## Lexicon Genetics Incorporated - Genentech Project Materials

| Genentech ID: | UNQ6098 | Date of Submission: | $11-8-04$ |
| :--- | :--- | :--- | :--- |
| Lexicon Contract Name: | DNA423 | Mutation Type: | X Standard Knock out |
| LexVision Name: | MAS263N1 |  | $\square$ Conditional |
| Reference accessions: | NM_172416 | Is this gene X-linked? | No |

Required Materials:pKOS clone DNA(s) __pKOS 46 $\qquad$Target Vector DNATargeted ES Cell DNA $\qquad$ FTV 46Genomic Map

## Southern Blot Analysis:

External/Internal Probe Strategies

|  | 5' External | 3' External |
| :--- | :---: | :---: |
| Name of Probe: | $\mathbf{1 1 + 1 2}$ | $\mathbf{1 3 + 1 4}$ |
| Restriction Enzyme for Genomic Digest: | EcoRI | EcoRI |
| Predicted Wild-type Band (kb): | $\mathbf{1 3 . 9} \mathbf{~ k b}$ | $\mathbf{1 3 . 9} \mathbf{~ k b}$ |
| Predicted Mutant Band (kb): | $7.9 \mathbf{~ k b}$ | $\mathbf{8 . 2} \mathbf{~ k b}$ |
| Probe Size: | $\mathbf{3 2 8} \mathbf{~ b p}$ | $\mathbf{1 5 1} \mathbf{~ b p}$ |

## 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: | DNA423-17 | 5' Primer Name: | DNA423-18 |
| 3' Primer Name: | DNA423-9 | 3' Primer Name: | IRESUP-LR |
| Predicted Wild-type Band (bp): | 274 bp | Predicted Wild-type Band (bp): | none |
| Predicted mutant band (bp) | none | Predicted mutant band (bp) | 577 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

DNA423-11 5' - ACATTGCTACAGAGAAGCGG
DNA423-12 5' - GAGCATCTCATGACCACAGG
DNA423-13 5' - TCTACCAAGTAACAGGCTGG
DNA423-14 5’ - AGTTACAGAAGGTGGGAGGG

## PCR Genotyping

DNA423-17 5' - ACAGGTCGCAATCAAGATGG
DNA423-9 5' - TAGAAACTGGTGGCTCTGGG
DNA423-18 5, - GAACACCTGCCCAAACCATCAGTCTAC
IRESUP-LR 5' - TGGAAAATAACATATAGACAAACGCACACC

## Genomic Sequence Deleted:

GGCTCGGGACGCGGAGCTGGCGCGCAGTAGCGGGTGGCCGTGGCGGTGGCTGCCGGCGCTGCTGCTGCTGCAGCTGCT GCGGTGGAGGTGCGCCCTGTGCGCGCTCСССTTCACCAGCAGTCGGCACCCAGGCTTTGCGGACCTGCTGTCGGAGCAG CAGCTGTTGGAGGTGCAGGACTTGACCCTGTCTTTGCTGCAGGGCGGAGGTCTGGGGCCGCTGTCACTGCTACCTCCGG ACCTGCCGGATCTGGAGCCTGAGTGCCGGGAGCTGCTGATGGACTTCGCCAATAGCAGCGCCGAGCTGACCGCCTGTA TGGTGCGCAGCGCTCGGCCCGTGCGCCTCTGCCAGACCTGCTACCCGCTCTTCCAACAGGTCGCAATCAAGATGGACAA CATCAGCCGAAACATCGGGGTGGGTAGAGGAGCAGCCTCGGCACCTGTGTGTGTGTGTGTGGGGGGGGGGTTTGGGAA AGTAAGGAAACGGCATTGGACGGTCTGTGGAGTTAG

Genomic Locus: (The deleted sequence represents nt 9846-10352-in the sequence below. KOS46 used to generate the TV represents nt 3732-11309 in the sequence below.)

CTCATAACCCTGAAACCAAAGCACGAGGTGGGACTCGAACCCACGATCTTGAAACCTGAAAACCAAGGCACGAGGTG ATTCTCGGGTGTGAGGGGTGGTGGCGTTTCCCGGCCAATGCACCAAATGAAAGACCCACAACGTGAGGACTCCCCCAC GTTCTGACTCAGAAGAGGCGACACCССАAAATCACCСACAAGAAACGGTCTTGCTGCAAACTGCAAGAGGATTTTTAT TCAAGAGCGCTCTCGGGCCCACGGTCATACACCACGCAGGGGTAGAGGACCATGGCGCCCCGAGTAGCTGAGTAAGGG GGTATTTAAAGGAAGAAACCACAACTCAAGGAGGTGGGAAGGGCGTTGTTGGAAAATACCAAAAATACCAGTTAAGA GTTACAAGGAAGTGCAAAGTTACAAGAGTCATGAGGAATACCTGGTAATTGTGAGGGTTATTTCTCAAAACAGTTTCTA AGAGCCССTAACAAAAGCACATTTGCATAGCGGGTTCCAGCAATGGTCAAGGTGACTTTCTTTGAATGAGCACTCTTTG AACCTAGGAAGCGGGTGGATAGAGGAATGTCGCTATCTGTTTTATGATTAGCATACCTTTACAAAGGCCACATTTCCAA GCCTGGGCCTAAAGGTCTAGAATTTTGTTTTTACTTTGTTATACTTTCAGTACCTGAGCCTGATCACCTCTGCCTCCTGCT САТССТСТGTCGTTGССTGGССТСТСАТTСААСАТTTTAGTGGGAATTACATGATCTCATTTTCAAACAGGGCTCTCATA TACAAATACAAATGTGCCAAATGTTTATTAACTCTTACCTTTCССTAGGGAAACTAAACAAATGTCTATTCACTCCAGAT AGGGCCCCAACATCAGAGCCAAGTAATGATTCCAACCAAGTCCAACTTGGTGGTTCAGTGAGTTTACTGGGTGTCTTAG СТАСТGTTСТАТТGСTGTGAGGTGACACСATGACCAAGGAAATCTTATCAAAGAAAGCCTTTAATTGGGGTTTGCTTTA САТTTTCAGAGGGGAGTCCATGACCTTCGTGGTGGGGAGCATGGCGGCAGACAGGCATGGTGCTACAGTAGCTGAGAG CTTAAATGTGATCCACAGGCACAAGAGAGGACCCAAGGCAGAGAGGCAGGGCCTGGTGTGCGTTTTTCAAACCTCAAT ATCСАСТСССАGTGAСАСАССТААТТСТТССАСТААСТАGAGATGAGTCATTCAAATACATGAACCTGTGAGGGCTGTT СТСАТТСАААССАССАСАСТGGGСTTAGTTACAAAGCCTGGGTGAGGGATTAACTTCAGACATGTGGGTGACCACAAA GTTCСАСАССАТСАСТGСTACGTCСACTCСAGTGAAGTATGCTTGACAGGCTGAGAGGCCTGGAAGCACTCATGAGGC AGAGTTTCAAGGAAACTCAACCTCCTTGGAACCTTGGCATTCTCATAACCCGTATACTCATACCCTATCCССATGTTAGT CTGGTTTATGGATGCACGTGCTCTCTTTCAGTATTGTTTTATTATAAGTGCCTTTAAAGATTGAATTCTGACATAGGTGA GCCTCCACCAGTGTTCCAATGTCCTAGAAAATCCTTGAAGCTGATGAGCTTGGAATTCAGTGAGAAGGTTATCTATTCA GTAACATTCAAATTTACTTCTAGTAGAGATGGTGAAACTAATTAGGCATTACAAAGAACAGAGCTGGAATAGCTCAGG GCTAGTCTGCAGAGTGATTACTTAGGACAGTAGCCAGTCTCACCCAAACAAGGGAATACACAATGGCCTAGCTAATAG GTGGGTTTACCATGAAAGAGTTAGGGAATCCCCCTGAATCTTCACTACAGCCAGGTATAGCAGGCTACATTGCATATTA GAAGCAAGTTGGTGAATTCTTCTGACAAATAGAGATTCCCCACAGATACTTTAAAGAACAGCCAAGTTATACTCATGCA AGAATTTATCAAGGCCTAGGAAATAGGGGGTTTGTGGTATTGCATTATTCATGAGAAGGTCTGCTAGAGCAGAACCCCC TAGTGCTAGCTTTCACAAGGCTCAAAGGAGTAGCACAAATTGTGACTAGGGTGTGAAATCCTTACCTGTCATTAGCTGA CССTAGGCAGGGCTGTTTTATCTTTACTGTAAATATTACCTGGTTCTTGTAAGTCCTTTTGAAGTCATTCCTCTGTTTTGT GTCAGATAACTTCAATGTATTTTGCCTGCCGTGACATTCTACCССTTTGTTTTCTGTATTATATAAGACTGGTGTTCACTT TGTGAAAATACACTCAGATTCTACACACTCTCTCGTGTCTCTTCTGTTTGTCATTCGCTGACTCCTTCGCCCACTTGCCAC CAGAGACCCGTTCCACACAGATAGGAGACCCAAAAAGGGAATAGTCTGCGGCAACATCACAGATGACAACCCAAGAG AAGTTGTGTCACAGAACCCСАСТTTTACTTAAAGTTTGСTTCCTGGAAACTCTGACATCССССАATATCACTTGCAGTAG CGGGGTTTAGAGAAAGAGCAATTAGGAGTAATGCTGGACTCACAATATGGGGCCCTGTGACCCAACCCTCCGTCСTTCT ATTAGAGAGCATCACTAGCTCCATTACCATCCCCACAGGCCTAGCTATCACTACACTGTTTAGCTGGACTAGTTGCCAT GGCTACAGAGCCACTGTCTAATCCAAGATGGTAGTCATGTTATGCCCCAAGGAAAAATCGATACTATAGCATTAATACA TTTATAACTCACAAATTCAGCATGGGCATGGAGAAAAAGAAACTTGGCTGTGCACACCATGTCGGGATGAGCTGCAGC TGCCACAATCTCCAAAGCAATGGGGTCTCTCGGTGGTCTGAAAGCTCCCTGGTGATAAGCCAGAACAAGCCTTCTCAAT ATGAGCTGGTGTGTCTTGCATATTTGTTACAGTAACAGATGTAGAACATTGCTACAGAGAAGCGGCCATTAGACTGAAC CAGACTAAGTCACACAGTGTAGAGACTTCCCACCAGCACCCCTGGATTTAGAAAAGCCAGGGTGCACTCATCTGTTTGG AGTGTTTTCTGAAGGCTCCTTCTCGCTACGGTCССTCСACATCCAACACAGTGGCCATCTCTCTCTTTTGGAAAGGAGCT ССТСТGTGTGTTTTAAAGGAACAССССТССТСССТТТAAGGСССТGСTGССАССТСТGATGTGATGСАТGTСТСТССТАA TGCTCACCTGCСTCAAGGCCCAACCATGTTCСССTССTGTGGTCATGAGATGCTCTCCTGATAAAGCTCATTTCTGCTCC ТСССТССААССССАССТССАСССССТСССТТСССАСАGСТСТGАТТТСТААТАСАТТТААСАССАТGGСАAAGAATTTGG ACGTATTTCATCCATGCCCTGGTACTTTGTGGAAGATTGAGCCTAAAGTTGATGCATTAGTTTACCTGGGAAATTCAGG AGGAGGCAGCATTTAGGCAGCAGAATATTACCAGCTTCTCTCAGCCAAATATATACTGAGGACCAGGATTACAGAGGA

