGGAAGGCCAGACGCGAATTATTTTTGATGGCGTTAACT
CGGCGTTTCATCTGTGGTGCAACGGGCGCTGGGTGCGTTACGGCCAGGACAGTCGTTTGCCGTCTGAATTTGACCTGAG
CGCATTTTTACGCGCCGAGAAAAACCGCCTCGCGGTGATGGTGCTGCGCTGGAGTGACGGCAGTTATCTGGAAGATCA
GGATATGTGGCGGATGAGCGGCATTTTCCGTGACGTCTCGTTGCTGCATAAACCGACTACACAAATCAGCGATTTCCAT
GTTGCCACTCGCTTAATGATGATTTACGCCGCGCTGTACTGGAGGCTGAAGTTCAGATGTGCGGCGAGTTGCGTGACT
ACCTACGGGTAAACAGTTTCTTTATGGCAGGGTGAAACGCGAGGTCGCCAGCGGCACCGCGCCTTTTCGGCGGTGAAATTAT
CGATGAGCGTGTTGTTATGCCGATCGCGTCACACTACGTCTGAACGTCGAAAACCCGAAACTGTGGAGCGCCGAAAT
CCCGAATCTCTATCGTGCGGTGTTGAACCTGCACACCGCCGACGGCAGCGTGATTGAAGCAGAAGCCTGCGATGTCGG
TTTCCGCGAGGTGCGGATTGAAAATGGTCTGCTGCTGAACGGCAAGCCGTTGCTGATTTCGAGGCGTTAACCCTCAC
GAGATCATCTCTGCATGTTTCAGGTGATGGATGAGCAGCATGGTGCAAGGATATCCTGCTGATGAAGCAGAACAAC
TTTAACGCCGTGCGCTGTTCCGATTATCCGAACCATCCGCTGTGGTACACGCTGTGCGACCGCTACGGCCTGTATGTGGT
GGATGAAGCCAATATTGAAACCCACGGCATGGTGCCAATGAATCGTCTGACCGATGATCCGCGCTGGCTACCGGCGAT
GAGCGAACGCGTAACGCGAATGGTGACGCGCATCGTAATCACCCGAGTGATGATCATCTGGTTCGCTGGGGAATGAATC
AGGCCACGGCGCTAATCACGACGCGCTGTATCGCTGGATCAAATCTGTGATCCTTCCCGCCCGGTGCAGTATGAAGGC
GGCGGAGCCGACACCACGGCCACCGATATTATTTGCCGATGTACGCGCGCGTGATGAAGACCAGCCCTTCCCGGCT
GTGCCGAAATGGTCCATCAAAAAATGGCTTTCGCTACCTGGAGAGACGCGCCCGCTGATCCTTTGCGAATACGCCACG
CGATGGGTAAACAGTCTTGGCGGTTTCGCTAAATACTGGCAGGCGTTTCGTGAGTATCCCCGTTTACAGGGCGGCTTCGT
CTGGGACTGGGTGGATCAGTCGCTGATTAAATATGATGAAAACGGCAACCCGTGGTTCGGCTTACGGCGGTGATTTTGGC
GATACGCCGAACGATCGCCAGTTCTGTATGAACGGTCTGGTCTTTGCCGACCGCACGCGCATCCAGCGCTGACGGAA
GCAAAACACCAGCAGAGTTTTTCCAGTTCCGTTTATCCGGGCAAACCATCGAAGTGACCAGCGAATACCTGTTCCGTC
ATAGCGATAACGAGCTCCTGCACTGGATGGTGGCGCTGGATGGTAAGCCGCTGGCAAGCGGTGAAGTGCTCTGGATG
TCGCTCCACAAGGTAAACAGTTGATTGAACTGCCTGAACTACCGCAGCCGAGAGCGCCGGGCAACTCTGGCTCACAG
TACGCGTAGTGCAACCGAACGCGACCGCATGGTCAGAAGCCGGGCACATCAGCGCCTGGCAGCAGTGGCGTCTGGCGG
AAAACCTCAGTGTGACGCTCCCCGCCGCGTCCACGCCATCCCGCATCTGACCACCAGCGAAATGGATTTTTGCATCGA
GCTGGGTAATAAGCGTTGGCAATTTAACCGCCAGTCAGGCTTTCTTTACAGATGTGGATTGGCGATAAAAAACAACCTG
CTGACGCCGCTGCGCGATCAGTTACCCGTGCACCGCTGGATAACGACATTGGCGTAAGTGAAGCGACCCGCATTGAC
