



Lexicon Genetics Incorporated – Genentech Project Materials

Genentech ID:	UNQ455	Date of Submission:	5-5-04
Lexicon Contract Name:	DNA077	Mutation Type:	X Standard Knock out
LexVision Name:	GPR757N1		☐ Conditional
Reference accessions:	NM_033042	Is this gene X-linked?	No

Required Materials:

- ✓ pKOS clone DNA(s) __pKOS14__
- ✓ Target Vector DNA __DNA077-14 TV__
- ✓ Targeted ES Cell DNA __2B5__
- ✓ Genomic Map

Southern Blot Analysis: *External/Internal Probe Strategies*

	<u>5' External</u>	<u>3' external</u>
Name of Probe:	DNA077-19/20	DNA077-17/18
Restriction Enzyme for Genomic Digest:	BamHI	EcoR I
Predicted Wild-type Band (kb):	6.7	8.3
Predicted Mutant Band (kb):	4.0	6.0
Probe Size:	334 bp	365 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:	DNA077-23	5' Primer Name:	Neo3a
3' Primer Name:	DNA077-12	3' Primer Name:	DNA077-12
Predicted Wild-type Band (bp):	350 bp	Predicted Wild-type Band (bp):	none
Predicted mutant band (bp)	none	Predicted mutant band (bp)	279 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**

DNA077-17 5' – AGGCTACTGAGATGGGGTCTA
DNA077-18 5' – TGCCTGGAGACGAGACATT
DNA077-19 5' – CTGTGCGTTGTAAATAGTGTC
DNA077-20 5' – CAGATGGACGTGTACTGCTTC

PCR Genotyping

DNA077-12 5' – GTAACCCTTTACCGTTCTGC
DNA077-23 5' – CTACGACACCAGTCCATGAG
Neo3a 5' – GCAGCGCATCGCCTTCTATC

Genomic Sequence Deleted:

GGGCCAGGCGGTACAGACCGCAA TGGAGGCACGGCTGCTGCGGGGCTGCGTGGTGGAGGTGAGTGGGGTCGCCGGGAGGCCAGGAAACTGTCCAGA
ACCTGACCTGTAGCCCTGGAACAAAGCCTCCGGGGAGGGTCTGGGGGAGCCTCTCAACTCCGACCTCCCTGCGGGCTGGGTAGTCTTACACGGCGACC
TAGTTAGAGGCTCGGGCGCGCCCTTCCGCTGAGAGGAAGCACAAGCTCCCGGGGAAGGGGTTGTGGGGCCTCCACTTCTCAGAAGGCATGGCTGCGT
GGAGGGAAATGGGCCAGAGGCTGCTGGCAGGGGGCCTCCTCTGCTGTACACAAGTGGTTTTTGTAGACAGTGAGAGGGAAGCTGATCCCCGCCCT
AACCCTGTCTGCCCAGGAGCCTGAGAACTGAGCTTACTCGGGCAAATGCTAGGGCTTCAGAAATGGAGAGCTGCGCTAGGAGGGAGAGGTACACCTCC
TGGGGCAGCCACACCAGGGTCAACTGCACGTGTTCTCCAGCCTCTGTTCTTACCCTGCTGCTGCTGCTGC: TG:::CTGCTTGGTGGCCAGGGCCAG
GGCGGCATGTCTGGCAGGTGTACTGTGCCAGTAGTCCCGAGAAGAGGTAATGCCCCGTTTTGTTGACGGGGCTGCCCAAAGGGTAAGTGGCTGGAACG
GTAAAGGAAGCGAGGCCAGGGGAAAAAGAGGGTATGCCGAGTAGAGGTAGAGGGGTGAGACAGGCTGGGGATGGGGCCCCAGGGAGGCTGGGTGG
CAATGGGCAGGTTAGTAGGAAGAGAGGGGAGGAAAGCAGGTGCAGGCAGGAAGGTTCCAGGACGCGTTGACCTTACGCCCTTGCCCTGTGTGCCACAGG
ACACTACATGAAGGCCCCCTGCGCAGAACCCCTGTGGCAACTCCACCTGCCTTCCCTGTCCCTCGGACACCTTCTTGACCAGAGACAACCACTTTAAGAC
TGACTGTACCCGCTGCCAAGTCTGTGATGAAGAGGGTAAGGGGGTGGTTGCCTAGAGCTCAGGGGCTACCTTCTTGAGAACAGGGCCATGGCCACAGCT
TTTCAGACGGTTGTCTTGGAGAGGCCCTGTGTTTCAGTCCACACCCACACCAACCAAGTGTGCGCTTCTCCTTTCCCTTGTGGACATTCCTGCTTCA
TGCTCGGCTCTGTGTCACCACTAGCAGCCTACTTCTCCTGTGGGGCTAGCCAGTGCCATGTCTCAAGGAGGTTGTCCCCTGTGCTGTTGTGGCAGT
CAGTAGCTCTGACACATCCATGTTCCACATCTCCGCACCCCTCACAGCCCTTCAAGTGACCCTTGAGAACTGCTCGGCAAAGTCGGACACCCACTGTG
GCTGCCAGTCAGGCTGGTGTGTTGACTGCTCCACCGAGCCATGTGGGAAAAGCTCACCTTTCTTGTGTCCCATGCGGGGCTACAACACCAAGTCCATG
AGGCTCCAACCCCCCGTAGTACTCACTCTAGGCTGGGCTGTCTATCTCTGAGGCCTTTTGTTTCAGCTCCTTTCTCTCTGTCTGACACAAACCATCTT
TTGCTCTGACAGGCGCCTGCTGCTGGCTTCTATATACGTGGCAATGACTGCACGTCTGCCACGTAACCTTACTGGCTGTGCTGGGCTGGAGGGAGG
GGAGGCTGGGAGCTGGGTG

Genomic Locus: *(the deleted sequence represents nt 14783-16479 in the sequence below)*

[illegible]

