



Lexicon Genetics Incorporated – Genentech Project Materials

Genentech ID:	UNQ3027	Date of Submission:	7-13-04
Lexicon Contract Name:	DNA061	Mutation Type:	X Standard Knock out
LexVision Name:	SEC423N1		☐ Conditional
Reference accessions:	NM_022657	Is this gene X-linked?	no

Required Materials: X pKOS clone DNA(s) kos 4 and kos 92
X Target Vector DNA DNA061-4 FTV
X Targeted ES Cell DNA 1A8
X Genomic Map

Southern Blot Analysis: *External/Internal Probe Strategies*

	<u>5' External</u>	<u>3' External</u>
Name of Probe:	DNA061-12/13	DNA061-16/17
Restriction Enzyme for Genomic Digest:	EcoRV	EcoRI
Predicted Wild-type Band (kb):	11.7	15.2
Predicted Mutant Band (kb):	9.3	10.9
Probe Size:	231 bp	325 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:	DNA061-1	5' Primer Name:	Neo3a
3' Primer Name:	DNA061-7	3' Primer Name:	DNA061-7
Predicted Wild-type Band (bp):	510	Predicted Wild-type Band (bp):	none
Predicted mutant band (bp)	none	Predicted mutant band (bp)	435

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**

DNA061-12 5' – CTCTTGAAAAAGTCCCACAC
 DNA061-13 5' – TCTCTATCCAAGTAGACTCAC
 DNA061-16 5' – CCTTGGTCTTTCAGTCTCAG
 DNA061-17 5' – GATCTGAAGGACCAGCTACC

PCR Genotyping

DNA061-1 5' – ATGCTAGGGACCTGCCTTAGAC
 DNA061-7 5' – TCTTTCTGTCCATCTTTCCCTC
 Neo3a 5' – GCAGCGCATCGCCTTCTATC

Genomic Sequence Deleted:

ATGCTAGGGACCTGCCTTAGACTCCCTGGTGGGCGTGCTCTGCAGCTGTCTGCAGCTTGGGCACTGCTAGAGCCTATCCGGACACTTCCCCATTGCTTGCC
TCCAAGTGGGGAAGCCTGACCCACCTGTACACGGCTACAGCCAGGACCAGCTATCACCTACAGATCCATAGGGATGGTCATGTAGATGGCACCCCCCA
TCAGACCATCTACAGTGAGTATGGGTTCCAGGTTGGGAAGAGG

Genomic Locus: *(the deleted sequence represents (10,190-10,432)in the sequence below)*

[illegible]

[illegible]

[illegible]

TGCAGGCAAACCATACCATTAATAAAAAATCTTTTAAAGAAAAATGCACAACCTAACTTGGAGGTTTGTATGCTATTAAACAAGAGAGCCGAATTCCTC
AGCGACTCACT

Selection Cassette:

GGCCATAGCGGCCATTTAATGGCGCGCCGGATCCCGGGCCGCTCTAGCTAGACTAGTCTAGCTAGAGAATTCGGCCCTCTCCCTCCCCCCCCCTAA
CGTTACTGGCCGAAGCCGCTTGAATAAGGCCGGTGTGCGTTTGTCTATATGTTATTTCCACCATATTGCCGCTCTTTTGGCAATGTGAGGGCCCGGAA
ACCTGGCCCTGTCTTTGACGAGCATTCTAGGGGTCTTTCCCTCTCGCCAAAGGAATGCAAGGTCTGTTGAATGTCGTGAAGGAAGCAGTTCCTCT
GGAAGCTTCTTGAAGACAAACAACGTCTGTAGCGACCCTTGCAGGCAGCGGAAACCCCCACCTGGCGACAGGTGCCTCTGCGGCCAAAAGCCACGTG
TATAAGATACACCTGCAAAGGCGGCACAACCCAGTGCCACGTTGTGAGTTGGATAGTTGTGAAAAGAGTCAAATGGCTCTCTCAAGCGTATTCAAC
AAGGGGCTGAAGGATGCCCAGAAGGTACCCATTGTATGGGATCTGATCTGGGGCCTCGGTGCACATGCTTTACATGTGTTTAGTCGAGGTTAAAAA
ACGTCTAGGGCCCCCGAACCACGGGGACGTGTTTCTTTGAAAAACACGATGATAAGCTTGCCACAACCATGGAAGATCCCGTCGTTTTACAACGTC
GTGACTGGGAAAAACCTGGCGTTACCCAACTTAATCGCCTTGACGCACATCCCCCTTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGC
CCTTCCCAACAGTTGCGCAGCCTGAATGGCGAATGGCGCTTTGCCTGGTTTCCGGCACCAGAAGCGGTGCCGGAAGCTGGCTGGAGTGCGATCTTCCT
GAGGCCGATACTGTGCTGCTCCCTCAAACCTGGCAGATGCACGGTTACGATGCGCCCATCTACACCAACGTAACCTATCCCATTACGGTCAATCCGCCG
TTTGTTCACCGGAGAATCCGACGGGTGTGTTACTCGCTCACATTTAATGTTGATGAAAGCTGGCTACAGGAAGGCCAGACGCGAATTATTTTGTATGGC
GTTAACTCGGCGTTTCACTGTGGTGCAACGGGCGCTGGGTGCGTTACGGCCAGGACAGTCGTTTGGCGTCTGAATTTGACCTGAGCGCATTTTACGC
GCCGGAGAAAACCTGCGCATGAGTGTGCTGGAGTGAGGAGTCAGTATCTGGAATGATGAGGATATGTGGTGGATGTAGGCGCATTTTCCGTGA
CGTCTCGTTGCTGCATAAACCGACTACACAAATCAGCGATTTCCATGTTGCCACTCGCTTTAATGATGATTTACGCCGCGCTGTACTGGAGGCTGAAGT
TCAGATGTGCGCGAGTTGCGTGACTACCTACGGGTAACAGTTTCTTTATGGCAGGGTGAAACGCAGGTGCCAGCGGCACCGCGCCTTTCGGCGGTG
AAATTATCGATGAGCGTGGTGGTTATGCCGATCGCTGCATACACTACGTCTGAACGTCGAAAACCCGAAACTGTGGAGCGCGGAAATCCCGAATCTCTAT
CGTGGGTGGTTGAACGACCCGCGACCGCAGCTGATTGAAGCAGGATGCGGTGCGTGAATGAGCAGTTCGTTTCCGCGAGGTGCCGATTGAAAATGGTCTGCT
GCTGTGAACGGCAAGCCGTTGCTGATTGAGGGCGTTAACCGTCACGAGCATCATCTCTGCATGGTCAGGTGATGGATGAGCAGACGATGGTGCAGG
ATATCCTGCTGATGAAGCAGAACTTAACGCCGTGCGCTGTTCCGATTATCCGAACCATCCGCTGTGGTACACGCTGTGCGACCGCTACGGCCTGT
ATGTGGTGGATGAAGCCAAATATTGAAACCCACGGCATGGTGCAATGAATCGTTCAGCGATGATCCGCGCTGGTACCGGCGATGAGCGAACCGGTA
ACGGCAATGGTGCAGCGCTCGTAATCACCGAGTGATGATCATCTGGTTCGCTGGGAATGAATCAGGCCACGGCGCTAATCAGCAGCGCTGTGCTGCT
CTGGATCAAATCTGTCGATCCTTCCCGCCCGTGCAGTATGAAGCGCGCGGAGCCGACACCACGGCCACCGATATTATTTGCCCGATGTACGCGCGCG
TGGATGAAGACCAGCCCTTCCCGGCTGTGCCGAAATGGTCCATCAAAAAATGGCTTTCGCTACCTGGAGAGACGCGCCCGCTGATCCTTTGCGAATAC
GCCACGCGATGGGTAACAGTCTTGGCGGTTTCGCTAAATACTGGCAGGCGTTTCGTCAGTATCCCCGTTTACAGGGCGGCTTCGCTGGGACTGGGTG
GATCAGTCGCTGATTAATATGATGAAACGGCAACCCGTGGTGGCTTACGGCGGTGATTTTGGCGATACGCCGAACGATCGCCAGTCTGTATGAA
CGGTCTGGTCTTTGCCGACCGCAGCGCGCATCCAGCGCTGACGGAAGCAAAACACCAGCAGCAGTTTTCCAGTTCGGTTATCCGGGCAAAACCATCGA
AGTGACCAGCGAATACCTGTTCCGTCATAGCGATAACGAGCTCCTGCACTGGATGGTGGCGCTGGATGGTAAGCCGCTGGCAAGCGGTGAAGTGCCTC