GCAGGGTAGAAAAATGTAGAAGAAAATTTGCAGTTAGGCCTGCAATAGGGCAGGTTTACAGATGCTACCGAGGAGTGT GCGTTGCTAAAGAGATTCACATTGTCAAAAAGAAGCTAATTCTGTTTCACTGGGACAAAAGGAAAAAGATCTTCAGGC TATCCCAGCAATTGGCCAGACCTCAYTCAGGCAGGCCCAGAGATGAAGAAATGAAAATTTGCTTCAGACTCTTTGGGG ATGAGTCTTTTGACCCAGAGCCACAGAAAGCCCTCCTTATCAGACAGTCCTAGGTCTGTCTTTGGGTATGTGCATTTGGC AAGGCAACCAGGTGCTATTATGGTACAGCCTGCACAGTGCTGAAGAGACTGGGGTAGCAGAATCAACTCCATTTTGCTT CTAAGACTCTACTCTGAGTTAACTTGCССTTAGAGAGGCATGGCCCCCAСССTTGATGTCTGAGAAAAATCATAAAATG TCCCTGGCAGTAGCAAAATAGACACAGCAGTTGCAGCTGCCTGATAACCACAGAGTAGGCTACGAAAACATAAGTCTT TCTCAGGTCAAAGTGCTTCTTTTTATGTATGTGGTTTAACCAGGTGCTGTAAACCAATTAGCTTAAAGGCCTTTAGCCTC TCATGTAACGCCAAAGCTTGGAAACCCTTGCTTGTGTGTGTGTGTGTTTTCCCTTTATAAACACCTAGACCTGGGGGACA СТСТССТАТССТGTTGСATCACGAAGGTTTGTGCCCCAAGCTTGAGTTTGAATAGACTCTCATGTGCTTGAATTGGAGTT GTGGTTCCTGGTGGTCTCTTTGGGGTTTTTGCAATCTGGGCACAACAGTGCCAGATCTTGGTGTGGTCCACCCAGGGCTG TTGGACATATCCTGGCTGTAGACATCCAGTCACCTGGAGGAAGTTAGAGATGCCAGGAATGTGGAATGTCTGCCAAGG GAAGACAAGCCTAAGAGAGAGGCCATGTGGACTACAGCCTGTGAAGACCACCCAAACCCACTGGAGCCTGATTCCTGC CACCGCATTTTCCСAAATGTTGGACGTGGAGATCTAGGACTGCAGGTTTCCCCCTTTGACNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNTCCCAAAGCTGCTCTTGGT TACGGTGTTTCATCACAGCAACAGAAGCCCAACCACGACATACAACTAGGACACACAAGTGATTTCTGTCCCTGCTGAC CСAGCTCССAAGTCCCACAGAGGACTGGCССTСССАСАTСАATCATCAACCAAGAAAATGCCCCACAGGCTTGCCGAA GGGCTGATTTTACCAAGGCACTTTCTCAATTGAAGTTCACTTTTCTCAGGTGACTCTAGCTTGGGTCAAGTTGACAAGAA CCAGCCTGCATGACTCCTAACTCTGAATCCTTGGCAGGCATTGCATCTGCGATTTAAATACTCTCTGGGCACCTCCACCA CAACCATCCTGAGTGGCCAGTTTCAGCTGGATTCACAGCTTCTGTGTCСTTCССАATGCTCTCССTTCССТGTGTCССTG TСССТААССАТGGСАСТАССАТСТGССТGGTTATCTTAACСTATACAGGCCAAAATACCCACTGGTTCTCATTCTTCСTG GATCATAGTTCTTTAGTCAAACCTCTCTCTTTCССАССАGAСАТАССТСААТGTСТTTTATACAGTTTCTGTСТТСТССТТ TAATGACACACTCTCAGTTTTATGATGTAGGGGGTGGGGAGTTACATATTGTTGCTAGAGTTCTCTACCTAAAACGCTC ACTGTAACTCTGTTAACAGTTCTTGTTGCCCACAGGCTGAAGGGAAAGCATTTGAGAAAGTCCTAGGCAGGTGGTTCAG GTTTAGCTCCATCCCTGCGGTCCATCAGTGCAGCAACAGCAGTTTCAAGCAACAAGAGCGCACAGCTGCAGCCGTAAG ACAAGAGTCСTTTCTTCTAGTAGCTGCTGCTAСTTTCTCCTAGGATGCTGTAAGCTGCTAAGGAATCCTGCTCACCCTGT AAGACСTCAAAGATCTCTTССTССTGGAAGAAGTTTCTGAСТСАССТСТАAGСССAGCAGACAGCTTCTTTATAATGCC СССТАAATACTACTGCAGCGGCTCCTGTAAGCTTGATTTAGTCCTGCTACACACATTTATTGTTCTTTCCAAACCATTTG СTTTAATTTTGTGTATGTGTCTAGGCATACCTGTGGAGGTCAGTGGACAACCTGGGAAGTCTCTTCTACTGTGTCCTTGG GGTTGATAGTAAGCATCTTTACCCGACTCAGGGGTATCTTACTCACTGTTCTATTGCTGTGAGGAGACACCACGACCAA GGCAACATATAGAAGAAAGCGTTTGACTGGGGGCTTGTTTGCAGTTTTAGAGAATTAGGCCACTGCATCATGGCAGGA AGCACACAGTAGCAGAGAGCTTTACAGCCTGATCCATAGGCAGGGAGACGGAGAGGGAGTGATAGACAATCAGACAA ATATATAСАТАСАТАСАТАСАТАСАТАСАТАСАТАСАТАСАТАСАТАСАСАСАСАСАСАСАСАGAСАAAGAСACTGGG CCTGGCATGGGCTTTCAAAACCTCAAAGCCGACTCССАATGACAССТСТТССAACAAGGCCATGTCTCCTAAATCTTCT GTAAGCAGTATGTTACTAGGGAGTAGACATAGAAAGATATGAGCCTATGGTGGCATTCTCATTCAGACCAGGACATGA TGATAATAACTCCAGAGTCTCAGACCTTTGAACACTTGGTCCCCCGTTGGGGCACTGTTTGCCAAGGTTTAGGAGGTAC