CCTAACGCCTGGGTGCAACGCTGGAAGGCGGCGGGCCATTACCAGGCCGAAGCAGCGTTGTTGCAGTGCACGGCAGAT
ACACTTGCTGATGCGGTGCTGATTACGACCGCTCACGCGTGGCAGCATCAGGGGAAAACCTTATTTATCAGCCGAAAA
ACCTACCGGATTGATGGTAGTGGTCAAATGGCGATTACCGTTGATGTTGAAGTGGCGAGCGATACACCGCATCCGGCG
CGGATTGGCCTGAACTGCCAGCTGGCGCAGGTAGCAGAGCGGGTAACTGGCTCGGATTAGGGCCGCAAGAAAACCTAT
CCCGACCGCCTTACTGCCGCTGTTTTGACCGCTGGGATCTGCCATTGTGACACATGTATACCCCGTACGTCTTCCCGAG
CGAAAACGGTCTGCGCTGCGGGACGCGCGAATTGAATTATGGCCACACCAAGTGGCGCGGCGACTTCCAGTTCAACAT

CAGCCGCTACAGTCAACAGCAACTGATGGAAACCAGCCATCGCCATCTGCTGCACGCGGAAGAAGGCACATGGCTGAA
TATCGACGGTTTCCATATGGGGATTGGTGGCGACGACTCCTGGAGCCCGTCAGTATCGGCGGAATTCCAGCTGAGCGCC
GGTCGCTACCATACCAGTTGGTCTGGTGTCAAAAATAATAAACCAGGGCAGGCCATGTCTGCCCCGATTTTCGCGTAA
GGAAATCCATTATGTACTATTTAAAAAACACAACTTTTGGATGTTTCGGTTTATTCCTTTTCTTTTACTTTTTATCATGG
GAGCCTACTTCCCGTTTTTCCCGATTGGCTACATGACATCAACCATATCAGCAAAAGTGATACGGGTATTATTTTTGCC
GCTATTTCTCTGTTCTCGCTATTATTCCAACCGCTGTTTGGTCTGCTTTCTGACAAACTCGGAACTTGTTTATTGCAGCTT
ATAATGGTTACAAATAAAGCAATAGCATCACAATTTACAAATTTAATTAAGGCCGCGGGATCGATCCCGTCGAGCA
GTGTGGTTTTCAAGAGGAAGCAAAAAGCCTCTCCACCCAGGCCTGGAATGTTTCCACCCAATGTTCGAGCAGTGTGGTTT
TGCAAGAGGAAGCAAAAAGCCTCTCCACCCAGGCCTGGAATGTTTCCACCCAATGTTCGAGCAAACCCCGCCCAGCGTC
TTGTCAATTGGCGAATTTCGAACACGCAGATGCAGTCGGGGCGCGCGGTCCCAGGTCCACTTCGCATATTAAGGTGACGC
GTGTGGCCTCGAACACCGAGCGACCCTGCAGCCAATATGGGATCGGCCATTGAACAAGATGGATTGCACGCAAGTTCC
CCGCGCGCTTGGGTGGAGAGGCTATTCCGGCTATGACTGGGCACAACAGACAATCGGCTGCTGTATGCCGCGGTGTTCC
GGCTGTCAGCGCAGGGGCGCCCGTTCTTTTTGTCAAGACCGACCTGTCCGGTGCCCTGAATGAACTGCAGGACGAGG
CAGCGCGGCTATCGTGGCTGGCCACGACGGGCGTTCTTTCGCGAGCTGTGCTCGACGTTGTCACTGAAGCGGGAAGGG
ACTGGCTGCTATTGGGCGAAGTGCCGGGGCAGGATCTCCTGTCTATCTCACCTTGCTCCTGCCGAGAAAGTATCCATCAT
GGCTGATGCAATGCGGCGGCTGCATACGCTTGATCCGGCTACCTGCCCATTTCGACCACCAAGCGAAACATCGCATCGA
GCGAGCACGTACTCGGATGGAAGCCGGTCTTGTGATCAGGATGATCTGGACGAAGAGCATCAGGGGCTCGCGCCAGC
CGAACTGTTCCGCCAGGCTCAAGGCGCGCATGCCCCAGCGCGAGGATCTCGTCGTGACCCATGGCGATGCCTGCTTGCC
GAATATCATGGTGGAAAATGGCCGCTTTTCTGGATTTCATCGACTGTGGCCGGCTGGGTGTGGCGGACCGCTATCAGGAC
ATAGCGTTGGCTACCCGTGATATTGCTGAAGAGCTTGGCGGCGAATGGGCTGACCGCTTCTCTGTGCTTTACGGTATCG
