



Lexicon Genetics Incorporated – Genentech Project Materials

Genentech ID:	UNQ1916	Date of Submission:	3-30-05
Lexicon Contract Name:	DNA236	Mutation Type:	X Standard Knock out
LexVision Name:	MEM697N1		☐ Conditional
Reference accessions:	NM_178066.2	Is this gene X-linked?	No

Required Materials: X pKOS clone DNA(s) __pKOS57_____
 X Target Vector DNA __pKOS57TV_____
 X Targeted ES Cell DNA __1E6_____
 X Genomic Map

Southern Blot Analysis: *External/Internal Probe Strategies*

	<u>5' External</u>	<u>3' Internal</u>
Name of Probe:	13+14	Neo6+Neo7
Restriction Enzyme for Genomic Digest:	Bgl II	Hind III
Predicted Wild-type Band (kb):	10.0 kb	-
Predicted Mutant Band (kb):	15.2 kb	15.0 kb
Probe Size:	272 bp	629 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:	DNA236-8	5' Primer Name:	Neo3a
3' Primer Name:	DNA236-7	3' Primer Name:	DNA236-6
Predicted Wild-type Band (bp):	495 bp	Predicted Wild-type Band (bp):	none
Predicted mutant band (bp)	none	Predicted mutant band (bp)	367 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**

DNA236-13 5' – CTCCCTGATTTGCTTTGGGC
 DNA236-14 5' – CTGAGTACCACTCAGGTACC
 Neo6 5' – ACAAGATGGATTGCACGCAGGT
 Neo7 5' – CCAGCCGGCCACAGTCGATGAA

PCR Genotyping

DNA236-8 5' – CCACAGTGCATCCACTCTG
 DNA236-7 5' – GGCACCCAGGCTGAATGC
 DNA236-6 5' – CTGTGCTCTGCATCACCTG
 Neo3a 5' – GCAGCGCATCGCCTTCTATC

Genomic Sequence Deleted:

CTCCCTGGGTTTGGGCTCCGACTTGCTGAGTTTAGGGAGCAACAGAGCACAGTAGCCCAAGGGGGTGCCTGCGGCCA
ACAGCCACCCGTGTGCCTAGGACCTCTGGGCTGGAATGAAGCTGGAGGTCTAGGAAAGCAATTCCACCCCTTTGCTCTC
CTCAGCCCTGCAGGGTGGTGAGTAGTTAACACCCCTTCCTGGTCTCTCCTTGTTTTGCGTCCCAAACTCTTAAGCGATTGA
GAAGAGCCCCGGGAGGTCTCCAGTCCCTCAGCCTCAGTACCCTAAAGACGGCAGAAGGAAAGTGCATCCGCACCACCC
TACTCCCGCAATGCCAACCTCTCATCGTCAGTGATCCTTCAGGATCAGCATCAAATCCCATTGGCAGCCCAGGCGTGCC
TGGATGAGAGGGTGGGTGGAACAATTCCCGTGTGAGTCTGAGGCTAGTAGCAAGTGGATACCAAGATGTGAGGAGATT
ATCTGTGGGCAAGGCGCTGCTTACTCCATGTAGGGCGATGGGATTTGGAAGTGGCTGTATTGGGCTTTCCCAACCACT
CCATCTCGGCATGAAGCCAAGACTTCAAAATCCGGACAGAGGCTGACTGGGTGACTCTTTAAGTCCTTATTTGAAACTT
TTAAATGTCTGTTCCCTTTCTTCCTTGGGGGTTCATTTAGCTTACAGGTTTTGGGCTCCGACTTTTCAGGAGTTTAGAGA
GCAACTCCAGGCCTGGGGAGCCGATGGCCACCCCGTGCCTAGGACCTCTGGGAGCTGGATGAAGCTGGAGGTCTAAG
GAAGCAATCCCACCCCTTTGCTCTCCTCAGCCCTTCAGGGTGGTAAGCAGTTGTTCTGAGACCCTAAGGTGACTCATCC
TCTCCTCTTCCTTCTCCTCCACGTTATTAACCTACTCGGTCTGGTTCAACCGGGCTTAGTATTGAATTCCAAGTGCAGA
TGAGAGGAATTGCTTTTTAGTTGGAACAAGTCATTTTTTCAAAGAAATGGAAGTACAGAATCCCCAAGATTTGTGGT
TCTGCTTTCTATTCTCTTCCAGGTTTACCAGCCCTGCCAGTTAGCTATGGATGGATGAAAGGAGATTTCTCTAACCTTC
CATTCTGTGACCACCTTCTCTTCTACCATGGAAAAAGCCTCATTGCCTCTGACTATAACATCTCACCCAAGGCCCTTTAA
CCAACAACCTCCCAGAGCCCCCAGCCCCGAGATGTGTCTTGGAACCCAGGACAGCCTCGACTTGGCCCCCTGCCCTTGTG
TGTGCCCTTTGCTGCTGCTTCGGAATCATCTACTGCTGCTTTGGTGAGAAAGGGCAGGGCTGGGGATGGGGTGGGGG
CAGGGGCAGCTTCCCAACACTGCTACCCTCAAGAATGATGCCAAATGTCTTCTCGCTCCCAGGCCACTTCACCTCCTC
TGTTAGGAGATGCCTACCTTCAGAATTTTCCATCCTGCCTCTCCCAGCTTCCATTATTCTGTTTGGCCGTACCGTACCCT
CTGGCTCTCACCTCTGCCTCCGTTATGGGCTTTTCTCTGTCTCCTACCTCAGAATTCCATTCTAGTTTATCCCTCCCAC
CGGAGATTTCAACTCTCCCCAGAATCTGAATCAGTCTGTGGTGATTTCCCATGTACCTAGAGGACCTAGATGCTGTCCT
GCTTTTTTCCCACAGTGCATCCACTCTGCCTCCTGTTTTCTCTACCTATCCCTCGGAATTTCTGAGTTCCCTCCTTCTAT
CACTGGGCTTACACTTCTCTTTCCCTTTCTCTTGAGGTTGCCACGGTGTGCTGTACCTGGCTTCTGCTCCCTGGTTAGCTG
TTCTCTCCCAATACGTAGGACCCCTTTCTGTATCTCAATGCCTCCTGCCTCCCTCCCAGGCTACCGCTGCTTCAAGG
CAGTGATGTTTCTCTCGGGTCTGCTGTGAGGAGCCCTGGTGATCTTCTCCTGTGCCATAAAGAGCGGGTGCTAGAGAC
ACAGCTGAGCCTGGAGGTGAGCGCAGGCATAGCACTGGGCATCGGACTCCTCTGCGGCCTGGTCACCATGCTGGTCCG
CAGTGTCGGGCTCTTCTGACCGGTCTCCTGCTAGGTCTGACCCTGGGTGTTGGAACCTTATTGGGTACTGAACCCATCT
ACCAGCCGCATTACAGCCTGGGTGCCGTTCGGCGGACTGATGGGGCTGGCACTGCTGGGAGCCCTGCTCACACTTCGGT
GGCCACGTCCATTACAGTCCCTGGGCACAGCACTGCTAGGTGCTGCGGTGCTGGTGGCCTGTGCTGACTACTTCCTGGA
AGGACTGGCACTGGGCACTAGACTGGGTGAACGCCTGCAGGCATTTCCAGAGTTGCTTCTCTGCTGGTATAGCTGG
GTCTTGCTGGGAACCTGGCCAGTCTTGGGGGCTCTTGGGACACTGGCCAGTGGAACCTCATGGCTGAGGAACGTGGG
AGCCGCACCAATGGTGAGTTAGTG

Genomic Locus: *(The deleted sequence represents nt7082-9563 in the sequence below. KOS57 used to generate the TV represents nt 3229-13176 in the sequence below.)*

GTGCGCCCGCCGCCCCCGGCCCGGCAATAGTCCCCAGTAATGCAAAGTTTTTGGCTATAGTAGTTCTGGTATCCTGTT
AATCACAGCTGATTCTTCAGCCCCAGCTAACAGAACTACAGAATCTTCACAGTCAAAACAGCAATGGCCCTGAAAAG
AGTCTTTAATTTTCCCTCTGAAATTCACAAGCCAGGCCTCCATCTTCTGCACTGTTCTCAACGTTATCTTCCAAGCTCCT
ACACAACATCCCACAGAGCTCTTAACAACGAATGGATCTTCAAGACCAACGTTCCAAAGTCCTTCCACAGACCTCCCCA
AAACATGGTCAGTTTGTACAGGAATACCCCACTCTGCTGGTACCAATTTGTCTTAGTCAGGGTTTCTATTCTGCACAA
ACATCATGACCAAGAAGCAAGTTGGGGAAGAAAGGGTTTATTCGGCTTACACTTCCATGCTGCTGTTTCATCACCAAAAG
AAGTCAGGACTGGAACCTCAAACAGGTCAGGGAGCAGGAGCTGATGCAGAGGCCATGGCGGATGTTCTTTACTGGCTTG
CCTCCCCTGGCTTGCTCAGCCTGCTCTTATAGAACCCAAGACTACCAGCCCAGGATGGTCCCACCCACAAGGGGCC
CTTCCCCCTTGATCACTAATTGAGAAAATGCCTTAGAGTTGGATCTCATGGAGGCATTTCTCAACTGAAGCTCCTTTCT
CTGTGATAACCCCAGCTGTGTCAAGTTGACACAAAAGTACAGTACAGTTATATAAGAAAAGCCAACAGAAATTCTA
TCCCAGAACAAACAGAGATCTTTGGGGTAGAGCCAGGTACATAAAGGATGGGACAACACTTCCAAAGGAAGTTGGA
ACAAAAATGTTTGAAGAATGATATTGACCAAGAGAAGATATGTGGTAAAAGTTCTGAAGGTGAAACAAAGGGGGTTC
TACTACTCTTAGTAACAATCTGAGGGGGGAAGTAATTGTTGACCACTCTAAGAAGATACCAAGCCATCCACCAAGAAA
TGCATTTCCCACTAAACTTAGTTCTTGTCAATTATCAGTCTAGGGTCTTCTGAACTTTGTGAGGAAAGCCTTGGGT
GTCCATTCTCTTTATATAATACAGCCACTATAGTAATTTGAAAATCGTAATGTTTAAATGATTTCGGACCCATAGATTCA
GTACAAGTTGGCCTCAGATGTAGTTTACACATATTATATTCATAATGTAGTTTTACTTGTACATACAGAAACAGCAATA
GCAGAGCTGGAGATTTAGCTCGATTATAGAGTGCATGCCGGGCTGGAGAGATGGCTCAGTGGTTAAGAGCACTGACTG
CTCTTCTTAAGGTCTGAGTTCAAATCCCAGCAACCACATGGTGGCTCACAAACCATCTGTAATGAGATCTGATGCCCTC
TTCTGGGGTGTCTGAAGACAGCTACAGTATACTTACCTATAATAATAAAATAAAATAAAATCTTTAGAGTACATGCC
TAGAATGAGCAAAGCTCTGGGTCTGATCCCCAGCACTGCCAAAAAGTGGTATATAGTGGATCAAACTCCCACCTACA
GAGTTAACAAAACCAATCGTATCTTCTTACACACATGCGTGATACACATATCTCTATTGATTTATGCTCCTTTTTTCTT

