



## Lexicon Genetics Incorporated – Genentech Project Materials

|                               |                                 |                               |                                      |
|-------------------------------|---------------------------------|-------------------------------|--------------------------------------|
| <b>Genentech ID:</b>          | UNQ386                          | <b>Date of Submission:</b>    | 10.18.04                             |
| <b>Lexicon Contract Name:</b> | DNA157A                         | <b>Mutation Type:</b>         | X Standard Knock out                 |
| <b>LexVision Name:</b>        | MEM488N1                        |                               | <input type="checkbox"/> Conditional |
| <b>Reference accessions:</b>  | ENSMUST00000030626,<br>BC031727 | <b>Is this gene X-linked?</b> | NO                                   |

---

**Required Materials:** X pKOS clone DNA(s) \_\_KOS-8\_\_\_\_\_  
X Target Vector DNA \_\_DNA157-8.TV.1\_\_\_\_\_  
X Targeted ES Cell DNA \_\_1B2\_\_\_\_\_  
X Genomic Map

---

### Southern Blot Analysis: External/Internal Probe Strategies

|                                        | <u><b>5' External</b></u> | <u><b>3' External</b></u> | <u><b>3' Internal</b></u> |
|----------------------------------------|---------------------------|---------------------------|---------------------------|
| Name of Probe:                         | <b>9+10</b>               | <b>7+8</b>                | <b>Neo2/5</b>             |
| Restriction Enzyme for Genomic Digest: | <b>EcoRI</b>              | <b>BglII</b>              | <b>NdeI</b>               |
| Predicted Wild-type Band (kb):         | <b>5.8 kb</b>             | <b>10.8 Kb</b>            | <b>none</b>               |
| Predicted Mutant Band (kb):            | <b>5.0 kb</b>             | <b>9.1 kb</b>             | <b>3.5 kb</b>             |
| Probe Size:                            | <b>272 bp</b>             | <b>651 bp</b>             | <b>607 bp</b>             |

**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:                                | DNA157-18 | 5' Primer Name:                          | NEO3A     |
| 3' Primer Name:                                | DNA157-17 | 3' Primer Name:                          | DNA157-17 |
| Predicted Wild-type Band (bp):                 | 226 bps   | Predicted Wild-type Band (bp):           | none      |
| Predicted mutant band (bp)                     | none      | Predicted mutant band (bp)               | 308 bps   |

| 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**

DNA157-7     5' – CACATACAGGATCTGGGTAC  
 DNA157-8     5' – CACTCACATGCCTGCCTGTG  
 DNA157-9     5' – GACAGAGTGTTGGTGTCTTG  
 DNA157-10    5' – GCCTTGGTAAAGATTGTGCAG  
 NEO-2        5' – TCAGAAGAACTCGTCAAG  
 NEO-5        5' – GGCAGCGCGGCTATCGTG

**PCR Genotyping**

DNA157-17    5' – CCATCTGTACAGCTGCAGTGTACTCG  
 DNA157-18    5' – CTCGAGGTGCTCTGAGTGCATGGAC  
 NEO3A        5' – GCAGCGCATCGCCTTCTATC

**Genomic Sequence Deleted:**

ATTGCGCTGTGGCTGTTTTGTITTTCTTGCGAGAAGTGGAGTAAACCGAGGCTACCAAACGCGCCGCGACTCCCAAACCTCCGG  
ACTTGGACGTGAGTGC GGACGGGAGGGCGGAGCAGCGGGCCGGGCTCGAACTCGCGGCAGTGGCCGTGCCCCAGCTC  
CTGGACGCCGCCGCCGCCGGGGCTGAGATCCCGCGACCTGCGGGGGCCGCTTCTGTGGCGGGGACTCTTCCCCAGAAC  
TGTGGAGCTGGGCACGCTCATCCGACGGTGGCGCGTCGGGGTTTCGGCCCACGCGTAACCGCGCCCTGTTCTCTCCAGTCT  
GCAGGGCGGGTCTGCCTTTGAAAATGTCAAAGAATTGTGCAACGAAAAATGGACTCGGGTGGGCCATTGGGGGAACCG  
ACAATTACACATAGTGGGTTGCTTTTTCTTTCCAATCATTAGATAAAAAACGAGTGTATTTTCAGACCCGAACTCATCACA  
AAAGTCTATCAGTTTTTCCCTTTAGCTTGTTTAGAGGCGGCTAAAACCTGAAATCGCCTTCCTTAGGGAGTCATGTGAGAT  
CTGGGGTGTTCACTGTGAGCGAGTTGTATTTAATTACAGGTTTTATCTGTGAAATTAAGATGAGTTACGTTTCTCCGGCTG  
GGTCTGCACAGCTGAACTTGAAGGAGGAGGGTTTTATGGGATTTAAGACAATTCGGCTGACCGTGGAATTTGACTGC  
ACGTTCTTTATTTAAGTCTGAATTCGTTTCAGGCCTGCCCTTTTTTGTGGGGAATGTACAAACAGCATCAGTAGCAGAGT  
TAGGGATAGTAAGATGAGTGCCCTTTACAAAGTAATGACATCCGAAGGCAGGCTTGGTGAAGGGACAAATAGTGAGAGA  
AAAAACGAAATAGAAATAAAGCCCCGAAGTTGAGCCGTTCTCTTCTTAATCTGGGCATGAAAAGACACAGATGTAGGATA  
AAATGTGCAGATTCTTAGAGGAAGTATTTTCCATCCAAGTTTACATTTTTACCTTAAAACCAAAGTCTATCATGTCCTTA  
TTATTA AAAATCAAATAGGAACCTTTAGTAGGGAGCTTAAGGTTTAGAAAGCAGCTGTGGAGGGCTAAGCATCATTGCC  
CTCACTTAAAGAACTAGTGGACTTGAAATAATAAAAATGTGACATCTTTGAGGAGATGTCATTTTTGTGACAGTACATTT  
TTGTTTAAAGGTTAAGGTAATCACCTTCATT CATATTATGTAAATATGCTAAGACCATCCTGATTTTGTGTTTTGTTTTCTTGT  
CTTAATTTGTATTTATTTATGAGTGCTGTGCTGCCTGTACATCCGCAGGCCAGAAAGAGGGCGCCAGATCCCCCTATAGA  
TGTTATGAACCAACCATGTGGTTGCTGGGACCTCTGAAAGAGCAGCTGAGTCTCTTAACCTGCAGAGCCATGTCATCAGC  
CCCTTGTTTAGTCTTTTTAGGACAGACTGGCCCTGAAACTACGTGTGATGCTCTGGCTGGCCCTCTGACTGAGCCCCAGTC  
CTCTGTCTCAGCCCCGCCAAATGTCTAGGATTGTCAGGCTGAGGCAGCCACCACCCAGTCCCAGCTAAAACCAAGTTTTAC  
ATTAAACGTAGACTCCATCCCTAGTACCTCACTCCCCACCAAAGCAGCATCAGACATCCTGAAGAAATCAGTAGAGCT  
GGAATAAAGCGCATCTGTAACCTGTGTTAGGTTATCATCCAGCTGTTATTTTGCAGAAACACAGCCAGCTTTGAAACAA  
GAAAACCGAAGGACCTTGTTTAACTGTGATGGTTTTGGTTTAGTGACCTGAAAAGATGTCTGGATTTCTAGAAGGCTCG  
AGGTGCTCTGAGTGCATGGACTGGGGGGAGAAGCGGAACACGATCGCTCCATCGCTGCTGGCGTTCTAGTAAGTCCTT

**Genomic Locus: (the deleted sequence represents nt 10,001-11895-in the sequence below)**

[illegible]