AGAACCGGGCAGCCAGTCGCTTCAGCGGCTTCTTCAGCTCCAGCCCCAGCACCAAGTGCCTTTAGCCGGGTATGGAGCCCCGTGGATTGGTTGGGGCA
GAGCAACTAGTAACCCAGACCTGACCCTGACCCTGCCCTTCCCCTGGATCTCCTTCAGGAGGTAGACAAGATGGAACAGCTGGAGAGCAAGCTC
CATGCCATACAGCCTTTTTCGGGCTACCCCGGATGCCAGGAGGTCGCTTTGACCATGACTCCTGGGAGGAGGAAGAGGAAGATGACGAGGAGGATG
AAGAGAGTTCAGGCCTGAGGCTGGAGGACAGCTGGAGGGAGCTCACTGATGGGCATGAGGTTGGTGTAGTAGCTAAGAGAACACACCTCTTGACTGG
TTTAGTGGCGGAGGAGGCCCTACTCTGGTGTTATCTCAGATATCTTTTTTTTAATTAATATTTTTTATTACATATTTTCTCAATTACATTTCCAATGCTA
TCCCAAAAGTCCCCATACCCCTCCCCCCCCCAATCTCAGATATCTTGACAGTCGCAACCCAAATGATCGGGAGGGTGGCCTTCTCCAGATCTCCTTGT
CCTATCGATAAGATGAAGAAGTTGCTCGCTGGTTGCTACCCCTCCCTGACTGTCCTCCACACTCCCTCGGCTAGCTAAGCTAACCTGTACCACCTCC
CTCTAGAAGCTGACCAGGCGGCAGTGCCACCAACAGGAGGCAGTGTGGAACTCCTCCACACAGAAGTCTCTACATCCGGAACCTACGTGTGATCAC
CAACGTGAGTGTGGGAACCCAGGGCCCTGTTGCTTCTCACATGCACAGGCCAAGAGTGTGAACCTTCAGCTAAGCTGGGCCCTCACCTGGCTGGCTGT
GTTTGAAGCAGGACAGTTAGATAGGGGCTCAAGCTTAGGGGACCTCAGCTGGGGAGGGTAGTAACACCACCTGGCCTTGGCTTCTGGACAGAGGCT
GAGCCAGGACAGAGGTGACCCAGAGCATTCAGGTGTGCTAGGAAGACATTTCCCCAGCTGTCTTCTGATGGAAACAAGTCAAGCTTCTCAGTTGG
GCCATGGGTGGGTTGGAGTTTCTGGGTGTGGGGATCCAAACGCCCTCTTTATTTTGGGGTGCTTATGGGCCTTCTGGGAATGGGTGGCTAAGAGTCT
GGGTAGGACTTCAGGGCCGGGACACCACCCCTACACGACCCTGCTGCAGTGTCCCCTCCCCCAGAGCTGTCTCTGTGTGTCTTCTTAACCTACAAGA
GTCGGGGCTCCTGTGTGAGGTGCGACCTGGCCTGGGGCGGCGGCGGGGAGGTACTAGGAAAAGAGGCGGGGCCCTAGCTGGGGAGGGAGAGGGGCG
GATACTAAGTACCTGGCTGGAGTGGCAGCGGCAGGTGGGGAGGTACGGGCTTAGCGGGGCTAAATAGGAGGAGTGAAGTGGGTGGCCAGGGT
GGAGCCAACCCACACTTGTGTACGCCCTAGGTTGAGGCTGAGCGCTTGTTCAGCAACATCTCTGAGATCGCCAAGCTACACCGCGGCTTGTGGGGCAGC
GTGATGGTGCCAGTGTGGAAGAAGGCGCGGCGGACGCGGGCGCTGTGTCAGCCCAGCGACTTTCTCAAAGGCTTCAAGATGGTATGAGCAAAAGAAGC
GGGAAAACCTCCAGGGCTGGAAGGCTTCTCGCTTGGGTGGTGTGGGAAGCGCTGGAATCTGGAGGTAACAGGTGCTGTGTTTGCCGCTGGCCAG
TTCGGCTCACTTCTAAGCCATACATCCGATACTGTATGGAAGAGGAGGGCTGCATGCGCGGCTGTGCTGACAAACGATCTGTTCCGG
GCATACGTCAAGGTGAGGCTGGATGCTGAGGAGTGGCGGCACAGTGTGGCGGGTCTAAAAGGGGCGTGGTTAGGACTGAGCTCCACTCCATT
CCCCTTAGTGGGCGGAGAAGCACCAGCAGTGCCAGCGGCTGAAGCTGAGTGACATGCTGGCCAAGCCCCACCAGCGGCTCACCAAATACCCACTGCTG
CTCAAGTTCGGTGCTAAGGAAGACAGATGATCCCCGCACCAAGGAAGCCATCGTCACCATGGTAACCTGAATGTGAGCAGAAATGTCTAGGCTCCATCT
CTCCAGATCCTAAGCCCCATCACCTATCTCAGATCAGTCCGTTGGAACGCTTTCATACACCAGCTGAACACGTCATGCGGCAGCGGCAGGAGCGCG
AGCGCTTGGCGGGGTGGTGAGCCGATGCTGCTACGAGTGTGGAGGGCAGCAACGAGGTGGATAAAGTGAAGCAGCAGCTGAGTCACTTATGCT
TGGCGTCGTGGAAGCGTTGGGGTGTGGGGTGGGGGTGGGGGAGATGCTGCAGATCTCCCTTGGAGGCTCCAGGTTGTGGCCCTGACTTTTGACATCTC
CTCCCCATCTAAAGCTCCTGAAGGAATTTCTACATCTGGACCTGACAGCACCCATGCCTGGAACCTCCCCTGAAGAGACCCGACAGCTGCTGCTGGAA
GGGAGCCTGAGGATGAAGGAGGGGAAGATAGCAAGGTGACCCAGGATACCCACCTACAGCCTTGTTCATTTGCCCTCCTTTCCGAGGTTCTCCTG
GGCCTCAGTCAGTGGTTCTTAAGCTGCTGGTTAGTTACAGGTAAGTCCGCTGGTTTGTCTTCCATCGGTATGATAAAAAACCATGACATAAAAGCAA
TTTAGGTAGGAAAAAATGTCTTTGGCTTTCTGAGGAGAGCCAGGGCAGGATGGCAGAGGCGGGAACCTAAGCAGAGGCCATAGTGAAATGCTTTTTT
ATGGTTTGCTGGGCTGCTTTCTTACACAACCCAGGACCAGCTATATTGCCATGGTGGGCTGGGCCCTCTGACATCAACCATTAATCAAGGAAATGCC
ACAAAGACTGTCTACAGGCTAAATTTGATCGAGTGTGTCTCAGTTGTGGGTCCCTATTCTCGATGACTCTAGCTTGTGTGACACTGACAACTAGCT
AGCATGGTGACCTAAGAGCCCATGACCAATGCTGTGGGGCGGTGGGGGATGAATGCCACCTACAGTTTACAGAGTAAGAGTAGCAGGTCACAGC
TCTGAAGGTGACAGGTAATAATATATTCTGCAAGGCAAGAGCTCCCCAGGACCTTGTCTTGTAGAATCTTGCTATTACCTGGTAGGTAATACTTGT
AAATTGTGGTTTTTAACATCACCTCCTTTTTTATTTCTTTCTTATTAATAAAAAAATATTTAGTGTATGTGAGTACACTGACATTGTCTTCAGACACACCAG
AAGAGGGCATCAGATCCCATACAGATGGTTGTGAACCACCTGTGGTTGCTAGGAATTGAACCTCAGGACCTCTGGAAGGCTGTCAAGTCTTAAC
GCTAAGCCATCTCTCCAGCCCTATTCTTCCCCTTTTTTTTTTAAATGTATATGAGTGCTCTTGTGTCATGCACACCTGCATGCCAAGAGGGCATCAC
AGATGCTGTGAGCCATTACAGAGTTGCTGGGAATTGAACCTCAGGACTTCTGGATGAGCAGCTGCTCAGCCGAGCCCTCTCCAGACACCTCTTTCT