AGCCCTGATGCAGTGTCACTGGAGGTGGGCTCTGAGAGTGTAAAGACTCCCACAGTTCCCATTCATTCTCAGCTTGTGC TCAGTGTTTAAGATGTGAGTTCTCAGTATCCTGCTCCAGCCTGTTGCTGCCTCСССTGCCGCTGTGGATGCTAGCCCCCT GGAACCATGAACACAACACCTGYTGAACCRTCTTGCTGGATGGCCCTACAATGGTTTTTTTCCTATCCTATTCTTTTTTTT ТСТТТСТТТСТСТТТТТААТТААТТААТТАТТТТАСАСТССАТАТТТТАТТАСССССССААСТСТССGАСТGATCСАСАТСС СGTAССТССТССССАТАССТСТGTСТССАСАТGGATGTССССАССССТСАСАТССТАСТСТTGAGСАСАТТАТАТАССТG GCC:TCTTGCTTTA:TTCCAGTGTCTACTGCAATGACTTATTAATAGGCTTTCTTTTGATTTGTTATTATGGTTCTCTCTCTC TСТСТСТСТСТСТСТСТСТСТСТСТСАТGTСТСТGGGTTGACAGAATGCTTGСTTGCTTAGCACACACCAGGCCCTGGGTT TGGTCTCCAGCACCACAAACAGCTGGCAATGGGGGTACATGGTGGCACTTTCAGCAGGGAGGCAGGAAGATCAGAATT TCAAGGCCATTCTCTGGTATAGCGCAAACATGTTTCTTAGTGTGTTAGAGAACTAGCCTGAGCTACATGAGGCTTGTCT CCAAGAAGAAAAATACCTATATGTATTAATATTATATAATGTATACATATTTATTATCATAACATATATTATACATTACA TAATATACAACATATTACAATATATTATATCAT:AAAATGCTACGTGTCACATATCACATATTACATGTTATATATTAAT ATTACATATTATGTTACAATATGTTATGTAATATATGGTATAATAATYGTATAATATAGAATATATAATAATAACATAG TGGGGTATGCTCAAGTGTATGTATTAGGTAGGATTTCTATTG:CGCTAAAACACTACACCCAGATCCGAGCCGTACACA GGTGTCACTAGTCAGATAGTTATATTTAAATTAAGTGACATTGGACAATTAGTTCTATCATSGTAKTAGCTACAATTCAA GGGTTCAGCTGCTACATGTGGGTAGTGGCTYCССTATTAACTAAGACGTGGACTATATTCATCACCCCAGGAAGTTCTG TTCGGGGTAGATAGTTGAGAATTAAAATCAATCAATCAAGCCTTTTGAAGCCACAAGTTCCAAAACCAGAACTGCCAA CGGATGTTATCCACTCTCCAGAGGAGATGAAGAAATTTTACTAATCCAGAGCCAATGAAAATGAACACCTGCCCAAAC CATCAGTCTACTGGGTTTTTCTGGGAGCTCACTCGGCAGTCATCTCCCTGGAGTTCCAGCAACCAGAACAAACTCCACA GGCTCATGGAAGGCGGGGAACTGCAGGGTGCAGAGCGTGCAAGACGAAACTTCCACAGGCTTCCWTGGAAGGCGGGG AACTTGCAGGGTGCAGAGCGTGCARGACGGAGGCCTGGGATGCACYGGRGTTGC:TGCAGCTCTACAGACCTCCAAGCT SGGGCGCGCTCACASCCGCGCGCCTCCGGAGGCAGGTGGGCGGGGCCGTGACGCACTCACCTCGTGACTCCACTCA:GG CCTGCGCCGGCCGAAGCCGGAAGCGGCTGCTGTCGGAAGCACCGGGCGAGCTATCTGTTACAGTCCGGCCCGGGGATG GCTCGGGACGCGGAGCTGGCGCGCAGTAGCGGGTGGCCGTGGCGGTGGCTGCCGGCGCTGCTGCTGCTGCAGCTGCTG CGGTGGAGGTGCGCCCTGTGCGCGCTCСССTTCACCAGCAGTCGGCACCCAGGCTTTGCGGACCTGCTGTCGGAGCAGC AGCTGTTGGAGGTGCAGGACTTGACCCTGTCTTTGCTGCAGGGCGGAGGTCTGGGGCCGCTGTCACTGCTACCTCCGGA CCTGCCGGATCTGGAGCCTGAGTGCCGGGAGCTGCTGATGGACTTCGCCAATAGCAGCGCCGAGCTGACCGCCTGTAT GGTGCGCAGCGCTCGGCCCGTGCGCCTCTGCCAGACCTGCTACCCGСTCTTCCAACAGGTCGCAATCAAGATGGACAAC ATCAGCCGAAACATCGGGGTGGGTAGAGGAGCAGCCTCGGCACCTGTGTGTGTGTGTGTGGGGGGGGGGTTTGGGAAA GTAAGGAAACGGCATTGGACGGTCTGTGGAGTTAGGGTATCAGAAACAAGCGGGTGACTTTAGGGGCTTATGGCTTGG AATGCTGTCCCCCTGGATGCTGTAAACCGGCATCTTCTTGGGACAGGTTTGCTGGAACATTGCAGCGAACATACCCAGA GCCACCAGTTTCTATCAGTGTGACCTTTATTATTTTTCAAAGTATTGAGTTCGGTTCCATCCTGTTTATCAGCTTGTTCTC TGGCAAGTTAGTGACATTCTCTGCTTGTTTTCTCATCCGGAAAGTGGGGACAAAGAGAGGCCACACAAAGCTGACATAC AGTAATAGTTCGTGGTCGGTGAGTTGCCATTTTAGGATAGTCTGCCTTCTCTGTAACTCGAGAGCTTTCCTGGTCACTTG GAAGGTAATGTGAAGGACTTAATGAAGGCAAACCAAAAGAGGAAGACACAGTCTTTGCCTCTAAGAACTGTATAAATT AGGAAAGGATTACGGTGTCGGCCACCGTGAGAGTCACAGGGTTGCCTGGTAAAGGAAAAATAAGGAGGACACAGGAA TTGGGGGTGGAAATGGTTCTTGCGTCCTGAGGGGCCAAGTAGTCTCATGAAAAATGTGGTTTCAGTTGCTTTAGAGGTC GTAATTGACTAAACTAAATAGAAATGTCTATAGGTGCATCTTGTTTTTAATCTAGCCTAATGTTACTAAGCATATTTTTT TTTTGTAAATGGGGACATTCATTTGCATTAAGTAAAGTCCAGAGTCACTCTTTGTGGAAAGAACTGTCTTTCAAGGCAG TTTAATTACATGCAGAATTTTCCAGATTCGCGCCTTTCTCTATGACTTTAATATGCAGTGTTATATTTGATTTTGAGCAGT TACATTAAATAAACTGTTTTTAGGGAGTCTTTTCATTCTACTTTAATTTAATTAATGTATTTATTTGTAATGAAGTTTCTT GTCGCCCTGACTGGCCTTGAACTCACCGTGTAGGAGAGGATCCGTCGAGCACTCCTGCTTTCСССTCCCAGGTGCCTAG ATTACGGACGTGTCACTATGGTCTGGTTTTATGCAGCTGTGAATAGAACCCATGACTTGTCCACGCTAGACAAGCTGTG TACTAACAGAGCCCCAACCCTGTCTTTAAAGTAGTCTACCAAGTAACAGGCTGGCATCTCCTCACAGTTACAGTTTGTC САСТСТАСАТСТССТТТТСТССААGТТССТGСТТСАСАТСТСGGТТGТАСТТТТССАССАТСТGТААССССТСССССТТСС TTGAAСССТСССАССТТСТGТААСТТССССТТССССТСССТСТССGТТGТАСССССААСТАТССАТААСТССТСССТСТСС GTTGTACCTTCCGCACTATGACCССССTСTССGTTTTAСССТСССАССАТСТGTAGСТССТСССТTTСССТTGTAСТАТСТ GTAAСССТТСССССТСССТТGТАТССТСССАССАТСТАТААСССАТСССССТСССТСТССGТТGТGСССТСССАССАТТТG TAAGСССТССТTTTСAGTGTGAСССТТССАСТТТСАТАТСТСАТGTGGTCTGTTAСССТССССССТСССТTСАGСTTСTTTT TGTTCССТGTCTTATGGTCTCСTTССTGATTTCСTGGССТСТАСТСААСАСТСАСТССАТGTTAATAСАСАТАТАТАAGСА TGAAAGGCTAGGATATGCATAGGATAGAACATGTAGCATTTGTCTTCCTGTGCCTAGATCATTTCACTTAATACCTGATT TTTTCAGTTTCATCAATTTTCCTGCAAATTTTATAATTTCCAGCTGCCTTTTCTTTAAAAAAAAAGAAAAAAACTTAAGT AACAAGGCCTCTTGTGGGCACAATGCCCATGAATGATGATGTTAACCTTGGGTCTTTGAGGCTATAGATGTTTTCCTTGT GTATGTAGATGCTGTGGAATTATGAGGCTTTAAAAAACATGATCCCAGTGGGCTAGAGTGATGGTTCAGGGGTTAAGA GCACTTGCTGCTCCTGCAGAGGATGCTGGTTCGATTCCCCGGTGGTATAGGTGGATGTGATTCATGCACCTGTAACCTG GTGGCATGGGTGGGTGACTGCATGTACCTAATACCTGGTGGCATAGGTGGGTGACTGCATGCACCTATAACCTGGTGGC ATAGGTGGGTGTGACTGCATGCACCTGTAACCTGGTGGCATAGAAAGTAAAGGCAGGAATCTTGCTGGGGCTGCTGGC TACCATTCСACCTGССTAAGACAAGTTCCAGGCTTAGTGAGAGACCCTAACTCAGGGAATAAGGCATAATAAGAGTTCT GCAGTGACTTCTGTGCCAGGGTAGGGGAGTACCGGGGGGGGGGGGGCTCCCCTTTTTCAGAGAAGAAGGGNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN

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GAAGAGCAGCCAGGTTTTTGTTTTTTGTTCTTTGATTTTTTTAAGATTTATTCATGTATTTTATGTATGTGAGTACACTGT AGCTGTCTTCAGACACACCAGAAGAGGGCGTCAGATCCCATTACGGATGGTTGTGAGCCACCATGTGGTTGCTGGGAA TTGAACTCAGGACCTCTGGAAGAACAGTCССССССССАСССССАGССАTСТСТTTGGCTCGAAGCCAGTGTTCTTAACT GCTGAATCCCCAGTTTCTAAATGGGATTTAAAACAATTTGAATTTTTTGTGACAGGGTTTCATGTAGTCCATGCTGGCCT TAAACTCACTGTGTATTCACAGCTGGCCTTGAACTTTTTTTTTCTTTTTGTTTTTCGAGACAGGGTTTCTCTGTGTTGCCC TGACTGTCCTGGAACTCACTCTGTAGACCAGGCTGGCCTTGAACTCAGAAACCCGCCTACCTCTGCCTCCCAAATGCTG GGACGAAAGGCGTGCGCCACCACGCCCGGCTTGGTCTTCСTСTTCTGGTCTTCСTGСTCСACСTCССTGGTGCTAGGGTT GTACTGTGTGCACTTTTGTTCTCTGAGCCATTGTATCTTGAAAATACTGCTCTGACTCGGGAGATTATCATCTCCTGATT AGAATCAATTAACAAGCCAGGCAAAAGAACTAAAAGCTCAGGTGCGGTTTGGGATGGGGGTAGGTCAGCTGAAGGGT GGAGAAGGATGACTTCATTTTCATTCGGTTCTGACCTTCATCCAGAGGAGGTAAATTTACCTGCTTTGGACTTTATGCAT TTAATTСССАСТСААААСТСТАGAAAACGTAGAAGCTCССAGAATGTTCCGATTAGGGGATGAAATCAGAAGGAACCA AATGCTTTCTTTTCCAGGATTTTGCATTAAAAACCCTGATCCAATTCATTGCTTTAATCTTATTTTAAAGTGTTCCACGAT TTCTGTGTTGAATTTTAAATGGAATTGAAAGAGTTTTAAGAGCCTGAACTCATTAAATTTCATTCTTTTTTCTGGTTTATT СААТААСАGСАТТСТТТТТСССССТСТТТТСТСТGТСТGТСТСТСТСТССТТТТТСССССТТТТАGТСТСАGAСТААТТССТ TAGATTTCTTCACTGCTATTTCCTTAGAGTTGGCACCCAATGTGATCATTTGAAAGATTCATTTATTATATGTACATGAG TGTTCTATCTGCATGTACGTCTACATGCATGTCTGCATGCCAGAAGAGGACCTCAGATCCCAGTATAGAAGCTTGTGAG ССАТСТСТССАGСАССТСТGTGATCATTTTAACCAGACTCTTTGCCAAGTGTGCAAGCATTTCTAATTGTGGTCTCTGCA CACCTGGCTCATGAAGATAGCAGGAAACTTATCTTTAAAAAATTACAAAGTTTAACGAAATGTGTAGTGGTTGGGGTTT AGGTGAGAGGCAGAGCGCTTGCGTGAAGCCCTGGGCTCCGCCTCCAGCTCCAAAAACAAAACAAAAAGAAGCCCACA TTTATCAGAATGTCACAAAGCATTCTTGCTTGTCTTAGACAGTCTAGTGAGACACTGGGAACATGAGAAAGAAATCTGG AGGAAGAGCAAAGGTGGGAGCGAGCAGGATGGTTAAGTGTCTCCAGTTAGGATCCTCACAGCCCCTATCCTGTGTGAG CATCAGGCAGGCAGCTCTCAGCGTGGATAAGGAGGTGGGCTTACATGAATGGCAGGCGAAGAGTCAGGAGCAGATCC ACGGGGTGTGATCGTTCGTCTGCATTCTGCTGTGTAGGATGTGTGTATGGCGGAAGCTCATTGTTATTACTAAAGAATC CAAGAGCCAGTGTTAGCATGTATAAAGGAAGAGTTTCAATAGACTCCCAGCTTAACCTGGAGTTAGTCTTCTCCTTCTA TCACGTGGGTCCCTGGGACTCCACCTCAGGTCAGTAGGCTTGGCACCAGCCAT

## Selection Cassette:

GGCCGCTCTAGAGGCCATAGCGGCCATTTAAATGGCGCGCCGGATCCGAATTCCTCGAGGCTAGAACTAGCGATAAGC TTCGAGCGGGATCAATTCCGCCCCCCCCCTAACGTTACTGGCCGAAGCCGCTTGGAATAAGGCCGGTGTGCGTTTGTCT ATATGTTATTTTCCACCATATTGCCGTCTTTTGGCAATGTGAGGGCCCGGAAACCTGGCCCTGTCTTCTTGACGAGCATT CСTAGGGGTCTTTCСССТСTCGCCAAAGGAATGCAAGGTCTGTTGAATGTCGTGAAGGAAGCAGTTCCTCTGGAAGCTT CTTGAAGACAAACAACGTCTGTAGCGACCCTTTGCAGGCAGCGGAACCCCCCACCTGGCGACAGGTGCCTCTGCGGCC AAAAGCCACGTGTATAAGATACACCTGCAAAGGCGGCACAACCCCAGTGCCACGTTGTGAGTTGGATAGTTGTGGAAA GAGTCAAATGGCTCTCCTCAAGCGTATTCAACAAGGGGCTGAAGGATGCCCAGAAGGTACCCCATTGTATGGGATCTG ATCTGGGGCCTCGGTGCACATGCTTTACATGTGTTTAGTCGAGGTTAAAAAAACGTCTAGGCCCCCCGAACCACGGGGA CGTGGTTTTCCTTTGAAAAACACGATAATACCATGGGGGATCCCGTCGTTTTACAACGTCGTGACTGGGAAAACCCTGG CGTTAСССАAСTTAATCGCCTTGCAGCACATCССССTTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGC ССТTСССАACAGTTGCGCAGCCTGAATGGCGAATGGCGCTTTGCCTGGTTTCCGGCACCAGAAGCGGTGCCGGAAAGCT GGCTGGAGTGCGATCTTCCTGAGGCCGATACTGTCGTCGTCCCCTCAAACTGGCAGATGCACGGTTACGATGCGCCCAT СТАСАССАAСGTGACСTATCCCATTACGGTCAATCCGCCGTTTGTTCCCACGGAGAATCCGACGGGTTGTTACTCGCTC AСATTTAATGTTGATGAAAGCTGGCTACAGGAAGGCCAGACGCGAATTATTTTTGATGGCGTTAACTCGGCGTTTCATC TGTGGTGCAACGGGCGCTGGGTCGGTTACGGCCAGGACAGTCGTTTGCCGTCTGAATTTGACCTGAGCGCATTTTTACG CGCCGGAGAAAACCGCCTCGCGGTGATGGTGCTGCGCTGGAGTGACGGCAGTTATCTGGAAGATCAGGATATGTGGCG GATGAGCGGCATTTTCCGTGACGTCTCGTTGCTGCATAAACCGACTACACAAATCAGCGATTTCCATGTTGCCACTCGC TTTAATGATGATTTCAGCCGCGCTGTACTGGAGGCTGAAGTTCAGATGTGCGGCGAGTTGCGTGACTACCTACGGGTAA CAGTTTCTTTATGGCAGGGTGAAACGCAGGTCGCCAGCGGCACCGCGCCTTTCGGCGGTGAAATTATCGATGAGCGTGG TGGTTATGCCGATCGCGTCACACTACGTCTGAACGTCGAAAACCCGAAACTGTGGAGCGCCGAAATCCCGAATCTCTAT CGTGCGGTGGTTGAACTGCACACCGCCGACGGCACGCTGATTGAAGCAGAAGCCTGCGATGTCGGTTTCCGCGAGGTG CGGATTGAAAATGGTCTGCTGCTGCTGAACGGCAAGCCGTTGCTGATTCGAGGCGTTAACCGTCACGAGCATCATCCTC TGCATGGTCAGGTCATGGATGAGCAGACGATGGTGCAGGATATCCTGCTGATGAAGCAGAACAACTTTAACGCCGTGC GCTGTTCGCATTATCCGAACCATCCGCTGTGGTACACGCTGTGCGACCGCTACGGCCTGTATGTGGTGGATGAAGCCAA TATTGAAACCCACGGCATGGTGCCAATGAATCGTCTGACCGATGATCCGCGCTGGCTACCGGCGATGAGCGAACGCGT AACGCGAATGGTGCAGCGCGATCGTAATCACCCGAGTGTGATCATCTGGTCGCTGGGGAATGAATCAGGCCACGGCGC TAATCACGACGCGCTGTATCGCTGGATCAAATCTGTCGATCCTTCCCGCCCGGTGCAGTATGAAGGCGGCGGAGCCGAC ACCACGGCCACCGATATTATTTGCCCGATGTACGCGCGCGTGGATGAAGACCAGCCCTTCCCGGCTGTGCCGAAATGGT CСАTСАAAAAATGGCTTTCGCTACCTGGAGAGACGCGCCCGCTGATCCTTTGCGAATACGCCCACGCGATGGGTAACA GTCTTGGCGGTTTCGCTAAATACTGGCAGGCGTTTCGTCAGTATCCCCGTTTACAGGGCGGCTTCGTCTGGGACTGGGT GGATCAGTCGCTGATTAAATATGATGAAAACGGCAACCCGTGGTCGGCTTACGGCGGTGATTTTGGCGATACGCCGAA