ACATTTAATCTTATTTCCAGGGCAAATTCCAAACACTCAATGTCATGAGGCATATCTGACCTTGAAAACCTGTGGGTAAG  
TGAACAGCACTGAACGAAATAGCTATTTCAATATTGGGAGATGGTGTTCTTAGAAATTAGGCAGGGTTTTACAGAAGCT  
CTGGATTTTAGAGGGAGATGACAGAAATAAGGACTCTTTGTTCTGTCCTCCTTCCTCCTCCTTCCCCAATATACAGCGA  
AAGTGAAGAAATAAAAAACCTTACTGTGGCCACCAGGATGGCTCAGCAATAAAGAATGCTTGTGGGACTGGTGAGATAG  
CTCAGTGGTTGAGAGCGCCGACTGTTCTTCCAAAGGTCCCAAGTTCAAGTCCCAGCGACCACATGGTGGCTCACAACCA  
TCCATAATGAAATCTGATGCCCTCTTCTGGAGTGTCTGAGGACAGCTACAATGTACTTACATATAATAAATAAATAAAT  
CTTTAAAAAAGAAGAAAAAATGCTTGTGGAGCACTACTGACAACTGCAGTGGAGTGGAAAGGAGAGAACTGACTTC  
CAAAAGTTGTTCTCTAACCTCCAGAAGCCCCCATCCCATCCCATCCACCAATGGTAAAAGTTCTCAAACCTGCAGGAGCT  
GGAGAAACAATCAGCAGTAAAGAGCACTGACTCCCAGGACCCACAGGACGGACGGCTCACACCCATCTGGACCTCCA  
GTACCAGGATGAGCACCCTACCAACACACATCCACACCGTACAGACCTGGGTATAGGCAGAAGGTAACAAGACCCC  
AGATCTCAGCCCACTGACTCCATAAAGGAAGTGCCTGTCAGCCCATAAAACCCAGCACCTGGACAGGGATCTTATGT  
GCCAAAACAAAACCAAAAGTCTCTATCCAAAGTCCATAGTACTTGGAGAGTCTATAAATGTACCAACCTTGCTTTTTTGGT  
TTCTGGACTTCTGCTTCTGGCTAAGTGTCTTATTAACTAACTATATCAACCCGGGATATATAAAATTTTTTGTGTGTA  
AAAGATCACCTGAGAAAGGCTCAGGGCTACTCTGGCATCCCAAACACCCAGTGGAGTCAATAAGCAGCAAATAAAG  
AATTTCTAACCTGGGCAGTGGTGGCGCATGCCTTTAATCCCAGCACTCAGGAGGCTGAGGCTGAGGCAGAGGCAGGCG  
GATTTCTGAGTTCTAGGCCAGCCTGATCTACAAAGTGAGTTCCAGGACAGCCAGGGCTATACAGAGGAACCCTGTCTCC  
AAAAACAACAACCAAAAAAGAATTTCTATTGACTTAAATTGTCTTCTGTTGGTATACCCATAACACAAAACACCCAT  
ACCATAGATTAAATCCTTTATAAAGACTGTGGAGAGTTGAGGTGAGAGAACATAAACCCCATGTGTCTCCATGTA  
AGGACCAGGCCTGATTTCCAGAAAAGGCCATAAGGCACAAGCTTCAGGGATAGACCATAAGTCCCAGAACTAAGTCAT  
AAGACCCAGGCTCTAGGAACAGACTGTAAAATCCAGAATGAGATCATAAAACCTGCTCCCAAAGAAGGGCCTGTGGGG  
GAGTTGGCTGGAGAGATGGCTCAGCAGTTAAGAGCACTGACTGCTCTTCCAGAGGTCCCGAATTCAATTCCCCGCAACC  
ACATGGTGGCTCACAACCATCTGCAATGGGATCAGATGCCCTCTTCTTCTGTGTCTGAAGACAGCTACAGTGTACTCAC  
ATGCATAAAATAAATCTTTTTTAAAAACCTGGGGATAATCATAAATGGCGAAATATCTGTGATGTGCAGCCCTATTTCA  
TCACATGGTTGAATGTTTCATGGCATAGGAATGCTGACCACTGACCACCTATGAAGCCCTGGCAACCACCGATGAAATTT  
AAAATTTTTAAGGATTACTTCTAGAGAGTTTTCCAGGTTCCCTCTAAGAAGGCCTGCATGCCTCTGTCTGGGGCCGCCAT  
TTTGAATGGGGTCGCCATTTTAGAGAATGCTGGTTGTTTCTGCAGAATAAATGCTCTCTGTTTTTGCATACTATCTGAG  
TCTGTGGTCTTCTTCAGCGATTTTTTAGACCCTTACAGTGGAAGTGTGATCCCAGTAGCTGAGTTCTTATGCAATGTCTT  
TTTTCTTCTTCTCATTTTGTGACGGCCTGCCTGTAATCCCAGCTGAGGCAGAGGCAGGAGGATTCTCTGGATGCTCTTTA  
GTAAGTGCCTACCAAGGACTCTTGCTGACTGTTCTCAGGAAGCTGTGTGGGCAAACAGAAACCCAAGTTTCACCATTTA  
CAATGAGGAAGCAGCTTTGCAGGGACAGTTAGTGAACCTGCTCACGTTGCAGTCCTAGGCTTCCGTTTTTGCCTAAAA  
GAGGCTGCAGGAGCCTTTGCAGACAATTCATAGTATCTGTCAAGTGTGTGCCTGAAAACAATGGTGACCAGAACTCTCA  
GGAATGGTGGCAAACACCCAAAAATCCTAGCTCTTGGGAGGTGGAAATAGAAGAATCAGAAGTTCAAGCTCAAAGCCA  
GCTGGGTTCCATTAGACTATGTCTCAAACAAAGGAATTATTAGAAGAATTCTAGAGGCCAATCTTGAAACAGTGGGAA  
ACAGGACCGACAGAGTGTGGTGTCTTGAATACAGTTAACTGACTGGAGTTAAAGCTGCAGATGTTCCCATCCCCGGGG  
CATCAGGAAGTACAGGTGAAACCGACTGATGAGAGATCCTCCACTTAGGATCGAGCTTCTGGAGGAGCCAATCGGAAG  
GAAGGGGAGGCGGAGCTTACCAAAGGGAATTTAATAGGTTTAAACGTGAAAGATGCTAGTGCTGTGAAAAGAGTGC  
CGACAGACCCAAGAGTTCAGGAACACTGCACAATCTTTACCAAGGCTAAAATAGGGATGCGGGGTCCAGGGTAATGCT  
AACAGAGATAGCTCAGCAGCTAAGAGTTTTTGGTGCAGTTGAGGGATGTCTGTGTGTTCAAGTCCAGCCTGGTCTACAA  
AGTGATTTTTCAGGACAGCCATGGATACACAGAGAAACCTATCTTGAAAAAATCATGTGCTGCTTGTCTTCCAAAGGA  
CCCAAGTTTCAGTTTCCAGTACCCATGTGGTGGCTCAGAACCATTGGTAACGCCAGTCTCAGGGAATCAGACACCTTTTG  
ACCTCTGAAGGCACTAGACACACATTTTTTTTTTAACTTTTGTGTTGTTGTTGTTTTTACTTTTTTTGTTGTTGTTTT  
TCAAGACAGTTTCTGTGTAGCCCTGGCTGTCCTGCAACTTGCTCTTCAGACCAGGATAGCCTTGAACCTCACAGAGAT  
CAGCTAACTCTGCCTCCTGAGTGTGGAATTAAGGTGTGTGCCACCATTACCTGGCTCAGACACATTTTTTAATTAG  
AAAAAGAGAGATAAGACCTCACACCGAAGCTGTTGGGTTTTTTTTGTTGGGTTTTTTTTGTTTTTGTTTTTGTTTTT  
TTGGTGGGTTCTTTTTGTTTGTGTTGTTGTTGTTTTTGGGTTTTTTTTGTTTTTGTGTTTTGTTTTTGTGTTTTGAGA  
CAAGGTTTTTCTGTATAGCCCTGGCTGTCTGGAACCTCACTTTGTAGACCATCTGGCCTCAAACCTCAGAAATCCGCCTGC  
CTCTGCCTCCCAAGTGCTGGGATTAAGGCGTGCGCTACCACCACCCAGCTGCTTGCTTTTTATTTTTTTTTAGACAAAA  
TCTCATTCGTTGGACTTTACCAGTAAAGACCAGGACCTAAATGCTGGGTGAAGGCCTGGTAGCTCAGAGGCAGAGAGA  
GCCCCCTACCCCCCGCCCCGCTGACCTTCCTCCTCTAGAGACTTCCAGAATGATTCTCCTCTCTACCCAAAAAACT  
TTCAAACCTCAATGTCCTCCCCATCTATTTCTGTATGCCATCCCCATCCAGCACCTGGCTCCCTCTTATGCTCTACAGTT  
TCGTTTTTCTAAATAAGCTCATGTTGGCTTCCTGTCAGCTGGCTGCTTGCCCCGCTTTAGACCCGAGGTTAACCTCATTT  
AGTCTGTTTACAAGCGTCAATCAGAAAGGGCTGGGATCAGAGCTGTGTGCTAAGGATGAGCCAAACCACACCTAAGA  
ACAAGTTGTTCCGGTAAATAACACAAGCTCAGGGCTCACAGTGTGATCAATAACCTACAACAAACAGGCTATTCTGA  
AAGGGACAGGCGGGCCTCACACTCGCATCAACACATGGCCATTATCAGTACACTCGGTCAGAAGCAGAGATGGACACA  
TCAGGCCTTGCCAGCTTTTTCAGAACTCGTGGAATAACAGCAAATTCAGAAAGCTATGAGTTTCTTGTGTCAGGAGGCTGACA  
GGTATTAACCTGTGCTATCTCTCCAGGCCTACACGCAGGCTCCTTTATGCCAATTTTCTTTTTTCTTGTGTTAAAGGTTTGT  
TTGTTTGTGTTTTCATATATGTGAGTACTACTAGAAGAGGGCATTTGGATCACAGTACAGATGGTTGTGAGCCACCAT  
GTAGTAGCTGGGATTTGAACTCAGAACCTCTGGAAGAGCAGTCAGTGCTCTTAACCACTGAGCCATCTCTCCAGCCCAT  
ATTTATCAATAACACTTTTAACTGCTGAGCTATCTCTCCAGCTCCTCTTTTTTTTTCTTTACTTTTATCACAGGGTTTCTCT

[illegible]