TGGATGTGCTCCACAAGGTAAACAGTTGATTGAACTCGCTGAACTACCGCAGCCGGAGAGCGCCGGGCAACTCTGGCTCACAGTACGCGTATGTGCAA
CCGAACCGCGACCGCATGGTCAGAAGCCGGGCACATCAGCGCTGGCAGCAGTGGCTGTGGGAAAAACCTCAGTGTGACGCTCCCGCCGCTGCCA
CGCCATCCCGCATCTGACCGACCGGAAATGGATTTTGCATCGAGTGGGTGAGTGGCAATTTAACCCGACAGTGGCTTTCTTTCACAGAT
GTGGATTGGCGATAAAAAACAACCTGCTGACGCCGCTGCGCGATCAGTTCACCCGTGCACCGCTGGATAACGACATTGGCGTAAGTGAAGCGACCCGCA
TTGACCCTAACGCCCTGGGTGCAACGCTGGAAGGCGCGCGGCCATTACCAGGCCGAAGCAGCGTGTGTGCAGTGCACGGCAGATACACTTGCTGATGCG
GTGCTGATTACGACCGCTCAGCGTGGCAGCATCAGGGGAAAAACCTTATTTATCAGCCGGAACCTACCGGATTGATGGTAGTGGTCAAATGGCGAT
TACCGTTGATGTTGAAGTGGCGAGCGATACCCGATCCGCGCGGTGCTACCATCAGGTGGTGGTGTGCAAAAATAATAAACACCGGCGAGC
GATTAGGGCCGCAAGAAAACTATCCCGACCGCCTTACTGCCGCGCTGTTTGAACGCTGGGATCTGCCATTGTGACACATGTATACCCCGTACGTCTTCC
CGAGCGAAAACGGTCTGCGCTGCGGGACGCGCAATTGAATTATGGCCACACCAGTGGCGCGGCGACTTCCAGTTCACATCAGCCGCTACAGTCAA
CAGCAACTGATGGAACACAGCCATCGCCATCTGTCTGACGCGGAAGAAGGCACATGGCTGAATATCGACGGTTTCCATATGGGGAATTGGTGGCGCAGCA
CTCTGAGCCCGCTAGTATCGCGGAAATTCAGCTGAGCGCGGTGCTGCTACCATCAGGTGGTGGTGTGCAAAAATAATAAACACCGGCGAGC
CATGCTCTGCCGTATTTTCGCGTAAGGAAATCCATTATGTACTATTTAAAAAACAACAACTTTTGGATGTTTCGGTTTATCTTTTCTTTACTTTTTATC
ATGGGAGCTACTTCCCGTTTTTCCCGATTTGGCTACATGACATCAACCATATCAGCAAAAGTGATACGGGTATTATTTTGGCGCTATTTCTCTGTCT
CGCTATTATTCCAACCGCTGTTTGGTCTGCTTTCTGACAAACTCGGAACCTGTTTATTTGACGCTTATAATGGTTACAAATAAAGCAATAGCATCACAAAT
TTACAAATTTAATTAAGGCCGCGGGATCGATCCCGTCGAGCAGTGTGGTTTTCAAGAGGAAGCAAAAAGCCTCTCCACCCAGGCGCTGGAATGTTTCC
ACCCAATGTGCGAGCAGTGTGGTTTTTCAAGAGGAAGCAAAAAGCCCTCCACCCAGGCTGGAATGTTTCCACCCAATGTGAGCAAAACCCGCGCAG
CGTCTTGTCAATTGGCGAATTCGAACACGCAGATGCAGTCGGGGCGGCGCGGTCCCAGGTCCACTTCGCATATTAAGGTGACGCGTGTGGCCTCGAACA
CCGAGCGACCCTGCAGCAATATGGGATCGGCCATTGAACAAGATGGATTGCACGCAGGTTCTCCGGCCGCTTGGGTGGAGAGGCTATTTCGGCTATGA
CTGGGCACACAGACAATCGGCTGCTGATGCCCGCTGTTTCCGGCTGTGACGGCAGGGCGCGCCGTTCTTTTTCAGAACCCGACCTGTCCGGTGC
CCTGAATGAACGTGAGGACGAGGCAGCGGCTATCGTGGCTGGCCACGACGCGAGGCTTCTTGGCGAGCTGTGCTGCGACTGTGACGTTGCTACGCGGCA
GGGACTGGCTGCTATTGGGCGAAGTGCCGGGGCAGGATCTCCTGTCTATCTACCTTGTCTCTGCGGAGAAAGTATCCATCATGGCTGATGCAATGCGGC
GGCTGCATACGCTTGATCCGGCTACCTGCCATTTCGACCACCAAGCGAAACATCGCATCGAGCGAGCAGTACTCGGATGGAAGCCGCTTGTGTCGAT
CAGGATGATCTGGACGAAGAGCATCAGGGGCTCGCGCCAGCCGAACCTGTTCCGCCAGGCTCAAGGCGCGCATGCCCGACGGCGAGGATCTCGTCTGTA
CCCATGGCGATCGCTGCTTCCGAATATCATGGTGGAAAAATGGCCGCTTTTCTGATTATCATCGACTGTGGCCGGCTGGGTGTGGCGGACCGCTATCAGG
ACATAGCGTTGGCTACCCGTGATATTGCTGAAGAGCTTGGCGGCAATGGGCTGACCGCTTCTCTGTGCTTTACGGTATCGCCGCTCCCGATTTCGCAGC
GCATCGCCTTCTATCGCCTTCTTGACGAGTCTTCTGAGGGGATCGGCAATAAAAAAGACAGAATAAAACGCACGGGTGTTGGGTGCTTTGTTCCGATCC
GAATTCCTCGAGGGCGCGCCATTTAATGGCCAGCGAGGCC