CGATCGCCAGTTCTGTATGAACGGTCTGGTCTTTGCCGACCGCACGCCGCATCCAGCGCTGACGGAAGCAAAACACCA GCAGCAGTTTTTCCAGTTCCGTTTATCCGGGCAAACCATCGAAGTGACCAGCGAATACCTGTTCCGTCATAGCGATAAC GAGCTCCTGCACTGGATGGTGGCGCTGGATGGTAAGCCGCTGGCAAGCGGTGAAGTGCCTCTGGATGTCGCTCCACAA GGTAAACAGTTGATTGAACTGCCTGAACTACCGCAGCCGGAGAGCGCCGGGCAACTCTGGCTCACAGTACGCGTAGTG CAACCGAACGCGACCGCATGGTCAGAAGCCGGGCACATCAGCGCCTGGCAGCAGTGGCGTCTGGCGGAAAACCTCAGT GTGACGCTCCCCGCCGCGTCCCACGCCATCCCGCATCTGACCACCAGCGAAATGGATTTTTGCATCGAGCTGGGTAATA AGCGTTGGCAATTTAACCGCCAGTCAGGCTTTCTTTCACAGATGTGGATTGGCGATAAAAAACAACTGCTGACGCCGCT GCGCGATCAGTTCACCCGTGCACCGCTGGATAACGACATTGGCGTAAGTGAAGCGACCCGCATTGACCCTAACGCCTG GGTCGAACGCTGGAAGGCGGCGGGCCATTACCAGGCCGAAGCAGCGTTGTTGCAGTGCACGGCAGATACACTTGCTGA TGCGGTGCTGATTACGACCGCTCACGCGTGGCAGCATCAGGGGAAAACCTTATTTATCAGCCGGAAAACCTACCGGATT GATGGTAGTGGTCAAATGGCGATTACCGTTGATGTTGAAGTGGCGAGCGATACACCGCATCCGGCGCGGATTGGCCTG AACTGCCAGCTGGCGCAGGTAGCAGAGCGGGTAAACTGGCTCGGATTAGGGCCGCAAGAAAACTATCCCGACCGCCTT ACTGCCGCCTGTTTTGACCGCTGGGATCTGCCATTGTCAGACATGTATACCCCGTACGTCTTCCCGAGCGAAAACGGTC TGCGCTGCGGGACGCGCGAATTGAATTATGGCCCACACCAGTGGCGCGGCGACTTCCAGTTCAACATCAGCCGCTACA GTCAACAGCAACTGATGGAAACCAGCCATCGCCATCTGCTGCACGCGGAAGAAGGCACATGGCTGAATATCGACGGTT TCCATATGGGGATTGGTGGCGACGACTCCTGGAGCCCGTCAGTATCGGCGGAATTCCAGCTGAGCGCCGGTCGCTACC ATTACCAGTTGGTCTGGTGTCAGGGGATCCCCCGGGCTGCAGCCAATATGGGATCGGCCATTGAACAAGATGGATTGC ACGCAGGTTCTCCGGCCGCTTGGGTGGAGAGGCTATTCGGCTATGACTGGGCACAACAGACAATCGGCTGCTCTGATGC CGCCGTGTTCCGGCTGTCAGCGCAGGGGCGCCCGGTTCTTTTTGTCAAGACCGACCTGTCCGGTGCCCTGAATGAACTG CAGGACGAGGCAGCGCGGCTATCGTGGCTGGCCACGACGGGCGTTCCTTGCGCAGCTGTGCTCGACGTTGTCACTGAA GCGGGAAGGGACTGGCTGCTATTGGGCGAAGTGCCGGGGCAGGATCTCCTGTCATCTCACСTTGСTCCTGCCGAGAAA GTATCCATCATGGCTGATGCAATGCGGCGGCTGCATACGCTTGATCCGGCTACCTGCCCATTCGACCACCAAGCGAAAC ATCGCATCGAGCGAGCACGTACTCGGATGGAAGCCGGTCTTGTCGATCAGGATGATCTGGACGAAGAGCATCAGGGGC TCGCGCCAGCCGAACTGTTCGCCAGGCTCAAGGCGCGCATGCCCGACGGCGAGGATCTCGTCGTGACCCATGGCGATG CCTGCTTGCCGAATATCATGGTGGAAAATGGCCGCTTTTCTGGATTCATCGACTGTGGCCGGCTGGGTGTGGCGGACCG CTATCAGGACATAGCGTTGGCTACCCGTGATATTGCTGAAGAGCTTGGCGGCGAATGGGCTGACCGCTTCCTCGTGCTT TACGGTATCGCCGCTCCCGATTCGCAGCGCATCGCCTTCTATCGCCTTCTTGACGAGTTCTTCTGAGGGGATCAATTCTC TAGAGCTCGCTGATCAGCCTCGACTGTGCCTTCTAGTTGCCAGCCATCTGTTGTTTGCCCCTCССССGTACCTTCСTTGA CССTGGAAGGTGCСАСТСССАСТGTССТТТССТАATAAAATGAGGAAATTGCATCGCATTGTCTGAGTAGGTGTCATTCT ATTCTGGGGGGTGGGGTGGGGCAGGACAGCAAGGGGGAGGATTGGGAAGACAATAGCAGGCATGCTGGGGATGCGGT GGGCTCTATGGCTTCTGAGGCGGAAAGAACCAGCTGGGGCTCGATCCTCTAGAGTCGAGTACCGGGTAGGGGAGGCGC TTTTCССAAGGCAGTCTGGAGCATGCGCTTTAGCAGCCCCGCTGGGCACTTGGCGCTACACAAGTGGCCTCTGGCCTCG САСАСАТТССАСАТССАССGGTAGGCGССАAССGGСTCСGTTCTTTGGTGGCСССТTCGСGССАССТТСТАСТССТСССС TAGTCAGGAAGTTCCCCCCCGCCCCGCAGCTCGCGTCGTGCAGGACGTGACAAATGGAAGTAGCACGTCTCACTAGTCT CGTGCAGATGGACAGCACCGCTGAGCAATGGAAGCGGGTAGGCCTTTGGGGCAGCGGCCAATAGCAGCTTTGCTCCTT CGCTTTCTGGGCTCAGAGGCTGGGAAGGGGTGGGTCCGGGGGCGGGCTCAGGGGCGGGCTCAGGGGCGGGGCGGGCG CCCGAAGGTCCTCCGGAGGCCCGGCATTCTGCACGCTTCAAAAGCGCACGTCTGCCGCGCTGTTCTCСТСТТССТСАТСТ CCGGGCCTTTCGACCTGCACTGCGCGCCAGCTTACCATGACCGAGTACAAGCCCACGGTGCGCCTCGCCACCCGCGACG ACGTCCCCAGGGCCGTACGCACCCTCGCCGCCGCGTTCGCCGACTACCCCGCCACGCGCCACACCGTCGATCCAGACCG CCACATCGAGCGGGTCACCGAGCTGCAAGAACTCTTCCTCACGCGCGTCGGGCTCGACATCGGCAAGGTGTGGGTCGC GGACGACGGCGCAGCAGTGGCGGTCTGGACCACGCCGGAGAGCGTCGAAGCGGGGGCGGTGTTCGCCGAGATCGGCC CGCGCATGGCCGAGTTGAGCGGTTCCCGGCTGGCCGCGCAGCAACAGATGGAAGGCCTCCTGGCGCCGCACCGGCCCA AGGAGCCCGCGTGGTTCCTGGCCACCGTCGGTGTCTCGCCCGACCACCAGGGCAAGGGTCTGGGCAGCGCCGTCGTGC TCCCCGGAGTGGAGGCGGCCGAGCGCGCCGGGGTGCCCGCCTTCCTGGAGACCTCCGCGCCCCGCAACCTCСССТTCTA CGAGCGGCTCGGCTTCACCGTCACCGCCGACGTCGAGGTGCCCGAAGGACCGCGCACCTGGTGCATGACCCGCAAGCC CGGTGCCTGACGCCCGCCCCACGACCCGCAGCGCCCGACCGAAAGGAGCGCACGACCCCATGCATCGATGATCTAGAG CTCGCTGATCAGCCTCGACTGTGCCTTCTAGTTGCCAGCCATCTGTTGTTTGCCCCTCССССGTGССTTCCTTGACCCTGG AAGGTGCСАСТСССАСТGTССТTTССТАATAAAATGAGGAAATTGCATCGCATTGTCTGAGTAGGTGTCATTCTATTCTG GGGGGTGGGGTGGGGCAGGACAGCAAGGGGGAGGATTGGGAAGACAATAGCAGGCATGCTGGGGATGCGGTGGGCTC TATGGCTTCTGAGGCGGAAAGAACCAGCTGATTAСССТGTTATCССТАСТСGAССTCGAGGGCGCGCСATTTAATGGCC AGCGAGGCCGGTACCCAATTCGCCCTATAG