GAATAAAGCGCATCTGTAACCTTGTGTTAGGTTATCATCCAGCTGTTATTTTGCAGAAACACAGCCAGCTTTGAAACAAG  
AAAACCGAAGGACCTTGTTTAACTGTGATGGTTTTGGTTTAGTGACCTGAAAAGATGTCTGGATTTCTAGAAGGCTCGA  
GGTGCTCTGAGTGCATGGACTGGGGGGAGAAGCGGAACACGATCGCTCCATCGCTGCTGGCGTTCTAGTAAGTCCTTG  
TGACACCTTAGCTCTCCATGTGTTTATCTGTGGCTGTATAGACGGTTTAGGTTATGTGATGTTTTCTTTTTCTTCTTTT  
TTTTTTAAAGATTTATTTATCTATTTTATGTATACGAGTACACTGCAGCTGTACAGATGGTTGTGAGCCTTCATGTAGTT  
GTTGGGAATTGAATTTTAGGACCTCTGCTCGCTCCGCCCTGGCCCAAAGATTTATTTATTATTATAAATAAACACACTGG  
AGTTGTCTTCAGACACACCAGAAGAGGGCATCAGATCTCATTATGGGTGGTTGTGAGCCACCATGTAGTTCCTGGGATT  
TGAAGTCAAGGCCTTTGGAAGAGCAGTTGGTGCTCTTACCTGCTGAGCCATCTCTCAACCCCTCCCTGCCTCCCCCTC  
CCATCTGTAATGTTTTCAAATGTGTCCTTTTAAAAAATAATCAACCACCAAACCTTACTTTACTCAGTGATGTTTGACTTG  
TGAGGTTGTTAATAGTGTTAATAGTTGTCATAATAAACATTTTGTATGCACTTACTTTTTCTATGGGTTATGCCTCCTTG  
ACTTGGTAAGCGCAGAAGGCTTAAAGGGTTGAAGAAGGCCAGGTGTGATGTGTACCTTCGATCCAGCTCTCAGGAGG  
CCAAGGCAGGTGGATCTCTGTGAGTTTGAGGCCAACCTGGTCTACACAGTGAGTTCAGGACAGCCAGACAGATAGT  
GAGACCCTGTCTTCAAAAAAGGAAGAAAGATGCCAGGCAGTGGTAGAACACGCTTTAATCCCAAGCACTCTGGAGGC  
AGAGACAGGCAGATTTCTGAGTTCGAGGCCAGCTTGGTCTACAAAGTGAGTTCAGGACAGCCAGGGCTATACAGAGA  
AACCAGTCTCGAAAAACAACAAAAAACAACAAAAAAGGAAGAAAGGATTAACGAG  
ACAATCAGGTCCAAACCAGTCGAGATAGATAATCCCATTTTTTTCAGGACAGGAGAGTTCATATTCTCCCTAATCTGGTAG  
GGAGAAGCATTAGGAAGATCATAAGCTCTTTGGTTTTTTTTTTTTTGGATGGATGGATGGATGGATGGTTGGATGGATC  
TCCTGTAGGTCATGTTGGCTTTGAACTCGCTCATAGGCAAGGACGTCCTTGAGGTCTCCGTCATCCTGCCTCTGCTTCCC  
AAGTGCTGGGGTTGCAATGTGTGTCACCCTGAGCTGTGAAATACAGTGCTCAGGGTCTGAAGTTATGGTTCAAGATCTT  
ACCTGATGCCTCTTTCTTTCTTTTCTTTTCCACACTAAAGGGGGGGGGGAGACACCCAATTCACTTCTTAGCCAATCA  
GAATGTCATTAACAGATCTGTCTATAACCTGGTAAAGACAATTTGATGGTTTAAAATAACTGGTTCCTTGGGCTTAGCA  
GTGAGGCTCCTTTCATATCCTTGTAAGCCATTGGTTGGGATTTCTTGCACGCGCTCGATTGGCCAGGAAGAACAACGCT  
GCAACAGGATCCTCCTGCACAGGTTTATTGGGAGAGCTTGATTGTAGAGGCGAAAAGACCCCGAGCCCAGAACTGGTG  
CTGCTTTTATAGGCCTAGGAGAGGCGTGTCTTACACCCGGATTGGTTATGCACTATGCCTCATTTGCATGTTCTCATCT  
GATTGGCTACTCTCTCTCAGTACCTCACAGAGCCTCATTATCATACCTCATTTGCATGTCTCACATCTGATTGGTTACTCT  
CTCTCAGTACCTTACAGAACCTCATTATCATACTTCATTTGCATGTCTCACATCTGATTGGTTATACTCTCAGTACATTAC  
AGAACCTCATTATCATGCCCCGGGCCAGGCAGTGTCTTTGCAAAAACTTTACTGCATATGTACACATTGGTTGTTGTCC  
AACTTATGCGTGGTGGCCAGCAGTAGTCAGTGCCACTCAGCAACGGCACATGTGGCTTCCCACAGGGATTTGGTGAAT  
GGCTTCTTGTGTGTGTGATGCTGGGGATGGAAGCCAGGGGCTGCACACACAGGCAATGCTCAACCACTAGGTTTCATCC  
ATAGCTCTCATAATGCCAGCCGGAACATTTCTGTCCAGGTGAGGGTTTTTTTTTTTTTAAATGTAAAGTTTTAATGTTCT  
ATTTTTTATTACTTTTTTAAAAAGTTTTATTATTATATCTTAGTACACTGTAGCTGTCTTCAGACACACCAGAAGAGGA  
CATCAGATCTCAGTATAGATGGTTGTGAGCCACCATGTGGATGCTGGGATTTGAACTCAGAACCCTTCAGAAGAGCAGTC  
AGCGCTCTTACCCGCTGAGCCATCTCTCCAGGCCAATGTTTCTTTTTCTTTTTCTTTTTTTCAAGACTGGGTTTCTCTGTG  
TAGCTTTGGCTGACCTGGAACCTACTGTGTAGACCAGGCTGGCCTCGAACTCAGAAATCCACCTGCCTCTGCCTCCCGA  
ATGCTGAGATTAATAACATGTGCCACCATGCCCCACCAGGCCAATGTTTCTATTTTATATATTTTCTTTAATAATAAC  
CAGAAGAGGGCTGGAGAGATGGCTCAGCGGTAAGAGCACTGACTGTTCTTCCAGAGGTCTGAGTTCAAATCCCAAA  
TCCCAGCAACCACATGATGGCTCACAATCATCTGTAATGAGATCTGATGCCCTCTTGTTGGTGTGTCTGAAGACAGCTAC  
AGTGTAGTCATATACATTAATAATAATAATAATAATAATAATAATAATAATAATAATAATAATAATAATAATAATAATA  
AATTTAGTTAGGTAATATATAATTTTATATCCAAATTAACCTTAAGAATCATATGTCAGAGGGACTGGAGAGATGGCTC  
AGTGGGTAGGAGTGCTGCATTTCCAGATGACCCAGGTTCAATTCCCAGCATGCACATGGCAGCTCACACCTGTCTGTAA  
CTCCAGTTCCAGGAGATCTGATGCTCATAAAGTAAAATTAAGTAAGTTTTAAAAAAGAAATCATTGGGCTGGTGAGAT  
GGCTCAGCAGTTAAGAGCACTGACTGTTCTTCCAGAGGTCTGAGTTCAATTCCCAGCAACCACATGGTGGCTCACAAC  
CATCTGTAATGAGATCTGACGCCTTCTTCTGGGGTGACTAAAGACAGCTACAGTGTACTCATATATAATAATAAAGAA  
ATCTTAAAAAAGAAAGAAATCATATCCGAAACCATCAAATGGCCGTACTGTAACCATCCAAAGGAAT  
AAGAATTGCAGACATGTTCTTGGTTCAAACACCCTGTGGTAACGTGTGCTGTGCTGATGGGTCTTGTGTCATCACC  
TTATTTTGTCTTGTCTGTTTTCAGTTTTTTCACGGGATGGTGGATCATCATAGACGGGCTGTCTATGTACCCAGGATGGA  
TCAATTCAACCATTACATACCTGTGGCGTCATAGCAACCATAGCCTTCTCATGTAAGTGATGGCATCACCCCGC  
CTACGTAGAATGTCACAGACTAAAATGATCCTATACCCAATTTAAATTTCTGGTAGGTAAGAAGGACCCCTGGGCATG  
GTGACACACTTGGAACCTGTAATCCAGCATTTGGAATGGAGACAGGGAGATGACTGCAAGTTTCAGGCCAGCCTAGC  
CTACTTATGATGTCCCATGATGCCAGCCAAGGGACTGGGTCTCAGGAAATAATACAAAGGGCCTGGAGAGATGGCTCG  
GGAGTTAAGAGCGAGTATTGCTCTGGTGGAAAGACCTGGGTTCGGTTCTCGCCATCCTCATGGTGGCTCAGAGCCTCCTG  
TAACTCCAGCTCCAGGGCATCTTATGGCCTCTCTGCAGGCACCAGACACTCGTACATGCGTGCAGGTAACCAACCAT  
GCCCCATAAATAAATCCAGAAGAAAGAAACAAGTCAAAATTTCCCAGCCCTTGGGTAGGCTGAGAAAGGAGGATTGCT  
GTGAGTTCAAGGCCAGCAAGGACACTGTCAGAAGGGGAGCTGACAGTTCTGCTTTTCTCGTTCCTGGCTTCTGCCCCG  
TTCCATGGCTTCTCCCTGTTCTCTTAGCTCTGCTTGTCTGTCTAGCAAAGGTGAAAGTTCCCCGTGAGTCTTGACC  
CTGTGTACTTTCTATAGCTTTATGACACCCGAGGTACTTACTAAGCTCACAGCGTGGCCTCTGCTCTCGGCATGAGAAT  
TGGTGGCGGCTAAACAGCAGCAGGCCGGGAGGTGGACAGTAACTTAGCGAGATTCCTTGGAGCATTTTAAATGACTC  
CAAGTACAGATGCCCCAGGGGAGGGGGGACCCAAAGACTGAAGGGGTGGAGGTATCAGGAGTCAGAGGTGGTTAGTA  
GTCAGGAAGGATGTGTGTGTGTTAAGGACCCTGGGGGGGAGGCGGTTAGGAGCCAGAGGGGGAGCAGGAGGCAGGAG