[illegible]

AGGTTGCGGAGAAGTGTGTGTCCCGGACTAGCTAGCCCCCTAAAGAGACGCGACACTTCTCCTGGACCCAACTGGCGA
GCTTCCACGCCGCCGATCCGCCCCCTGTGAACGCGGCGTAAGGGGCCGGGCCAGGGAATGCGGCTAGGGGTACCTGGTT
CCACGGAGCTCAGAACCTAGTCCAGCGTAACAGAACCCCGCACTCATCTGCGTGCTGCTTTGCATCTCATTTACATAGT
AAGCTTTGGGTGCAAGCCAGCACGCTCCCCAACCCCTACGCAGACCCTGATGGAACCTCTCGTCTGCACTCCTTTAAAG
CCTTACAGTTCTGCCAGTGTCCCTGCCAGGCCCCGTCTTGCTCCACAAGTTTTTTTTTCCACCCATGAACACCCCCACCCA
GCACTAGTTAAAAACCCCTTCTCCGGCTCCCGACCACCCGGTCCCCAGAAGACAATACTCCAATTCTCTGGGAAGTGGA
AGAAACCAAGTTGGACCAGCGGTGCTTTGGGACCCTATTTGGGCTTTGAAAACGTTAAGTTGGTAATTAATCTCCTTA
GCATTCAGAGACCTTCCGTCTTAGTCTTGATGGGCGTCACAAAACCTCTTCATTGCTATGGTTAGGGGGCGTCCCTCCTCC
TAGATTAGAGAAGTGGGTAGCCTGGGTTCCCCCACAGACAGAGGTAAAGATTGAGGGGGCCCCGCCCCGTGATGTCATC
CTCCCCCCCCCCCCACCCCATACACACTCCCTGTCTCCTTCCCCCACACACACCCCCGCCCCCAAGCTAATTGCATTTAGC
TCCCTGGGTTTTGGGCTCCGACTTGCCTGAGTTTAGGGAGCAACAGAGCACAGTAGCCCAAGGGGGTGCCTGCGGCCAA
CAGCCACCCGTGTGCCTAGGACCTCTGGGCTGGAATGAAGCTGGAGGTCTAGGAAAGCAATTCCACCCCTTTGCTCTCC
TCAGCCCTGCAGGGTGGTGAGTAGTTAACACCCCTTCCTGGTCTCTCCTTGTTTTGCGTCCCAAACCTCTTAAGCGATTGAG
AAGAGCCCCGGGAGGTCTCCAGTCCTTCAGCCTCAGTACCCTAAAGACGGCAGAAGGAAAGTGCAATCCGCACCACCCCT
ACTCCCGCAATGCCAACCTCTCATCGTCAGTGATCCTTCAGGATCAGCATCAAATCCCATTTGGCAGCCCAGGCGTGCCT
GGATGAGAGGGTGGGTGGAACAATTCCCGTGTGAGTCTGAGGCTAGTAGCAAGTGGAATACCAAGATGTGAGGAGATTA
TCTGTGGGCAAGGCGCCTGCTTACTCCATGTAGGGCGATGGGATTTGGACTGGCTGTATTCGGCTTTCCCCAACCACTC
CATCTCGGCATGAAGCCAAGACTTCAAATCCGGACAGAGGCTGACTGGGTGACTCTTTAAGTCCTTATTTGAACTTT
TAAATGTCTGTTCCCTTTCTTCCTTGGGGGTTGCATTTAGCTTACAGTTTTTGGGCTCCGACTTTCAGGAGTTTAGAGAG
CAACTCCAGGCCTGGGGAGCCGATGGCCACCCCGTGCCTAGGACCTCTGGGAGCTGGATGAAGCTGGAGGTCTAAGG
AAGCAATCCCACCCCTTTGCTCTCCTCAGCCCTTCAGGGTGGTAAGCAGTTGTTCTGAGACCCTAAGGTGACTCATCCTC
TCCTCTTCCTTCCTCTCCCACGTTATTAACCCTACTCGGTCTGGTTCAACCGGGCTTAGTATTGAATTCCAAGTGCAGAT
GAGAGGAATTGCTTTTTAGTTGGAACAAGTCATTTTTTCAAAGAAATGGAAGTACAGAATCCCCAAGATTTGTGGTTT
CTGCTTTCTATTCTCTTCCAGGTTTACCAGCCCCTGCCAGTTAGCTATGGATGGATGAAAGGAGATTTCTCTAACCTTCC
ATTCTGTGACCACCTTCTCTTCTACCATGGAAAAAGCCTCATTGCCTCTGACTATAACATCTCACCCAAGGCCCTTTAAC
CAACAACTCCCAGAGCCCCCAGCCCCGAGATGTGTCTTGGAACCCCAGGACAGCCTCGACTTGCCCCCTGCCCTTGTT
GTGCCCTTTGCTGCTGCTTCGGAATCATCTACTGCTGCTTTGGTGAGAAAGGGCAGGGCCTGGGGATGGGGTGGGGGGC
AGGGGCAGCTTCCCAACACTGCTACCCTCAAGAATGATGCCAAATGTCTTCCTCGCTCCCAGGCCACTTCACCTCCTCT
GTTAGGAGATGCCTACCTTCAGAATTTTCCATCCTGCCTCTCCCAGCTTCCCATTATTCTGTTTGCCCGTACCGTACCCTC
TGGCTCTCACCTCTGCCTCCGTTATGGGCTTTTCTCTGTCTCCTACCTCAGAATTCATTTCCTAGTTTATCCCTCCCACC
GGAGATTTCAACTCTCCCCAGAATCTGAATCAGTCTGTGGTGATTTCCCATGTACCTAGAGGACCTAGATGCTGCTCTG
CTTTTTTCCCACAGTGCATCCACTCTGCCTCCTGGTTTCTCTACCTATCCCCTCGGAATTTCTGAGTTCCCTCCTTCTATC
ACTGGGCTTACACTTCTCTTTCCCTTTCTTGGAGTTGCCACGGTGTGCTGTACCTGGCTTCTGCTCCCTGGTTAGCTGT
TCCTCTCCCAATACGTAGGACCCCTTTCTGTATCTCAATGCCTCCTGCCTCCCTCCCAGGCTACCGCTGCTTCAAGGC
AGTGATGTTTCTCTCGGTCTGCTGTGAGGAGCCCTGGTGATCTTCCTCCTGTGCCATAAAGAGCGGGTGCTAGAGACA
CAGCTGAGCCTGGAGGTGAGCGCAGGCATAGCAGTGGGCATCGGACTCCTCTGCGGCCTGGTCACCATGCTGCTCCGC
AGTGTCGGGCTTTTCTGACCGGTCTCCTGCTAGGTCTGACCCTGGGTGTTGGAACCTTATTGGGTACTGAACCCATCTA
CCAGCCGCATTCAGCCTGGGTGCCGGTCGGCGGACTGATGGGGCTGGCACTGCTGGGAGCCCTGCTCACACTTCCGGTG
GCCACGTCCATTCACAGTCTGGGCACAGCACTGCTAGGTGCTGCGGTGCTGGTGGCCTGTGCTGACTACTTCCTGGAA
GGACTGGCACTGGGCACTAGACTGGGTGAACGCCTGCAGGCACTTCCAGAGTTGCTTCTCTCTGCTGGTATAGCTGGG
TCTTGCTGGGAACCTGGCCAGTCTTGGGGGCTCTTGGGACACTGGCCCAGTGGAACCTCATGGCTGAGGAACGTGGGA
GCCGCACCAATGGTGAGTTAGTGCTGTGGTACAAAAAGCAGCCAGCCTGCCCTGCTTCTGTCCCCGATTCTATACTT
GAGGGGAGGGAAAGATGGAGAGATGAGGACTGGGGAGGATCCCACATCAAACAGGGCAGGGCACTGAAGGAAAGTT
AAAGCTGAAGTACCAAAGGAAGTCTGGGTAGAATGAGAAGGAAAAATCGCCAGGTGATGCAGAGCACAGTTATTTCA
AGACTGTTATGAGAGGGCAGAGGAATCCCAGAGAAGGATAGGAGAAAAATGTAGAAGAAAAATCTGACAACCGAAGGG
AAGGTGAGGCTTGAGAGACCCACAGCAGTAAGGTCAAGTGGAATCTGTGGTGCATGGTTCTTTTGGGGGTTGGTATTC
GGGGCCTAAAGAATCCCCCTTGAATCTGTATTGCCTCCTCCCCAACAGTGATCTTGAGCCACCAGCAAAGGCATCTCCA
GCTCCTTCGGATCCATCAGCAGCAAGAGGCTAAGAGGCATCGGAACCTTCTGAGGACAGGACTGTGTGGAGGCAGCTA
TCGGAACCAGCTTACCCCCAATATCCGGAGCCCTGCTCACAGTCCAGCTCCAGTGAGTAGGAGGGTGAGACACCCTTGT
TGGGGGTAAGGGGGTGACCAAGTGATGGCCAGGATGAGCTGGGGGCTCTGACCCAGAACCTTTTTTCTACCCTCTCCAC
CCTGTATCCAATTAGAGTTATCTCCAGAGTCTTCGAGAGTATGAGCTGGTACCAGGCACCCAGGCCCCAGGCACCCACA
CTATCCTGGACCTGGATTCTGATTGCAGCTCCACTGGCCTGCTTACCACACCTCACTCTGACCAGACCTGAGCCTAACCT
CCAGTGACACTGATACCCCTGGTGGGGGCAGGAGATTGCTAAGTGATAGGGCCTGAGCCCATAGGACCCATACAGAT
TTCCCTACCTCTTAGACTTGGGAATAGGTTCTGTGCCAGACCAACCCTTTTAGAGACAGGCAGAGAAAAATCTTATAA
AGATGGGGGGGAGGGGGTGGAAGACAAAGTACAAGCACCTACCTCTGTCCAGTAGTAGAGGTGCCCTGGTCCCTAGAG
ACACTGACTCTGAAACAAGGAGGTATGCCCCAAATAGTTTTTTTATTAATTTCTGNNNNNNNNNNNNNNNNNNNNNNNN
NN
NNGAGGTGGAACCCAGAGCATTGCCCATATTAGACAAGTGTTTTTGAACCTACAACCCATTCCCAAAAACCTGTTTTGTTT
GGGTTTTGTTTTTGGTTTGTTTTTGGTTTTGTTTGGTTAGATTGGGGTTTTGGTCTCTCAAGACAGGGCTTCTTTGTGTA