TTGTTTATGGTGGATTGAGTCCAGGTTCTCGGAATGCTAAACAAACCCCTCTAGTGTGGTTGCACGCTCCTAGCAGACTTTTTTTCTCTTTCTATTAGAT
AATAAAGTACTTAATATCAATAATTTATTATTGTATATAGTTATAGTAGATTTCATAAATATTTAACACCTAATAAAAAAATTTGCAATAGAGCTTTATG
ACCTCAGAATCACTGTGTGGTTGAGGCTAGCCTTGAACCTATTTTGTGTTATAACCAACCTTAGTGGCTTGAAGTCCCTATATATTACAGGCTGG
TCTCAAAGCTCATAGAGTTCTCCGCTTCTGCTTCCCAAGTGCAGTAGGATGCTGCTGACACACCACGCCCCTACTAGACTCTGCTGCTGCCCTCCAA
GTGCTTAGACTGCAGGTACATGACACCATGCCTAACCTCTTACTGTTTTTGTTTTTCTGAGACAGGTTTCCCTGTGTAGCCCCGGCTATCTTGAATTCT
CTCTGTAGAGCAGGCTACCTTGAACCTCAGTGATAGGCTGCCTCTGCCTCTCAAGTGTGAGTTAAGGGTGTGCGCCTCCACTGTCCAGGTCACCTTAC
TTTTTAAAAAATAATATTATCATTAAGATGAATCATGAATGTGTATATCTTTTGTCTCGCTCATCGATCTCTCTTCTCCTTCTTTCTTTTGTCTTCA
GACAAGTCTCTCCATGCACTCCTGACTGACCTTGAACCTCACAGGATCTCTGTCTGTCTGCTCTGCTACTACCACGCTCATAAGTGTGTATCTGTATG
AAAAAACAATCATCTTTTAATTTTGTAGGCTCAAAGCTGGAGAGGAGGCTCAGTGGGTGACACTGACTGTTCTTCCACAGCTCTGATTTCAAGTCCC
AGCAACCCCAACATAGGGGTGAATTAGAGCAGCTCTAAACCTCCCCACTGCAAGCGAACACTCCCTGCGGCATTCTGACTTAACACCTCCTAAGTCT
GTGTTTTATCTTTGCTGCCCTGGCTTCTGTGGGCAACTCCCTATCTTTGCTGCCAGGGTGCCTTCTGGGCAGCCCTTCCCTTCTGGGGGCTGCTTCTCT
CTTACATCTACATTTTGTAGCCATTACTCCCTCCTGTCTTCTCCCTGCATAGTCCATGGCTGATCCTCTCTTCTTTTCCCCAGGAACCTAATAATTCGG
CCTCTTTCATCTGCTGCTAGCTATTGGCCATTGCTCTTTATTGTACAAAGCAATTTGAGCAGGACCCCTCAGCATTTTGACACACAGAAATTCGATT
GGAGGGGGTGGATTAAACAGATCATTAGAACCAATTACCAACACCCACGACACCTCACAAGTGTGCAATGCTGACTCTGGTGTGTACATGTACAT
ACAGACAAAAATTACCCATACATGTAAATACATATGTACACTTATTTAATACACTTGTGTAAGATAAGTAAGTTTCAAAAAATCCTTTCATGATA
GGAAAGGAAGGTATTGAACAAAACTGAGCTCCGAGGGGCCATTGGGCTCTGGTGGCAGATGCCACCAAGTCTTGTGATCTGAGTTTGGTACCTGTG
TGCCCCATAAATACATACATAACAAACCAAGCAGCAGTCTGATGACAGCAGGTAGAGAGATTGCTCAGTAGATTACAGACTGACAGCTCGTGATT
CAGTTCACGCTCTCCATGGTAACCTGCTGCTCCATGGCACCAGACATGGAACACATACATACAGGCAACATCCACACCCACAAAAATGAAGGCTAAAA
ACACTTTTAAGGGCTGGCTAGATGGCTCAGCAGGTAAGAGCACTGACTGCTTCCAAAGTCTGAGTTCAAATTCAGCAACCATGTGGTAGCTCA
CAACCACCCATAATGAGATCTGATGCCCTCTTTTAGTGCTGTGAAGTCAGTACAGTGTATGATAATAATAATCTTTGGGCGAGAGCAAGC
AGGAGCTGAGAGAGAGGAGTGAGTTGTCAGGAGCCAGCAGGTTCTTAAAAATTCACCTCCAGCAACCCATGAAGGTTTCAACCATGTATAGCT
ACAGTGTACTCTCATACATAAAATAAATAAATCTTTAAAAAACAACAAACAACTTTTAAGCAAATAAATAAATGCAAGTAACCTTTTAGTAACA
AAACGACAAAGGTCTGTGCTGCTGCCCTGGGATCCCCCTGTGCTGACTGTGACCCCGGCTTCCCCACCACAGATGGACGTGTACTGCTTCTCTTCACTGA
CCTACTCTTGGTGACCAAGGCGGTGAAGAAAGCAGAGAGGACGAAGGTTCATAGGCCACCGCTACTGGTGACAAGATTGTGTGCCGGGAACCTCGG
GACCTGGTAAGGAATTTTGGCCCCCTGCTCTGTGTCATGGGGCCACCATTGGGCGCRGGCCAATACTAAGTCCGCTTTCYGTGACCAAGTTCTCTCT
CCTCATCTACCTGAATGATTCACAGTGCTGTGGGGGCTACACTTTCCAGGCCAGGCAAGGCTTGTGCCGAGTGGGTGACACTATTACAA
CGCACAGGTGAGGGCAGAGTGACACAGGGGTCTGGGGCAGATGGGCTCTGTTGCTGTGGCTCACTCTGTGCCGCTCAACCTGCAGAACAGCTGCA
GCAGTGGCTGCACAGCTCAGTGACAGGAGCACCAGGCAGCCAGCATGTGCAGAGCCTGGAAGAGGAGGAAGATGAGCAGGAGGAGGAGGGTGA
AGAGAGCGGTACCTCAGTCCGAGCTCCCCACCATCTCGAAAGAGCAGCAACAGCCTCGACTCTGAGCACTGGTACGTACGTTTACCAAGACTG
CAGGGTAACTTGGGCTCGGACCCGTACGTTTACCACAGCTCAGGGTAAAGCTTGGGCTCGGACCTTAAACCTAGGCTGAATGCTGAGGAAA
GAGGATTACCTCAAGTTTTTGGCGCAACAAAGTAACAACTTGTCTCAACAAAGGAAAAAGAAAAAGAAATGGAGGGAGGGACTTGTGAGGGAGAATG
GGAGGAGGGTGGAGTGGTGATGGGGATATAAAGTGAATAAATAAGTTAGATAAATGGGGAAAAAGAAAGACGAAAAGAAAGACATAACATCTACCCA
GCAAGCCAAGGTGATAATCCCATCCAGAGCTTGGGAGCTGGAGGTAGAGGGATTGACAAAAAGTTGGAAGCCAGAGCTCCAGGGGTACAGACCCAGA
CCAGGTACACGGAACCAAAATAAGAAATCAGACGGGCCACAGGACGATGTTCCCTACCTACGCCAAGGCACTGTGGCTCAGGACGAGGAGGATGTAGT
CTCTGAATGGTGAATGGTATGAACCCAGTGGGAGTATCAGGATAGCTCTGTCTCCTGCTAGCGTCCAGGCTTGGACATGGGCGGTTTTCAACAAGCTC
CATTCACATGGCTGCTGCTGACAGCCTGTCACAGGCTTACAGGTCAGGAAAGGGTACTGATGTGAGGCTACAGAGACTGGCAGGTCTGAGCTCTGAGC
TGCTAGGGCTCCCGGCTGCTTTAGGTTTTTATTATTATTAAGAAATTTTATGTATTTATGTATATGAATACACTGTAGCTGTACAGATGGTTGTGAGC