## Targeted Locus:

GATCTTCAGGCTATCCCAGCAATTGGCCAGCACCTCACTCAGGCAGGCCCAGAAATGAAGAAATGAAAATTTGCTTCA GACTCTTTGGGGATGAGTCTTTTGACCCAGAGCCACAGAAAGCCCTCCTTATCAGACAGTCCTAGGTCTGTCTTTGGGT ATGTGCATTTGGCAAGGCAACCAGGTGCTATTATGGTACAGCCTGCACAGTGCTGAAGAGACTGGGGTAGCAGAATCA AСТССАТТTTGСТТСТАAGAСТСТАСТСТGAGTTAACTTGСССТTAGAGAGGCATGGCCCCCACCCTTGATGTCTGAGAA

AAATCATAAAATGTCCCTGGCAGTAGCAAAATAGACACAGCAGTTGCAGCTGCCTGATAACCACAGAGTAGGCTACGA AAACATAAGTCTTTCTCAGGTCAAAGTGCTTCTTTTTATGTATGTGGTTTAACCAGGTGCTGTAAACCAATTAGCTTAAA GGCCTTTAGCCTCTCATGTAACGCCAAAGCTTGGAAACCCTTGCTTGTGTGTGTGTGTGTTTTCCCTTTATAAACACCTA GACCTGGGGGACACTCTCCTATCCTGTTGCATCACGAAGGTTTGTGCCCCAAGCTTGAGTTTGAATAGACTCTCATGTG CTTGAATTGGAGTTGTGGTTCCTGGTGGTCTCTTTGGGGTTTTTGCAATCTGGGCACAACAGTGCCAGATCTTGGTGTGG TCCACCCAGGGCTGTTGGACATATCCTGGCTGTAGACATCCAGTCACCTGGAGGAAGTTAGAGATGCCAGGAATGTGG AATGTCTGCCAAGGGAAGACAAGCCTAAGAGAGAGGCCATGTGGACTACAGCCTGTGAAGACCACCCAAACCCACTG GAGCCTGATTCCTGCCACCGCATTTTCCCAAATGTTGGACGTGGAGATCTAGGACTGCAGGTTTCCCCCTTTGACNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNTCCC AAAGCTGCTCTTGGTTACGGTGTTTCATCACAGCAACAGAAGCCCAACCACGACATACAACTAGGACACACAAGTGAT TTCTGTCССTGCTGAСССAGCTCССАAGTCССAСAGAGGACTGGСССТСССАСАТСАATCATCAACCAAGAAAATGCCC CACAGGCTTGCCGAAGGGCTGATTTTACCAAGGCACTTTCTCAATTGAAGTTCACTTTTCTCAGGTGACTCTAGCTTGGG TCAAGTTGACAAGAACCAGCCTGCATGACTCCTAACTCTGAATCCTTGGCAGGCATTGCATCTGCGATTTAAATACTCT CTGGGCACCTCCACCACAACCATCCTGAGTGGCCAGTTTCAGCTGGATTCACAGCTTCTGTGTCCTTCCCAATGCTCTCC СТТСССТGTGTCССТGTСССТАAССАТGGСАСТАССАТСТGССТGGTTATCTTAAССТАТАСАGGССААААТАСССАСТG GTTCTCATTCTTCCTGGATCATAGTTCTTTAGTCAAAССТСТСТСТТТСССАССАGAСАТАССТСААТGTСТTTTATACAG TTTСТGTСТТСТССТTTAATGACACACTCTCAGTTTTATGATGTAGGGGGTGGGGAGTTACATATTGTTGCTAGAGTTCT СТАССТАAAACGСТСАСТGTAACTCTGTTAACAGTTCTTGTTGCCCACAGGCTGAAGGGAAAGCATTTGAGAAAGTCCT AGGCAGGTGGTTCAGGTTTAGCTCCATCCCTGCGGTCCATCAGTGCAGCAACAGCAGTTTCAAGCAACAAGAGCGCAC AGCTGCAGCCGTAAGACAAGAGTCCTTTCTTCTAGTAGCTGCTGCTACTTTCTCCTAGGATGCTGTAAGCTGCTAAGGA ATCСТGСТСАСССТGTAAGACСТСАAAGATCTСТТССТССТGGAAGAAGTTTCTGAСTCACCTCTAAGCCCAGCAGACA GСТТСТTTATAATGСССССТАAATACTACTGCAGCGGСTCСTGTAAGCTTGATTTAGTCCTGCTACACACATTTATTGTT СTTTCСAAACCATTTGCTTTAATTTTGTGTATGTGTCTAGGCATACCTGTGGAGGTCAGTGGACAACCTGGGAAGTCTCT TCTACTGTGTCCTTGGGGTTGATAGTAAGCATCTTTACCCGACTCAGGGGTATCTTACTCACTGTTCTATTGCTGTGAGG AGACACCACGACCAAGGCAACATATAGAAGAAAGCGTTTGACTGGGGGCTTGTTTGCAGTTTTAGAGAATTAGGCCAC TGCATCATGGCAGGAAGCACACAGTAGCAGAGAGCTTTACAGCCTGATCCATAGGCAGGGAGACGGAGAGGGAGTGA TAGACAATCAGACAAATATATACATACATACATACATACATACATACATACATACATACATACACACACACACACACA GACAAAGACACTGGGCCTGGCATGGGCTTTCAAAACCTCAAAGCCGACTCCCAATGACACCTCTTCCAACAAGGCCAT GTCTCСTAAATCTTCTGTAAGCAGTATGTTACTAGGGAGTAGACATAGAAAGATATGAGCCTATGGTGGCATTCTCATT CAGACCAGGACATGATGATAATAACTCCAGAGTCTCAGACCTTTGAACACTTGGTCCCCCGTTGGGGCACTGTTTGCCA AGGTTTAGGAGGTACAGCCCTGATGCAGTGTCACTGGAGGTGGGCTCTGAGAGTGTAAAGACTCCCACAGTTCCCATTC ATTCTCAGCTTGTGCTCAGTGTTTAAGATGTGAGTTCTCAGTATCCTGCTCCAGCCTGTTGCTGCCTCCCCTGCCGCTGT GGATGCTAGCCCCCTGGAACCATGAACACAACACCTGCTGAACCATCTTGCTGGATGGCCCTACAATGGTTTTTTTCCT АТССТАТТСТТТТТТТТСТТТСТТТСТСТТТТТААТТААТТААТТААТТАТТТТАСАСТССАТАТТТТАТТАССССССССААС TСТССGACTGATCСАСАТСССGTAССТССТССССАТАССТСТGТСТСТАСАТGGATGTССССАССССТСАСАТССТАСТСТ TGAGCACATTATATCCTGGCCTCTTGCTTTATTCCAGTGTCTACTGCAATGACTTATTAATAGGCTTTCTTTTGATTTGTT