[illegible]

**Selection Cassette:**

TAGAGGCCATAGCGGCCATTITAAATGGCGCGCGGATCCCGGGCCGCTCTAGCTAGACTAGTCTAGCTAGTAGAGGAATTC  
CGCCCCCTCTCCCTCCCCCCCCCTAACGTTACTGGCCGAAGCCGCTTGGAATAAGGCCGGTGTGCGTTTGTCTATATGTT  
ATTTTCCACCATAATTGCCGCTTTTTGGCAATGTGAGGGCCCCGAAACCTGGCCCTGTCTTCTTGACGAGCATTCTAGGG  
GTCTTTCCCCTCTCGCCAAAGGAATGCAAGGTCTGTTGAATGTGCTGAAGGAAGCAGTTCCCTCTGGAAGCTTCTTGAAG  
ACAAACAACGTCTGTAGCGACCCTTTGCAGGCAGCGGAACCCCCACCTGGCGACAGGTGCCTCTGCGGCCAAAAGCC  
ACGTGTATAAGATACACCTGCAAAGGCGGCACAACCCCAGTGCCACGTTGTGAGTTGGATAGTTGTGGAAAGAGTCAA  
ATGGCTCTCCTCAAGCGTATTCAACAAGGGGCTGAAGGATGCCCAGAAGGTACCCCATTTGTATGGGATCTGATCTGGG  
GCCTCGGTGCACATGCTTTACATGTGTTTAGTCGAGGTTAAAAAACGTCTAGGCCCCCCGAACCACGGGGACGTGGTT  
TTCCTTTGAAAAACACGATGATAAGCTTGGCACAACCATGGAAGATCCCGTCGTTTTACAACGTCGTGACTGGGAAAAC  
CCTGGCGTTACCCAACCTAATCGCCTTGACGACATCCCCCTTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCG  
ATCGCCCTTCCCAACAGTTGCGCAGCCTGAATGGCGAATGGCGCTTTGCCTGGTTTTCCGGCACCGAAGCGGTGCCGGA  
AAGCTGGCTGGAGTGCGATCTTCTGAGGCCGATACTGTGCTCGTCCCCTCAAACCTGGCAGATGCACGGTTACGATGCG  
CCCATCTACACCAACGTAACCTATCCCATTACGGTCAATCCGCCGTTTGTTCACCGGAGAATCCGACGGGTTGTTACT  
CGCTCACATTTAATGTTGATGAAAGCTGGCTACAGGAAGGCCAGACGCGAATTATTTTTGATGGCGTTAACTCGGCGTT  
TCATCTGTGGTGCAACGGGCGCTGGGTGCGTTACGGCCAGGACAGTCGTTTGCCGCTCTGAATTTGACCTGAGCGCATTT  
TTACGCGCCGGAGAAAACCGCCTCGCGGTGATGGTGCTGCGCTGGAGTGACGGCAGTTATCTGGAAGATCAGGATATG  
TGGCGGATGAGCGGCATTTTCCGTGACGTCTCGTTGCTGCATAAACCGACTACACAAATCAGCGATTTCCATGTTGCCA  
CTCGCTTTAATGATGATTTACGCCGCGCTGTACTGGAGGCTGAAGTTCAGATGTGCGGCGAGTTGCGTGACTACCTACG  
GGTAACAGTTTTCTTTATGGCAGGGTGAAACGCAAGGTCGCCAGCGGCACCCGCGCTTTCGGCGGTGAAATTATCGATGA  
CGGTGCTGGTTATGCGCATCGCGTCACACTACGTCTGAACGTGCAAAACCCGAAACTGTGGAGCGCCGAAATCCCGAA  
TCTCTATCGTGCGGTGGTTGAACCTGCACACCGCCGACGGCAGCGTATTGTAAGCAGAAGCCTGCGATGTGCGTTTCCGC  
GAGGTGCGGATTGAAAATGGTCTGCTGCTGCTGAACGGCAAGCCGTTGCTGATTGAGGCGTTAACCGTCACGAGCAT  
CATCCTCTGCATGGTCAGGTCAATGGATGAGCAGACGATGGTGACGGATATCCTGCTGATGAAGCAGAACAACCTTTAAC  
GCCGTGCGCTGTTTCGCAATTATCCGAACCATCCGCTGTGGTACACGCTGTGCGACCGCTACGGCCTGTATGTGGTGATG  
AAGCCAATATTGAAACCCACGGCATGGTGCCAAATGAATCGTCTGACCGATGATCCGCGCTGGCTACCGGCGATGAGCG  
AACGCGTAACGCGAATGGTGACGCGCATCGTAATCACCCGAGTGATCATCTGGTCGCTGGGGAATGAATCAGGCC  
ACGGCGCTAATCACGACGCGCTGTATCGCTGGATCAAATCTGTGATCCTTCCCGCCCGGTGCAGTATGAAGGCGGCGG  
AGCCGACACCACGGCCACCGATATTATTTGCCCGATGTACGCGCGCGTGATGAAGACCAGCCCTTCCCGGCTGTGCCG  
AAATGGTCCATCAAAAAATGGCTTTCGCTACCTGGAGAGACGCGCCCGCTGATCCTTTGCGAATACGCCACGCGATG  
GGTAACAGTCTTGCGGGTTTCGCTAAATACTGGCAGGCGTTTCGTGAGTATCCCCGTTTACAGGGCGGCTTCGTCTGGG  
ACTGGGTGGATCAGTCGCTGATTAAATATGATGAAAACGGCAACCCGTTGGTTCGGCTTACGGCGGTGATTTTGGCGATAC  
GCCGAACGATCGCCAGTTCTGTATGAACGGTCTGGTCTTTGCCGACCGCACGCCGCATCCAGCGCTGACGGAAGCAAA  
ACACCAGCAGCAGTTTTTCCAGTTCGGTTTATCCGGGCAAACCATCGAAGTGACCAGCGAATACCTGTTCCGTCATAGC  
GATAACGAGCTCCTGCACTGGATGGTGCGCTGGATGGTAAGCCGCTGGCAAGCGGTGAAGTGCCTCTGGATGTGCT  
CCACAAGGTAAACAGTTGATTGAACTGCCTGAACTACCGCAGCCGGAGAGCGCCGGGCAACTCTGGCTCACAGTACGC  
GTAGTGCAACCGAACGCGACCGCATGGTCAGAAAGCCGGGCACATCAGCGCCTGGCAGCAGTGGCGTCTGGCGGAAAA  
CTCAGTGTGACGCTCCCCGCCGCTCCACGCCATCCCGCATCTGACCACCAGCGAAATGGATTTTTGCATCGAGCTG  
GGTAATAAGCGTTGGCAATTTAACCGCCAGTCAGGCTTTCTTTCACAGATGTGGATTGGCGATAAAAAACAACCTGCTGA  
CGCCGCTGCGCGATCAGTTACCCGCTGCACCGCTGGATAACGACATTGGCGTAAGTGAAGCGACCCGCATTGACCCTA  
ACGCCTGGGTGGAACGCTGGAAGGCGGCGGGCCATTACCAGGCCGAAGCAGCGTTGTTGCAGTGCACGGCAGATACAC  
TTGCTGATGCGGTGCTGATTACGACCGCTCACGCGTGGCAGATCAAGGGGAAAACCTTATTTATCAGCCGGAAAAACCTA  
CCGATGTAGTGGTAGTGGTCAAATAGCGGATTACCGTTGATGTTGAAGTGCGAGCGATACACCGCATCCGCGCGGAT  
TGGCCTGAAGTCCAGCTGGCGCAGGTAGCAGAGCGGGTAAACTGGCTCGGATTAGGCGCCGAAGAAAACCTATCCCGA  
CCGCTTACTGCCGCTGTTTTGACCGCTGGGATCTGCCATTGTGACACATGTATAACCCGCTACGTCTTCCCGAGCGAAA