Targeted Locus:

ATCCTATCCTTATTTTATAGACTCATTGCCTAATCTGAAATGACCGGGGAAATTTCCCTGACCAAAAAGAGAAGGTAAAGTAAAGTTTGAAACCCCTCGGAT
AGGTTAGCTTTAGAGCCAAAAACTCATACCACATGATCTCTCAGGGGAAGCTGATGTACGCTTTTCTTTCAGGATTCCACAGCTCTAATGCACAGAATG
CCAGCAAACCTGGGCACAATTCAATTGCCACGGGATCTTGATTACGCCAATAGCTTGTTTAAGTCTTGGTGTCTCTTGCATTAATAATAAAATAAAATA
AAATAAAATAAAATAAATAGTAGGACCATGGCTGTCACCTTCTCATGGGGCTGTTAAGAAGTCAGGTGTGATCAGGTGACTTTGATCTGGAAGCTAT
CAAGACATGAAGGTGCCACAGGTTGCCATGAAGTTCCAGAGGATGGCTGCATTTCTTACAGATGAGGCCAGACAATGAGGAGAATGTGTGATGTGAT
GCCAAAAGTGCTTTGGCTGAGGGATGTCAGGGGAAGGAGGCTAGGGGGTTAGGGAATGCCCATAGGAAGAAATCTCACTTTATGTTGTCAATTGGAAA
TCAGACAACCTTGTGTTTTAGGGAGAAAAATGGGAAGAAGGAGGAGGAAGAAGGAGGAAGGAGAGGAAGAGGAAGGGAAGGGAAGGAGG
AAGAGGAGGAGGAGGAGA
AGAAGAAGAAGAAGAAGAAGAAGC
ATGGAGACCCCTGTATGTAAAGTCGCTGGGGACAAAGACTAAACTGCCTTCAAGCATGCAGCTGCTCAGATTCTGAGCAGTATCCTTCTGTGCCCTTT
AGACTATTCTAAGAATGGTTGCTTACAACCGGGGTATGTTCAAAGGACTCCAGAAGTCTGCCAATAAGGACCCCTATATCATTAGGAGCAGTGAGAT
TGGGCTCAATCCTATGACCCAGCTTTACCGCTGTGGGCACATGCCCAGAGGACTCTAGTTTCTACTACAGAGACACATAGCCATCCATGCAGACAGCC
GCTCTATTACAGTAGCCAGGACATGGAAACAGCCTAGATGCCCATTTGGCTGATGAGTGGCTAGTGAAAATGTAGTGTGTATACACACTGGAACCTTG