GCCCTGGCTGTCTGCAACTCACTTTGTAGCCCAGGCTGGCCTTGAACCTCACAGGGATCTGCTTGCCTGTGCCTCCCCAG
TACCGGGACTAAAGGCATGCACCACCATAACCCAGTGATAGTTTTTTGGCAGGAGGAATGGCACAGAAGTTCCCCGGCT
CCTTACTCGGGGGTGATTGGGCTTCTGGTTGGCCTTTCTTCTGGACCCTACACTCGTGAATCCTGCTACCTCTGCGGGG
GGCTCCATCTTCCATGCTGCTTTCCCCCTCTCTCAGTGGAGGAGGACCACAGCATCTGCCTCAGCTCCCCCTCTCTCCAA
AAGCTGGCTCCTTGACCTTTTTCTCAGAGGAGCCTGGTCTTTGGGGCTGCACTGTAGCCAAGTGCCTTCTGTCTTTTAAA
GTAGCTTTTCTCTAAACCAGAATTCGGGCCCAGCTACTGACCATTCTAACTCTCCCTCCTCTGATTCTCCTGACCAAGA
TCTATTTCTGGTTTTCCAGACATAGTAAAGAAAATATATCTTTCCCCTGAGCAGCAGATCTGTAATAAGAGGGAGGAA
GAACAAGGAATTTGGGAATAAAATGGCATTGAAAATTCACCTGGGGAGATGCGCCTCTACTGTTGCTGCTTTTTACTTT
CTTTGCACCACGAAACAAAGCTAATCTACTCCCCCAACCCCACCCCACCCCGCCACAAAGATCTGCTATGGCACCTATA
TGGCATACTACTACCATATATAATGCACACATACATATCATACATATACATGAATATACCCAGATAAAGTCTCTCTTC
CAGGAACATGAAGTATGCTTTTACCTAAACACAAATGTTCCAGAGCTGTGCAGATATTTACATACAGTATTTTCACTT
AATATAACAAATCCTGTAAACATTGATATTAGACCTTACTTTGTTAATAGGGAATCCAAGGTTTGACAGGGTTAATTAGC
TAGCCAAAGCCACACATAGTCAGGTGGCTCAAGGACTCCAAATCCCAAGCTCAGTTTACTGGCCATGATATTTTTTTGC
ACTTTATGTTGGAAGAATTCAATACCCAGCTGTTAGCTGCTTCTCTGTCAGCTAAAGCCCCATCTGACAGTCGGACAT
GGTAACACATGCCTTAAATCTAAAAAATAAATGCTAGGCATGTAGCACAAGCCTTTAATCCCAGCGCTCACGAG
GCATAAGCAGGTGGATATCTGTGAGTCCAGAGAAACCTGCTCTACATATCTACACATAGAGTACCATGATAGCTGAGG
ACCATATCCAGGGCTATGGATAGAGACTGTCTANNN
NN
NN
NN
AGTTTCAGGATAGCTGATAACCATAGCCAGTGCTATGTAGAGAGACTGTCAAACTAAACAAAACAACTAAAAA
AGCTACAGCAACAAAAACCCCTCCTGATTGACAGTTTCCCTCCACCAGAGACTAGATGTCACACTTGAAACAGCTAT
ATGACAAGAAGAAACAGGAATTGGAGACTGATTCAGAATTAAGTGGACACCTTCTAGGAACACAGGAATGTGGTATCC
AGAAGTGGAGTATCTAGGGACATTAGGCCTAGTGTCCACTGAATAGTTCTCAGGCCCTAGCAGGGTGACATTAGCAG
AGAATGAGAGGGAGGCAGAGTCTGTAGCTGAGGGAATGTCCAAGGTTGAGCCCATGGTTGATGGAGTGGTACCCAAG
ACTGTGTCTGTGGTTGAAGGAGTAACGTCCCCGTTGATGAGTTAGTGTCTGGAGTCTGAGAACCACAGTGCATCCAGT
GTGTCGTATTTCTGGGATAGCCCTTTGCCACTCGAAGTTGCTGGTTAAGGCGCCAATACTCTTTGCCCTTGAAAAAGTAG
ACTTGCCATCTTGCCAGCTCATAGCTGCCGAGGGTTCGGTCTGGCACTCCAGTAAACAGTTTCTTGATTGGTTAGGGT
AGCGGCTAAGGTCAGTTCTGGCCAGTTCATCCATTGCCAGTATCCTGAGCCCTAATTTGGGGTAGATGGAGAAAAGTA
ATGAGGAAAGAACTTAGGGGACTCCAGAAGCTGATCCAACTGTAGAAGTTGGGCCCCATTAAGGATGAGACTGTGCC
CCTCCTCAGAAGGAATTACCCTCAGTTCTGTTATACCTTAAACAGGAACACCTTTTGATTAAACAGGCCAGTAGAGAGCT
GCATCCAGGTGGGCTCTACTCTGTTGAATTTATGGAAGCCAGGAGACATCTTGAAATCCACATACCGCCACACCT
TGTTTCTGAGAGTGGTCAAAGGAAGTGAAGCCACCTCTGTCATCAGATGGGCCCTTTGGGTGCGCCCTCGCCGAACTT
CTCAATGCCTCCTCCACCCAAAGGTTTTAATGACCAGGCCCTTAGATATGACCTAAGAACCCCACTTACCCTTGAAG
AAATGAGTCCGTCGTGTCCGGGGAGAGTAAACGGCAGCATCTAGGTTTCCAGGAAGCCCTCCCAAAGGGCAGATATT
TGGAACAAGGGGCTGGCCCTGAATCTGTTACAGTCCACACATAGTCGCCCTTGAAAGCATAAAGTCTTCCCACGAGGCC
CTGAGAGAGCAAGCATGTCAACAAGTTTAAAAAATAACGACTTGTGAGTGTCTTCAGTGTCTTCTTACTGTTCTGT
ATGGGCTTTTCAAAAAAACAACAAAAAACAACAAACAAACAAACAAACAAACAAACAAACAAACAAACAAACAAAC
AGAGGGACAGCATAGAGATGAGCCCTCCTTTGTTGTTTCCAGAGCCCTCCAGTCAGTCAACTTGTCCCCTTTGGAGATCT
CTTACTCCACTCCAGGTAGCTTTTTAAATTTCTTCCAACCAGGGACAAAGCCTTCTCTAATAGGCATTGCAACAAATTC
ATTTTGTATGTTTTCATGTGTGTTTTGTTTTGTTTTGTTTTGTTTTTCCAGACAGGGTTTTCTCTGTGTAATCCAGCTCACTC
TGTAAGCATGCTAGCCTTGAACCTCACAGAGATCCACCTGCCTCTGCCTCTGGAGCGGAGGATCAAAGGTGTGTGCCA
CACTGCCCTGCCACATGAATTTTTATAAGGTGGCAACCATGGTAAATGCTTACCCAGGCATCTTTTGTGTTGATTGTTTGT
ATTTCCAAGACAGGGTTTTCTCTGTAGTCTGACTGTCTGGATCTCACTCTTAGACTTTGTCTTATCCTCAAACCTCAAGA
GATTTACCTGTCTCTGCCTCCCCAATGCTGGGATCAAACAGGTATGCTACCACTGCCCAACTGCCCAACTACCTAGCCC
TCTTTATTTTATTATTATTATTATATATTTTTTTCATTTACATTTCAAATGCTATCCCGAAAGTTCCCTATACCCTCCCC
CTGCCCTGCTCCCCTACCCACCCACTCCCCTTTTTGGCCCTGGCGTTCCCTCGTACTGAAGCATATAAAGTTTGCAAGA
CCAAGGGGCTCTCTTCCAATGATGGCTGACTAGGCCATCTTCTGCTACATATACAGCTAGAGACAAGAGCTCTGGGG
GTACTGGTTAGTTCGTATTGTTGTTCCACCTATCGGATTGTAGACCCCTTCAGCTCCTTGAGTACTTTCTCTAGCTCCTCC
ATTGAGCTCCCTGTGTTCCATCCAATAGATGACAGTGAGCATCCACTTCTGAATTTGCCAGGCACTGGCATAGCCTCAC
ATGAGACAGCTATTAACCCAATCACAAAAGAAGTCACTTGATATGCACTCACTGATAAGTGGATATTAGCCCAGAAAC
TTAGAATACCCAAGATACAATTTGCAAAACACAAGAAAATCAAGAAGGAAGACTGATGTGTGGATACTTCATTCTCTC
TTAGAATAGGGAACAAAATATCTATGGAAGGAGTTACAGAGACAAAGTTTGGAGCTAAGATGAAAGGATGGACCATC
CAGAGACTACCCACCCAGGGATCCACATCCCATAATCAACCACCAACCCAGACACTATTGCATATGCCAGCAAGAT
TTCATGAAAGGACCCTCGCCTTCTTTAAATTTGGCTCTGAGTGATCCCTTCCCGTGCTACACATTTCCCTGGAGTCCA
ACCCCAATCCCGTTACAGTCCCATGTCATCTCTATTTGTCTAAGTCTTGGAGTCAATAGACTGCCCCATTGCCTGTCA
ACAGCCTGTTGTGGAAGGGTCTCACCCAGCACCATGGCGTCCACCTCACCGCTGCAGGGGTTTGGCATGGGACCAGG
TTTTGCAGTCACTGGAGACACAGTGAGCATCTCGGTCTCTTCTCCTCATCTCTTGTCTCTGGGCTCCTCTTGCCTGTGAG
GTGAAGTAAACAATGTAGCCAAAGAAGTCCAAACACTCAGCTTCTCTACTGGTCGGCTGTACATTTTCATCAACGGCC
CCACACAGAGAGGAAGTGGAATTTTAAAGAAGTTTCTTGTGGCCGGGAGATACAGGAGACACAGCTTAGTTCGCCT