**Targeted Locus:**

TAACAGAAAAGGCCAGTCAAAAACCCATTTTTGTAGTAAATCATGAAAAAATAAATGTGTTTTGACTTCACCCAGCTAGT  
AGGAAAGAGTGAGCCTCCTCTCTCTTGACCACCACAGCCATAAATGGACTTTAGTTCAGGTTACTGCACCGGTCACATC  
CGGCATGGACTTTACTCACAAGGTGAAAGGAAATACGTGAGAACTATATTCTACCTAACTACTAACTAAACAAAAAA  
CTCTCTCTCACTTCAAGAAATCTCAAAAGACTTCCAGCACCAAAACAAACGCAGGCCTAGATGTTAAGATGTCCTGGGC  
CTAATCTTACGAAATCCCAGCTAAACTGCTCAACCACATGACTCCCTGGCTGACTCACAGCGCGCTGAGGAAGTTAAAC  
GCGGGGAGGAGCTGGGGAGGTGGCTCGGTGATAAGCGTCCAGAACTCAATCCCCAACACCACCCCCACCAAGGGCAC  
AAACCTCAACCTGATAAAACGCACCTTTCTACTCAGGCGAAATGGGGTTCTACTCCTGCTGCGCGACCTGGTTCTGGA  
TCTTTCCCTCCACCTGGGGCGATCCTCGGGGTACACCGTCCGGCCGAAGCCGTAGTAGCGCCGCCCTCTAGTGATCGCG  
TAGTACGACCACCGGTGCTGCGACCTCCCGCGGGAGCGCGACCTGCTCCGGGAGCGGTAGGGCGACGGCGACTTGTA  
TACCTCCGCGGCCGCTCGTAACGGCTGTCGCGGTGATAGCGGTGGCTGCGGGAGCGCGACCGGCTGCGTGAGTACGAG  
CGTGAGTAGCGCCTGTACTTGCGCTGGTGGCGCCTGCGGGACCGGGATCGGGACCGTCTGCTCCTCCGCGGCCGGCTGT  
GGCTGCGCGAGGACGAGCGGCTAGAGCTGCGGGAGTTCGCGTTCGGGAGCTGCGGGACGAAGAGCGGCTGCGGGAGCGC  
GACGACAGGCGGCTGGAGCGGCCCGAGCCCGAGGTGGACGGCGAGGCTTTCTCCTGCGGAGAGCCGGGCCACATGTC  
GTTACGTATTTAGACATGGCGGCCGAGGACATGGCTCCCTTCTGAAAACGGAGATCGGTCCGCAAACGCAACGGCGT  
CTAGGAACTACAGAGAAAGTCAAGAGTCTATCATCCAGGTGGGGCGCGCAGTGCCAGTGCGCGTGCGCGACACCCCA  
GGGCGAACCGGTCCCTGACCAAGCGGCCCCACTCACCTTAAACGGATGAAGAGCTCGCGAGGGCGAGAGAGGCCAAG  
CGGGCACCTTTCTCTGCGACCAGGAACCGAAGCGGGCGAGGTTCCCGATTCCAGCGACCGGAGAGCACAGGAACCTCC  
ACTGCCAAAGTCCAGACTGGGACTGAGCTTAGTGCGCAGCTCAGCATCGAAAATACTGGAAGCTGGCGCCGAGCATGC  
GCACAGACATCCGTGCGAAAGGGCGGGTCCCCTCTCGTCCAATCGCCAAGCGATGTTGGCTGCGCCTTGAGACACG  
CATGCGCGTCAGTTGTCACTCCACCAACGGCCGCGCCTCCTCCCCATCCCCCACTCCCGCCCCGCTTCTACATCCGGGTA  
TTTTGAGGATTTGTTTACTTCAGGGTTTTTTGTTTGTGTTGTGTTGGGGTCTTGGCTGCTTTTGGATCTTGAGTTTTTTT  
TGAGACAGGAGCTAGCTGTGTACCCCTGTCACGCCTCGAACTCGCGGCAATCCCCATGTCTCTGCTTCTCAGCTAGGGG  
GTCTGCGCCACCACGCCCACTTTGTTTTTCTTTGTTTGGTTTGGTTTGGTTTAGTTTGGCTTCCCTTCTGCTTTCGATTT  
TGAAATTCGGGAAAAGGAGAGGGTAGCAAAGAATTTAGCCGGCTCAAAGCTGGATCAAGGACACAGAGGACAAGTC  
GGTTCCCGTGCCCTCGGTGCTGTCGCCGGGTGATGTGTGTCGCCCTCCCTCCCCAGCCGCTGCCAGCTTCCCTTCTGGCT  
CCTCCTATGGTGGAGATTGGGAGGGGTATCCCTGGACCCCGAAGATATAGTTTTAATTTAGAAAGGCTGCTTTAACGGC  
CTTGTTTGTAGCTAATTAAGGTAATTTAGGTCGAGACAGGAATTCACACGACCAGATTGACCTTTGAGGAGCAACAGT  
GATCCTTTGATTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGT  
TACAGGATGCCACCAGAAGACAGAGCCATTGTGGGCCACCAAGTATGGGGGTGTTGGGAACCCAGACTTTGTGCTAGGC  
AATGCAGCAAGTGCTCTTAATAGTAAGCCATTTCTGAGCCCGATAGGTCTGTTCTAAGACAAGTGTTAGGACAGG  
ACATTTAATCTTATTTCCAGGGCAAATTCCAAACACTCAATGTATGAGGCATATCTGACCTTGAAAACGTGTGGTAAG  
TGAACAGCACTGAACGAAAATAGCTATTTCAATATTGGGAGATGGTGTTCCTTAGAAAATTAGGCAGGGTTTTTACAGAAGCT