ATTATGGTTСТСТСТСТСТСТСТСТСТСТСТСТСТСТСТСТСТСАТGТСТСТGGGTTGACAGAATGСTTGСTTGСTTAGCAC ACACCAGGCCCTGGGTTTGGTCTCCAGCACCACAAACACCTGGCAATGGGGGTACATGGTGGCACTTTCAGCAGGGAG GCAGGAAGATCAGAATTTCAAGGCCATTCTCTGGTATAGCGCAAACATGTTTCTTAGTGTGTTAGAGAACTAGCCTGAG TTACATGAGGCTTGTCTCCAAGAAGAAAAATACCTATATGTATTAATATTATATAATGTATACATATTTATTATCATAAC ATATATTATACATTACATAATATACAATATAACATATTACAACATATCATAAAATGCTACGTGTCACATATTACATGTTA TATATTAATATTACATATTATGTTACAATATGTTATGTAATATATGGTATAATAATCGTATAATATAGAATATATAATAA TAACATAGTGGGGTATGCTCAAGTGTATGTATTAGGTAGGATTTCTATTGCGCTAAAACACTACACCCAGATCCGAGCC GTACACAGGTGTCACTAGTCAGATAGTTATATTTAAATTAAGTGACATTGGACAATTAGTTCTATCATSGTAKTAGCTAC AATTCAAGGGTTCAGCTGCTACATGTGGGTAGTGGCTYCCCTATTAACTAAGACGTGGACTATATTCATCACCCCAGGA AGTTCTGTTCGGGGTAGATAGTTGAGAATTAAAATCAATCAATCAAGCCTTTTGAAGCCACAAGTTCCAAAACCAGAAC TGCCAACGGATGTTATCCACTCTCCAGAGGAGATGAAGAAATTTTACTAATCCAGAGCCAATGAAAATGAACACCTGC CCAAACCATCAGTCTACTGGGTTTTTCTGGGAGCTCACTCGGCAGTCATCTCCCTGGAGTTCCAGCAACCAGAACAAAC TCCACAGGCTCATGGAAGGCGGGGAACTGCAGGGTGCAGAGCGTGCAAGACGAAACTTCCACAGGCTTCCTTGGAAGG CGGGGAACTTGCAGGGTGCAGAGCGTGCAGGACGGAGGCCTGGGATGCACCGGAGTTGCTGCAGCTCTACAGACCTCC AAGCTCGGGCGCGCTCACAGCCGCGCGCCTCCGGAGGCAGGTGGGCGGGGCCGTGACGCACTCACCTCGTGACTCCAC TCAGGGCCTGCGCCGGCCGAAGCCGGAAGCGGCTGCTGTCGGAAGCACCGGGCGAGCTATCTGTTACAGTCCGGCCGG GGATGGCCGCTCTAGAGGCCATAGCGGCCATTTAAATGGCGCGCCGGATCCGAATTCCTCGAGGCTAGAACTAGCGAT AAGCTTCGAGCGGGATCAATTCCGCCCCCCCCCTAACGTTACTGGCCGAAGCCGCTTGGAATAAGGCCGGTGTGCGTTT GTCTATATGTTATTTTCCACCATATTGCCGTCTTTTGGCAATGTGAGGGCCCGGAAACCTGGCCCTGTCTTCTTGACGAG CATTCCTAGGGGTCTTTCCCCTCTCGCCAAAGGAATGCAAGGTCTGTTGAATGTCGTGAAGGAAGCAGTTCCTCTGGAA GCTTCTTGAAGACAAACAACGTCTGTAGCGACCCTTTGCAGGCAGCGGAACCCCCCACCTGGCGACAGGTGCCTCTGC GGCCAAAAGCCACGTGTATAAGATACACCTGCAAAGGCGGCACAACCCCAGTGCCACGTTGTGAGTTGGATAGTTGTG GAAAGAGTCAAATGGCTCTCCTCAAGCGTATTCAACAAGGGGCTGAAGGATGCCCAGAAGGTACCCCATTGTATGGGA TCTGATCTGGGGCCTCGGTGCACATGCTTTACATGTGTTTAGTCGAGGTTAAAAAAACGTCTAGGCCCCCCGAACCACG GGGACGTGGTTTTCCTTTGAAAAACACGATAATACCATGGGGGATCCCGTCGTTTTACAACGTCGTGACTGGGAAAACC CTGGCGTTACCCAACTTAATCGCCTTGCAGCACATCCCCCTTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGA TCGCCCTTCCCAACAGTTGCGCAGCCTGAATGGCGAATGGCGCTTTGCCTGGTTTCCGGCACCAGAAGCGGTGCCGGAA AGCTGGCTGGAGTGCGATCTTCCTGAGGCCGATACTGTCGTCGTCCCCTCAAACTGGCAGATGCACGGTTACGATGCGC CCATCTACACCAACGTGACCTATCCCATTACGGTCAATCCGCCGTTTGTTCCCACGGAGAATCCGACGGGTTGTTACTC GCTCACATTTAATGTTGATGAAAGCTGGCTACAGGAAGGCCAGACGCGAATTATTTTTGATGGCGTTAACTCGGCGTTT CATCTGTGGTGCAACGGGCGCTGGGTCGGTTACGGCCAGGACAGTCGTTTGCCGTCTGAATTTGACCTGAGCGCATTTT TACGCGCCGGAGAAAACCGCCTCGCGGTGATGGTGCTGCGCTGGAGTGACGGCAGTTATCTGGAAGATCAGGATATGT GGCGGATGAGCGGCATTTTCCGTGACGTCTCGTTGCTGCATAAACCGACTACACAAATCAGCGATTTCCATGTTGCCAC TCGCTTTAATGATGATTTCAGCCGCGCTGTACTGGAGGCTGAAGTTCAGATGTGCGGCGAGTTGCGTGACTACCTACGG GTAACAGTTTCTTTATGGCAGGGTGAAACGCAGGTCGCCAGCGGCACCGCGCCTTTCGGCGGTGAAATTATCGATGAGC GTGGTGGTTATGCCGATCGCGTCACACTACGTCTGAACGTCGAAAACCCGAAACTGTGGAGCGCCGAAATCCCGAATC TCTATCGTGCGGTGGTTGAACTGCACACCGCCGACGGCACGCTGATTGAAGCAGAAGCCTGCGATGTCGGTTTCCGCGA GGTGCGGATTGAAAATGGTCTGCTGCTGCTGAACGGCAAGCCGTTGCTGATTCGAGGCGTTAACCGTCACGAGCATCAT CCTCTGCATGGTCAGGTCATGGATGAGCAGACGATGGTGCAGGATATCCTGCTGATGAAGCAGAACAACTTTAACGCC GTGCGCTGTTCGCATTATCCGAACCATCCGCTGTGGTACACGCTGTGCGACCGCTACGGCCTGTATGTGGTGGATGAAG CCAATATTGAAACCCACGGCATGGTGCCAATGAATCGTCTGACCGATGATCCGCGCTGGCTACCGGCGATGAGCGAAC GCGTAACGCGAATGGTGCAGCGCGATCGTAATCACCCGAGTGTGATCATCTGGTCGCTGGGGAATGAATCAGGCCACG GCGCTAATCACGACGCGCTGTATCGCTGGATCAAATCTGTCGATCCTTCCCGCCCGGTGCAGTATGAAGGCGGCGGAGC CGACACCACGGCCACCGATATTATTTGCCCGATGTACGCGCGCGTGGATGAAGACCAGCCCTTCCCGGCTGTGCCGAA ATGGTCCATCAAAAAATGGCTTTCGCTACCTGGAGAGACGCGCCCGCTGATCCTTTGCGAATACGCCCACGCGATGGGT AACAGTCTTGGCGGTTTCGCTAAATACTGGCAGGCGTTTCGTCAGTATCCCCGTTTACAGGGCGGCTTCGTCTGGGACT GGGTGGATCAGTCGCTGATTAAATATGATGAAAACGGCAACCCGTGGTCGGCTTACGGCGGTGATTTTGGCGATACGC CGAACGATCGCCAGTTCTGTATGAACGGTCTGGTCTTTGCCGACCGCACGCCGCATCCAGCGCTGACGGAAGCAAAAC ACCAGCAGCAGTTTTTCCAGTTCCGTTTATCCGGGCAAACCATCGAAGTGACCAGCGAATACCTGTTCCGTCATAGCGA TAACGAGCTCCTGCACTGGATGGTGGCGCTGGATGGTAAGCCGCTGGCAAGCGGTGAAGTGCCTCTGGATGTCGCTCC ACAAGGTAAACAGTTGATTGAACTGCCTGAACTACCGCAGCCGGAGAGCGCCGGGCAACTCTGGCTCACAGTACGCGT AGTGCAACCGAACGCGACCGCATGGTCAGAAGCCGGGCACATCAGCGCCTGGCAGCAGTGGCGTCTGGCGGAAAACC TCAGTGTGACGCTCCCCGCCGCGTCCCACGCCATCCCGCATCTGACCACCAGCGAAATGGATTTTTGCATCGAGCTGGG TAATAAGCGTTGGCAATTTAACCGCCAGTCAGGCTTTCTTTCACAGATGTGGATTGGCGATAAAAAACAACTGCTGACG CCGCTGCGCGATCAGTTCACCCGTGCACCGCTGGATAACGACATTGGCGTAAGTGAAGCGACCCGCATTGACCCTAAC GCCTGGGTCGAACGCTGGAAGGCGGCGGGCCATTACCAGGCCGAAGCAGCGTTGTTGCAGTGCACGGCAGATACACTT GCTGATGCGGTGCTGATTACGACCGCTCACGCGTGGCAGCATCAGGGGAAAACCTTATTTATCAGCCGGAAAACCTAC CGGATTGATGGTAGTGGTCAAATGGCGATTACCGTTGATGTTGAAGTGGCGAGCGATACACCGCATCCGGCGCGGATT GGCCTGAACTGCCAGCTGGCGCAGGTAGCAGAGCGGGTAAACTGGCTCGGATTAGGGCCGCAAGAAAACTATCCCGAC