CCGCTCCCGATTTCGAGCGCATCGCCTTCTATCGCCTTCTTGACGAGTTCTTCTGAGGGGATCGGCAATAAAAAGACAG
AATAAACCGCACGGGTGTTGGGTCGTTTGTTCGGATCCGAATTCCTCGAGGGCGCGCCATTTAAATGGCCAGCGAGGCC
GGTACCCAATTCGCCCTATAG

Targeted Locus:

CTGTAAGTAGAGTCATGCAAGACTGTGAGCCACCATGTGGCTGGTGGGAACTGAACCCACGTCCTCTGGAAGAGCACC
AAATGATTTTATTTAGGTATGCTGAGCATAGCCCCAGCTCCCTGTTGTACTCCTTGTTCCTTTAGTAAAAATCTGAGCTG
CTACCAGAAGGTACCACCCACACTTGGGGTGGGTCTTCTCATGTCAATCAAACCCATCAGGACAGTTCTTCAATTGAGG
CTTCTACAGGTGATTCTAATTTGTGACAAGTTGCCATTGAAACCAACCATGATAGATAAGAAATGTCCCTTCAAAGCT
CAGACACTGAAGGTGTGGTCCCCGGTACAGCAGTGTTTCAGAGGGGAGGCATTTGGGAGGGGATTGGATCATGAGGACT
CTGACTTCATCAGTGGACCAATCCGTTTCATAGGTAGATTGATAGCTTAAAGGTCTACTGTGGGGAGATGGAAGCATTAG
AATGTGGAACCCAGTCAAAGAAGTAGGTCACTGAGGCATGTCTTGAATGGTACTGTGTCCCTTGCTCTGTGTCTTTCT
CTGTCCCTTCTGCCCCACCCTGTCTCTTTCTGCTTCTTAGGACTTAAAGGGTGAGTGGCTTTGCTCCCTGAAAGCTCC
CTGCTCTCCCATTTGTCTCAACACAGGCTTAAAGACCAAAAGGATGGAATGATCACAGACTCAAACCTCTAAATGCAAAGT
AAACCTTTCTCTCTCTCTCCCTCCCTCCTCCTCCTCAATTGACTCTTCAAGTATTATGGTACAGCAATGGAGAGCTA
ACACAAATGCCACACCAGCTATCTTATTCATCTTTCAAACACGGATCAGCAGTAAGTGTCAATTATTATGCCATTGCA
CAGAGGAGGAGACTGAGGAGTATCCAGGATTGTACAGCTACTCCATACACAGGGGAAGAAGGGTTTAGATGGCGCTTT
CTCTGATTTAGGCTTCTGTTCTTACCCAGCTCTCTGGTGGAATGAAGCATTTCGGTTCTGCCTAGGGCTTCGTGTGGGTG
ACAGATGTTGCTAGGAGCATTTGTACAGGGACAGGAAGGGCTTTGCTGCATCTGGTCCTGTGCACAGTCACCGCTTATA
TGGAGTAAATAGAATAGTGTAGGAAGAGTCACCCAGGAGGCACACATGACCCAGAGGCAGCGATGCAGCTGCTAAC
AGAAGGGAAAGGCCAATGTGTGTAGGAAGGAACTAGACAGGAAGTGCAAAGCCTGACATACACTCAGGACCAGGGT
GGTAATGTGGTACATATGAAGTTGATGTTAAGTGGCTCCATTTATTGCACTTGGGACCAGGACAGATGCTGTGTTCCAA
CAGACAGGTAAGTAGAAGAGCTGTTAGCTTCTGTTTGGTGGTCTGGCTGTGGCGTCAGCAAGCGTTGAGTTCTCTC
CCTGTCCTACTGTGTATCACTGACAGGCCAGTGAATTGTCTTACCCGTTCAAGGATCCTTCTTTAGAAATGTAAGCACA
TTAACATTTACAGGTTGGTGACAGGATCAAAGGTCTATGCTGTGCCAGATGCTCAATATAGATGCTCAACAAATGTTT
TTTTCTGATGTGAGTAGAGCGTGAACCTGCATCCGTTAAGGCTAGGAACACGCCTATCTTTTTCTTCTCACCCTCGTC
AGCATCTAACCCGCTTCTCTTCTAGTTATGGGCCTCATCTCTGGATTTGGAGATGCCTGCTACATGGTTTGTATGTTCA
TTCTTGATGAAGTGTGGCCATATTTGGGGGGTATTTGAATTTTGGTGAGACTTCAGGATACTGCCTCCGCTTCAACTCC