[illegible]

[illegible]

TCCTCTGCATCTTCTGCTGCAGCTTTCGCGACCATCACCTGGCGCTTCCACTCCGGGATGGGCGCGCCCTGCTCATCAAGAGTGGGAATGAGGGCCTCC
ACATCCAGATGGACTCCAGGTGCCGGGTGGCAGGTGGTGCCGGCACCACACTGCCATTGAGCAGTGGCTGAGACCCAGAGGCTGGCGGGGTGGGGC
TCCGATCCGAGATGGCGCAGGTGACACCAGAGCTGCGGTGACTCAGGCTGCCGGCAGGAAGCAGTAGGGCTGAGCACTGGGCAGGCACTGGGAGCC
CGGGCGGGGCACTCGGCCAGTGCTACCTGGGAGGCTGGCTGCCCACTGCCTGAGAACACGGTTGTCAGCCCCCTTGCTCTGCGGTGTCGGCTTCAGGCT
CTTGCCCCGCTTTATCTCAGCCAGAAGCTCTGAGTTATCACCCGTTGGGGACATCATGTTGAAAGATTTGGTGCCCTGCCACAGGAGAAGAAGCACTCA
TTTGAGGAAAGGGGTACCATTCACATCTCCCTCTGCCCCGAGACCCCTCTCCAAACCAGATGGGTGGGGCCCCACCTTTGGGGCCAGAGGAAGCTCT
CCAGATCCCTGGGATACCGGAAGGTAGCTTCCAGGACACCCAAAGGTGGGCCATCAGCGCCCACTCCACGGTGACCCGACCCAGGTCTTACTCACTGGGTA
TATGGCCCCCACCTAGAGGCCCTGGGAGTTTATGGTGCTCTTGGGCCAGCCCTGGGGACTCCAGCAGATGTCTGCCACCATCAACTGCCCAGCTCC
AAAGCACGGACCCGGCTAGCCACCCAACCTTTGTCCCAGGTTTCTGGCTCAGCCCCACAAGGGCGGAGTCTCCCTAGGGCCCTCTCCCTTCATCAGCA
AAGCCAGTGACCTTGGACTGAGCCAGCTGGAGCCTCCAAGGCCATAAGACTCAGGACCCTGGTGTGCCACCCAGCTGGACCCTCCCTGGGCCCCAC
CCACAGACAGACAGACACATAGCTGACTGCAAGCGGAGCACACATTATGGCAAAGCAACTGCCTGGCCCTGGGGGACCTTGGAAAGGAGGCTTAC
TGAGGACATGGGAGAGGGCACGGGAAGACCAAAGCCAAAGGTATGCAAATACCTGGACAGAGTTTGCAATTTTTCAGCAGGGCTGGCAGAGGTGACT
GGATGGTGGAGGAGTACCCGGGGAGGGCTTTGTGCCCCCCCCCATTTGGGCAGGAATAAAGTACTAAAGGCCCTGAGATACCAGGGCTGGCCATC
CAGAGTACATCCAAAGAGAAGGATAGCGTGACGCCGGCTCATTTACTTAAGCAAAACTGGAAGCCAGGCACCCGATGCTGTGATGCCGAGGGTGGGC
GTTTCGGGTATCAGGTCTCTACCTCTGGCCCTAGCAAGCCCTTCTCAGTCCCAGGCCATTCTGCCTCAGGACTATTTCTGAGCAAGCCACCTGCCCA
CCCCAGCCTTAGCCTCAGCCGCGAGCAGCCAGCGGGGAGCTACTACTCTTCTGTGTCTCAGGACTCTCACTTCTAGGAACAGAGAGGAGCA
ATTGACAGAGAAGTTAGAGGAAGGGGGGTGGGGTGAATCAGGGACAGCAAAGAGGGCCAGGGAGGGCAGGAGGGGAGAAGAGGGGTGGAGCT
CGCCTGCCCTTGTGACCTGGCTCAGGCCACTGTGGGGCCCCACAAAGGTGGTCTCTAAGAGAGGCCATCTTGCTGGGTTTGGCTGAAGCAGCCAGA
GTCTATTTTCTTTGTCCCTAGTATTGTCTGCAGAGGAAGGAGATCTCTGTCAAGTTGGGGGACGGGACGGGACTGAGGAGGGTTTTTCTGAGGC
TCAGCGGGAGTGGACAGGCTACCACAGGCTCCACAGGAGTGTCTGGCCGTGTACAGAGAAATACAAAGCTTGGGCTGAGGCCACCCAGTATGGTT
TCCACACCGAAGCCTGCCTCATTAGGATGGGAGAACCAGAACTTTCCAGGATCCCTGGCAGAAAGCAGTGTCCAGCAATCCAGGTCTCCAGTTTAACT
TGTAAGCAAGGATGCGAAGCCCACTGGTGGAGAGTGTACCTAGCATGCTGGAGGGGGCGCTGAGTTATCTCCACAATCACCTCACCATCACACACA
CACACACACACACACACACACACACAGAGCCTATGGAAAGGAAGGTGTGATGGTTTCTGGGACTTTGTCTTCCCCAGCCAAGCACAGC
TGATCAGTAAGAGTCTGTCAAGGCTAGAGAAAGCTCAGAGGGTGTGCTTAGCTCGAAGGACCAAGAGTTAGAGGTTGGGAGGTGACTGAAGATGCA
GGGCACAGGAGGAAGAAAGGAGCACTCGGTCCCTCCCGCAGGTGGCTCAGAACTTCAGCCACTAGAGCCGGGAGGCTCGCCCTAACTAAAGAAAGA
GAAGGCCGCCCAGAGTGGGCAGGTGCCTCGCCGAAAGCCACACTCAGCCAGTCTGCCGTGGGATGGAAGCAACTCAAACTTTCTCCCTTGTCA
CCAACAGGGTCCAGGTCTGGAAGAAAGAGCCAGAAGAAGGACAGTAGGAGCTGCGAGCTGGGAGGGGGCGGTCTCTAGTTTCCCTCCCCCTTTGCGC
TGGCGCGCCCCCACCCGACTCCCGCCCTACTGCTGACAGTAGAAGCAGTAGAAGCAGGAGCAAGCAGTGCCTGCCCGCAGGCTCGAGTGAAGATGCA
AGGTGGGGCGGGCGGGCGGCAACTCAGGGCCTCGGGCAGCGGGCGGGCGGGCGGTGGCGGGCGGCAGCTCCCTGGACGCTTTGGAGTCCGCTGAGCAG
CCGTTGTGCACGTGGTTCCCGGGGAGCAGCGCGCCTGCGGGGAGCAGAGGGGGCCGAGAGTGTAGGGGGCGTGGGACGGGGCTCGGTCCCGAGCAGC
CCGCGAGTGCGGGCTGGTGGACACGCACCTCCTCGCTGTGGGCCATGCCGGGCGTGCGGCCAGCGGCTCCCCGGGCTGCGGGCCAGCTGGCGGTAG
TAGTCCCCCTGTGGGCTGTTTACTGAACGAGCGCTGTTTGGGTGCGGAGTCTGCCTGCGCAGTCCCGTGTGCTGTGAGCAGCTCTCTGCTGTG
AGCAGCTCCGAATCTGCTGAGCAGCCGAGTCTCGCTGTGAGCCGAGTGGGCGGTGCGCCGAGCTCGGCTGAGGGAAGACAGTGGCGGACGA
TGCTTTTGGCTCGAATGCCTCTCGCGCTCCCTCCCGGCTCTTTGGCTGGGGGCTCGCGGCCAGTGGCCGTGCGGGGCGGCAGCTGGCCGCTCTCTA
GGCCCTCCAGTTCTCCGTGCCGATGGGGCAGGGGGCGAGGAGACTTTGGCGAAAGGGCCGGCTCACAGGAGGGGTCTGGGTAGGTCCAAGGGCA
CAGGGGCCCCCTACTGAGGCCAGAAGGGGGCGACCCAAGGGCGGGGTGGCCAGCCTGGACGCCAGGGGGAGCCTGCGCTGGAACAGCTCCCACTTAG
CCGCCCCGAAGGCTCGGCTGACCCCTACTAGCTGCTCCGCCAGCCGCGCGTGTAGCGCACGGGGCGCTAGAAGCCTTCTGTGCGGGGCTCGCGCCT
GGAGGGGCCCCCTATCTAGAGCTAGTACCCAGGGACGCTTCTGCTTGTCTACGGGGCCACAGCCTGGGGCTGCTCCTACCTGCGACTGTTCCGGTGGCC
CCCGCTGTGCACCTGCGGGCGGGGGCGGCACGACCCGACACCTGCGTTACCTGATCCTTCTCAGGTTACAGCCCGGCCCGCAGCTGCCCGCCTA
TGAGCTCAGTCCGCTGACATACCCAGGGTCCGCCATCCCAAGGCTTAACCCCCAAGCAGGACCGGATGTACAGGAGCCCCACGACTCTGCCACCA
CCAGGGGCGACTCCGCGCGTGCACCTCTTTGCTCTGCTGTAGTACCTTACTCTCCTCCCGCCCTCAGTCACTTTGCGCGGATAGCAAGAGGG
CCTGACCTCGGATAGTGAAACTCTTCGTTTTTGTCCACCCACCCCTCCATTCCAGGTGCGGCCCTGGCCTTTCCCTCCCGCATCTGGAACCCATCGCTAA
CCATGTAAACGACACCCGACCCGGGCCAGGCCTCAAGTTTCAAGTGTGGCGGGTGGGCTCGGGTGACAAAACCACTTCTCGCTCCGTGCTCCCCG
CTAAGGCCTGCACTGGGAGAGGGAGAAGAGGTGGTGTGGCCAAAGACCAAATGACCAGGTGGGGGTGTCCCTTACCCTGACCCACGCTCCTGCGTCT
CTACTGTGGCCTCAGACCCCGTCCCCACTGGTCAAGGTTACGTGACAGGAAACACGACAGCCAGATTTGTTTTTGGGTGAGCCAGCCCTTCGGC
ACCCATGAGAGCCGTAGAGGTGTACACCCCTCAACCCAGTTCTAACGACAGTTTGTAGTACCCATGCCGTAGGGGGGCAAGGATGCAACTACACAA
AGGGCCCTTTGTGGAGCTATTAGCGCTGCACTTCTGCATGAACACACCACAGAGGGGCATAGGGAAGTCTGGCACTCAGGCGCAGTGGTGGGGAG
TGAGCAGGGCTTGAGGCAAGCCCCATATGCTATGCCAGGCTTCGAACGCGGGATAGCCTCTACCACCCCAAGAATTTCTGTCCGACTTTTCTTTCTCC
AGAAGAAAAAAATCTTCTGGCGGAGCTTTGGTGTACGGAAGGGCAGTAGTAAAGGGTGGTGCAGAGTCCCTGTGAAGCCTGTCCCTCCCATGTGCGC
GCCCCCCATGCTGTGAGCTGCTACCTGTGCAAACTGATCGTTACGTTCCACTTGGGCTGGGGAGAGAATGCAAGGTCTGGGCTTGGGCAAG
GCTTTATGGGTTTGTACCCCTACACCTGGCCACCCGTGGTCTTGGGCTGTCCCTCACCTCTCCTTCTGTCCAGCCCTGCTTTGGGTACCCCTGCTATCAC
ATCTGACCATCGTCTGCTCCTCAGCTTTAGCCAAAAGTCCGAAGGCCTCGGATGTTCTTCTAGTCCCTCACACTGATCCACCCCTTCCAAGGGGTTTCT
TATCTTACACGGGACTCCTCTGGATCCACCCAAGGGTTACAGAGTGGGAGGGGCTATCACTGAGAAACCTTTTCTGGGGGGGGGTGGGGG
AGGCGGCTAACGCTGTCTGTAGCTAGCTGTACAGAGCAGGAGTGTACTAGTGCAATGTTGTCTTACAGACTTCTGGGCTCAGCTTCCATCCCA
GTCAAAGTGCAGTGCCTGCGCTGAGGAAGATACTCCACGTATCACCTTCTTTCCGTTTATTACTTTGTGTTTGGTTTTGGAGAGGGTCTCTCTCTC
TCCTGTGTAGCCCTGGCTGTCCA