TACAACCGTGAATACAAATGGAGCAATGAGACTTGCAGCTAAGCAGACAGAGCGGGAACGTATATTAGTAAGGTAACCTTTGAACCTCGGAAGAA
CCACCCTTATGTGACACTAGAGGTGGACACTACCGTGCTATGATTTAGTGGGAAATGTCCCAACAAGCTCGTGTGATTGAACACTTGGTCCCAAGGTG
GTGGCAACCATTTGGAAAGTGGCTATTTAAGCTCTAGAATTGTGGTTCTATCAGGAGACATTTCTGGGGTTGGGTGCTGGGTATGATAGTTACAGTGATTC
TGCAGTCTAGACCCAGATTCTACTTCTGACCCAAATGTGAGCAAGCTCCGCCCACCACACCTTTGAGCAGCTTCTGCTCCTATGCCTCATCCAGGAGA
GTCAACATTTCCCAACAACAGTGAGCGAAAAATAAATCCTCCTTTCTTGGATGTTCTATTGAAGCAACAAGATGCAGCTGGTACACTGTAAAGTGCCAGA
AAGGCTCGCTTGGTCACACTGCAACACAGGCCAACCAATGCAGCTAGACTGGCAACCCAGGTTTACATTTGCCATTTTTTCTTTCAGTCTCAAACATAAG
GAGAATCCGCCCTTTCAGTTAAATTTTTTGAAGATTTTTATCTTTAGTTTAAATATATGTTCTGTCTGTGTGTTTACACCCGAATGCAGCAGAAAGCCAA
AAGAGGGTGTGAATCCCTGGATTGGAGTTATGAACAGATGTGATCAGTCCAAACATGGATGCTAAGGACCTGATTTTGGTCCCTTGGAAAGAGCGGT
TTCAGCAAGCTAGTGTGGACATAAGATAAGATAACCACCGAGCAATCCCGCTCTCCAGCCCTAAGTGTAATTTGTAAGTGTAATTTTCAGTAATGTG
ACTTGCCAGGCGCAGGAAGAATTTTCAATTTCTGAGCAAGATTTTCTGACCCTAGAGCTCTCGCATTCAGCTAGAGGATGCTAACTCTGCTCAGCTAGGGA
CAAAAGAGTCTCACTAGGGAAGGTGCTGTCGCAGCAGGAGCAATTCGGACTCCCTTGCATCTAGCTTCTTCCAACCATGTTGCGAGGAGCGTCTG
CCTGTCCCCCACCACATCTCAGCAATCCTGACCTCTAGCAGGCTGAAGGGATGCCTGCCTCCGGAAGCCCCAACATCCTGCGTTCTGCTGAACCC
CCAACCCATTGGGCTGCCTGTCCGACTGAAACATGGTCTGCCTGAGCTGACAGGCTGGGGCGGAATTACCGGCCCTGAGCTAGAAATAGCCCTCCT
AGAAGCGTACAGTGGTACGTGTCCACAGGGTGGAGAGGAGGAGGGCGAGCAAGGAGGCCAGGACCCCAAGATAACACAAGTCCGGATATGTAA
GTCCTGACCGTGGTAGGCTAGCTCAGGTCACTGGTTGTAAGAGGTGAGTGGGAAGCAGGATATCCAGGATATCAGACTCCCTACGTGGTTTCGTG
ACAAGTCCAGGCATCTCTGAAAGAGTGGGCTGGGTCACCGGGTGAAGTCCGAGCACTTGTCTGATGAGATAGCTTGTGTGAGCACAAACACACAGCAC
ATGCAGACAGAGAGGGAGGGAGGGAGGNN
NNNGAA
GAAAGTGAGGAGTGGGGGCAAGTAGCCCTTTTATAGTGAGTCATGCAATCCTGGCAAGTCAGAAAACAGTGGGGCGGAGCCTAGAAGATATGTCAG
CACCATGGGGTTGGACAAAGAACAGATGGGGGAAGGCAAAAGGCAGCTGAGCAGCAGCTGGAAGACTAGTACCAGGCTCTATCTCTCTA
TCCCTTCTCTCTTGGAAAAGAAGTATCCAACATTCACCCAAAGAGACCTTGTCCCCAGTGCATTGGTTTCCCTGCCTATGCCATGACTGTCTTCTGCC
TGTATCAAGTGACCCCTGTGGCTTCAATACCCATGATACATGAATAACCCCAAGTTGCTTTTGATCCAGGTGTTTATTGCAACAACAGCTACATAAAC
TAAGAAGTGGGTAACACAATAAAGGTGTGAGAGCAGCAGAAAGGATGGAAGAAGGAGAGAATTTCCAGGGTGCAGCAGTGCATGGTTCTTGGAA
AGGTGCCAT
TGTATAAGATCCCCAACCCGACGTGTTTAAAGGAAATGAGGCCAATACAGACAGGGCAAGCAGGTATGCCTGGAAGGGTTTGTGGGTGACTTATTCAT
GTCTGTCTCTGCAAGGAATGAGAAGCACATGGTAAATATATGGTGCTATAACTATTACAAAGAAGGTGTAATGGGGCTGGTTCGCTCACACCTGGACTC
CTGGCACTCAGTAGGGTGAAGGCAAGGGAGTGTGCGTTTGAAGAGTACACAGAGAGAGTTCAAAGCCAGGGCTCTTACTAGCATAGTGAGACTTTGGGG
AAAGAGGAAGAGAAGAGAGGAGGAGAAATTTACATCTGACATGGAATGAGTGTCAAATAACACTTATACCAATATAGTACAGCTACTAATAT
GGCTTTTAAATGAGTATGGTTGAATATATACCTATTTATAATATAACATACATGTCACTATTCTCTAGGTCTCCATCTTACTTTTAAATAACATCTCCAG
AAACTATGGGAAATTTTCACTTTCCATTTTAGAGATTCTTTATTGATTGCTTTCTAATAAATTTCCAATTGAAATTTATTTTTTAAAAAGACTTATTTT
ATATATATATATATATATACACACACTGTAACGTGACAGGTGGTTGTGAGCCTTTATGCAGTTATTGGGAATTGAAATTTAGAACCCTCTGCTCACTCTAGC
CGGCCCTGCTCACTCAGGCCCAAGATTTACTTTATTAATAAAGTACACTGTAGTGTCTTCAGACACACCAGAAGAGGGTGTGCAGATCTCATACAG
GTAGTTGTGAGCCACCATGTGGTTGCTGGTATTGTAACCTCAGGACCTTCAGAAGAGCTGTCAGTGCTCTTACCACAGGCTCTCAACAGCTCTGAA
ATTGCTTTTTTAAAAATTTCCCTTAGGTCCCAATGAGAATATGTGTGTATCAGGAGCCAGAAAACCTCTTGGAAAAGTCCCACACACAGCCCCCAGCCAGC
TCACAGGGCTGTAGTGAGCATAAACAGATGATCACTAGATAGACATGTCAATAAGAAGTACTGGAATAATGCAGAACATATCCACCTGAGGAACCTGC
AAGCTCTCTCCCTCGGTGGTCAAGACTGCGCCCTTCGTTCACAGGCCCTCTCTAAAGTGTGATTGACACATTAAGAGTGAGTCTAGTTGGATGAGAGAG
CCGTGTGTGGGTTGGGTTGGGTTGGTGTGGTGTGGTGTGGTGTGGTGTGGTGTGGTGTGGTGTGGTGTGGTGTGGTGTGGTGTGGTGTGGTGTGGT