CGCCTTACTGCCGCCTGTTTTGACCGCTGGGATCTGCCATTGTCAGACATGTATACCCCGTACGTCTTCCCGAGCGAAA ACGGTCTGCGCTGCGGGACGCGCGAATTGAATTATGGCCCACACCAGTGGCGCGGCGACTTCCAGTTCAACATCAGCC GCTACAGTCAACAGCAACTGATGGAAACCAGCCATCGCCATCTGCTGCACGCGGAAGAAGGCACATGGCTGAATATCG ACGGTTTCCATATGGGGATTGGTGGCGACGACTCCTGGAGCCCGTCAGTATCGGCGGAATTCCAGCTGAGCGCCGGTCG CTACCATTACCAGTTGGTCTGGTGTCAGGGGATCCCCCGGGCTGCAGCCAATATGGGATCGGCCATTGAACAAGATGG ATTGCACGCAGGTTCTCCGGCCGCTTGGGTGGAGAGGCTATTCGGCTATGACTGGGCACAACAGACAATCGGCTGCTCT GATGCCGCCGTGTTCCGGCTGTCAGCGCAGGGGCGCCCGGTTCTTTTTGTCAAGACCGACCTGTCCGGTGCCCTGAATG AACTGCAGGACGAGGCAGCGCGGCTATCGTGGCTGGCCACGACGGGCGTTCCTTGCGCAGCTGTGCTCGACGTTGTCA CTGAAGCGGGAAGGGACTGGCTGCTATTGGGCGAAGTGCCGGGGCAGGATCTCCTGTCATCTCACCTTGCTCCTGCCGA GAAAGTATCCATCATGGCTGATGCAATGCGGCGGCTGCATACGCTTGATCCGGCTACCTGCCCATTCGACCACCAAGCG AAACATCGCATCGAGCGAGCACGTACTCGGATGGAAGCCGGTCTTGTCGATCAGGATGATCTGGACGAAGAGCATCAG GGGCTCGCGCCAGCCGAACTGTTCGCCAGGCTCAAGGCGCGCATGCCCGACGGCGAGGATCTCGTCGTGACCCATGGC GATGCCTGCTTGCCGAATATCATGGTGGAAAATGGCCGCTTTTCTGGATTCATCGACTGTGGCCGGCTGGGTGTGGCGG ACCGCTATCAGGACATAGCGTTGGCTACCCGTGATATTGCTGAAGAGCTTGGCGGCGAATGGGCTGACCGCTTCCTCGT GCTTTACGGTATCGCCGCTCCCGATTCGCAGCGCATCGCCTTCTATCGCCTTCTTGACGAGTTCTTCTGAGGGGATCAAT TCTCTAGAGCTCGCTGATCAGCCTCGACTGTGCCTTCTAGTTGCCAGCCATCTGTTGTTTGCCCCTCCCCCGTACCTTCCT TGACCCTGGAAGGTGCCACTCССAСTGTCСTTTCСТAATAAAATGAGGAAATTGCATCGCATTGTCTGAGTAGGTGTCA TTCTATTCTGGGGGGTGGGGTGGGGCAGGACAGCAAGGGGGAGGATTGGGAAGACAATAGCAGGCATGCTGGGGATG CGGTGGGCTCTATGGCTTCTGAGGCGGAAAGAACCAGCTGGGGCTCGATCCTCTAGAGTCGAGTACCGGGTAGGGGAG GCGCTTTTCCCAAGGCAGTCTGGAGCATGCGCTTTAGCAGCCCCGCTGGGCACTTGGCGCTACACAAGTGGCCTCTGGC CTCGCACACATTCCACATCCACCGGTAGGCGCCAACCGGCTCCGTTCTTTGGTGGCCCCTTCGCGCCACCTTCTACTCCT CСССTAGTCAGGAAGTTCCCCCCCGCCCCGCAGCTCGCGTCGTGCAGGACGTGACAAATGGAAGTAGCACGTCTCACT AGTCTCGTGCAGATGGACAGCACCGCTGAGCAATGGAAGCGGGTAGGCCTTTGGGGCAGCGGCCAATAGCAGCTTTGC TCСTTCGСTTTCTGGGCTCAGAGGCTGGGAAGGGGTGGGTCCGGGGGCGGGCTCAGGGGCGGGCTCAGGGGCGGGGCG GGCGCCCGAAGGTCCTCCGGAGGCCCGGCATTCTGCACGCTTCAAAAGCGCACGTCTGCCGCGCTGTTCTCCTCTTCCT CATCTCCGGGCCTTTCGACCTGCACTGCGCGCCAGCTTACCATGACCGAGTACAAGCCCACGGTGCGCCTCGCCACCCG CGACGACGTCCCCAGGGCCGTACGCACCCTCGCCGCCGCGTTCGCCGACTACCCCGCCACGCGCCACACCGTCGATCCA GACCGCCACATCGAGCGGGTCACCGAGCTGCAAGAACTCTTCCTCACGCGCGTCGGGCTCGACATCGGCAAGGTGTGG GTCGCGGACGACGGCGCAGCAGTGGCGGTCTGGACCACGCCGGAGAGCGTCGAAGCGGGGGCGGTGTTCGCCGAGAT CGGCCCGCGCATGGCCGAGTTGAGCGGTTCCCGGCTGGCCGCGCAGCAACAGATGGAAGGCCTCCTGGCGCCGCACCG GCCCAAGGAGCCCGCGTGGTTCCTGGCCACCGTCGGTGTCTCGCCCGACCACCAGGGCAAGGGTCTGGGCAGCGCCGT CGTGCTCCCCGGAGTGGAGGCGGCCGAGCGCGCCGGGGTGCCCGCCTTCCTGGAGACCTCCGCGCCCCGCAACCTCCC СTTCTACGAGCGGCTCGGCTTCACCGTCACCGCCGACGTCGAGGTGCCCGAAGGACCGCGCACCTGGTGCATGACCCG CAAGCCCGGTGCCTGACGCCCGCCCCACGACCCGCAGCGCCCGACCGAAAGGAGCGCACGACCCCATGCATCGATGAT CTAGAGCTCGCTGATCAGCCTCGACTGTGCCTTCTAGTTGCCAGCCATCTGTTGTTTGCCCCTCCCCCGTGCCTTCCTTG ACCCTGGAAGGTGCСАСТСССАСТGTССТТТССТАATAAAATGAGGAAATTGCATCGCATTGTCTGAGTAGGTGTCATT CTATTCTGGGGGGTGGGGTGGGGCAGGACAGCAAGGGGGAGGATTGGGAAGACAATAGCAGGCATGCTGGGGATGCG GTGGGCTCTATGGCTTCTGAGGCGGAAAGAACCAGCTGATTACCCTGTTATCCCTACTCGACCTCGAGGGCGCGCCATT TAATGGCCAGCGAGGCCGGTACCCAATTCGCCCTATAGGGTATCAGAAACAAGCGGGTGACTTTAGGGGCTTATGGCT TGGAATGCTGTCCCCCCTGGATGCTGTAAACCGGCATCTTCTTGGGACAGGTTTGCTGGAACATTGCAGCGAACATACC CAGAGCCACCAGTTTCTATCAGTGTGACCTTTATTATTTTTCAAAGTATTGAGTTCGGTTCCATCCTGTTTATCAGCTTGT TCTCTGGCAAGTTAGTGACATTCTCTGCTTGTTTTCTCATCCGGAAAGTGGGGACAAAGAGAGGCCACACAAAGCTGAC ATACAGTAATAGTTCGTGGTCGGTGAGTTGCCATTTTAGGATAGTCTGCCTTCTCTGTAACTCGAGAGCTTTCCTGGTCA CTTGGAAGGTAATGTGAAGGACTTAATGAAGGCAAACCAAAAGAGGAAGACACAGTCTTTGCCTCTAAGAACTGTATA AATTAGGAAAGGATTACGGTGTCGGCCACCGTGAGAGTCACAGGGTTGCCTGGTAAAGGAAAAATAAGGAGGACACA GGAATTGGGGGTGGAAATGGTTCTTGCGTCCTGAGGGGCCAAGTAGTCTCATGAAAAATGTGGTTTCAGTTGCTTTAGA GGTCGTAATTGACTAAACTAAATAGAAATGTCTATAGGTGCATCTTGTTTTTAATCTAGCCTAATGTTACTAAGCATATT TTTTTTTTGTAAATGGGGACATTCATTTGCATTAAGTAAAGTCCAGAGTCACTCTTTGTGGAAAGAACTGTCTTTCAAGG CAGTTTAATTACATGCAGAATTTTCCAGATTCGCGCCTTTCTCTATGACTTTAATATGCATGTGTTATATTTGATTTTGAG CAGTTACATTAAATAAACTGTTTTTAGGGAGTCTTTTCATTCTACTTTAATTTAATTAATGTATTTATTTGTAATGAAGTT TCTTGTCGCCCTGACTGGCCTTGAACTCACCGTGTAGGAGAGGATC