CACTGTGAAGGCTGAATGTTACAGGGCCTTACAGCACTTGGGATCAGAGTACAAGGTTAAAGGGGATGGTCAGAATCC
TCCAGGTCTATGGTGTGCAGAGAAGCCTGATCACTTCCTAACAGGGATCCTTACTCTCCTGGTCATTATTTGGGCACTGA
TGTCTTCCATAGGTTTCCATTTCCACGGGGGACACGGCACTGGGTTCTGTAACCTTGCAAGGGGGAGAGGGTGGGGGGATA
CTGAATGCCAGACAGTCTTCTGATGGCACTAGAGATGCTTCAGTGGGGGTTGGAATGGCAGAAGTTCTGGAATAGTG
GGTGACAGCGGGCTGGGAAAGGTATGCAGTATCCAGGACCCCTTCTCTGCTTAGCGGGTGGGTAGCATGTGGTTCATC
GGGGGAACTCACATCATCTGCTCTGGGTGGCTGCTTGTATGTTTGGTTTCTCTTTTCGGAAAATGTTTCAATTTGTGTTACAT
CTCTTGTGTAGTCATAAAACCTCAGAGCTGGCCACGGAGGTCACATAGTTGAACTTCCAGCTTAAAGCCCATCTGTCTAT
CCAGCCACCAAGGCAAACAGAAACAGTTCATCTAGGAGACTCTCCAGGATATGAAGACACTGCCCTAGTGCCTTTTTTC
TGATATTTGCTGCTGTGCTGTGACCTTTCCCTCACTGATAGGCACAGAGCTCCAAAGGTCTGCATGAAAGCACTTCAGA
GGGTGATAAAACCACTCCCCAGCCTTCTTTCAGATAGGACGCCAAGAATTGGAAGCAAAGGTCTCCTCCCCCTCCT

CCTTCCCCCTACCCCTCCTCCTCCCCCTCCCAAGTGCTGGGGATCAAACATGGCTTGTGCATGTTGGGTTCACTCTACCA
CTAGGCTGTGCGGTGCATACGAAGACTGGATGTTGACATTCAGTGTCTCTTGCCTCGGTAGGTTTCTATTGCTGTGAA
TACCATTGCCAAAAGCAACTTGAGGAACAAAGGATTCATCTCACCTTACAGGCTTCAGTCCTGAAAGGAAGTCAGGGA
AGAACTCAGCAGGAACCTGGAGGCAGGAAGTGAAGCACAGACCTCAGAGGAGTGTAGCTTACTGGCTTGCTCCTCAT
GGGATGCTCAACCTGCTTCTTATACAACCTAGGACTGCTTGTCTGGAGGTGACATCCCTTGCAATTGGGTAGAACACTT
GTATCACATGCAAGAAGTCCTGCATCCAACCTCTAGCAGGGCAAAAAAGGAGCACAAACAAACACACCAAACCTAAAC
AAAAAGACTGGGGTCTGGAGGAGACTATAGGCTCTGGTTTGCAGATACTGCATCGAGTTGATGGAGAAATCACCTGCA
TCCTTTGGTTCTTGTCTATCTTAGGTCCTTGCAAGTGGGGTGTGTTTAGATCTGGACAGGCCACCCACGTTTTACTCGGCC
TATGCAGGCTCTGCCTTTTCTCAGGGCAGATCAGGATATAACTAACCATCCAAAGCCCACTCACTTCTCATTGTAAAA
CATGGTCTTTATAGACTTTGGGATCCTTACCCAGAATAGTCTGCTCCGTAAGCCTTTGCGGGGGGGGGGGGGGGGGGG
AGGGGGGCTGGAATCCTAAACTGCTGCTATCAGCTGGCATCTTTAGGCCCGAAAGCAGCCTATTGGTGACTGTCAAC
AGCCTGGACTGCGTCTGACCCGTGAGGTATGTTCTCTCTGCAGTAGGATTTTGAACGCACAGACTGCCTGCCAGGGT
CCTGGCTAGGCAGTGTGTTAGCAAGACTCTTTAAGTTAGGCTACTGGTTCACCTTTTAGCCCTGGGCCAGGCTCTTGCCCCA
AAATGTGTGCAGTGTGTCACTGACCCTGACACCAGTTTCCAGGGTCAATTACAGAGGAGGGCGGCAAGGCACAGAGAAG
TGAGGTCAAATCGCTCACAGCTATTGAGTCCTTACAATCAATCTGCACACAGCAGCTAGGGCAGCGACCCAGCACTGT