Selection Cassette:LacZ/Neo

GGCGCGCCGGATCCCGGGCCGCTCTAGCTAGACTAGTCTAGCTAGAGAATTCGCCCCCCCCCCCCCCCCCTCTCCCTCCCCCCCCCTAACGTTACT
GGCCGAAGCCGCTTGGAAATAAGGCCGGTGTGCGTTTGTCTATGTTATTTCCACCATATTCGGTCTTTTGGCAATGTGAGGGCCCCGAAACCTGGC
CCTGTCTTTGACGAGCATTTCTAGGGGTCTTTCCCTCTGCCCCAAAGGATGCAAGGCTGTGTAATGTCGTGAAGGAAGCAGTTCTCTGGAAGCT
TCTTGAAGACAAACAACGTCTGTAGCGACCCCTTTCAGGCAGCGGAACCCCCACCTGGCGACAGGTGCCTCTGCGGCCAAAAGCCACGTGTATAAGA
TACACCTGCAAAGGCGGCACAACCCCACTGCGACGTTGTGAGTTGGATAGTTGTGGAAGAGTCAAATGGCTCTCCTCAAGCGTATTCAACAAGGGGC
TGAAGGATGCCAGAAGGTACCCCATTTGATGGGATCTGATCTGGGGCCTCGGTGACATGCTTTACATGTGTTTGTAGTCGAGGTTAAAAAACGCTAG
GCCCCCGAACCACGGGGAGCTGGTTTTCTTTGAAAAACACGATGATAAGCTTGGCACAACCTAGGAAGATCCCGTGCTGTTTACACAGCTGTGACTG
GGAAAACCTGGCGTTACCCAACCTTAATCGCCTTGCAGCACATCCCCCTTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCCA
ACAGTTGCGCAGCCTGAATGGCGAATGGCGCTTTGCCTGGTTTCCGGCACCCAGAAGCGGTGCCGGAAAGCTGGCTGGAGTGCATCTCTGAGGCCG
ATACTGTCTGTCGTCCTTCAAACCTGGCAGATGCACGGTTACGATGCGCCCATCTACACCAACGTGACCTATCCATTACGGTCAATCCGCCGTTTGTTC
CCACGGGATCAATCCGACGGGTGTTACTCGCTCACATTTAATGTTGATGAAAGCTGGCTACAGGAAGGCCAGACGCGAATTTTTGATGGCGTTAAGT
CGGCGTTTATCTGTGGTGAACGGGCGCTGGGTGCGTTACGGCCAGGACAGTCTGTTTGGCGTGAATTTGACCTGAGCGCATTTTACGCGCCGAG
AAAACCGCCTCGCGGTGATGGTGTGCGTGGAGTGACGGCAGTTATCTGGAAGATCAGGATATGTGGCGGATGAGCGGCATTTTCCGTGACGTCTCG
TTGCTGCATAAACCGACTACACAATCAGCGATTTCCATGTTGCCACTCGCTTAAATGATGATTTTCAGCCGCGCTGTACTGGAGGCTGAAGTTCAGATG

Targeted Locus:

[illegible]

[illegible]