CAGCAAGGAGGAAATTTCTGGAATGTATACTCTGCATCTTCAAGAATGGGGTTGCTAGGCGTGGTGATGCATGCCTTT
AATCCCAGCACAAAGGATGGATGCAGAGGCAGGTGGATCTCCATGAGTTTAAGGCTAGCCGGAGCTTCATGGCAAGTT
CCAGGACAGCCAGAGCTACATAATCTCTACCTTGTCTCTGAACAACAACAAAAAGAATTAGGGTGTGAGGAGAGAAA
GTCCAGGAAGGATGATTAGATATAAAAGAGTCTAAAAATAGAGACAGTTTCTGAAGATGAATAGCTTGAAGAACTGGG
CAGAGGAAGAGAAAAGAGAAAGAGGGCCAAGCCATTTTCATGCCCATGAAAGCCAGTATTGTCCCCTTGAGCCTAGAGAGT
TATTATTCAGACTGACTCTTATGCTCACCATAGAGAGCCTGGATCCCTGCCACATCATCTGGATGCAGCTTGAAGAAGG
GCTGGTAGCCAGCATAGACAGGAGCCATGAGTGCCTGGGTATATCGGGAGTGCCCAAGTCCTAGGGCATGGCCCACTT
CATGGGCCGCAATGATGCGCAGGTTCACTCCTTGATAGGTCCCCTCAGTCCAGAGTTCATCTTTATCAAAGTGTATACTC
CCAAGTTCTGGGATGTCAGCATGGGCCAGGACCTTTCTGGGACAGAAGGAAAAAGCAAGACAGTAATGTTAGAGAGC
ACACCCTGCGGACTCTATATAAGCTGCTGTCAAGAGTGATAACACACCTGTAAATCACAGCACTTGGAAAGATAGACACA
GGAGGATCAGAAGTTTCAGGATCAGACTCAGAAGCACAGTGGGTTTCATGTGAGCTGAGCATGAAACAGTAGTTTACAT
CATAGCTAGCTTAGTTTGCTTCTTCCCAGGCATCAGCATCACTCAGGGAAGTCCAAAATAGAATCGCCACCTCCCCAG
CCACCTCTCCTCTGTGACTCAGTCCCCTCTCAGGTGAAGTTTGAGAGAGGAAATGAAAGCCAGGCATAAGATTGCAAG
AGGAAACTTAGTAAGGGCCCAGCTGTATGAGAAATGGCACCTCTGGGGACTACAGGGTATAGGCAGATAAAACCGAC
AACCTGAACTTTAAGATCCCAGGATAACTGGCTCAAAGAGACACAGTGTATTGGTGAGGTCTGTAAAGTTGAGAGCTTA
AGAACCAGTACCTACCAGGCCCATCAAAGGTATTGGAGCAGTACAGGCTTTGGCGGCCATGGAAAGAGAGGCGAATGT
CAGCCCAACCAGCTTTACCTCCCGGAAGGTCAGAGGAGCCACGCTGCTCCAGTACTTAAAGGCTTGATGCAGGGCTG
CTCGGACTCTGGGAAGTGAGAGGGTGGAGGGGCACATTGAAGATGCGGAATGTCAAGTTCTTCTTTCTCCAGTGGCCTGG
TTAAGGGACCAGAAAGTGAAGTTAGAAACACAACCAGGAGAGCCGCCTAGGGTGAGGGTACTCAGTGCCTCTCTTAAG
AGGCACTGAAGACTCCAGACTATCCCAGTGCCACCAACACTCAGGCTGCCCTCTCCTCCCCTTCCCAGGCTCAGTCCTC
ACCCAGAAGCAGGTATTTAAGAGATTTCTGGTTGAAGGGATCCTCCAGACCACAACGGGGCTGCTTCATACGGGGCCCTT
GTGGCGTCATCCATCTGACCGGAAATGGGCAGTCCAGATGCTTCTGGAAGTTCTAGAAAGAGAGTGAGAGAAAGAG
AGGTCTACAAGGGCAGGTAGATCTGGAATGGCTGGAAATTGAGGATCTATCTTTGGCCTCCTTGTGCCCAAAGTAATGA
CAAAGAATGGTTACAAAGTCTCTGAAGCTGCCACAGACACTGCAGTCTCTAGTGCTCATAACTGGGGCTTTGTCTGTAG
AAACGGCGGCACTCCAACCTCTGTTTTCAGGACATTTTGAGGAAGACTGCCCTGAAGTGTTGCCTCCCTCCCCTCCCTCC
ACACCTTCTAGCTTTCTGTTCTAGTGAGTACCCCAACTCAACTCCCTAGCCATCCTCAGGAGCATCTCCCTGCACAGTCT
CACCAGGTTACCCACTTCAGTCAGCTGGACTCGCCTCCCAGCCTACACTGGGACAGCTTCAATCCATAACTGTACACAG
GCAGTACCTCCTGTGGGCTGTGAGTTCCTATCAGTATTTAGCTACGAAGGACAGAGCCTCCAAGGAGTGCTCCAAAGGA
GTGCTTGGCCTGGGCAGATCCATGGGCTGTGTTTTCTCATTTTGTATCTTTTCAGGACAAGGTCTCTCCCTCTAAAGCCT
AGAGTGGCTTCAAACCTCACTTTGTAACACAGTATGGCCTCAAACCTCATGCCAGTACTCCTTCCTTAGTTTCCTGAGCACA
GGGATTAACGATGAGAGCCACCATGCCTAGCTGTTTGGGTGTTTTTATTTTAAAGATATATTTCTTTCTTTTTATTTTA
TTTGTATGAGTGTTCCTTCATGTGTGTAAGTATACTCCATGTGTATAGCCTATAGAGACAGAAAACCTGGAGTCATAG
ATGGTTATGGGCTGCCATGTGAGTGCTAGGAACTGAACCTGGGTCTCTACAAGGCCAGCCATTTCTCTCAACCACTAA
GCCATCTCTCCACCCTCATTTTGCCTTTTTTTTTTTTTTGGACAAGGACTGGCTGGGTGTTTCATGGTAGCTCATTAGTGA
TCCCAGGACAGACAGGAGGATTAGGAGTTCAAGGTCATCCTCACTACGCAGCAGGTTCAAGACCAGCCAGGCTACAT
GAGGCCCTGTTTCAAAAATCAAAATGGGGAACCTGGAGGGATGACTCAGCAGTTATGAGAATTTCTGTCTTAAAGAGG
ACCCAGGTTTCAGTTTCTAGCATCTACATGGTGGTTCACAACCATCCTAAACTCCAGTTACAGAGGGTCTGATGCCCTCTT
CTGACCAGCTCAGGCACCAAGCATTCTGGGGGTGTACATACATTTATACATAAAAATAAAATTAATAAATCTAAAATGAT
TTTTTTAATCAAAATGGGCCAGTGAAGAAGGTCAGTGGGTGTAGGACTCACTGCCTGCCAAACCTGACTACATACGCTC
AATCCCCAGGCCCCACATGGTGGAAGGAGAGAAGTGACTCTCACTGCTGCTCCTCTGATCGTCACACATGTACAATGGC
ATGTGCACCCATTCCCACACAGACATACGGAaaaaataaATGCAATTAaaaaaaaaaCTTTAAAACAAACAGCTCTAAT
TAAACTCGGTGGGTCAAAAGAAAATAGAATAAGGAAGAAAATATTTCAGGAGGAATGAAGGGGAATGAGAGGGTAAT
GGGTCAAGAATGACCAACACACATGCATACATACACATGTAGATACATACATATATATATACATGCATGCATGCACAC
ATACACATACATACATATACATGCATACATACACACATATATACATACATACACACATACATACATACACACATACATA
CACACACACATACATACAGACATACAGACATACATACATGAAGTTGTTAAAAGCAATACATTA AAAACATTTAATGACA
AGGACTCTAGCTCAATATAGTGGCTCATAACTATAACTGTAGCATAGTGGAGATTGAGACAGACAGATTCCCAGGAGT
TCCAGGCCAGTCTAAGCTACAGTGTGAGAATCAAAAAGTAATAATAAAAATGAAAAATAAAGATAAATACTCATCGTG
TAGTCCAGGCTAGTCTCCGGCTCTTTTGTTAAACAGCCTTAGCTGAGTGGTGGTGCCATTACCTTTAATCCCAGCACT
ACAATGGCAGAGACAGGTGTATCTCTAAGCTCAAACCCAGCTTGGTCTAGAGAGTGAGTCCAGAACAGCCAGCCAGA
GCTACCCAGAGAAACCTTGAGAGGGGGAGGTGGGAAGGGAACATGGAGGAGATTTTCATTTTTCTGTATGTTTCTGTATA
TGTAATGTTGTTTGTGTATGTTCAACTGCCTAAGAAAGCCAGAAGAGGGCATCAGATCCCACTACAGACAGTTGTGAC
TCACCATATAGTTGCTAGGGATTGAACTCAGGACCTCTGAAAGAGCAGCCAGAGCTCTTAACCCCTGTGCCATCTCTCC
AGCCCTAGTCTCAAACCTTTCTTTTGTTTTGTTTTGTTTTGTTTTGTTTTATTTTGTTTTGTTTTGTTTTGTTTTGAGA
CAGGGTTTCTCTGTATAGCCCTGACTGTCCTGGAACCTCACTTTGTTGACCAGGCTGGCCTCGAACTCAGAAATCTGCCTG
TCTCTGCCTCCCAAGTGCTGGGATTAAAGGCGTGCTCCACTACCGCCTGGTGTCTCCGACTTTTAATGCTTGCCTCTGCC
ACCTCAGTGCTGAGATCAGAGCTGTGTACCACCATCCATGACCTGTGTGTTCTCATCCCTACTCTCCATCTCACCTCAC
CTTTCACCACCCTGAGTAACATTACCATCCTACAAGTCCCTGCTGTGCATTACAGTCAAGCAGAGGTGGACCTGGGCAG
AGGGAAGAACTTGACACCTCGGCTGTGAAAGCTTGACACCTTGTGGCCTTAAAACCTCACCTTAAAGCCTCTGTGATATC
TTCCAGCCTGAAGTCATCAGCTCCTTCTAGAGGTTTCTGTAGATACCCATACTGCAACAGGTAATCCTATAACAACATG