CCCTGAGCTCAAGAAGCATGAATTTACTGTCAAGTGGATGAGACACATCAAGGGCATCTTCAGGAGGGTGGTGGTGGTGGTGGTGGTGGTGGTGGT
GATCTGTGAGTATGATAGCAGAGCCTTCAACAAAGGCCACACATCTCCCAAGCAAGTGTCTCCAGACCCAGGGCTTCCAGGGCAGGATAGAGAT
GAGACAGCCTTTCTGCCACATCTCAGCATCCACTGGGAATCAACATCTGAGACACTCTAACAGAAAAGCCCCACATCAGAGGTTTCTTCTCACATC
TGCTGTCTGTAGCTTCACTTGAAGTGTGAGCTCAGAGGCTCAGACAGACCTCAGATTCTGAAGTGTGACAGTACAGTGCCTCTAGATGCAAGGACTCAAAAC
CAACATCCCTGAAGGGTGTCTCCCAAGGCTCATCCTTTGGAGCCTTAGAGAGCACACATGGGCTCTAGGGAAAGGCTGTATGCCTGTACACTAACACTC
TCCAGCCAGGTACATCTGAACCTGCAGTTAAGTGGGGGATCCTGGAAGGCAGTAGGATGTGGAGCAAGCCATAAAGGAGCCTTGGTTTCTATGCACT
AAATCTAGTGCATACCAGAATGTACAGCCCATGTTAATGAACGCTTGACTACCTGAATATGCCAAGTCTTTTGAACACAGCAGATAGCCCCATCC
TGACTCTTCTGCTTCAGCAGGAATGACATCAGATCAATCCTAAGATTGTGGGTTTAAAGTCTGGGAGCTCCAGGGCCCTCCAGCAGCGTGC
TCCAGGCAGTCAAAAATTGCTTATGCTGTTCCTAATAGAGAACTTCATCTTCACTTCAACATTTCTAGTCAAGAGCTTTGCATCCGCCATTGC
TCCTGTCAAGTATGGAACATGTCTCTCACTCCCCCTGCAGAAACAAGGCTACTGCCTTCAGATCCAAGTCCGAGTATCTGAGCATCTCTTTGAAGAAA
ATTCTGTGGAATAAATCTCTCTAAGACAAGTGGAAAGAGCCAGAGGTCTGCTCCCCAAGCCTCTCCAGGAACCCAGCAGTATGGTGGGTGACAG
CCTTTCCTGTCATCTGCGCAAGCTTATTTAAGTGCCTTCTTCAAGGCTGGAGATGTCATGCTCTGATGACTTTGCTCTTGGCAATTTCCCTT
AACATTCCTGCATCTTGTCTTGTCTTGTCTTGTCTTGTCTTGTCTTGTCTTGTCTTGTCTTGTCTTGTCTTGTCTTGTCTTGTCTTGTCTTGTCTT
CTTTTCTTTATTTCCAAAACGCCCTCTTCTCACCCCTCTTCTCAGGGAAGATTCTCCTACCGTGAAGTGTCTCACAGGAACCTTCCAGCCCTTACCATT
CTTTTTTTTTTAAAGATTTATTTTATTAATATATGTAAGTACACTGTAGCTGTCTTCAGACACTCCAGAAGAGGGAGTCAAGTCTTGTGTGGGATGGT
TGTGAGCCACCATGTGGTGTGGGATTTGAACCTTTACCATTCTTAACAGAAAGAGGAAACATGGAGTCAACCAATGAAGCAAGCGTTTCTGAGAAATTTG
CATTTCAATCCTGAAAGCAGTTATTTCTTCAATTAGCTAAGGTGTTTCTACTATATTTGAAGTATTTTGTGGTGTCTGCTTTTATGCTGTGTGGGTTT
TCCTTTTTTTTAAAAAATTTCTTATGTTTGATAATTTTATACATGTATATGATCATCTATGGAGTAGACTCCATCAGTCTCCTCAAGCTCCCCCTGTCTCT
CTTAACATGCATTTCTTAACTTAATGTCTTATCTGTCCCTTTACAACCCATCAAGACCAGTTAGTGTGCCTATACATGCATGGATGGGGGGCAATCA
CTGGAGCATGGGAAACCCATCGGTGACTGCATCCAAAAACAAACAAACAAACAAACAAACAAACCTTCTTCTCCCTAGCAACAATTTCCCATCAACAGCTC
CTCAGTAGAGGTTGGGGGGGGGGGGGCTGGAATTTTCTATTTCTGTCTATGCTGTAGGCGAGGATGGTTGGTTTGACCTTGTACAGACAACCCAGTTG
CTATGAGTTTGCAATAGCTGCATCTGGTCTGGAAGACAGCATTTACAGCACTCCTCCCCACCCTCCAGCTCTTGCATTCTCTCCACATTTTCTCTGTT
GTGCTCTCTGTGCCTTGGTATGGGATGCTTCTGTGCCTTGGTGAGGGTGGGTGTTGATATAGATGTCCAGTTTAGGGCCTCTCATTCTCTCTCTCTC
TCTTCT
TCCT
TTACAGATGCTTGTGAGCCACCATGTGGTTGCTGGGAGTTGAACCTCAGGACCTGGAAGAGCAGTCAAGTGTCTTAAACCGGTAAGGCTTCTCCAGC
CCTCAGCCTCTCATTCTTGACACATTGAACAATAATGTCTCTGCTGCTGCTGCCCACAGCACAATGACACTTCTTAACAAAGGCTGAGGGCAGCCCAAGTC
GATAGCACCAGGAGCTGGAGACATTATATTTGAAATAGAGTCTTGTGTGGCCAGGGCTGGCTCAGACTTCTTTATAGCTGATAATGACCATGAAC
TCCTGATCCTCTGCTCTATTTACAAAATGATGGGTTATAGGCATGTGCCACCACTCTCCCTTGTGGCCATTAATAATTAATAATCTATTAATA
AGACTCAGATAGAAGCATTTAAATGTCAGGCAACTTTTATCAACCTTGGAGTGACACACACATGTTCCCTATATCTCTGGGAGAGAGCTTGGCTTAC
TAAGAAAAAAGTGATGTCTTTGCTACCTAGTCTTTCTTATTAAGGGGTAGGTACACAGCTCTGGCTCTGATGGGCTGTGGGAGTTAATGTGTCAATCA
ATCCAGAGTCCAGGCTGGTACCAGCACCTCTGTGTGCATTGGCCACCTATACCTTAGGCAAGTTACATAGACCCTTCCCATTTGGTTCCATATGTATAT
AAAGGAAATATGTGAATGGCTCCTTACAGGGTTATTAACCGGTTAGCACAAGAGAAAAATAACCAGGCTATTAAGAGGACTAGTGGTCTCTCAGTGA
GCATTAGCTGTGGTATGATTCTCCTGAGAGGCTGGGCTCAGGAGTGTACTTAACTCTAGCTGGTATGACTCTGAGCTCTGAGCTCTCGGCTTAC
CAGACTAGCTCTCCGCTCCTTACAGTATAACATTAAAGTATTAGCGCTGGGAGATGGCTCGGTTAGCAAAAGCACTTGCCACATAAGTGTGAGGACTTG
AGTTTGATGCCAGGGGCCACTTACAATCTTATAATCTCAATCTGGGAAAGGAGAAGCAGGAGGAGCCAGGGGCTCGTGTCTATAAGGTGCACAGCT
CCTGAGGAGCAACCTGAGGTTGCCTGTGATCCTACTCAAACACATATACATACACATGAACACTCTCAGAAATGGCAACACACACATACACACA