CAGTTCACGCTCTCCATGGTAACTCTGGCTCCATGGCACCAGACATGGAACACATACATACAGGCCAAACATCCACACCCACAAAAATGAAGGCTAAAA
ACACTTTTAAGGGCTGGCTAGATGGCTCAGCAGGTAAGAGCACTGACTGCTCTTCCAAAGGTCCTGAGTTCAAATTCAGCAACCATGTGGTAGCTCA
CAACCAACCCATAATGAGATCTGATGCCCTCTTTTAGTGCGTCTGAAGTCACTACAGTGTACTTGATGTATAATAATAAATCTTTGGGCCAGAGCAAGC
AGGGACTGAGAGAGAGGAGTGCAGTTGACCAGAGCCAGCAGAGTTCCTAAAAAATTCACTTCCCAGCAACCCACATGAAGGTTTATAACCATGTATAGCT
ACAGTGTACTCTCATACATAAAATAAAATAAATCTTTAAAAAAAACAAAACAAAACACTTTTAAAGCAAATAAATAAAATGCAAGTAACCTCTTTAGTAACA
AAACGACAAAAGGTCTGTGCCCTGCCCTGGGATCCCCCTGTGCTGACTGTGACCCCGGCTTCCCCACCACAGATGGACGTGTACTGCTTCTCTTCACTGA
CCTACTCTTGGTGACCAAGGCCGTGAAGAAAGCAGAGAGGAGCAAGGTGCATCAGGCCACCGCTACTGGTGGACAAGATTGTGTGCCGGGAACCTTCGG
GACCCCTGGTAAGGAATTTTGGCCCCCTGCTCCTGGTCATGGGGCCACCATGGGCGCRGGCCAATACTAACTCGGCCTTTTCYGTGACCAGGTTCTTCTCT
CCTCATCTACCTGAATGAATTCACAGTGTGTGGGGGCTACACTTTCAGGCCAGCAGCCAGGCCTTGTGCCGGAGCTGGGTGGACACTATTTACAA
CGCACAGGTGAGGGCAGAGTGACACAGGGGTCTGGGGCAGATGGGCTCTGTTGCTTGTGGCTCACTCTGTGCCGCTCAACCTGCAGAACCAGCTGCA
GCAGCTGCGTGCACAGCTCAGTGACAGGAGCACCCAGGCAGCCAGGCATCTGCAGAGCCTGGAAAGAGGAGGAAGATGAGCAGGAGGAGGAGGGTGA
AGAGAGCGGTACCTCAGCTGCCAGCTCCCCACCATCTTCGAAAGAGCAGCAACAGCCTCGACTCTGAGCACTGGTACGTACGTTTACCCAAGACTG
CAGGGTAAGCTTGGGCCTCGGACCCGTACGTTTACCCAAGACTGCAGGGTAAGCTTGGGCCTCGGACCTTTAACCTAGGACTTGAATGCTGAGGAAA
GAGGATTACCTCAAGTTTGTGCCGCAACAAAGTAACAACCTTGTCTCAACAAAGGAAAAAGAAAAAGAAATGGAGGGAGGGACTTGTGAGGGGAGAATG
GGAGGAGGTGGATGGTGTAGGGGATAAAGTGAATAAAGTTAGATAAATGGGAAAAAGAACAGCAAAAGAAAGACATAACATCTACCCA
GCAAGCCAAAGTGATAATCCATCCATCCAGAGCTTGGGAGCTGGAGGTAGAGGATTGACAAAAAGTTGGAAGCCAGAGCTGAGCTGGTTGTGAGC
CCAGGTCACACGGACAAAATAAGAATTCAGACGGGCCACCAGGACAAGTTCCCTACCTAGCCCAAGGCATCTGGCTCAGGACACAGAGGGATTGAT
CTCTGAATGGTGGAAATGGTATGAACCCAGTGGGAGTATCAGGATAGCTCTGTCTCCTGCTAGCGTCCAGGCTTGGACATGGGCCGTTTTCAACAAGCTC
CATTCACATAGGCTGCCTGTCAGACCGTGCACAGGCTTACAGGTCAGGAAAGGGTACTGATGTACAGGTACAGAGACTGGCAGGTCAGCTGTGAGC
TGCTAGGGCTCCCGGCTCTTTAGGTTTTATTATTTAAAGATTATTTATGTATTTATGTATGAATACACTGTAGCTTACAGATGGTTGTGAGC
CATCATATGGTTGCTGGGAATTGAACCTCGGGACCTCTGCTCCATCCAGCCCTGGCTCACTCCAGCCCAGAGATTTATTATCATATGTAAGTACACTATA
GCTGTCTTCAGATACACCAGAAGAGGGAGTCCGATCTCAGATCTCATTACAGATGGCTGTGAGCCACCATGTGGTTGCTGGGATTTGAACCTCAGGACCT
TCAGAAGAGCAGTCACTGCTCTTAAACCGCTGGGCAATCTCCAGCCCTGATTTAGATAATCTTGGCTTTCTGACTCTCTTCTGTCTCCACAGCACCTC
AGATAGGCTCCAGCGGACCTTGGCATGGTTGTGGTAGAGCTGGGCGACACTGTCTTCCCGGAGTTTGAAGCGGTCCTCCCGTCCGATCCCGATCGG
ACGAATCTTCTCTCAGTAACACTGCTTCTCTGTCACTCCACCAGCGAGCTGC:TGCCCTGGGCCCTGTGGATGGCCGCTCTGCTCCATGGACTCCG
CCTATGGCACCCCTGTCCCCACTTCCCTTCAAGACTTTGTGGCTCCACACCCCGTGGTCGAGCCAGCGCCTGTGCCCTCAGACCCCTCTCCCCAGCCCTC
ACCCCGCTCCGCGCTCGCAGCTCTGTCCAGCTGCTCCCTCGCCCGCCCGCTGTCTCAAGTCCAAATCGGAGGCTAGCCTCTTACAATTAAGTCTGCTCAGG
AACCCAGCCCGCGTGGCGTGCCTCCGCTCCAGCCGACCTGTCAAGATCTGCTGATCTCTGTGGCCCTGGGTTGAGCACTCAGCGCCCTCT
TCAGGAAGGTGGTCTGGCTGGAATGGTCCAGGGATGTGTGACCCCTGCCATGGCCCTCAGTTGTGAGAATCTGAGAACAGACCTAGCCACATGACKG
GGGGACCTGCAGATTCTGCCGAAGGAGATGCAGAGAGATGCCTTCTGGGACTATGTCCAGGGTGCAGTCTGAGCCTCCCTCAGGGGTCTCTGCTCAA
CACAGGAAGCTGACCCTGGCCAGCTCTACCGGATCAGGACCACCCTGCTGCTCAACTCCACGCTCACTGCCTCGTGAGTGCCCGGCGAGGGGAGGG
ACAGATGATTCTGTGATGGCATGGGTAGTGGGTAGTGACAGCATGTCTGCGACGATCAGCCTCTGGAGGCTGAATGGGAAGCAGGCTTTTCAGCCCA
CTCTAGTGGCTGGGCGGCTGGGGTATCTAGCAGGCTGAGAGGTGAAGGGGGAGAGGGCTGTGGCAGAGGTGAGGTTTCGCTAGAACCAATTTGTG
ATTGCCACCAGCCAAGATGGACTTTCTTCCACCCCTTGCAGGGAGGTGTGAGCAGGAGACCCCTAGGGTGCCACTGAATAAGAGACAGTAGAGAGCC
CTGTCTCTGGGGATACAGACCTGCTTACCCGCTGCCTCGTGTGTGAAGACCAAGGAGACCCCCAAGGGTACCCTGCCTGAGGACAGCAGAGAG
AACCTGCCTCCCTCCAGAAAGTACAGACCTGCTTCTCAGCTCCTCATGTGTGCATGTGTGCCAGAGCGCCAGGCGAGGTTGGTGCCTCATCACCTCA
TGGCAATTTGCACTTTTGGCAGTCTGGATGGAATGGAAGAGGCTGCTGGAGTTCCAGGCCCTGGCTGCAATGCTCCACACACACACACACCCCTCTT