GTAAACTGTGGGAGCTCCTACCCCCACCCAGGCTGTCCAGCTGGAGGGCAGTGGGTGTGGATGCATCCTGCCCTGGC
TTCCGTGGGTGCACGTGGAGGGGTCTCCGATCGTCAGTGACTGTCTCCCAGCTGCCCTGGCCTCCCGGGACGCCAATC
CCCAGGCGGCCAGGGGCCTGGCGGGGACGGCGGCGCCTGGCAGCGGGGATTTGGGTGCGCTGGCTGGGCCGCCCG
CCGGGGGTGGATCTGGGTGCTCGGCCCGCCCGCCCTCCCGGCATGCCCTGCTGCTGGCCGCTGCGGGCAGCACTCGGAC
TTGGCCTTGGGGGGGGATCGCGGGGAGCCGGCGTACCCCGGAGCTGCAATTGAGGTGGGTGAGCACGCGGGGCGGGT
GGCGGGTGGCGGGTGGCGGGAAGGCTCTCTGTGGGCTGCTGGGACACTGCTTTGTTCTGCCCTGCGGAAACGGAGCAG
CGCGCAAGTTGGGGACCAAAGTTGAGCGCGCTACCAGCCTTCCCTGGGGGCGGCAGGCGGGGCCAAAGAAGGGAGAG
AGTTGGATCTTGATGGGTTTAAATCAAATGGAGGGGAAAGCTAAGAGGGAGATGGAACGAGAAAGAGAGATGCAGG
GAGAGAGGAAAAGTCACGGAGATACAGAGAACACACAAAGAAAGAAAAGCGCACAAAGGAACGCCACACCGAGGG
ATCGCAGAAGGCGGCTGAGGGAAAGTTCAAGAAAGCAAAGACCTCAAAGAAAGTACTGAAAAAGAGAGAAGAGGAA
AGCGGCACTCTCTTGCGGGATGGTGGTGGAGCTTGAGAAATAGGGGCGTGGAAGGGAATATGTGGGGAGCCTGGAG
AAGGGATACATTGGAGGAAAACATCTAGAGAGGAAGACATAAAAAATAAGGAGGAAAGAAAACGGTTAACATTGCTAG
ACAGAGAAGGACAGCACAGAGTGTCTAGAGAACTAAGGCAAACCTGTTCCCTCCCCTTCTGCTTTCCCAACAGAGT
ATAAGATCAAAACAAAACAAAACAAAACAAAATAAAAAACCAAAAAACTCTGTGAGAGAGCAGCGTTTGCAGACTGCT
GAGGAGGCTTCCTTGGAACCTTAAGCCAGTAAAGTCCCCACCCTGTTTACCCGTTCTCAAATTCAGCTCAATTATCC
CCAGGTTTGCGAAGGAGGCTTTTCTAGAAAGTGCCATGCAAATTGCAGTCTCTTTATTACCCAAGCCTGCACATAGCCC
ACCTACACAGCTGCATCCTTCTTCCCCACCAGTTCAATTGTCATGGGGGAGGGGGATCTGTGTCTTCTGTCTCTAGTCTTC
AGAATTCACTGTTTGCTGTAAGCAGATGGTCAATCTGTGCTCCCCGAGTGACCATCAAGAGAGTTTGAATTCTGGGAGA
CATAAACATCACACATAGACTAAGTACTGTGGCGAGCCAGCCTGGGGTCTACAGACTGCTGAGGCATAGCACTCCTTT
CTGTAGGTAAAGAACTAAACCCAGGGAGGGGAGGAAACTTTTTCAAAGGTATGCCTATGGGAGGTCCTGCCCTGAAAG
GATGCTGTGAAGACCACTTCTGTAGAGGCTCTGGCCTGAGTTTAAACACAGCTTGATAGGCTGCGTCACGCTGCAGGAA
GTAATGGCTCAGTTCAAGATGGTGGTCCCAAGGATTGCATCGTGTGATGATGTCCTAGCTGCTTAGTTTGTCTAA
GTTTCGGTCTGGGTGTTTGACAATGACCACAATACCTGACAGTGCATTTCTCAGAACGGAAAAGCATCTTGTTAAGCCAT
ACCTGACTGTTGGTGTGAGAGAAGCTGCCAGATGGTGTGTCACAAGGAATACTCCACTCTGCTTCTAAGTTTTCAACTC
TCAAAGTGTGCGTTCGGTCACAACCCATCCCAGGGTTCTCACTCTTCCCTTAGAAAGGAAAAGGAAGGTGACTCTTCACTT
TGGACCAATGGCTTTCTGATGGCCAGCTATGTAGACCTGGACGAATTCTTTAACCTCCTGGAAACTCAGTTTCTTACCA