CACATTTGTTTTGAAGTCCAGCCTTAGTGAACACATCTTTAATCGCAGCAATCAGGAGACTGAAGCAGACAGAGCTCCGTGAGTTTGAGGCCAGTTAG
GGCTACATAGTGAGGCCCTGTCTTGGTAAATAAGTAAGTTAATAATAAATACAAGTTTTAAATGGTAATAGCACAGTGTGCCTGTCTTATAGAGTTGCA
GTGAAGCTCAAAGAACTAGTGGATGAGAAAACACTCTGTA AACCCACAGAAGCCTGGACCCAACTGGAAGTGGAGGTGGAACGGGCATCTCCACTGCG
CTTGGCGTGTGCAAGCATCCATGTGCTTTACACGATGGCTACTCGTCTTTATCTGCTTCTCCGCTTGATTTGTCACATCTTGCTCTCTCTCCATCCGCT
TTGATGTCTATCTTGTGGGATACTCATCTGTGTAGGAACCTGAGTAACCTGGGACACTGAGTGAGCAGTCTCTTTCTTGTGGCCATATACTGCTGATGTC
TGTTCCAGCAGTCTGCCTTCCAATGGACTGTGTGTGTAGTCTGCCTTCAACCTCCTACCCACACACCACACCCACACCCGCTGCATCAGAC
GCACCTCCACAGAGGGCATGCACAGAGCAATTTCTGCAGTGAGGCATCCACTCATACAAGGTCCAGGGTGTGGACATGGGCTGGGGAGGTGCCAGT
CCTGCAGCTCCTGGATGCTTCTGCCCCTCTGATTCTCTGATCAGCCAGCAGTGCCGTTCCAGTCTCTCCAAATGAGTCTCCTTCTATTGGCAAAGCCAT
AATTGCCAGTTTAGTTCCTGCCTCATCCAGACGAGGGAACCTGAGAAAACAGATCTTGCCATTTTTGCTGACCTCAAGACCTTGTTTTCTTCTTCTTG
CCTTGAGGTCTTTGGGAATGGTGATGGGAGGTGTTGAGCTCATGCTCCACCTAACACCTTCTGCGGTTTGTGTATGGGGGTAGGGGGAGTCTCAT
TTGCCTGATAGCATCACTTATGACCATATATCAAGACACTTGCCAGATGCAACAGCCAGGAGTAAGCTCCAAGAACACACTTGGCAGCTGGAGGAAAA
GGGCTTAAGCAAACCAAAACAAGGACACTGGAGGGAGATGAGTTAGCGAGGAGGCGGCTTTCTGGTTTTCTGGGGTTTTTTTTGTTTGTGTTTCAGT
ACTGTGCGCTGCCTTCACACTTCTGATGGAAGTGGGGACAGGTCAACAAATGACCCAGGGTACAGATAACTTTTGCCACACATCATTCACTTATGG
GAGCATCTGGCTTGAATTTGAGGGGTGTGTGCGTGATGTATGTGTGCTGGAAGTACGCGCCTTCCGCAAGCCTAAGAAGTCTGGGCTTTTTCTT
GAATGGATGATTACAACACAGAGGATGTGCGGCTGATGTTTTCTGCTGTGATGTACACACACCCTTTAAAAGTCCCGGGAAAAAAGGAGGAA
TCTAGCCAGGATCCCACTCAGTTCTCAGCTTCTTCTAGGAAGAAGAGAAAGGCCAGCAAGGGCCAGCCTGTCTGGGAGTGTGAGATTTCAAAC
TCAGCATTAGCCACTCAGTGCTGTGACAGGCCGCTCTAGAGGCCATAGCGGCCATTTAAATGGCGCGCCGATCCCGGGCCGCTCTAGCTAGACTAGTCT
AGCTAGAGAATTCGCGCCCTCTCCCTCCCCCCCCCTAACGTTACTGGCCGAAGCCGCTTGAATAAGGCCCGGTGTGCGTTTGTCTATATGTTATTTCC
ACCATATTGCCGTCTTTTGGCAATGTGAGGGCCCCGAAAACCTGGCCCTGTCTTCTTGACGAGCATTCTAGGGGTCTTTCCCTCTCGCCAAAGGAAT
CAAGGTCTGTGAATGCTGAGAGCAAGTCTGCTGGAAGCTTCTGAAAGCAAAACAGTCTGTAGCCAGCCTTTGACAGCAGCGGAACCCCTCC
ACCTGGCGACAGGTGCCTCTGCGGCCAAAAGCCACGTGTATAAGATACACCTGCAAAGGCGGCACAACCCAGTGCCACGTTGTGAGTTGGATAGTTG
TGGAAGAGTCAAATGGCTCTCTCAAGCGTATTCAACAAGGGGCTGAAGGATGCCAGAAGGTACCCATTGTATGGGATCTGATCTGGGGCCTCGG
TGCACATCTGTTTACATGTGTTAGTGCAGGTTAAAAAAACGCTAGGCCCCCCGAAACCCAGGGGACGTGGTTTTCTTTGAAAAAACCATGATAAGCT
TGCCACAACCATGGAAGATCCCGCTGTTTTACAAGCTCGTGACTGGGTGAAAAACCCCTGGCTTACCCAACTTAATCGCTTGCAGCACATCCCTCTTCGC
CAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCCAACAGTTGCGCAGCCTGAATGGCGAATGGCGCTTTGCTGGTTTTCCGGCACCCAG
AAGCGGTGCCGGAAGAGTGGCTGGAGTGCGATCTTCTGAGGCGGATACTGTGCTGCTCCCTCAAACCTGGCAGATGCACGGTACGATGCGCCATC
TACACCAACGTAACCTATCCCATACCGTCAATCCGCGCTTTGTTCCCAAGGAGATCCGACGGGTGTTACTCGCTCACTTTAATGTTGATGAAAGC
TGGCTACAGAAGGCCAGACCGGAATTTATTTGATGGCTTAACTCGGCTTTCTATCTGTGTCACACGGCGCTGGGTGCTTACGGGCAGACAG
TCGTTTCCGCTCTGAATTTGACCTGAGCGCATTTTTACGCGCCGGAGAAAACCGCCTCGCGGTGATGGTGCTGCGCTGGAGTGACGGCAGTTATCTGGA
AGATCAGGATATGTGGCGGATGAGCGGCATTTTCCGTGACGTCTCGTTGCTGCATAAACCGACTACACAAATCAGCGATTTCCATGTTGCCACTCGCTT
TAATGATGATTTACGCCGCGCTGTACTGGAGGCTGAAGTTCAGATGTGCGCGGAGTTGCGTGACTACCTACGGGTAACAGTTTCTTTATGGCAGGGTGA
AACCGAGTTCGCCAGCGGCACCGCCTTTCCGCGGTGAAATATCGATGAGCGTGGTGTTTATCCCGATCGCGTCACTACGTTGTAACGTCGAA
ACCCGAACTGTGGAGCGCCAAATCCCGATCTCTATCTGCGGTGGTTGAAGTGTACACCCGACCGGCAGCGTATTGAAGCAGAACCGCTCGAT
GTCGGTTTCCGCGAGGTGCGGATTGAAAATGGTCTGCTGCTGCTGAACGGCAAGCCGTTGCTGATTGAGGCGTTAACCGTCACGAGCATCATCTCTG
CATGGTCAGGTATGGATGAGCAGACGATGGTGAGGATATCTGCTGATGAAGCAGAACAACTTTAACGCCGTGCGCTGTTGCGATTATCCGAACCA
TCCGCTGTGGTACACGCTGTGCGCACCGCTACGGCTGTATGTGGTGGATGAAGCCAATATTGAAACCCACGGCATGGTGCCAATGAATCGTCTGACCG
ATGATCCGCGCTGGCTACCGCGATGAGCGAACCGCTAACCGGAATGGTGAGCGGCATCGTAATCACCCGAGTGATGATCTGGTCTGGTCTGGAAT