GAGATTGAAAGGTTAGTCTCAGGGTTAAGCTTCCAAGTGACCTCAAAGAAGCTGGGTGTGGTAGTGCATGCCTTTGACC
CCAGTGCTCAGGTGGCAAAAGCAGGCAGATCTCTGTGAGTTCAAGTCCACCCTAGACTGCATAGCAAGTTCTAGGCCA
GGCAGGGATACATAGTGAGACCATGTCTCAAGCAAAACAATCCAAATGAACTAACAGGCCAGATATGAGGGGACAGAT
ACAGAAGGACTGTATGCCTGAGTAAGGGGCCCTCAAATGGGACAAGGAAAAGAACAGGCTACATAGATCAGGATGCAG
AGCAAATAAAAAGAGGTGGGTAGGTTGGAGGGCAAGAGGAAAACCTAGAGAAGACTGGTGCATGGGTATCCCTGTCA
TTCCACACTCTGAGCCCTCCTTTGCCAGAGGACTCACCAAGACTGCCTCCTTCTCTGTAGGCCCCAGAGCCCGGCCT
GAGACTGTCATGGGAAGTAAGAATGCCAGCCACAGCTGCTGCCAGTCCATGATCCCAGCAGACAAGAGCTCCAGAAGC
TGCCTCTGGCCTGAGACTTCTGAAAGTTTGGAGGAGCAGAGCTAAGCAAGGGACTCTTACCTCCAGGTCTTTGCTGTCA
GCCTCTGGTCTCTTTATAAGCCTTCAACTGTGGAGAATGGGGGTTGGGGGGACAGTGGGAGGTGACTCAGCCAGAGA
GATGTTGCAACTCACCATTAACTCCTGCCCTACCAAAGAGCAGAGAAGCCAAAAATGCCCTAATATCACCACCCACCCC
CAGAGTTCTCTGTGAAGACCAGATGTCTCTGTACTGCTCTGGGGTCTGCCTCCTGGCATCGTGAGCCAGAGTAT
CTAAAGAGATTAGCATAGGCCCCAAGGCTGCTCCGTAGAGTTGGACATTCTGCTTCTCAGGGATCCAAAGCCAGCAAA
TCCCTCAGCTTCACAGGTCCCTTTGCTCCTGACAAAGAAAAATCAATAAGAGCAAAAGAGTTAGGAGGCAGCGAGGCA
GCATGAGCTTCAGCGTGAAGGGATCAAAGATGAGACCTGCTGTCTGTTACTGCTGCTGCTGCTGCTGTTGTTGTTGTCATT
GTTGGAGACAGCATCTTTCTCCGTAGTCTGGCTATCCTGAAACTGCCTATGTAGACCAGGCTAGCCTAGAACTCATAG
AGCCACTGTGATCAAATTGGAAGTTTAAGTCAGTCTAGCCTTGCAGGCTGGCCTTGAGCTCTTCTTAAACATTTTTCTTTT
TGTGACTCTTTTCTTTTTTTTTTTTTTTTTTCTTTTTTACCATTTATTAAGATAAAAGCAGGACTGGAAAGATGATTCAGCC
AGTATGTTTTCTGGACAAGCATGAAAACCTGAATTAGGATTCCCAGTCTTCACAAAAAAGTCAGGCAGGGCAGCTCAA
ATCTGTAATCCCAGCACCAGGAGGCTATGGAGACAGGCGAGCCCTTGGAGCACACTGGTGGGCCAGCCAATTCAGTTG
AATTATTGAGTTCAGGTTTAGTGAAACACTGCCTTAAGAATAAAAAAAGAAAAAGAAAGTAAGGTAAAGGGTTGACA
AGATGGCTCAATGAATAAAGAGGCCTGCAACCAAGCCTGCTGACCTGAGTTCAATTCCCGAGATGCACACGGTGGAAG
AATAAAACCGACTCCTACAAGTTGTCCTTTGACTTCCACACATGCATGGTGGTGTGAACACTATTCCCTCCACACCATA
CATATATAAACAAATAAATAATATATTTTTAAATTACCCTGTCTCAAAAAAAAAAACAAAACCAAAACCAAAAATTTTTTC
CCTTAAACTAAGGTGAGCTAGGTGTAGTGGCACAAGTTGCTAATCTCAGTGCCAGAGATAAAGAAACAGTCATATTTT
GGGGAGGCCAGTCAAGTCTACTTTGCAAGTTCCAGACCAGCTAGGGCTATATAATGAGACCTTATCTAAATAAATAGAT
AGGTAGATAGATAGATGATAGATAGATAGATAGATAGATAGATAGATAGATAGATAGATAATTTTTTTTTTA
AAAAGTAGAGATCTATAGAGAAAGACACATGATGTCAACCTCTCATAACAGGAGACTATATCATGACCCCTCCATG
AATTAAAGCAAATTTACATACTCATGAGATAAGTGTGCTTGTATTATTTTTACAAAAATAATTAAGTCCTCATTGATGTTT
GGTCAGGGCATCTTCAGTCTTTTTCAGAGTTGATGGATTTTTTTTTCCCTCTGTGTGTATGTGTGTTTGTTTTGTTGTTTT
TTTTGTTGTTGTTGTTTTGTTTGGTTTGGTTTGGTTTGGTTTTTGGAGACAGGGTATCTCTGTATAGCACTGGCTGTCTTG
GAACTCACTTTGTAGACCAGGCTGGCCTCGAACTCAGAAATCCGCCTGCCTCTGCCTCCCAAGTGCTGGGATTAAAAGC
GTGCACCACCATCGCCCGGCTTTTTTAAATCTTTTTTTTTTTTTTTTTTTTTTGGTTTTTCAAGACAGGGTTTCTCTGTAT
AGCCCTGGCTGTCTTGGAACTCACTTTGTAGACCAGGACTGGCCTCGAACTCAGAAATCCACCTGCCTCTGCCTCCCGA
GTGCTGGGATTAAAGGCGTGTGCCACCACGCCCGGTTTTTTTTTTTTTAAATCTTTTAAATATTATTTTCATGTGCATGTGTG
TTTGGCCTGAGTGTATGTGAGGCACCATGTGCATGTAATGCTTACAGAGGACAGAAGAGGGCTTGGATCCCCAGGAAC
TAGAGTTAGAAATGGTTGTGAGACATTCTGTGTGAGTTTTGGGACATGAACCCAGGTCCTCTGGAAGAACAACCAAAA
CTCTTTAACCAGTGAACATTTCTCCAACCTTTGCGTGTTTTGACTTTTGAAATGGAGTCTTAAGTATCTCAATCTGAACCTC
ATTAATAGTCGAGGATGAGCCGGACATGGTGGCGCATGCCTTTAATCCCAGCACTTGGGAGGCAGAGGCAGGTGGAT
TTCTGAGTTCTGAGTTCGAGGCCAGCCTGGTCTACAGAGTGAGTTCCAGGACAGCTAGGGCTATACAGAGAAACCTGT
CTCGAAAAAACAAAAAGAAATAGTTGAGGATGACCTTGAACCTCTAATCATCCTGCCTCTACTCGCCCAGGGCCAAGATT
ACAGGAATGTACCACCACAGTTTGTGGGGGCTGGGGACCTAACCTTAACCTACTGCTTCCTTTATGATAGGTTAGCACT
CTACCAAATTGTCACATTCAGTCTCCTTGATCAATATTCAGTTTTATAGGGCTCAATATTGAAAACCTCACTCTGAATAAA
TAAATATAATACATAATACAAAAACATATACAATACGTTTGTGACCATTTCAGAAGTTATTAGAAGTTATGTCCTAGT
CCCAAGGCAAAATTCATTCAATGGCTTTGTGAAATTTCAAGTGAAGAGACTCAAACAGCAATTTTATCTTCATATTCATTT
TATTTATTTAATTAGTTACTTTCTGTTCTTTTGAGACATCATACCATAACGTCTAGACTGGATTGGAACCTTACTGCATAG
ACCAGGCTGACCTTGAATCCCTGATTCTCCTGCCTCTACTTCCAAGTGCTGGGATTACAGACATGTACCTAGCTCTTTT
TTTGTGTTGTTGTTTGTGTTTGTGTTTGTGTTTGTGTTTGTGTTTGTGTTTGTGTTTGTGTTTGTGTTTGTGTTTGTGTTT
TTTATTTCAAAGCAGGGTCTCACTATAGCTCTGGCTGTCCCAGAACTTACTCTGTAGACCAGGCTGGCCTCAAATTCAG
AGAGCTCCACCTGCCTCTGCCTCTCTGCCTCTCTGCCTCTCTGCCTCTCTGCCACCA

Selection Cassette:

CTCTAGAGGCCATAGCGGCCATTTTAAATGGCGCGCCGGATCCCGGGCCGCTCTAGCTAGACTAGTCTAGCTAGAGGA
ATTCCGCCCTCTCCCTCCCCCCCCCTAACGTTACTGGCCGAAGCCGCTTGAATAAAGGCCGGTGTGCGTTTGTCTATA
TGTTATTTTCCACCATATTGCCGTCTTTTGGCAATGTGAGGGCCCGGAAACCTGGCCCTGTCTTCTTGACGAGCATTCTT
AGGGGTCTTTCCCTCTCGCCAAAGGAATGCAAGGTCTGTTGAATGTCTGTGAAGGAAGCAGTTCTCTGGAAGCTTCTT
GAAGACAAACAACGTCTGTAGCGACCCTTTGCAGGCAGCGGAACCCCCACCTGGCGACAGGTGCCTCTGCGGCCAAA
AGCCACGTGTATAAGATACACCTGCAAAGGCGGCACAACCCCAAGTGCCACGTTGTGAGTTGGATAGTTGTGGAAAGAG
TCAAATGGCTCTCCTCAAGCGTATTCAACAAGGGGCTGAAGGATGCCCAGAAGGTACCCCATTTGTATGGGATCTGATCT