TAACATAGAGATGCCCCATACGATCCTTGCTAGGCTCCACCCGGAGTATCTGACACAGAGGAGCTAGCTCCTGAGTAC
AACCTTCTTCTGTCTGTCATTATTTCACTTACATGACTTACAGCATGAAGTCATCAAGGCAGGTGCAATGTGTCTAA
GCTTCAAAACTTAGCTCATTCTAACTGGAAAATAACCACTTACCATAATAGAGAAGGGAAATTCGGGCGTGGTCTAAG
ATGCCCTTGGGTTTGCAGGGGGATGTGAGGGAGCCTTGCTACCCTTTCCATCCCCATTGGCCATTTGCAGCAGGTAAGA
CCCGGCCGCCCTCCCCACACCTGCCGTATCTTTACCAGGTCTGCTTGACTTTATGTTCCCCACAGCTTCCACCTGCTCA
GAGGATGTGAGTGGACTGAGGCTGGGACGCTCTAGAGGCCATAGCGGCCATGATCCTCGAGGCGCGCCGATCCCGGG
CCGCTCTAGCTAGACTAGTCTAGCTAGAGAATTCCGCCCTCTCCCTCCCCCCCCCTAACGTTACTGGCCGAAGCCGCT
TGGAATAAGGCCGGTGTGCGTTTGTCTATATGTTATTTCCACCATATTGCCGTCTTTTGGCAATGTGAGGGCCCGGAAA
CCTGGCCCTGTCTTCTTGACGAGCATTCTAGGGGTCTTTCCCTCTCGCCAAAGGAATGCAAGGTCTGTTGAATGTGCT
GAAGGAAGCAGTTCTCTGGAAGCTTCTTGAAGACAAACAACGTCTGTAGCGACCCTTTGCAGGCAGCGGAACCCCC
ACCTGGCGACAGGTGCCTCTGCGGCCAAAAGCCACGTGTATAAGATACACCTGCAAAGGCGGCACAACCCCACTGCCA
CGTTGTGAGTTGGATAGTTGTGGAAGAGTCAAATGGCTCTCCTCAAGCGTATTCAACAAGGGGCTGAAGGATGCCCA
GAAGGTACCCCATTTGATGGGATCTGATCTGGGGCCTCGGTGCACATGCTTTACATGTGTTTAGTCGAGGTTAAAAAA
CGTCTAGGCCCCCGAACCACGGGGACGTGGTTTTCTTTGAAAAACACGATGATAAGCTTGCCACAACCATGGAAGA
TCCCGTCGTTTTACAACGTGCTGACTGGGAAAACCTGGCGTTACCCAACTTAATCGCTTGACGACATCCCCCTTTCCG
CCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCCAACAGTTGCGCAGCCTGAATGGCGAATGGCGCT
TTGCCTGGTTTTCCGGCACAGAAGCGGTGCCGGAAGCTGGCTGGAGTGCATCTTCTGAGGCCGATACTGTGCTCGT
CCCCCAAACCTGGCAGATGCACGGTTACGATGCGCCCATCTACACCAACGTAACCTATCCATTACGGTCAATCCGCCG

TTTGTTCACGAGAAATCCGACGGGTGTTACTCGCTCACATTTAATGTTGATGAAAGCTGGCTACAGGAAGGCCAGA
CGGAATTATTTTGGATGGCGTTAACTCGGCGTTTCATCTGTGGTGCAACGGGCGCTGGGTGCGTTACGGCCAGGACAG
TCGTTTGCCGTCTGAATTTGACCTGAGCGCATTTTTACGCGCCGGAGAAAACCGCCTCGCGGTGATGGTGCTGCGCTGG
AGTGACGGCAGTTATCTGGAAGATCAGGATATGTGGCGGATGAGCGGCATTTTCCGTGACGTCTCGTTGCTGCATAAAC
CGACTACACAAATCAGCGATTTCCATGTTGCCACTCGCTTTAATGATGATTTACGCCGCGCTGTACTGGAGGCTGAAGT
TCAGATGTGCGGCGAGTTGCGTGACTACCTACGGGTAACAGTTTCTTTATGGCAGGGTGAAACGCAGGTCGCCAGCGG
CACCGCGCCTTTTCGGCGGTGAAATTATCGATGAGCGTGGTGTTATGCCGATCGCGTCACACTACGTCTGAACGTGCAA
AACCCGAAACTGTGGAGCGCCGAAATCCCGAATCTCTATCGTGCGGTGGTTGAACTGCACACCGCCGACGGCACGCTG