GAATCAGGCCACGGCGCTAATCAGCAGCGCTGTATCGCTGGATCAAATCTGTGATCCTTCCCGCCCGGTGACGATGAAGGCGGCGGAGCCGACAC
CACGGCCACCGATATTATTTGCCGATGTACGCGCGCGTGATGAAGACAGCCCTTCCCGGCTGTGCCGAATGGTCCATCAAAAAATGGCTTTCGCT
ACCTGGAGAGACGGCGCGCTGATCTTTGGCAATACGCCACCGCATGGGTAACAGTCTTGGCGGTTTCGCTAAATACCTGGCAGGCGTTTCGCTAGTA
TCCCGGTTACAGGCGGCTTCTGCTGGGACTGGGTGAGTCAGTCTGATTAATATGATGAAAACGGCAACCCGTGGTGGCTTACGGCGGTGATT
TGGCGATACGCCGAACGATCGCCAGTTCTGTATGAACGGTCTGGTCTTTGCGGACCGCACGCGCATCCAGCGCTGACGGAAGCAAAACACCAGCAGC
AGTTTTTCCAGTTCCGTTTATCCGGGCAAACCATCGAAGTGACAGCGAATACCTGTTCCGTCATAGCGATAACGAGCTCCTGCACTGGATGGTGGCGC
TGGATGGTAAGCCGCTGGCAAGCGGTGAAGTGCTCTGGATGTGCTCCACAAAGGTAACAGTTGATTGAAGTCCCTGAACTACCCGAGCCGGAGAGC
CCGGGCAACTCTGGTACAGTACCGGTAGTGCAACCGAACCGCACATCGAGTGTGAGCAAGCGGGCACATCAGCGCTGGCAGCATGGGCTGCGG
CGGAAAACTCTAGTGTACAGCTCCCCGCGCGTCCACGCCATCCCGATCTGACCCAGCGAAATGGATTTTGCATCGAGCTGGGTAATAAGCGTT
GGCAATTTAACCGCCAGTCAGGCTTTCTTTCACAGATGTGGATTGGCGATAAAAAACAACCTGCTGACGCCGCTGCGCGATCAGTTACCCGTCACCCGC
TGGATAACGACATTTGGCGTAAGTGAAGCGACCCGATTGACCTAACGCCCTGGGTGCAACGCTGGAAGGCGGCGGGCCATTACCAGGCCGAAGCAGC
GTTGTGACAGTGCACGGCAGATACACTTGCTGATGCGGTGCTGATTACGACCGCTACGCGTGGCAGCATCAGGGGAAAAACCTTATTATCAGCCGGA
AAACCTACCGGATTGATGGTAGTGGTCAATGGCGATTACCGTTGATGTGAAGTGTGAGCGGATACACCCGATCCCGCGGATTGGCTGACTGCACTG
CAGCTGGCGCAGGTAGCAGAGCGGTAACCTGGCTCGGATTAGGGCCGCAAGAAAACTATCCGACCGCCTTACTGCGCGCTGTTTTGACCGCTGGGA
TCTGCCATTGTACAGCATGTATACCCCGTACGCTTTCGAGCGGAAAACGGTCTGCGCTGCGGGACGCGGAATTGAATTATGGCCACACCACTGGC
CGGGGCACTTCCAGTTCAACATCAGCCGCTACAGTCAACAGCATGTGGAACACAGCCATCGCCATCTGCTGCACGCGGAAGAAGGCACATGGCTG
AATATCGACGTTTCCATATGGGATTGGTGGCGACGACTCCTGAGGCTGCTAGTATCCGCGGAATTCCAGCTGAGCGCGGCTCGCTACCATTTACCA
GTTGGTCTGGTGTCAAAAAATAATAAACCAGGCGAGGCCATGTCTGCCCGTATTTCCGCTAAGGAAATCCATTATGTACTATTTAAAAAACACAACTT
TTGGATGTTCCGTTTATTCTTTTCTTTTACCTTTTTATCATGGGAGCCTACTTCCCGTTTTTCCCGATTGGCTACATGACATCAACCATATACGAAAA
GTGATACGGGTATTTTTCGCGCTATTTCTCTGTTCTCGTATTATTCCAACCGCTGTTTGGTCTGCTTTCTGACAACTCGGAACCTGTTTATTGACAG
CTTATAATGGTTACAAATAAAGCAATAGCATCAAAAATTCACAAATTTAATAGGCGCGGATCGATCCCGTCGAGCATGTGTTTTCAGGAGG
AAGCAAAAAGCCTCTCCACCCAGGCCTGGAATGTTTCCACCCAATGTGAGCAGTGTGGTTTTGCAAGAGGAAGCAAAAAGCCTCTCCACCCAGGCCT
GGAATGTTTCCACCCAATGTGAGCAAAACCCCGCCAGCGTCTTGTCTATTGGCGAATTGCAACACGCAGATGCAGTGGGGCGGCGCGGTCCAGGTC
CACTTCGCATATTAAGGTGACGCGTGTGGCCTCGAACACCGGAGCGACCTGCGAGCCAATATGGGATCGGCCATTGAACAAAGATGGATTGCACGCAGGT
TCTCCGCGCGCTTGGGTGGAGAGGCTATTGGCTATGACTGGGCACAACAGACAATCGGCTGCTGATGCCGCGCTGTTCGGCTGTTCAGCGCAGGG
CGCGCCGCTTCTTTTGTCAAGACCGACCTGTCCGGTCCCTGAATGAACCTGAGGACGAGCGCGGCTATCGTGGCTGGCCACGACGCGGCTTC
CTTGGCGAGCTGTGCTCGACGTTGTCACTGAAGCGGGAAGGGACTGGCTGCTATTGGGCGAAGTGCCGGGGCAGGATCTCCTGTCTATCTACCTTGCTC
CTGCCGAGAAAGTATCCATCATGGCTGATGCAATGCGGCGGCTGCATACGCTTGATCCGGCTACCTGCCATTTCGACCACCAAGCGAAACATCGCATC
GAGCGAGCAGTACTCGGATGGAAGCCGGTCTTGTGCATCAGGATGCTGGACGAAGAGCATCAGGGGCTCGCGCCAGCCGAATGTTTCGCCAGGCT
CAAGGCGCGCATGCCGACGCGAGGATCTCGTGCATGACCATGGCGATGGCATCTGCTGCGGAATATCATGGTGGAAAAATGAGCCGCTTTTCTGGATTCTAT
CGACTGTGGCCGGCTGGGTGTGGCGGACCGCTATCAGGACATAGCGTTGGCTACCCGTGATATTGCTGAAGAGCTTGGCGGCGAATGGGCTGACCGCT
TCCTCGTGCTTTACGGTATCGCGCTCCCGATTGCGAGCGCATCGCCTTCTATCGCCTTCTTGACGAGTTCTTCTGAGGGGATCGGCAATAAAAAGACA
GAATAAAACCGCAGGGTGTGGGTGCTTTGTTCCGATCCGAATTCCTCGAGGGCGGCCATTTAATGGCCAGCGAGCGGTTACCCAATTCGCGCTATA
GGAAACCTCTGCTGCTGAGGATGAGGATTTGGGAAACCTTGGGCTAGATAAATTTCTAGTTTCTTGTATGATGATGATGTTTGGGTGCTGTGTGT
GTGTGTGTGTGTGTGTGTAACCTAAAAAGGAAGATTTTTTTTCTTCCCTTTATTATTGACTCACAAAGTTTTTCTCAACCTGAATAATTGCTATTGTAACC
CATTTCCAATAATGAGAGATAATTTCTTTTCTTCTGCTCAAGAATTAGAGGGAAAGATGGACAGAAAGACAAGGGCTCAAAGAGAAGATAACCCAG
ACAGAACTTAACCTGGAGAGACTAGTAGGCTTACATTGTGAGACTGTCTGGAACTAAAGCAAACCTTCTCAAGAGACATTATGTTAAAGACAGACC

[illegible]

[illegible]