CTGGATTTTAGAGGGAGATGACAGAAATAAGGACTCTTTGTTTCGTGCCTCCTTCCTCCTCCTTCCCCAATATACAGCGA  
AAGTGAAGAAATAAAAAACCTTACTGTGGCCACCAGGATGGCTCAGCAATAAAGAATGCTTGTGGGACTGGTGAGATAG  
CTCAGTGGTTGAGAGCGCCGACTGTTCTTCCAAAGGTCCCAAGTTCAAGTCCCAGCGACCACATGGTGGCTCACAACCA  
TCCATAATGAAATCTGATGCCCTCTTCTGGAGTGTCTGAGGACAGCTACAATGTACTTACATATAATAAATAAATAAAT  
CTTTAAAAAAGAAGAAAAAAATGCTTGTGGAGCACTACTGACAACCTGCAGTGGAGTGGAAAGGAGAGAACTGACTTC  
CAAAAGTTGTTCTCTAACCTCCAGAAGCCCCCATCCCATCCCATCCACCAATGGTAAAAGTTCTCAAACCTGCAGGAGCT  
GGAGAAACAATCAGCAGTAAAGAGCACTGACTCCCAGGACCCACAGGACGGACGGCTCACACCCATCTGGACCTCCA  
GTACCAGGATGAGCACCCTACCAACACACATCCACACCGTACAGACCTGGGTATAGGCAGAAGGTAACAAGACCCC  
AGATCTCAGCCCAACTGACTCCATAAAGGAAGTGCCGTTACAGCCATAAAACCCAGCACCTGGACAGGGATCTTATGT  
GCCAAAACAACCAAAAAAGTCCATCCAAGTCCATAGTACTTGGAGAGTCTATAAATGTACCAACCTTGCTTTTTTGGT  
TTCTGGACTTCTGCTTCTGGCTAAGTGTCTTATTAACTAACTATATCAACCCGGGATATATAAAATTTTTTGTGTGTA  
AAAGATCACCTGAGAAAGGCTCAGGGCTACTCTGGCATCCCAAACACCCAGTGGAGTCAATAAGCAGCAAATAAAG  
AATTTCTAACCTGGGCAGTGGTGGCGCATGCCTTTAATCCCAGCACTCAGGAGGCTGAGGCTGAGGCAGAGGCAGGCG  
GATTTCTGAGTTCTAGGCCAGCCTGATCTACAAAGTGAGTTCCAGGACAGCCAGGGCTATACAGAGGAACCCTGTCTCC  
AAAAACAACAACCAAAAAAGAATTTCTATTGACTTAAATTGTCTTCTCTGGTGGATACCCCATAAACAAAAACACCCAT  
ACCATAGATTAAATCCTTTATAAAGACTGTGGAGAGTTGAGGTGAGAGAAACAACATAAAACCCCATGTGTCTCCATGTA  
AGGACCAGGCCTGATTTTCAGAAAAGGCCATAAGGCACAAGCTTCAGGGATAGACCATAAGTCCCAGAACTAAGTCAT  
AAGACCCAGGCTCTAGGAACAGACTGTAAAATCCAGAATGAGATCATAAAACCTGCTCCCAAAGAAGGGCCTGTGGGG  
GAGTTGGCTGGAGAGATGGCTCAGCAGTTAAGAGCACTGACTGCTCTTCCAGAGGTCCCGAATTCAATTCCCCGCAACC  
ACATGGTGGCTCACAACCATCTGCAATGGGATCAGATGCCCTCTTCTTCTGTGTCTGAAGACAGCTACAGTGTACTCAC  
ATGCATAAAATAAATCTTTTTTAAAAACCTGGGGATAATCATAAATGGCGAAATATCTGTGATGTGCAGCCCTATTTCA  
TCACATGGTTGAATGTTTCATGGCATAGGAATGCTGACCACTGACCACCTATGAAGCCCTGGCAACCACCGATGAAATTT  
AAAATTTTTAAGGATTACTTCTAGAGAGTTTTCCAGGTCCCTCTAAGAAGGCCTGCATGCCTCTGTCTGGGGCCGCCAT  
TTTGAATGGGGTCGCCATTTTAGAGAATGCTGGTTGTTTCTGCAGAATAAATGCTCTCTGTTTTTGCATACTATCTGAG  
TCTGTGGTCTTCCTTCAGCGATTTTAGACCCTTACAGTGGAAGTGTGATCCAGTAGCTGAGTTCTTATGCAATGTCTT  
TTTTCTTCTCTCATTTTTGTGACGGCCTGCCTGTAATCCCAGCTGAGGCAGAGGCAGGAGGATTCTCTGGATGCTCTTTA  
GTAAGTGCCTACCAAGGACTCTTGCTGACTGTTCTCAGGAAGCTGTGTGGGCAACAGAAACCCAAGTTTCACCATTTA  
CAATGAGGAAGCAGCTTTGCAGGGACAGTTAGTGAACCTGCTCACGTTGCAGTCCTAGGCTTCCGTTTTTGCCTAAAA  
GAGGCTGCAGGAGCCTTTGCAGACAATTCATAGTATCTGTCAAGTGTGTGCCTGAAAACAATGGTGACCAGAACTCTCA  
GGAATGGTGGCAACACCCAAAAATCCTAGCTCTTGGGAGGTGGAAATAGAAGAATCAGAAGTTCAAGCTCAAAGCCA  
GCTGGGTTCCATTAGACTATGTCTCAAACAAAGGAATTATTAGAAGAATTCTAGAGGCCAATCTTGAAACAGTGGGAA  
ACAGGACCGACAGAGTGTGGTGTCTTGAATACAGTTAACTGACTGGAGTTAAAGCTGCAGATGTTCCCATCCCCGGGG  
CATCAGGAAGTAGAGGTGAAACCGACTGATGAGAGATCCTCCACTTAGGATCGAGCTTCTGGAGGAGCCAATCGGAAG  
GAAGGGGAGGCGGAGCTTACCAAAGGGAATTTAATAGGTTTAAACGTGAAAGATGCTAGGTGCTCTGAAAAAGGATG  
CGACAGACCCAAGAGTTACAGGAACACTGCACAATCTTTACCAAGGCTAAAATAGGGATGCGGGGTCCAGGGTAATGCT  
AACAGAGATAGCTCAGCAGCTAAGAGTTTTTGGTGCAGTTGAGGGATGTCTGTGTGTTCAAGTCCAGCCTGGTCTACAA  
AGTGATTTTCAGGACAGCCATGGATACACAGAGAAACCCCTATCTTGAAAAATCATGTGTGCTTGTCTTCCAAAGGA  
CCCAAGTTACAGTTCCAGTACCCATGTGGTGGCTCAGAACCATTGGTAACGCCAGTCTCAGGGAATCAGACACCTTTTG  
ACCTCTGAAGGCACTAGACACACATTTTTTTTTTAACTTTTGTGTTGTTGTTGTTTTTACTTTTTTTGTTGTTGTTGTTTT  
TCAAGACAGTTTCTCTGTGTAGCCCTGGCTGTCCTGCAACTTGCTCTTCAGACCAGGATAGCCTTGAAGTACACAGAGAT  
CAGCTAAACTCTGCCTCCTGAGTGTGGAATAAAAAGGTGTGTGCCACCATTACCTGGCTCAGACACATATTTTAATTA  
GAAAAAGAGAGATAAGACCTCACACCGAAGCTGTTGGGTTTTTTTTGTTGGGTTTTTTTTTTTTTGTGTGTTTGTTTTTGT  
TTTTTGGTGGGTTCTTTTTGTTTGTGTTGTTGTTGTTTTTGGGTTTTTTTTGTTTTTGTGTTTTGTTTTTGTTTTT  
GAGACAAGGTTTTTCTGTATAGCCCTGGCTGTCCTGGAACCTCACTTTGTAGACCATCTGGCCTCAAACCTCAGAAATCCG  
CCTGCCTCTGCCTCCCAAGTGCTGGGATTAAAGGCGTGCCTACCACCACCCAGCTGCTTGCTTTTTATTTTTTTTAGA  
CAAAATCTCATTCGTTGGACTTTACCAGTAAAGACCAGGACCTAAATGCTGGGTGAAGGCCTGGTAGCTCAGAGGCAG  
AGAGAGCCCCCTACCCCCCGCCCCGCTGACCTTCCTCCTCTAGAGACTTCCAGAATGATTCTCCTCTCTACCCAAA  
AACTTTCAAACCTCAATGTCCTCCCATCTATTTCTGTATGCCATCCCCATCCAGCACCTGGCTCCCTCTTATGCTCTA  
CAGTTTCGTTTTTCTAAATAAGCTCATGTTGGCTTCCTGTCAGCTGGCTGCTTGCCCCGCTTTAGACCCGAGGTTAACC  
TCATTTAGTCTGTTTACAAGCGTCAATCAGAAAGGGCTGGGATCAGAGCTGTGTGCTAAGGATGAGCCAAACACAC  
CTAAGAACAAGTTGTTCCGGTAAATAACACAAGCTCAGGGCTCACAGTGTGATCAAATAACCTACAACAAACAGGCTA  
TTCTGAAAGGGACAGGCGGGCCTCACACTCGCATCAACACATGGCCATTATCAGTACACTCGGTCAGAAGCAGAGATG  
GACACATCAGGCCTTGCCAGCTTTTCAGAACTCGTGGAATAACAGCAAATTCAGAAGCTATGAGTTTCTTGTGAGGAG  
CTGACAGGTATTAAGTGTCTATCTCTCCAGGCCTACACGCAGGCTCCTTTATGCCAATTTTCTTTTTTCTTGTTTAAAG  
GTTTGTGTTGTTGTTGTTTTCATATATGTGAGTACTCACTAGAAGAGGGCATTGGATCACAGTACAGATGGTTGTGAGCC  
ACCATGTAGTAGCTGGGATTTGAACTCAGAACCTCTGGAAGAGCAGTCAGTGCTCTTAACCACTGAGCCATCTCTCCAG  
CCCATATTTATCAATAACACTTTTAACTGCTGAGCTATCTCTCCAGCTCCTCTTTTTTTTTCTTTACTTTTATCACAGGGTT  
TCTCTTTGTGTATTTCTGGTTGTCTGGAACCTGTTCTATAGACCAAACCTGGCCTTGAACCTCACTGAGATCCTCCTGCCTC  
TAGCTCCCAAGTGCCAGAATTAAGGGCATGGGTACCACTGCCTGGTCTTTACAACAATCTTAACTGCTAATAATAAC

[illegible]