GGGGCCTCGGTGCACATGCTTTACATGTGTTTAGTCGAGGTTAAAAAACGTCTAGGCCCCCCGAACCACGGGGACGT
GGTTTTCTTTGAAAAACACGATGATAAGCTTGCCACAACCATGGAAGATCCCGTCGTTTTACAACGTCTGACTGGGA
AAACCCTGGCGTTACCCAACCTTAATCGCCTTGACGACATCCCCCTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGC
ACCGATCGCCCTTCCCAACAGTTGCGCAGCCTGAATGGCGAATGGCGCTTTGCCTGGTTTCCGGCACCAGAAGCGGTGC
CGGAAAGCTGGCTGGAGTGCGATCTTCTGAGGCCGATACTGTGCTCGTCCCCTCAAACCTGGCAGATGCACGGTTACGA
TGCGCCCATCTACACCAACGTAACTATCCCATACGGTCAATCCGCCGTTTGTTCACGGAGAATCCGACGGGTGT
TACTCGCTCACATTTAATGTTGATGAAAGCTGGCTACAGGAAGGCCAGACGCGAATTATTTTTGATGGCGTTAACTCGG
CGTTTCATCTGTGGTGCAACGGGCGCTGGGTTCGGTTACGGCCAGGACAGTCGTTTGCCGTCTGAATTTGACCTGAGCGC
ATTTTTACGCGCCGAGAAAAACCGCCTCGCGGTGATGGTGCTGCGCTGGAGTGACGGCAGTTATCTGGAAGATCAGGA
TATGTGGCGGATGAGCGGCATTTTCCGTGACGTCTCGTTGCTGCATAAACCGACTACACAAATCAGCGATTTCATGTT
GCCACTCGCTTTAATGATGATTTACGCCGCGCTGTACTGGAGGCTGAAGTTCAGATGTGCGGCGAGTTGCGTGACTACC
TACGGGTAACAGTTTCTTTATGGCAGGTGAAACGCGAGTCCGACGCGGCCCTTTCGGCGGTGAAATTATCGA
TGAGCGTGGTGGTTATGCCGATCGCGTCACACTACGTCTGAACGTGCAAAACCCGAAACTGTGGAGCGCCGAAATCCC
GAATCTCTATCGTGCGGTGGTTGAACTGCACACCGCCGACGGCACGCTGATTGAAGCAGAAGCCTGCGATGTCCGTTTTC
CGCGAGGTGCGGATTGAAAATGGTCTGCTGCTGCTGAACGGCAAGCCGTTGCTGATTTCGAGGCGTTAACCGTCACGAG
CATCATCCTCTGCATGGTCAGGTCATGGATGAGCAGACGATGGTGCAGGATATCCTGCTGATGAAGCAGAACAACTTTA
ACGCCGTGCGCTGTTTCGATTATCCGAACCATCCGCTGTGGTACACGCTGTGCGACCGCTACGGCCTGTATGTGGTGA
TGAAGCCAATATTGAAACCCACGGCATGGTGCCAATGAATCGTCTGACCGATGATCCGCGCTGGCTACCGGCGATGAG
CGAACGCGTAACGCGAATGGTGCAGCGCGATCGTAATCACCCGAGTGTGATCATCTGGTCGCTGGGGAATGAATCAGG
CCACGGCGTAATCACGACGCGCTGTATCGCTGGATCAAATCTGTGATCCTTCCCGCCCGGTGCAGTATGAAGGCGGC
GGAGCCGACACCACGGCCACCGATATTATTTGCCCGATGTACGCGCGCGTGGATGAAGACCAGCCCTTCCCGGCTGTG
CCGAAATGGTCCATCAAAAAATGGCTTTCGCTACCTGGAGAGACGCGCCCGCTGATCCTTTGCGAATACGCCCACGCG
ATGGGTAACAGTCTTGGCGGTTTCGCTAAATACTGGCAGGCGTTTCGTCAGTATCCCCGTTTACAGGGCGGCTTCGTCT
GGGACTGGGTGGATCAGTCGCTGATTAAATATGATGAAAACGGCAACCCGTGGTTCGGCTTACGGCGGTGATTTTGCGG
ATACGCCGAACGATCGCCAGTTCTGTATGAACGGTCTGGTCTTTGCCGACCGCACGCCGCATCCAGCGCTGACGGAAGC
AAAACACCAGCAGCAGTTTTTCCAGTTCCGTTTATCCGGGCAAACCATCGAAGTGACCAGCGAATACCTGTTCCGTCAT
AGCGATAACGAGCTCCTGCACTGGATGGTGGCGCTGGATGGTAAGCCGCTGGCAAGCGGTGAAGTGCCCTCTGGATGTC
GCTCCACAAGGTAAACAGTTGATTGAACTGCCTGAACTACCGCAGCCGGAGAGCGCCGGGCAACTCTGGCTCACAGTA
CGCGTAGTGCAACCGAACGCGACCGCATGGTCAGAAAGCCGGGCACATCAGCGCCTGGCAGCAGTGGCGTCTGGCGGA
AAACCTCAGTGTGACGCTCCCCGCGCGCTCCACGCCATCCCGCATCTGACCACCAGCGAAATGGATTTTTGCATCGAG
CTGGGTAATAAGCGTTGGCAATTTAACCGCCAGTCAGGCTTTCCTTTCACAGATGTGGATTGGCGATAAAAAACAACTGC
TGACGCCGCTGCGCGATCAGTTCACCCGTGCACCGCTGGATAACGACATTGGCGTAAGTGAAGCGACCCGCATTGACC
CTAACGCCTGGGTGCAACGCTGGAAGGCGGCGGGCCATTACCAGGCCGAAGCAGCGTTGTTGCAGTGCACGGCAGATA
CACTTGCTGATGCGGTGCTGATTACGACCGCTCACGCGTGGCAGCATAGGGGAAACCTTATTTATCAGCCGGAAAAAC
CTACCGGATTGATGGTAGTGGTCAAATGGCGATTACCGTTGATGTTGAAGTGGCGAGCGATACACCGCATCCGGCGCG
GATTGGCCTGAACTGCCAGCTGGCGCAGGTAGCAGAGCGGGTAAACTGGCTCGGATTAGGGCCGCAAGAAAAACCTCC
CGACCGCCTTACTGCCGCTGTTTTGACCGCTGGGATCTGCCATTGTGACAGATGTATACCCCGTACGTCTTCCCGAGCG
AAAACGGTCTGCGCTGCGGGACGCGCGAATTGAATTATGGCCACACCAGTGGCGCGGCGACTTCCAGTTCAACATCA
GCCGCTACAGTCAACAGCAACTGATGGAACACAGCCATCGCCATCTGCTGCACGCGGAAGAAGGCACATGGCTGAATA
TCGACGGTTTCCATATGGGGATTGGTGGCGACGACTCCTGGAGCCCGTCAGTATCGGCGGAATTCCAGCTGAGCGCCGG
TCGCTACCATTACCAGTTGGTCTGGTGTCAAAAATAATAAACCAGGCGAGGCCATGTCTGCCCGTATTTTCGCGTAAGG
AAATCCATTATGTACTATTTAAAAAACACAACTTTTGGATGTTTCGGTTTATTCTTTTTCTTTTACTTTTTTATCATGGGA
GCCTACTTCCCGTTTTTCCCGATTTGGCTACATGACATCAACCATATCAGCAAAAGTGATACGGGTATTATTTTTGCCGC
TATTTCTCTGTTCTCGCTATTATTCCAACCGCTGTTTGGTCTGCTTTCTGACAAACTCGGAACTTGTTTTATTGCAGCTTAT
AATGGTTACAAATAAAGCAATAGCATCACAAATTTACAAATTTAATTAAGGCCGCGGGATCGATCCCGTCGAGCAGT
GTGGTTTTCAAGAGGAAGCAAAAAGCCTCTCCACCCAGGCCTGGAATGTTTCCACCCAATGTGCGAGCAGTGTGGTTTTG
CAAGAGGAAGCAAAAAGCCTCTCCACCCAGGCCTGGAATGTTTCCACCCAATGTGCGAGCAAAACCCCGCCAGCGTCTT
GTCATTGGCGAATTCGAACACGCGAGATGCAGTCGGGGCGGCGCGGTCCCAGGTCCACTTCGCATATTAAGGTGACGCG
TGTGGCCTCGAACACCGAGCGACCTGACGCCAATATGGGATCGGCCATTGAACAAGATGGATTGCACGCGAGTTCTC
CGGCCGCTTGGGTGGAGAGGCTATTCGGCTATGACTGGGCACAACAGACAATCGGCTGCTCTGATGCCGCCGTGTTCCG
GCTGTCAGCGCAGGGGCGCCCGGTTCTTTTTGTCAAGACCGACCTGTCCGGTGCCCTGAATGAACTGCAGGACGAGGC
AGCGCGGCTATCGTGGCTGGCCACGACGGGCGTTTCTTTCGCGCAGCTGTGCTCGACGTTGTCACTGAAGCGGGAAGGGA
CTGGCTGCTATTGGGCGAAGTGCCGGGGCAGGATCTCCTGTCTATCTCACCTTGCTCCTGCCGAGAAAGTATCCATCATG
GCTGATGCAATGCGGCGGCTGCATACGCTTGATCCGGCTACCTGCCCATTCGACCACCAAGCGAAACATCGCATCGAG
CGAGCACGTACTCGGATGGAAGCCGGTCTTGTGATCAGGATGATCTGGACGAAGAGCATCAGGGGCTCGCGCCAGCC
GAACTGTTCCGACAGGCTCAAGGCGCGCATGCCCGACGGCGAGGATCTCGTCGTGACCCATGGCGATGCCTGCTTGCCG
AATATCATGGTGGAAAATGGCCGCTTTTCTGGATTTCATCGACTGTGGCCGGCTGGGTGTGGCGGACCGCTATCAGGACA
TAGCGTTGGCTACCCGTGATATTGCTGAAGAGCTTGGCGGCGAATGGGCTGACCGCTTCTCGTGCTTTACGGTATCGC
CGCTCCCGATTTCGACGCGCATCGCCTTCTATCGCCTTCTTGACGAGTTCTTCTGAGGGGATCGGCAATAAAAAGACAGA

ATAAAACGCACGGGTGTTGGGTGCGTTTGTTCGGATCCGAATTCCTCGAGGGCGCGCCATTTAAATGGCCAGCGAGGCCG
GTACCCAATTCGCCCTATAG

Targeted Locus:

TGACCTCTTCTGGTGTGTCTGAAGACAACGACAGTGTACTCATATCAACAAAATAAATCTTTAAAAAAGGGGAAAAA
AAGATATTTTCTTTAAATTCCTCCCTTACCATTTCATGGTGTGTATGTGTGAGCCCAGCCTTTCCCAATCAAAAGCAGGA
AGATCACAAATTCAAAGCTAGCTGGAGCTAGTCTGCAAAACCATGTCCCAAAACAAAACAAATATCCCTTTGTTCAGGT
GATAGCAACTAAGGGGCTGTCTGACTAGGCTCTTCCCGACCCCTAAGGAAAGGAGCTGCACCTTAGCTGCTGCAGAGTAA
GTCCAACCCTTCCTTTTATATTACACCCCTCCCCCAAAAAAGACCTTACGACAAAAGACTTAAGATGGAGAAAAGTC
AAATTCCTAGTCAGAGAAACGCCTTTATAACTCTTTCCCAAGAATGCTACCCCTTAGCTAGGTATAGTGGCAAAACCTGT
AAGTCACAGCACTCACAGATGGAGCCAGGAGAAATCATGAGTTCCAGGTAGTCTGTCTACAAGGTGAAACCCTAACT
CAAAAACAAAACAAAGAAAGGAAATCCTTCACCTTCCCTTGACTCTACACTCCCTAAAACTGGAACAGAAAAATATGG
GGAAAGAGCAACAGGAAGCAGCAAAAGGATACTCACCATTACTGCTAGCTGCCTATAGGCCTTCTTTAGTTTCAGTGTCTG
GATGCTGTAGCTTCAACCCCCAGCACATGAAAAGGGTTTAGTTTCATCTTCAGGAACCCAGCCATGGTCAAGAGTCCGG
TCACTTCTCTTCAGGCTGGCAGTATCGCCCGCTAGCTACAGGTGCATTGCCCTGTTTCTTAGTCCTCTGTTTGACCCAG
GGCAGCTCCTGCCAGCCCCACTGTATTAACTTACCAGCTGCTGCCATGGCCTGCTATCTTTTCAGCAGAGTCAAGCAAT
GATGCAAGGCTGGAGAACCAGCCAAGAGAACAGCCAAGCGGTCTTATCCCTCCAGCCTAACCGGTTGCCAGTCCCA
CCGAAAACCTCCAGCCCAATTGTAGACATCCCAAAAAGAGGGCGAGAGCCAGGAGTAGGAAAGCACCCACTACCCTA
AGAATACGGATGAGCAGCCCCACCACACAGAAGAAGCTCTGGCTTAGAAACTGGAACATCATGCGGGCCCAGCCCCC
AGTCTCCTGGCCCAGACCCCCACCCAGACTCGAAAAAGGTCCAGGTCACTGCCTTTCAGCTTCTGTCATGCGTAAATGA
GATGGCCACAGGTTTCCACATACTCTCCACCAATACCAGAAGTTCAATCAGCCACCAGAAGCCTGCTTGTTCCAAGCTG
ACATAGTTCTCTACTCCCCACAGTCCAGGCCTCTGCGCTTATCTGTCTGACTTCTTTTTTCGGGCCAGCCGATGACGAC
CTGGGGCCTTGGGTTCTCTGCGTCCACTATCCCGAACATCCTCCTTGATCAGAAAACGGTGCTTCTGCCTCCGGGACAA
GGGTTTCTTTCCACTGGACACACGTGAAAAATCACTGGGAAATTTAAGAGGTTCTCATCATCATATTCTTCTTCCA
CTTCATCTTCCCCAAGGCTGGAGAGGTGCAATGGTGGCAAAGGCTGCTAGAAGAGCCATCTCCTTCTCGGAGTAAGT
TCCTTCGGGGACTCCAGGGCTTCCCTGGCAGTTACAAGCAGATGGAATGGAAGAAAAGAAGGACTCCCATCCTCCTG
GTACCCAGTCTCATTCTCTTGTAGAGTTCTGCTGCTCCTGACTCTTCTGAACCTGTCTCGCTCTCATCAGGGTAGC
CTCCTCCTCTAGGTGGTCTGAGACCCCTTGGAGGACCATGGCTTGGATCTGACCAGTGGGCTGGATTGAGGCTGTGT
GTACTTAGGGCCGGAGTGCTCTTTGAGGCATCGTGTACCATTAGGAGCAGTCTCTGCTGAGTCCCTGAGTCTGAGAAT
GAAAGTATTTTCGGGGTCCACAGAGGATCCTGATGTACTGAGGGAGGTACCACCACTGCGGTGGGCTCCACACAACCTT
CTTTCTCCCGGGTGCTTCTGGGCCATGACCCCGGGCTTCTGAGGATTTTAGGTCACTGCCATCATTGCCTGTAACAAAG
ATATCAAGTTGGGAATGGTCAAGGATAGAACCAAGAGTTAAACAATCTCAAAATGACATATTCAATGTACCCACTCCC
CAGGCAGTGTTAGCTCAAATTCGCTATCCCTAACATAAACGTGAGTTAGGCAGACCACAAACCTGCTTGACCAACCC
GGACCTCAGAAACCCCTTACTCCCGAAATCTTAATTTTTTTTTTCTTCTTCTCCTCCAAGAAGCTAACAACTTTCAATCTGA
GAAATGGGGGGGAGGGGGGGTGCCGCAAAGGGTGTGGTTCGGGGCGGCGGGGGGGTGGGGGGGTAACCTTTAGGAAA
AAAAAAAAGACTGCCTGAAAGAGGGAGGCCGCAATCTGTGAGAAAAGGGTGGGGACCGTGCAGGGCTAGAGGAAA
AGCTGAGGGCGGAGCTTCGAGGTGCCCTGCAAAAGATTACCCGAGAACCCACCGACGGGGTACCAGGGGGCGAAGGC
GACGTACCGAGCAGCAGCGGTAACCTCCTCCTCTCAAGCAGCTGCGCTGAGGCCAGGGGGAGCTGCCAGGGGGGAGC
TACAGGAGCAGTCCCCGGCTCCGCTCAGCGTCCGCTTCCGCTTCCGCTTCCCGCCACGGCCGCTTACTTCC
ACTTCCGGGGTACCGGGGGGGGAAAGGTCGCGAAGGGAAGGAAAGCGCTTAGCCGAGGCTTCACTTCTGCGC
GGCGGGCGCGAGTCAATCGAGGAGGCGGTGCTAGAGCATCCGGCCCCACCCCTTAAAGGGCCCTCCGCTCCACGCA
GGTCCCGCCGTAAGCGAGCTGAAGCCTGCGAACTGTACTCCTCGTCTGCTGCTGAAACGGAGATGAAGGGCGGCTG
CCGAAGCACACACCGTCTTTGGCGTGCAGACAGACACCCAGGGCACGCAGAGGAGCCAGCGACCCTGCTCGCCAGAC
CCTTCCCTGTGCGCTGTCCAGCCAAGAGGTTGCGGAGAAGTGTGTGTCCCGGACTAGCTAGCCCCCTAAAGAGACGCG
ACACTTCTCCTGGACCCAAGTGGCGAGCTTCCACGCCGCCGATCCGCCCCCTGTGAACGCGGCGTAAGGGCCGGGCCA
GGGAATGCGGCTAGGGGTACCTGGTTCCACGGAGCTCAGAACCTAGTCCAGCGTAACAGAACCCCGCACTCATCTGCG
TGCTGCTTTGCATCTCATTTACATAGTAAGCTTTGGGTGGAAGCCAGCACGCTCCCCAACCCCTACGCAGACCCTGATG
GAACCTCTCGTCTGCACTCCTTTAAAGCCTTACAGTTCTGCCAGTGTCCCTGCCAGGCCCGTCTTGCTCCACAAGTTTTT
TTTTCCACCCATGAACACCCCCACCCAGCACTAGTTAAAAACCCTTCTCCGGCTCCCGACCACCCGGTTCCTCCAGAAGA
CAATACTCCAATTCTCTGGGAAGTGGAAGAAACCAAGTTGGACCAGCGGGTGCTTTGGGACCCTATTTGGGCTTTGAAA
ACGTAAAGTTGGTAATTAATCTCCTTAGCATTACAGAGACCTTCCGTCTTAGTCTTGATGGGCGTCACAAAACCTTTCATT
GCTATGGTTAGGGGGCGTCCCTCCTCTAGATTAGAGAAGTGGGTAGCCTGGGTTCCTCCACAGACAGAGGTAAAGAT
TGAGGGGGCCCCGCCCCGTGATGTCATCCTCCCCCCCCCCCCACCCCATACACACTCCCTGTCTCCTTCCCCACACACACC
CCCGCCCCCAAGCTAATTGCATTTAGGGTCCAGCTCTAGAGGCCATAGCGGCCATTTTAAATGGCGCGCCGGATCCCGG
GCCGCTCTAGCTAGACTAGTCTAGCTAGAGGAATTCGCCCCCTCTCCCTCCCCCCCCCTAACGTTACTGGCCGAAGCC
GCTTGAATAAGGCCGGTGTGCGTTTGTCTATATGTTATTTTCCACCATATTGCCGTCTTTTGGCAATGTGAGGGCCCCG
AAACCTGGCCCTGTCTTCTTGACGAGCATTCTAGGGGTCTTTCCCTCTCGCCAAAGGAATGCAAGGTCTGTTGAATGT
CGTGAAGGAAGCAGTTCCTCTGGAAGCTTCTTGAAGACAAACAACGTCTGTAGCGACCCTTTCAGGCAGCGGAACCC