ATTGAAGCAGAAGCCTGCGATGTCGGTTTCCGCGAGGTGCGGATTGAAAATGGTCTGCTGCTGCTGAACGGCAAGCCG
TTGCTGATTTCGAGGCGTTAACCGTCACGAGCATCATCTCTGTCATGGTCAGGTCATGGATGAGCAGACGATGGTGACG
ATATCTGTCTGATGAAGCAGAACAATTTAACGCCGTGCGCTGTTGCGATTATCCGAACCATCCGCTGTGGTACACGCT
GTGCGACCGCTACGGCCTGTATGTGGTGGATGAAGCCAATATTGAAACCCACGGCATGGTGCCAATGAATCGTCTGAC
CGATGATCCGCGCTGGCTACCGGCGATGAGCGAACGCGTAACCGCAATGGTGACGCGGATCGTAATCACCCGAGTGT
GATCATCTGGTCGCTGGGGAATGAATCAGGCCACGGCGCTAATCACGACGCGCTGTATCGCTGGATCAAATCTGTGAT
CCTTCCCGCCCGGTGACGATGAAGGCGGCGGAGCCGACACCACGGCCACCGATATTATTTGCCCGATGTACGCGCGC
GTGGATGAAGACCAGCCCTTCCCGGCTGTGCCGAAATGGTCCATCAAAAAATGGCTTTTCGCTACCTGGAGAGACGCGC
CCGCTGATCCTTTGCGAATACGCCACGCGATGGGTAACAGTCTTGGCGGTTTCGCTAAATACTGGCAGGCGTTTCGTC
AGTATCCCGTTTACAGGGCGGCTTCGTCTGGGACTGGGTGGATCAGTCGCTGATTAAATATGATGAAAACGGCAACCC
GTGGTCGGCTTACGGCGGTGATTTTGGCGATACGCCGAACGATCGCCAGTTCTGTATGAACGGTCTGGTCTTTGCCGAC
CGCAGCGCGCATCCAGCGCTGACGGAAGCAAAACACCAGCAGCAGTTTTCAGTTCCGTTTATCCGGGCAAACCATC
GAAGTGACCAGCGAATACCTGTTCCGTCATAGCGATAACGAGCTCCTGCACTGGATGGTGCGCTGGATGGTAAGCCG
CTGGCAAGCGGTGAAGTGCCTCTGGATGTGCTCCACAAGGTAACAGTTGATTGAACTGCCTGAACTACCGCAGCCG
GAGAGCGCCGGGCAACTCTGGCTCACAGTACGCGTAGTGCAACCGAACGCGACCGCATGGTCAGAAGCCGGGCACATC
AGCGCCTGGCAGCAGTGGCGTCTGGCGGAAAACCTCAGTGTGACGCTCCCCGCGCGTCCCACGCCATCCCGCATCTG
ACCACCAGCGAAATGGATTTTTGCATCGAGCTGGGTAATAAGCGTTGGCAATTTAACCGCCAGTCAGGCTTCTTTTCAC
AGATGTGGATTGGCGATAAAAAACAATGCTGACGCCGCTGCGCGATCAGTTCACCCGTGCACCGCTGGATAACGACA
TTGGCGTAAGTGAAGCGACCCGCATTGACCCTAACGCCTGGGTGCAACGCTGGAAGGCGGCGGGCCATTACCAGGCCG
AAGCAGCGTTGTTGCAGTGCACGGCAGATACACTTGCTGATGCGGTGCTGATTACGACCGCTCACGCGTGGCAGCATCA
GGGGAACCTTATTTATCAGCCGGAACCTACCGGATTGATGGTAGTGGTCAAATGGCGATTACCGTTGATGTTGAA
GTGGCGAGCGATACACCGCATCCGGCGCGGATTGGCTGAACTGCCAGCTGGCGCAGGTAGCAGAGCGGGTAAACTGG
CTCGGATTAGGGCCGCAAGAAAATATCCCGACCGCCTTACTGCCGCTGTTTTGACCGCTGGGATCTGCCATTGTCAG
ACATGTATACCCCGTACGTCTTCCCGAGCGAAAACGGTCTGCGCTGCGGGACGCGCGAATTGAATTATGGCCACACC
AGTGGCGCGGCGACTTCCAGTTCAACATCAGCCGCTACAGTCAACAGCAACTGATGGAAACCAGCCATCGCCATCTGC