GCCCAGGTGGCCTCTTGTCTCTGCTCTTGACTCTGCCAGCCCTGATTTTCTGGGCTGGGCTCACTGGCTCTCAATGCCACCTTCGTTAGGATTCTAGAA
ATGAGTCCCTGTCTTCTGCTCATGTGGCTCCGAGGCGCGGCTGGGATCTGTGAGGCTGCGTATTTATTAAGTTTGGCTATTCTATAAAGACTTGT
ATATACTTCCGTGGAAAGAGTCATGCGCTTCTGGAACGCCCTCTTCCCTGTCTTCTGGCTGGAGGGGGCGGTGGGGGAGGGGAGGAGGAGGCT
ACGCTTGTGACGTGTAATGGGGCCCTGTGGAAGATAAAGGCCAACATCCCAAGACAGCCTGAAAGCCACTATTACTTGGCCCTGTCTTGTGAGT
CTAACAGAATCTTAGAATGTACAGGGTATTTCCTTAGAATTCAAGGCTCGTCCATTCCAGCACCCCCAGCACCCATACCTGGGAGATGTAGGTGTCTTAC
CTAGGTGTGCCCCACCTACCCCAAGTACTTGAGACCAGGGAAAAGCCCTGGCTCTGGAATCTAAGCAGTGGTTCTCAGGGCTGGAGCTAGACCCAG
CGTGGGATCAGGGTGCAACCTACTGGGCTTAGTCAAAGCCTGTGCTGCTTCCAGTATGTAGTGTGACCCACACCAGCGCGAGGGGCCCCGTCAMGT
AGAGGGACATAGCCCTCAGCTTCCGAAGAGCGGCAGACCTTACCTAGCCATCCCCGAGGGGAGTTGTTCTGATGGCGGGGGCGGGCGGCA
GGCAGGCTAGCTTAGTCTAGGAACATAGGGCTGAGCTGGTGGGGAAAGCCCGGTTACGCGACCGACAGAGCGCACTCAACAGCTTAGAGG
CCATAGCGGCCATTTAAATGGCGCGCCGATCCCGGGCGCTCTAGCTAGACTAGTCTAGCTAGAGAATTCCGCCCCCCCCCCCCCCCCCTCTCCCT
CCCCCCCCCTAACGTTACTGGCGAAGCCGCTTGAATAAAGGCCGCTGCGTGTGTCTATATGTTATTTCCACCATATTGCCGCTCTTTGGCAATGT
GAGGGCCCCGAAACCTGGCCCTGTCTTCTTGACGAGCATCTCTAGGGCTTCTTCCCTCTCGCCAAAGGAATGCAAGGTCTGTGATGTGCTGTGAAGGA
AGCAGTCTCTGTGAAGCTTCTTGACAGCAAAACAGCTGTGATGCGACCTTTGCAAGCAGCGGAACCCCCCACTGGCGAGGTGCCTCTGCGGC
AAAAGCCACGTGTATAAGATACACCTGCAAAGGCGGCACAACCCCAAGTCCACGTTGTGAGTTGGATAGTTGTGGAAGAGTCAAATGGCTCTCTCA
AGCGTATTCAACAAGGGGTGAAGGATGCCAGAAAGGTACCCCATTTGATGGGATCTGATCTGGGGCTCGGTGCACATGCTTTACATGTGTTAGTCG
AGGTTAAAAAACGCTTAGGCCCCCAACCAAGGCGGGGAGCTGTTTCTTTGAAACACAGATGATAAGCTTGGCACAACCATGGAAGATCCCGTCTG
TTTTTAAACGCTGCTGACTGGGAAAAACCTGGCGTTACCAAGTAACTGCGCTTGAAAGACACATCCCCCTTTCCGAGCTGGCGTAATAGCGAAGAGCCC
GCACCGATCGCCCTTCCCAACAGTTGCGCAGCCTGAATGGCGAATGGCGCTTTGCTGGTTTCCGGCACCAGAAGCGGTGCCGGAAGCTGGCTGGAG
TGCGATCTTCTGAGGCCGATAGTGTGCTGCTCCCTCAAACCTGGCAGATGCACGGTTACGATGCGCCATCTACACCAACGTGACCTATCCCATACG
GTCAATCCGCGGTTTGTCCACGGAGAATCCGACGGGTGTTACTCGCTCACATTTAATGTGATGAAAGCTGGCTACAGGAAGGCCAGACGCGAATT
ATTTTGTAGTGGCTTAACCTGGCGTTTACATGTGTGGTGAAGCGGCGCTGGTGGTTACGGCCAGGACAGTCTGTTCCGCTGTAATTTGACCTGAGC
GCATTTTACGCGCGGAGAAAACCGCTCGCGGTGATGGTGTGCTGCGCTGGAGTGACGGCAGTTATCTGGAAGATCAGGATATGTGGCGGATGAGCGG
CATTTTCCGTGACGTCTCGTTGCTGCATAAACCGACTACACAAATCAGCGATTTCCATGTTGCCACTCGCTTAAATGATGATTTACAGCCGCGCTGTACTG
GAGGCTGAAGTTTCAAGTGTGCGGCGAGTTGCGTGACTACCTACGGGTAACAGTTTCTTTATGGCAGGGTGAACAGCAGGTCGCCAGCGGCACCGCGCC
TTTCGGCGGTGAATATCATGATGAGCGTGGTGGTTATCCGATCGCTCACACTACGTGAACGTCGAAAACCCGAAACTGTGGAGCGCCGAAATCC
CGAATCTCTATCGTGGCGGTGGTTGAACCTGCACACCGCCGACGGCAGCGTGTGATTGAAGCAGAGCCCTGCGATGTCGTTTCCGCGAGGTGCGGATTGAA
AATGGTCTGCTGCTGCTGAACGGCAAGCCGTTGCTGATTGAGGGCGTTAACCGTCACGAGCATCATCTCTGCATGGTCAGGTCATGGATGAGCAGAC
GATGGTGCAGGATATCTGCTGATGAAGCAGAACTTTAACGCCGTGCGCTGTTTCGATTATCCGAACCATCCGCTGTGGTACACGCTGTGCGACCG
CTACGGCCTGTATGTGGTGGATGAAGCAATATTGAACCCACGGCATGGTGCCAATGAATCGTCTGACCGATGATCCGCGCTGGCTACCGGCGATGA
GCGAACGGTAAACGCGAATGGTGACAGCGCATGTAATACCCGAGTGTGATCTGCTGCTGGGGAATGAATCAGGCCACCGGCAAGCTAATCGACG
GCGCTGTATCGCTGGATCAAATCTGTCGATCTTCCCGCCCGTGCAGTATGAAGCGCGGAGCGGACACCACGGCCACCGATATTATTTGCCGATG
TACGCGCGCGTGGATGAAGACCAGCCCTTCCCGGCTGTGCCGAAATGGTCCATCAAAAAATGGCTTTCGCTACCTGGAGAGACGCGCCCGCTGATCTC
TTGCGAATAGCCCCACGGCATGGGTAACAGTCTTGGCGGTTTCGCTAAATAGCTGGCAGGCGTTTCGTCAGTATCCCCGTTTACAGGGCGGCTTCTGCTG
GGAGCTGGTGGATCAGTGGCTGATTAAATATGATGAAAACCCGACCCCTGGTGGCTTACGGCGGTGATTTCGGCATAGCCGACCGGCTAATCGACG
TCTGTATGAACGGTCTGGTCTTTGCCGACCGCACGCCGATCCAGCGCTGACGGAAGCAAAACACCAGCAGCAGTTTTCAGTCTCCGTTTATCCGGGC
AAACCATCGAAGTGACCAGCAATACCTGTTCCGCTCATAGCGATAACGAGCTCCTGCACTGGATGGTGGCGCTGGATGGTAAGCCGCTGGCAAGCGGT
GAAGTGCCTCTGATGTGCTCCACAAGGTAAACAGTTGATTGAATGCCTGAACTACCCGAGCCGGAGAGCGCCGGCAACTCTGGCTCACAGTACG