CCCACCTGGCGACAGGTGCCTCTGCGGCCAAAAGCCACGTGTATAAGATACACCTGCAAAGGCGGCACAACCCCAAGTG
CCACGTTGTGAGTTGGATAGTTGTGGAAAGAGTCAAATGGCTCTCTCAAGCGTATTCAACAAGGGGGCTGAAGGATGC
CCAGAAGGTACCCCAATTGTATGGGATCTGATCTGGGGCCTCGGTGCACATGCTTTACATGTGTTTAGTCGAGGTTAAAA
AAACGTCTAGGGCCCCCGAACCACGGGGACGTGGTTTTCTTTGAAAAACACGATGATAAGCTTGGCACAACCATGGA
AGATCCCGTCGTTTTACAACGTCGTGACTGGGAAAACCCTGGCGTTACCCAACTTAATCGCCTTGCAGCACATCCCCCT
TTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCCAACAGTTGCGCAGCCTGAATGGCGAATGG
CGCTTTCCTGGTTTCCGGCACCAAGAAGCGGTGCCGAAAGCTGGCTGGAGTGCGATCTTCTGAGGCCGATACTGTGC
TCGTCCCCTCAAACCTGGCAGATGCACGGTTACGATGCGCCCATCTACACCAACGTAACCTATCCCATACGGTCAATCC
GCCGTTTGTTCACGAGAGAATCCGACGGGTGTTACTCGCTCACATTTAATGTTGATGAAAGCTGGCTACAGGAAGGC
CAGACGCGAATTATTTTTGATGGCGTTAACTCGGCGTTTCATCTGTGGTGCAACGGGCGCTGGGTGCGTTACGGCCAGG
ACAGTCGTTTGGCGTCTGAATTTGACCTGAGCGCATTTTACGCGCCGAGAAAAACCGCCTCGCGGTGATGGTGCTGCG
CTGGAGTGACGGCAGTTATCTGGAAGATCAGGATATGTGGCGGATGAGCGGCATTTTCCGTGACGTCTCGTTGCTGTCAT
AAACCGACTACACAAATCAGCGATTTCCATGTTGCCACTCGCTTTAATGATGATTTACGCCGCGCTGTACTGGAGGCTG
AAGTTCAGATGTGCGGCGAGTTGCGTGACTACCTACGGGTAAACAGTTTCTTTATGGCAGGGTGAAACGCAGGTGCGCA
GCGGCACCGCGCCTTTCGGCGGTGAAATTATCGATGAGCGTGTTGTTATGCCGATCGCGTCACACTACGTCTGAACGT
CGAAAACCCGAAACTGTGGAGCGCCGAAATCCCGAATCTCTATCGTGCGGTGGTTGAACTGCACACCGCCGACGGCAC
GCTGATTGAAGCAGAAGCCTGCGATGTCGGTTTCCGCGAGGTGCGGATTGAAAATGGTCTGCTGCTGCTGAACGGCAA
GCCGTTGCTGATTCGAGGCGTTAACCGTCACGAGCATCATCTCTGCATGGTCAGGTCATGGATGAGCAGACGATGGTG
CAGGATATCCTGCTGATGAAGCAGAACAACTTTAAACGCCGTGCGCTGTTTCGCATTATCCGAACCATCCGCTGTGGTACA
CGCTGTGCGACCGCTACGGCCTGTATGTGGTGATGAAGCCAATATTGAAACCCACGGCATGGTGCCAATGAATCGTCT
GACCGATGATCCGCGCTGGCTACCGGCGATGAGCGAACGCGTAACGCGAATGGTGACGCGCGATCGTAATACCCGAG
TGTGATCATCTGGTCGCTGGGGAATGAATCAGGCCACGGCGCTAATCACGACGCGCTGTATCGCTGGATCAAATCTGTC
GATCCTTCCCGCCCGGTGCAGTATGAAGGCGGCGGAGCCGACACCACGGCCACCGATATTATTTGCCCGATGTACGCG
CGCGTGGATGAAGACCAGCCCTTCCCGGCTGTGCCGAAATGGTCCATCAAAAAATGGCTTTCGCTACCTGGAGAGACG
CGCCCGCTGATCCTTTGCGAATACGCCACGCGATGGGTAACAGTCTTGCGCGTTTCGCTAAATACTGGCAGGCGTTTC
GTCAGTATCCCCGTTTACAGGGCGGCTTCGTCTGGGACTGGGTGGATCAGTCGCTGATTAAATATGATGAAAACGGCAA
CCCGTGGTTCGGCTTACGGCGGTGATTTTGGCGATACGCCGAACGATCGCCAGTTCTGTATGAACGGTCTGGTCTTTGCC
GACCGCACGCGCATCCAGCGCTGACGGAAGCAAAACACCAGCAGCAGTTTTTCCAGTTCCGTTTATCCGGGCAAACC
ATCGAAGTGACCAGCGAATACCTGTTCCGTCATAGCGATAACGAGCTCCTGCACTGGATGGTGCGCTGGATGGTAAG
CCGCTGGCAAGCGGTGAAGTGCTCTGGATGTCGCTCCACAAGGTAAACAGTTGATTGAACTGCCTGAACTACCGCAG
CCGGAGAGCGCCGGGCAACTCTGGCTCACAGTACGCGTAGTGCAACCGAACGCGACCGCATGGTCAGAAGCCGGGCA
CATCAGCGCCTGGCAGCAGTGGCGTCTGGCGGAAAACCTCAGTGTGACGCTCCCCGCGCGTCCCACGCCATCCCGCAT
CTGACCACCAGCGAAATGGATTTTGCATCGAGCTGGGTAATAAGCGTTGGCAATTTAACCGCCAGTCAGGCTTTCTTT
CACAGATGTGGATTGGCGATAAAAAACAACCTGCTGACGCCGCTGCGCGATCAGTTCACCCGTGCACCGCTGGATAACG
ACATTGGCGTAAGTGAAGCGACCCGCATTGACCCTAACGCGTGGGTGCAACGCTGGAAGCGCGCGGGCCATTACCAGG
CCGAAGCAGCGTTGTTGCACTGCACGGCAGATAACCTTGCTGATGCGTGCTGATTACGACCGCTCACGCGTGGCAGC
ATCAGGGGAAAACCTTATTTATCAGCCGGAACCTACCGGATTGATGGTAGTGGTCAAATGGCGATTACCGTTGATGT
TGAAGTGGCGAGCGATACACCGCATCCGGCGCGGATTGGCCTGAACTGCCAGCTGGCGCAGGTAGCAGAGCGGGTAA
ACTGGCTCGGATTAGGGCCGCAAGAAAACTATCCCGACCGCCTTACTGCCGCTGTTTTGACCGCTGGGATCTGCCATT
GTCAGACATGTATACCCCGTACGTCTTCCCGAGCGAAAACGGTCTGCGCTGCGGGACGCGCGAATTGAATTATGGCCC
ACACCAGTGGCGCGGCGACTTCCAGTTCAACATCAGCCGCTACAGTCAACAGCAACTGATGAAACACAGCCATCGCCA
TCTGCTGCACGCGGAAGAAGGCACATGGCTGAATATCGACGGTTTCCATATGGGGATTGGTGCGGACGACTCCTGGAG
CCCGTCAGTATCGGCGGAATTCCAGCTGAGCGCCGCTCGCTACCATTACCAGTTGGTCTGGTGTCAAAAAATAATAAA
CCGGGCAGGCCATGTCTGCCCGTATTTCCGCGTAAGGAAATCCATTATGTACTATTTAAAAAACACAAACTTTTGATGT
TCGGTTTATTCTTTTTCTTTTACTTTTTTATCATGGGAGCCTACTTCCCGTTTTTCCCGATTTGGCTACATGACATCAACCA
TATCAGCAAAAGTGATACGGGTATTATTTTTGCCGCTATTTCTCTGTTCTCGCTATTATTCCAACCGCTGTTTGGTCTGCT
TTCTGACAAACTCGGAACTTGTTTATTGCAGCTTATAATGGTTACAAATAAAGCAATAGCATCACAAATTTACAAATT
TAATTAAGGCCGCGGGATCGATCCCGTCGAGCAGTGTGGTTTTCAAGAGGAAGCAAAAAGCCTCTCCACCCAGGCCTG
GAATGTTTCCACCCAATGTCGAGCAGTGTGGTTTTGCAAGAGGAAGCAAAAAGCCTCTCCACCCAGGCCTGGAATGTTT
CCACCCAATGTCGAGCAAACCCCGCCAGCGTCTTGTCATTGGCGAATTCGAACACGCAGATGCAGTCGGGGCGGCGC
GGTCCCAGGTCCACTTCGCATATTAAGGTGACGCGTGTGGCCTCGAACACCGAGCGACCCCTGCAGCCAATATGGGATC
GGCCATTGAACAAGATGGATTGCACGCAGGTTCTCCGGCCGCTTGGGTGGAGAGGCTATTCCGGCTATGACTGGGCACA
ACAGACAATCGGCTGCTCTGATGCCGCCGTGTTCCGGCTGTCAGCGCAGGGGCGCCCGGTTCTTTTTGTCAAGACCGAC
CTGTCCGGTGCCCTGAATGAACTGCAGGACGAGGCAGCGCGGCTATCGTGGCTGGCCACGACGGGCGTTTCTTGGCA
GCTGTGCTCGACGTTGTCACTGAAGCGGGAAGGGACTGGCTGCTATTGGGCGAAGTGCCGGGGCAGGATCTCCTGTCA
TCTCACCTTGCTCCTGCCGAGAAAGTATCCATCATGGCTGATGCAATGCGGCGGCTGCATACGCTTGATCCGGCTACCT
GCCCATTTCGACCACCAAGCGAAACATCGCATCGAGCGAGCACGTA CTGGATGGAAGCCGGTCTTGTCGATCAGGATG
ATCTGGACGAAGAGCATCAGGGGCTCGCGCCAGCCGAACTGTTTCGCCAGGCTCAAGGCGCGCATGCCCGACGGCGAGG
ATCTCGTCGTGACCCATGGCGATGCCTGCTTGCCGAATATCATGGTGGAATAATGGCCGTTTTCTGGATTTCATCGACTGT