CAGAACAACCTTTAACGCCGTGCGCTGTTCGCATTATCCGAACCATCCGCTGTGGTACACGCTGTGCGACCGCTACGGCC  
TGTATGTGGTGGATGAAGCCAATATTGAAACCCACGGCATGGTGCCAATGAATCGTCTGACCGATGATCCGCGCTGGCT  
ACCGGCGATGAGCGAACGCGTAACGCGAATGGTGCAGCGCGATCGTAATCACCCGAGTGTGATCATCTGGTCGCTGGG  
GAATGAATCAGGCCACGGCGCTAATCACGACGCGCTGTATCGCTGGATCAAATCTGTGATCCTTCCCGCCCGGTGCAG  
TATGAAGGCGGCGGAGCCGACACCACGGCCACCGATATTATTTGCCCGATGTACGCGCGCGTGGATGAAGACCAGCCC  
TTCCCGGCTGTGCCGAAATGGTCCATCAAAAAATGGCTTTTCGCTACCTGGAGAGACGCGCCCGCTGATCCTTTGCGAAT  
ACGCCCACGCGATGGGTAAACAGTCTTGGCGGTTTCGCTAAATACTGGCAGGCGTTTCGTCAGTATCCCCGTTTACAGGG  
CGGCTTCGTCTGGGACTGGGTGGATCAGTCGCTGATTAAATATGATGAAAACGGCAACCCGTGGTCGGCTTACGGCGGT  
GATTTTGGCGATACGCCGAACGATCGCCAGTTCTGTATGAACGGTCTGGTCTTTGCCGACCGCACGCCGCATCCAGCGC  
TGACGGAAGCAAAACACCAGCAGTCTTTCCAGTTCGGTTTATCCGGGCAAAACCATCGAAGTGACCAGCGAATACC  
TGTTCCGTCATAGCGATAACGAGCTCCTGCAGCTGGATGGTGGCGCTGGATGGTAAGCCGCTGGCAAGCGGTGAAGTGC  
CTCTGGATGTCTGCTCCACAAGGTAACAGTTGATTGAACCTGCCTGAACTACCGCAGCCGGAGAGCGCCGGGCAACTCT  
GGCTCACAGTACGCGTAGTGCAACCGAACGCGACCGCATGGTCAGAAGCCGGGCACATCAGCGCCTGGCAGCAGTGGC  
GTCTGGCGGAAAACCTCAGTGTGACGCTCCCCGCCGCGTCCCACGCCATCCCGCATCTGACCACCAGCGAAATGGATTT  
TTGCATCGAGCTGGGTAATAAGCGTTGGCAATTTAACCGCCAGTCAGGCTTTCTTTTACAGATGTGGATTGGCGATAAA  
AAACAACCTGCTGACGCCGCTGCGCGATCAGTTCACCCGTGCACCGCTGGATAACGACATTGGCGTAAGTGAAGCGACC  
CGCATTGACCTAACGCCTGGGTGCAACGCTGGAAGGCGGCGGGCCATTACCAGGCCGAAGCAGCGTTGTTGCAGTGC  
ACGGCAGATACACTTGCTGATGCGGTGCTGATTACGACCGCTCACGCGTGGCAGCATCAGGGGAAAACCTTATTTATCA  
GCCGAAAACCTACCGGATTGATGGTAGTGGTCAAATGGCGATTACCGTTGATGTTGAAGTGGCGAGCGATACACCGC  
ATCCGGCGCGGATTGGCTGAACGCTGCCAGCTGGCGCAGGTAGCAGAGCGGGTAACTGGCTCGGATTAGGGCCGCAAG  
AAAACCTATCCCGACCGCTTACTGCCGCTGTTTTGACCGCTGGGATCTGCCATTGTCAGACATGTATACCCCGTACGTC  
TTCCCGAGCGAAAACGGTCTGCGCTGCGGGACGCGCGAATTGAATTATGGCCCACACCAGTGGCGCGGCGACTTCCAG  
TTCAACATCAGCCGCTACAGTCAACAGCAACTGATGGAAACCAGCCATCGCCATCTGCTGCACGCGGAAGAAGGCACA  
TGGCTGAATATCGACGTTTCCATATGGGGATTGGTGGCGACGACTCCTGGAGCCCGTCAGTATCGGCGGAATTCCAGC  
TGAGCGCCGGTCGCTACCATTACCAGTTGGTCTGGTGTCAAAAATAATAAACCAGGGCAGGCCATGTCTGCCCGTATT  
TCGCGTAAGGAAATCCATTATGTACTATTTAAAAAACACAACTTTTGGATGTTTCGGTTTATTCTTTTTCTTTTACTTTTT  
TATCATGGGAGCCTACTTCCCGTTTTTCCCGATTGGCTACATGACATCAACCATATCAGCAAAAGTGATACGGGTATT  
ATTTTTGCGCTATTTCTCTGTTCTCGCTATTATTCCAACCGCTGTTTGGTCTGCTTTCTGACAAACTCGGAACTTGTTTA  
TTGCAGCTTATAATGGTTACAAATAAAGCAATAGCATCACAATTTACAAATTTAATTAAGGCCGCGGGATCGATCCC  
GTCGAGCAGTGTGGTTTTCAAGAGGAAGCAAAAAGCCTCTCCACCCAGGCCTGGAATGTTTCCACCCAATGTCGAGCA  
GTGTGGTTTTGCAAGAGGAAGCAAAAAGCCTCTCCACCCAGGCCTGGAATGTTTCCACCCAATGTCGAGCAAAACCCG  
CCCAGCGTCTTGTCAATTGGCGAATTGCAACACGCAGATGCAGTCGGGGCGGCGCGGTCCCAGGTCCACTTCGCATATTA  
AGGTGACGCGTGTGGCCTCGAACACCGAGCGACCCTGCAGCCAATATGGGATCGGCCATTGAACAAGATGGATTGCAC  
GCAGGTTCTCCGGCCGCTTGGGTGGAGAGGCTATTTCGGCTATGACTGGGCACAACAGACAATCGGCTGCTCTGATGCCG  
CCGTGTTCCGGCTGTACGCGCAGGGGCGCCCGTTCTTTTTGTCAAGACCGACCTGTCCGGTGCCCTGAATGAAGTGA  
GGACAGGACGCGCGCTATCGTGGCTGGCCACGACGGCGTTCCTTGCGCAGCTGTGCTCGACGTTGCTCACTGAAGC  
GGGAAGGACTGGCTGCTATTGGGCGAAGTGCCGGGAGGATCTCCTGTCATCTCACCTTGCTCCTGCCGAGAAAGT  
ATCCATCATGGCTGATGCAATGCGGCGGCTGCATACGCTTGATCCGGCTACCTGCCCATTCGACCACCAAGCGAAACAT  
CGCATCGAGCGAGCACGTACTCGGATGGAAGCCGGTCTTGTGATCAGGATGATCTGGACGAAGAGCATCAGGGGCTC  
GCGCCAGCCGAACCTGTTCCGCCAGGCTCAAGGCGCGCATGCCCGACGGCGAGGATCTCGTCGTGACCCATGGCGATGCC  
TGCTTGCCGAATATCATGGTGGAAAATGGCCGCTTTTTCTGGATTTCATCGACTGTGGCCGGCTGGGTGTGGCGGACCGCT  
ATCAGGACATAGCGTTGGCTACCCGTGATATTGCTGAAGAGCTTGGCGGCGAATGGGCTGACCGCTTCTCTGCTTTA  
CGGTATCGCCGCTCCCGATTTCGAGCGCATCGCCTTCTATCGCCTTCTTGACGAGTTCTTCTGAGGGATCGGCAATAAA  
AAGACAGAATAAAACGCACGGGTGTTGGGTGCTTTGTTTCGGATCCGAATTCTCGAGGGCGCGCCATTTAAATGGCCA  
GCGAGGCCGGTACCCAATTCGCCCTATAGGTGACACCTTAGCTCTCCATGTGTTTATCTGTGGCTGTATAGACGGTTTAG  
GTTATGTGATGTTTTCTTTTTCTTCTTTTTTTTTTAAAGATTTATTTATCTATTTTATGTATACGAGTACACTGCAGCT  
GTACAGATGGTTGTGAGCCTTCATGTAGTTGTTGGGAATTGAATTTTAGGACCTCTGCTCGCTCCGCCCTGGCCCAAAG  
ATTTATTTATTATTATAAATAAACACACTGGAGTTGTCTTCAGACACACCAGAAGAGGGCATCAGATCTCATTATGGGT  
GGTGTGAGCCACCATGTAGTTCTGGGATTTGAACTCAAGGCCTTTGGAAGAGCAGTTGGTGTCTTACCTGCTGAGC  
CATCTCTCAACCCCCCTCCCTGCCCTCCCCCTCCCATCTGTAATGTTTTCAAATGTGTCCTTTAAAAAATAATCAACCAC  
CAAACCTACTTTTACTCAGTGATGTTTGAAGTTGTGAGGTTGTTAATAGTGTTAATAGTTGTCATAATAAAACATTTTGTAT  
GCACTTACTTTTTCTATGGGTTATGCCTCCTTGAAGTTGGTAAGCGCAGAAGGCTTAAAGGGTTGAAGAAGGCCAGGTGT  
GATGTGTACCTTCGATCCAGCTCTCAGGAGGCCAAGGCAGGTGGATCTCTGTGAGTTTGAAGGCCAACCTGGTCTACAC  
AGTGAGTTCCAGGACAGCCAGAGCAGATAGTGAGACCCTGTCTTCAAAAAAGGAAGAAAGATGCCAGGCAGTGGTAG  
AACACGCCTTTAATCCCAAGCACTCTGGAGGCAGAGACAGGCAGATTTCTGAGTTTCGAGGCCAGCTTGGTCTACAAAG  
TGAGTTCCAGGACAGCCAGGGCTATACAGAGAAAACCCAGTCTCGAAAAACAACAAAAAAAACCACCAAAAAA  
AAAAAAGGAAGAAAGGATTAACGAGACAATCAGGTCCAAACCAGTCGAGATAGATATTCCCATTTTTCAGG  
ACAGGAGAGTTTATATTCTCCCTAATCTGGTAGGGAGAAGCATTAGGAAGATCATAAGCTCTTTGGTTTTTTTTTTT  
GATGGATGGATGGATGGATGGTGGATGGATCTCCTGTAGGTCATGTTGGCTTTGAACTCGCTCATAGGCAAGGACGTC