TGCACGCGGAAGAAGGCACATGGCTGAATATCGACGGTTTCCATATGGGGATTGGTGGCGACGACTCCTGGAGCCCGT
CAGTATCGGCGGAATTCCAGCTGAGCGCCGGTCGCTACCATTACCAGTTGGTCTGGTGTCAAAAATAATAATAACCGGG
CAGGCCATGTCTGCCGTAATTTCCGTAAGGAAATCCATTATGTACTATTTAAAAAACACAAACTTTTGGATGTTCCGGT
TATTCCTTTTCTTTACTTTTTATCATGGGAGCCTACTTCCCGTTTTTCCCGATTGGCTACATGACATCAACCATATCA
GCAAAAGTGATACGGGTATTATTTTTGCCGCTATTTCTCTGTTCTCGCTATTATTCCAACCGCTGTTTGGTCTGCTTTCTG
ACAAACTCGGAACCTTGTTTATTGCACTTATAATGGTTACAAATAAAGCAATAGCATCACAAATTTACAAATTTAATT
AAGGCCGCGGGATCGATCCCGTCGAGCAGTGTGGTTTTCAAGAGGAAGCAAAAAGCCTCTCCACCCAGGCCTGGAATG
TTTCCACCAATGTCGAGCAGTGTGGTTTTGCAAGAGGAAGCAAAAAGCCTCTCCACCCAGGCCTGGAATGTTTCCACC
CAATGTCGAGCAAACCCCGCCAGCGTCTTGTCAATTGGCGAATTCGAACACGCAGATGCAGTCGGGGCGGCGCGGTCC
CAGGTCCACTTCGCATATTAAGGTGACGCGTGTGGCCTCGAACACCGAGCGACCTGCAGCCAATATGGGATCGGCCA
TTGAACAAGATGGATTGCACGCAGGTTCTCCGGCCGCTTGGGTGGAGAGGCTATTCCGGCTATGACTGGGCACAACAGA
CAATCGGCTGCTCTGATGCCGCCGTGTTCCGGCTGTCAGCGCAGGGGCGCCCGGTTCTTTTTGTCAAGACCGACCTGTC
CGGTGCCCTGAATGAACTGCAGGACGAGGCAGCGCGGCTATCGTGGCTGGCCACGACGGGCGTTCCTTGCGCAGCTGT
GCTCGACGTTGTCACTGAAGCGGGAAGGGACTGGCTGCTATTGGGCGAAGTGCCGGGGCAGGATCTCCTGTCATCTCA
CCTTGCTCCTGCCGAGAAAGTATCCATCATGGCTGATGCAATGCGGCGGCTGCATACGCTTGATCCGGCTACCTGCCCA
TTCGACCACCAAGCGAAACATCGCATCGAGCGAGCACGTAACCGATGGAAGCCGGTCTTGTGATCAGGATGATCTG
GACGAAGAGCATCAGGGGCTCGCGCCAGCCGAACTGTTCCGCCAGGCTCAAGGCGCGCATGCCCAGCGGAGGATCTC
GTCGTGACCCATGGCGATGCCTGCTTGCCGAATATCATGGTGGAATGGCCGCTTTTCTGGATTTCATCGACTGTGGCC
GGCTGGGTGTGGCGGACCGCTATCAGGACATAGCGTTGGCTACCCGTGATATTGCTGAAGAGCTTGGCGGCGAATGGG
CTGACCGCTTCTCGTGCTTTACGGTATCGCCGCTCCCGATTTCGAGCGCATCGCCTTCTATCGCCTTCTTGACGAGTTC
TTCTGAGGGGATCGGCAATAAAAAAGACAGAATAAAACGCACGGGTGTGGGTGCTTTGTTCCGATCCGAATTCCTCGA
GGGCGCGCCATTTAAATGGCCAGCGAGGCCGTACCCAAATTCGCCCTATAGGCTTTCTAGTCCTCTGGGATGGCAAAGG
GACTTCTGGGTTCTTTCACAGAACTCCACTGGACACCCAGAGCTCTTCCCCTTCCCCCGTCATGAGGAATGTCAGCA
TGAGGCATGGCCATGTTTGTCTTGTCTGTTTCTTTTACTTTGTAGTCTTGAAGACCCAGGCAGTAAGATGTGTGGCAG
ACATCATTATAAAGCACCCCCCGCCCCGTGAGGTTGGGTCAATCTTGGACTGCCCAAGGATTTGAGTTAGCTCCAGG
CAGCCTTTGCTTTCAGTGTCTCAACAGGGGCTGTCTGTTAACAGGACAGTCTTTGTGAAGTGTGTACCACTTCTTTTC

[illegible]