[illegible]

[illegible]

GCACCTGTGGGGCCCCACAAGAGTGGTCTCTCTAAGAGAGGCCATCTTGCTGGGTTTGGCTGAAGACGCCAGAGTCTATTTTTCCTTTTGTCCCTAGTATT
GTCTGCAGAGGAAGGAGATCTCTGTCAAGTTGGGGGGGACGGGACGGGAGCTGAGGAGGGTTTTCCTGAGGCTACGCCGGGAGTGGACAGGCTACCCAC
AGGCTCCACAGGAGGTGCTCTGGGCTGTGCTCAGAGAAATACAAGTCTGGGCTGGAGCCACCCAGTATGAGTGTTTCCACACCCGAAGCCTGCCTCTATTAGG
ATGGGAGAACCAGAACTTTCCAGGATCCCTGGCGAGAAAGCAAGTGTCAGCAATCCAGGTTCTCCAGTTAACTTGTGAAGCAAGGATGCCAAGCCACGTG
GTGGAGAGTGTACCTAGCATGCTGGAGGGGGGCTGAGTTATCTTCCACAATCACCTCACCATCACCACACACACACACACACACACACACACACACAC
CACACACACAGAGCCTATGGAAAGGAAGGTGTGATGGTTTCTGGGACTTTGTCTTCCCCAGCCAAGCACAGCTGATCAGTAAGAGTCCTGTCAAGGCT
GAGAGAAGCTCAGAGGGGTGTGCTTAGCTCGAAGGACCAAGAGTTAGAGGTTGGGAGGTTGACTGAAGATGCAGGGGCACAGGAGGAAGAAAGAGGAGC
TCGGTCCCTCCCGCAGGTGGCTCAGAACTTCAGCCACTAGAGCCGGGAGGCTCGCCCTAACTAAAGAAAGAGAGGCCGCCAGAGTGGGACGGT
CCTCGCGGAAAGGCCACACTCAGCCAGCTCTCGCGTGGGATGGAAGCAACTCAAAACTTTCTCTCCCTTGTACCAACAGGGTAGGGTCTGGAAAAA
GAGCCAGAAGAAGGACCAGGGGCGTGCAGCTGGGGAGGGGGCGGTCTCTAGTTTCCCTCCCCCTTTGCAGCTGGCGCCGCCCCACCCCGCATCCCG
CCCCTACTCACTGCCAGTAGAAGACGAGGAAACGACGCTGCCCGCAGGCTGCGCCGCGCCCTCGATGGGCAGAGGTGGGGCGGGCGGGCGGCCAGCTC
AGGGCTCTGGGCGAGCGGCGGGCGGTGGCGGCGGAGCTCCCTGGACGCTTTGGAGTCCGCTGAGCAGCCGTTGTGCAGTGGTTCCCGGGGA
GCAGCGCGCGCTCGGGGGAGCAGAGGGGGCGGAGATGTGAGGGGCGTGGGACGGGCTCGGTCCCGAGCAGCCCGCAGATGCGGGCTGGTGACAC
GCACCTCCTCGCTGTGGGCCATGCCCGGGCGTGGCGCCAGCGGCTCCCCCGGGCTGCGGCCCAGCTGGCGGTAGTAGTCCCCCGTGTCTGGGCTGTTTAC
TGAACGAGCGCTGTTTGCGGTCCGAGTCTCGCTGCGCAGTCCGCTGCTGTGCCTGAGCAGCTCCTGCGTGTGCAGCAGTCCGAATCTGCCTGAGCA
GCCCGGAGTCTGCTGTAGCCGCGAGTGCCGCTCGCCGAGCTCGGCTGAGGGAAGCAGTGGCGCGATGCTTTTGGCTCGAATGCCTCTCGC
GCTTCCCTCCCGGCTCTTTGCTTGGGGGGCTCGCGGCCAGTGGCCGTGCGGGGGCCGACGTGGCCGCGTCTTAGGCCCTCCAGTCTCCGCTCGCGGAT
GGGGCAGGGGGCGAGGAGACTTTGGCGAAAGGGCGCGCTCAGAGGGAGGGGTCTGGGTTAGGTCCAAGGGCACAGGGGGCCCTACTGAGGCCAGAA
GGGGCGGACCCAAGGGCGGGGTGGGCCAGCCTGGACGCCAGGGGGAGCCTGCGCTGGAACAGTCCCACCTAGCCCGCCCGAAGGGCTCGGCTGCAC
CCTACTAGCTGCTCCGCGACGCCGCGCTGAGCGCACAGGGGCGCTAGAAGCCTTTCTGTGCGGGGTGCGGGCTGGAGGGGGCCCTATCTAGAGCTAG
TACCCAGGGACGCTTCTGCTGTGCTACGGGGGCCACAGCTGGGGTGCTCCTACTCGACTGTTCCGGTGGCCCGCTGTGCACCTGGCGGGCGGG
GCGGCACGGAACCCGACACCTGCGTTACCTGATCCTTCTCTCAGGTTACAGCCGCGCCGACGCTGCGCCGCTATGAGCTCAGTCGGCTGACATCAC
CCAGGGTCCGCCAATCCCAGGCTTAACCCCCAAGCAGGCACGGATGTCACGGAGCCCCACGACTCTGCCACCAGCCAGGGGCGACTCCGCCCGGTGCA
CTCCTTTTGCTCTCGTCTGAGTACCCTATCTTCATCCTCCCCGCCCTCAGTCAATTTGCCCGGATAGCAAGAGGGCTGACCTCGGATAGTGAACCTCT
TCGTTTTTGTCCACCCACCCCTCCATTCAGGTGCGGCCCTGGCCTTTCCCTCCCGCATGGAACCCATGCTAACCATGTAACACACCCGACCCCG
GCCAGGCCCTCAAGTTTCAAGTGTGGCGGGTGGGTGCGGTGACAAAACACTTCTCGTCCGTTGTCTCCCGCTAAGCCCTGCACTGGGAGAGGGA
GAAGAGGTGGTGTGGCCAAAGACCAAATGACCAGGTGGGGGCTGTCCCTTACCCTGACCCACGCTCTCTGCGTCTCTACTGTGGCCTCAGACCCCGTC
CCCACTGGTCAAGGTTACGTTACAGGAACACGACACGCCAGATTGTTTTCTGGGTACGCCAGCCCTTCGGCACCCACTAGAGCCGTAGAGGTGT
ACACCCCTCAACCCAGTTCTAACCGGACAGTTTGTACCTACCTTGGGTTGAGGAGGATGCAACTACACAAAGGGGCCCTTTGTGGAGCCTATTA
GCGCTGCACCTTCTGCATGAACACACACAGAGGGGCTAGGGAAGTCTCGACTCAGGCCGAGTGGTGGGAGTGAGCAGGCTTGTAGGCAAGCC
CCATATGCTATGCCAGGCTTCGAACGCGGGATAGCCTCTACCACCCCAAGAATTTCTGTCCGACTTTTCTTTCTCCAGAAGAAAAAAATCTTCTGGG
CGAGCTTGGTGTACGGAAGGGCAGTAGTAAAGGGTGGTGCAGAGTCCCTGTGAAGCCTGTCCCTCCCATGTGCGCTCCGCCCATGGCCTTGTGACCT
GGCTCACTGTGCAAACTGATCTGTCAGCTCCACCTTGGGCTGGGAGAGAGAATTGAAGGTCTGGGCTCTGGCAAGGCTTATGGGTTGTCACTTAC
ACCTGGCCACCCGTGGTCTTGGGCTGTCCCTCACTCTCTGTCCAGCCCTGTTTGGGTACCCCTGTATCATACCTCGTCTGCTCTCTCA
GTTTATGCCAAAAGTCCGAAGGCCCTCGGATGTTCTTCTAGTCCCTCACACTGATCCACCCCTTCCAAGGGGTTTCTCTATTCTTACACGGGGACTCCTCC
TGGATCCACCCAAGGGTTACAGAGTGGGAGGGGCGTATCACTGAGAAACCCCTTTTCTGGGGGGGGGGTGGGGGGAGGCCGCTCAGCCTCTGCTCCT
AGCTAGCCTGTGACGAGACAGCAGGATGTAAGTGTGACAATGTTGTCTTACGACTGTCTGGGCTCACCTTCCAGTCAAACTGCAGTGCTCGCCTG
AGGAAGATACTCCACGTATCACCTTCCCTTCCGTTTATTACTTTGTTTGGTTTGGGAGAGGGTCTCTCCTCTCTCCTCTGTGTAGCCCTGGCTGTC
CA