CTTGAGGTCTCCGTCATCCTGCCTCTGCTTCCCAAGTGCTGGGGTTGCAATGTGTGTACACCCTGAGCTGTGAAATACAGT  
GCTCAGGGTCTGAAGTTATGGTTCAAGATCTTACCTGATGCCTCTTTCCTTTCCCTTTCCACACTAAAGGGGGG  
GGGAGACACCCAATTCACCTTCTTAGCCAATCAGAATGTCAATTAACAGATCTGTCTATAACCTGGTAAAGACAATTTGAT  
GGTTTAAATAAAGTGGTTCTTGGGCTTAGCAGTGAGGCTCCTTTCATATCCTTGTAAAGCCATTGGTTGGGATTTCTTGC  
ACGCGCTCGATTGGCCAGGAAGAACAACGCTGCAACAGGATCCTCCTGCACAGGTTTATTGGGAGAGCTTGATTGTAG  
AGGCGAAAAGACCCCGAGCCCAGAACTGGTGCTGCTTTTATAGGCCTAGGAGAGGCGTGTCTTACACCCGGATTGGTT  
ATGCACTATGCCTCATTTGCATGTTCCCTCATCTGATTGGCTACTCTCTCTCAGTACCTCACAGAGCCTCATTATCATACCT  
CATTTGCATGTCTCACATCTGATTGGTTACTCTCTCTCAGTACCTTACAGAACCTCATTATCATACTTCATTTGCATGTCT  
CACATCTGATTGGTTATACTCTCAGTACATTACAGAACCTCATTATCATGCCCGGGCCAGGCAGTGTCTTTGCAAAAAA  
CTTTACTGCATATGTACACATTGGTTGTTTGTCCAACTTATGCGTGGTGCCAGCAGTAGTCAGTAGCCACTCAGCAAC  
GGCAGATGTGGCTTCCCACAGGGATTGGTGAATGGCTTCTGTGTGTGTGATGCTGGGAGTAGGAAGCCAGGGGCTGCA  
CACACAGGCAATGCTCAACCCTAGGTTTCACTCATAGCTCATAATGCCAGCCGGAACATTTCTGTCCAGGTGAGGG  
TTTTTTTTTTTTTAATGTAAAGTTTTAATGTTTCTATTTTTTATTTACTTTTTTAAAAAAGTTTTATTATTATATCTTAGTAC  
ACTGTAGCTGTCTTCAGACACACCAGAAGAGGACATCAGATCTCAGTATAGATGGTTGTGAGCCACCATGTGGATGCTG  
GGATTTGAACTCAGAACCTTCAGAAGAGCAGTCAGCGCTCTTACCCGCTGAGCCATCTCTCCAGGCCAATGTTTCTTTTT  
CTTTTTCTTTTTTTTCAAGACTGGGTTTCTCTGTGTAGCTTTGGCTGACCTGGAACCTACTGTGTAGACCAGGCTGGCCTC  
GAACTCAGAAATCCACCTGCCTCTGCCTCCCGAATGCTGAGATTAAAAACATGTGCCACCATGCCCCACCAGGCCAATG  
TTTCTATTTTATATATTTTCTTTAATTAATAACCAGAAGAGGGCTGGAGAGATGGCTCAGCGGGTAAGAGCACTGACT  
GTTCTTCCAGAGGTCCTGAGTTCAAATCCCAAATCCAGCAACCACATGATGGCTCACAATCATCTGTAATGAGATCTG  
ATGCCCTCTTGTGGTGTGTCTGAAGACAGCTACAGTGTAGTCATATAACATTAAATAAATAAATAAATAAATAAATAAAT  
AAATAAAATATGTATGCGCATAACCAGAAGAAAATTTAGTTAGGTAATATATAATTTTCATATCCAAATTAACCTTAAGA  
ATCATATGTCAGAGGGACTGGAGAGATGGCTCAGTGGGTAGGAGTGTGCAATTTCCAGATGACCCAGGTTCAATTCCC  
AGCATGCACATGGCAGCTCACACCTGTCTGTAACCTCCAGTTCAGGAGATCTGATGCTCATAAAGTAAAATTAAGTAAG  
TTTTAAAAAAGAAATCATTGGGCTGGTGAGATGGCTCAGCAGTTAAGAGCACTGACTGTTCTTCCAGAGGTCCTGAGTT  
CAATCCCAGCAACCACATGGTGGCTCACAACCATCTGTAATGAGATCTGACGCCCTTCTTCTGGGGTGACTAAAGACAG  
CTACAGTGTACTCATATATAATAAATAAAGAAATCTTAAAAAAAAAAAAAAAAAAGAAAGAAATCATATCCGAAACCATC  
AAATGGCCGTAAGTGAACCATCCAAAGGAATAAGAATTGCAGACATGTTCTTGGTTCAAACACCCTGTGGTAACGTGT  
GCTGTGCTGATGGGTCTTGGCTGGCATCACCTTATTTTGTCTTGTCTGTTTTCAGTTTTTCACGGGATGGTGGATCATCAT  
AGACGCGCTGTATGTACCCAGGATGGATCAATTCAACCATTTCATACCATACCTGTGGCGTCATAGCAACCATAGCC  
TTCCTCATGTAAGTATGGCATCACCCCGCCTACGTAGAATGTCACAGACTAAAATGATCCTATACCCAATTTAAATTT  
CTGGTAGGTAAGAAGGACCCCTGGGCATGGTGACACACTTGAACCTGTAATCCCAGCATTGGAATGGAGACAGGGA  
GATGACTGCAAGTTTTCAGGCCAGCCTAGCCTACTTATGATGTCCCATGATGCCAGCCAAGGGACTGGGTCTCAGGAAAT  
AATACAAAGGGCCTGGAGAGATGGCTCGGGAGTTAAGAGCGAGTATTGCTCTGGTGGAAGACCTGGGTTTCGGTTCTCG  
CCATCCTCATGGTGGCTCAGAGCCTCCTGTAACCTCCAGCTCCAGGGCATCTTATGGCCTCTCTGCAGGCACCAGACACT  
CGTACATGCGTGCAGGTAACACACCACATGCCCCCATAAATAAATCCAGAAGAAAGAAACAAGTCAAAATTTCCAGCC  
CTTGGTAGGCTGAGAAAGGAGGATTGCTGTGAGTTCAAGGCCAGCAAGGACACTGTCAAGAGGGGAGTGCAGATTCTC  
TGCTTTTCTCGTTCCCTGGCTTCTGCCCCGCTTCCATGGCTTCTCCCTGTTCTTCTAGCTCTGCTTGCTTCTGCTTAGCAAA  
GGTGAAAGTTCCCCGTGAGTCTTGGACCCTGTGTACTTTCTATAGCTTTATGACACCCGAGGTACTTACTAAGCTCACA  
GCGTGGCCTCTGCTCTCGGCATGAGAATTGGTGGCGGCTAAACAGCAGCAGGCCGGGAGGTGGACAGTAACCTTAGCGA  
GATTCCCTTGGAGCATTTTAAATGACTCCAAGTACAGATGCCCCAGGGGAGGGGGGCACCCAAGACTGAAGGGGTGGA  
GGTATCAGGAGTCAGAGGTGGTTAGTAGTCAGGAAGGATGTGTGTGTGTTAAGGACCCTGGGGGGGAGGCGGTTAGGA  
GCCAGAGGGGGAGCAGGAGGCAGGAGCCTGAAGGGGAGGTGGACACAGTCACTCCAGAGGCAGAGGGGCTCCGGAA  
AGGGGGTGGGAGAGGATGGAGGGAATGTCAGGAGCCAGAGGTGGTTGTTAGTAGTCAGAGGGGGTCAGGAGTCAGTG  
GGAGAGGTGGAAGAGTCACTCTGGAGAGGGGTAGGGTGGGGGGTGTAGGAGCCTGAGGGGGAGTCAGGAGTGGGG  
GCATTGTCAGGAGCCTGAGGAGGAGGTAGAGACAGTCTGGAGAGCAGAGAAAGGCTCACAGCAGCTGGGACTGTGG  
CTCTGAAGTTTTCTTTTGGTTTTTGGCCTTCTAGCTGCACATTGATAATTCTGTCACTGTTTCTGGCGTTCTGTGCGGAAG  
TCCTCCCCCTTTGACAAGTTGTATGGATTCTCACCTCTTTGTCCCCTTGTGCCCCATTCCAGATCACCTCGGGTTTCATCC  
CCCATGTTGAATGAGTTCACTATGTTTCCCTAGTCTCGAGCGCTTCTGTAGAGACCAGCTATTGTTTTGGAGACAGGCT  
CTCACTGTGTGACCAGGCTGGCCTGGGATTGGTTTACCCGGCACCTCAGCCTCCCAGTCGGCTGGGGTTACACGTGTAC  
CCCCACACAGGCCTTTCTTTGGCATGCTGCAGACCTTTGTCTGCCAACGCTTGGCACCTTTCTTGTGTAAGAAGTTTGAG  
GGGAAAATGGGGATCCAGTCTGGGTGAGTGCTTACGCTTGGGGTGAAGGCTAAGGGGGCTGCTGGCCTCCTGAACACC  
AGGTAAGGGGTGTACCCCTGAGCATCAGTGCTGTGTCAGCAGGCAGAACTCAGGAAAAAAGCCACCCACCTCCCTGCTT  
ATGAATACAAGTAGTTGTTGGGCTGCTGTAGGCCAGAGGGATTGGCAAATTACGACCACACCCTGCTGCCAACATCC  
GGGTAATTTTCTTTCCATGTATGTACGCGTATATGCGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTG  
TGTTTATTATTCTTGTGATACTTGGGGCACAATCCAAGGCCTTGAAGTTGCCAACTAGCACTCCAGCATAGCCACACC  
CTTATCTTACCCCTTGAGTGCTTATTGGTGAAGGTGTGGCTGAAGCTTTGTTGTCCACAGATCTAAATACTCTTATGA  
GTATTTTAATCTTTAAGGAAAGGTTTTCAGGTGCCTGGAAGACAGGATGCACAGGGATAGAATTCATCCTTATATCCACA  
GACCTTCTGATGGTCTGGTCCCATCCCACTTTTCACTCTTGTCCCAGACCGTTTCGATTCCCAGCCCCGTGCAGTGGCTT  
CTCTGCGCAGACTTAGGTGTGCGTTCCCATGGGCGTCCCATCTGCCCCACACGTGCTGAGAACCGTCATCTGGGAGTGG

[illegible]