GGCCGGCTGGGTGTGGCGGACCGCTATCAGGACATAGCGTTGGCTACCCGTGATATTGCTGAAGAGCTTGGCGGCGAA
TGGGCTGACCGCTTCCTCGTGCTTTACGGTATCGCCGCTCCCGATTTCGCAGCGCATCGCCTTCTATCGCCTTCTTGACGA
GTTCTTCTGAGGGGATCGGCAATAAAAAAGACAGAATAAAACGCACGGGTGTTGGGTCGTTTGTTCGGATCCGAATTCCT
CGAGGGCGCGCCATTTAAATGGCCAGCGAGGCCGGTACCCAATTCGCCCTATAGCTGTGGTACAAAAAGCAGCCAGCC
TGCCCTGCTTCTGTCCCCGATTCTATACTTGAGGGGAGGGAAAAGATGGAGAGATGAGGACTGGGGAGGATCCCACA
TCAAACAGGGCAGGGCACTGAAGGAAAGTTAAAGCTGAAGTACCCAAAGGAAGTCTGGGTAGAATGAGAAGGAAAAAT
CGCCAGGTGATGCAGAGCACAGTTATTTCAAGACTGTTATGAGAGGGCAGAGGAATCCCAGAGAAGGATAGGAGAAA
AATGTAGAAGAAAATCTGACAACCGAAGGGAAGGTGAGGCTTGAGAGACCCACAGCAGTAAGGTCAAGTGGACTTCT
GTGGTGCATGGTTCTTTTGGGGGTGGTATTCGGGGCCTAAAGAATCCCCCTGAATCTGTATTGCCTCCTCCCCAACAG
TGATCTTGAGCCACCAGCAAAGGCATCTCCAGCTCCTTCGGATCCATCAGCAGCAAGAGGCTAAGAGGCATCGGAACT
CTTCTGGGACAGGACTGTGTGGAGGCAGCTATCGGAACCAAGCTTACCCCAATATCCGGAGCCCTGCTCACAGTCCAGC
TCCAGTGAGTAGGAGGTGAGACACCTTGTGGGGGTAAGGGGTGACCAAGTGTATGGCCAGGATGAGCTGGGGGCT
CTGACCCAGAACCTTTTTTCTACCCTCTCCACCCTGTATCCAATTAGAGTTATCTCCAGAGTCTTCGAGAGTATGAGCTG
GTACCAGGCACCCAGGCCCCAGGCACCCACACTATCCTGGACCTGGATTCTGATTGCAGCTCCACTGGCCTGCTTACCA
CACCTCACTCTGACCAGACCTGAGCCTAACCTCCAGTGACACTGATACCCCTGGTGGGGGCAGGAGATTGCTAAGTGG
ATAGGGCCTGAGCCCATAGGACCCATACAGATTTCCCTACCTCTTAGACTTGGGAATAGGTTCTGTGCCCAGACCAACC
CTTTTAGAGACAGGCAGAGAAAAATTTCTTATAAAGATGGGGGGGAGGGGTGGAAGACAAAGTACAAGCACCTACCTCT
GTCCAGTAGTAGAGGTGCCCTGGTCCCTAGAGACACTGACTCTGAAACAAGGAGGTATGCCCCAAATAGTTTTTTATTA
ATTTCTGNNN
NN
CTACAACCCATTCCCAAAAACCTGTTTTGTTGGGTTTTGTTTTTTGGTTTTGTTTTGGTTTTGTTGGTTAGATTGGGGTT
TTGGTCTCTCAAGACAGGGCTTCTTTGTGTAGCCCTGGCTGTCCTGCAACTCACTTTGTAGCCCAGGCTGGCCTTGAAGT
CACAGGGATCTGCTTGCTGTGCCTCCCCAGTACCGGGACTAAAGGCATGCACCACCATAACCCAGTGATAGTTTTTTGG
CAGGAGGAATGGCACAGAAGTTCGCCGGCTCCTTACTCGGGGGTGATTGGGCTTCTGGTTGGCCTTTCTTCCTGGACCC
TACACTCGTGAATCCTGCTACCTCTGCGGGGGGCTCCATCTTCCATGCTGCTTTCCCCCTCTCCTCAGTGGAGGAGGACC
ACAGCATCTGCCTCAGCTCCCCTCTCTCCAAAAGCTGGCTCCTTGACCTTTTTCTCAGAGGAGCCTGGTCTTTGGGGCTG
CACTGTAGCCAAGTGCCTTCTGTCTTTTAAAGTAGCTTTTCCCTCCTAAACCAGAATTCGGGGCCAGCTACTGACCATTCTA
ACTCTCCCTCCTCTGATTCTCCTGACCAAGATCTATTTCCCTGGTTTCCCAGACATAGTAAAGAAAAATATATCTTTCCCT
GAGCAGCAGATCTGTAATAAGAGGGAGGAAGAACAAGGAATTTGGGAATAAAATGGCATTGAAAATTCACCTGGGGA
GATGCGCCTCTACTGTTGCTGCTTTTTACTTTCTTTGCACCACGAAACAAAGCTAATCTACTCCCCCAACCCACCCAC
CCCGCCACAAAGATCTGCTATGGCACCTATATGGCATACACTACCATATATAATGCACACATACATATCATACATATAC
ATGAATATACCCAGATAACTCAGTTCTCTTCCAGGAACATGAAGCTAGCCTTTACCTAAACACAAATGTTCCAGAGTCT
GTCAGATATTTACATACAGTATTTTCATCTAATATAACAAATCCTGTAACATTGATATTAGACCTTACTTTGTTAATAG
GGAATCCAAGGTTTGACAGGGTTAATTAGCTAGCCAAAGCCACACATAGTCAGGTGGCTCAAGGACTCCAAATCCCAA
GCTCAGTTTACTGGCCATGATATTTTTTTGCACTTTATGTTGGAAGAATTCAATACCCAGCTGTTAGCTGCTTCCTCCTGT
CAGCTAAAGCCCCATCTGACAGTCGGACATGGTAACACATGCCTTAAATCTAAAAAATAAATAAGTATAGGCATGTA
GCACAAGCCTTTAATCCCAGCGCTCACGAGGCATAAGCAGGTGGATATCTGTGAGTCCAGAGAAACCTGCTCTACATAT
CTACACATAGAGTACCATGATAGCTGAGGACCATATCCAGGGCTATGGATAGAGACTGTCTANNNNNNNNNNNNNNNNN
NN
NN
NN
NN
CAAAACTAAACAAAACAACTAAAAAAAAGCTACAGCAACAAAAAACCCCTCCTGATTGACAGTTTCCCTCCACCA
GAGACTAGATGTCACACTTGAACAGCTATATGACAAGAAGAAACAGGAATTGGAGACTGATTCAGAATTAAGTGGAC
ACCTTCTAGGAACACAGGAATGTGGTATCCAGAAGTGGAGTATCTAGGGACATTAGGCCTAGTGTCCACTGAATAGTTC
TCAGGCCCCTAGCAGGGTGACATTAGCAGAGAATGAGAGGGAGGCAGAGTCTGTAGCTGAGGGAATGTCCAAGGTTG
AGCCCATGGTTGATGGAGTGGTACCCAAGACTGTGTCTGTGTTGAAGGAGTAACGTCCCCGGTTGATGAGTTAGTGT
TGGAGTCTGAGAACACAGTGCATCCAGTGTGTCGATTTCTGGGATAGCCCTTTGCCACTCGAAGTTGCTGGTTAAGG
CGCCAATACTCTTTGCCCTTGAAAAAGTAGACTTGGCCATCTTGCCAGCTCATAGCTGCCGAGGGTCGGTCTGGCACTC
CAGTAAACAGTTCCTTGATTGGTTTAGGGTAGCGGCTAAGGTCAGTTCTGGCCAGTTCATCCATTGCCAGTATCCTGA
GCCCTAATTTGGGGTAGATGGAGAAAAGTAATGAGGAAAGAACTTAGGGGACTCCAGAAGCTGATCC