Expanding the Genetic Code of *Caenorhabditis elegans* Using Bacterial aminoacyl-tRNA Synthetase/tRNA Pairs

Angela R. Parrish[1], Xingyu She[1], Zheng Xiang[1], Irene Coin[1], Zhouxin Shen[3], Steven P. Briggs[3], Andrew Dillin[2], Lei Wang[1,*]

[1] Jack H. Skirball Center for Chemical Biology and Proteomics, The Salk Institute for Biological Studies, 10010 N. Torrey Pines Road, La Jolla, CA 92037 USA

[2] Howard Hughes Medical Institute, Glenn Center for Aging Research, The Salk Institute for Biological Studies, La Jolla, CA 92037 USA

[3] Section of Cell and Development Biology, University of California, San Diego, La Jolla, CA 92093, USA.

Supporting Methods

Plasmid Construction. Suppression plasmids (*unc-54p::RS*) were constructed using vector pPD30.38 from the Fire lab as a backbone. The synthetase genes (*1*) were amplified by PCR using the following primers: LeuRSfo 5'- AGCTAGCGGTAGAAAA AATGCAAGAGCAATACCGCC -3' and LeuRSrev 5'-GAGCTCTTAGCCAACGACC AGATTGAGG -3'; TyrRSfo 5'- AGCTAGCGGTAGAAAAAATGGCAAGCAGTAA CTTGATTAAACAATTGCAAG -3' and TyrRSrev 5'- AGAGCTCTTATTTCCAGC AAATCAGACAGTAATTCTTTTTACCGC -3'. The Uaa synthetase is amplified with the same primers (TyrRS set for OmeRS, LeuRS set for DanRS). The *unc-54p::RS* plasmids were produced by inserting each RS, using the restriction sites introduced in the PCR primers, in the *Nhe* I/*Sac* I sites between *unc-54* promoter and *unc-54* 3'UTR. To

insert the promoters and tRNAs, a linker was cloned with the primers Linkfo 5'-CAGAGATCTCCATGGGAACGCTGACGTCATCAACCCGC -3' and Linkrev 5'-GAGACCACGGATCCCCGCCCGGATGGTGGAATCGG -3'. The suppressor tRNAs were cloned using the following primers: tRNAYfo 5'- CAGGATCCCCGGTGGGG TTCCCGAGCGGC -3' and tRNAYrev 5'- TGACTAGTATGAAAAATGCTGTAAA TTCAAAAAGATATGGTGGGGGAAGGATTCGAACC -3'; tRNALfo 5'-CCACCATCCGGGCGGGGATCCGTGGTCTCATACAG -3' and tRNALrev 5'-TAACTAGTATGAAAAATGCTGTAAATTCAAAAAGATATACCCGGAGCGGGAC TTGAACC -3'. Both rev primers for cloning tRNA have the *C. elegans* lysyl tRNA 3' flanking sequence (*2*) for correct termination and processing. Overlap PCR using the linker PCR fragment and each of the tRNA fragments was performed, and this cassette was cloned into pPD30.38 using the *BamH* I/*Spe* I in the vector, and digesting the overlap PCR product with *Bgl* II/*Spe* I. This generated an *Nco* I site 5' of the linker, and a *BamH* I site in between the linker and the tRNA, and abolishing the original *BamH* I site. The tRNA promoter candidates (500 bp each) were amplified from *C. elegans* genomic DNA with the following primers: cen4fo 5'- TACCATGGCGACACGATCTTATTTT GATAAAGAACTTGG -3' and cen4rev 5'- AGGATCCGTGCAATAGGAGGCGTTT ATATAGGG -3'; cen38fo 5'- TACCATGGCCAATTCTCCATTATGAGCAATTG CTACAGTACC -3' and cen38rev 5'- ATGGATCCATTGAACTGGCGTCTCGT GGGTCAC -3'; rpr1fo 5'- TACCATGGGGGCTCAGCCTCAACCAATTTTTAGTG -3' and rpr1rev 5'- AGGATCCACGCGCGCCGCGTCGTT -3'. These promoters were inserted between the *Nco* I and *BamH* I sites, taking care to retain the spacing of the +1 nucleotide and the TATA box, if present, in the primer design.

The plasmid for MosSCI integration of *unc-54p::mCherryTAG156* was generated by creating the amber mutation using the primers TAG156fo 5'- GAGCGGATGTAG CCCGAGGACG -3' and TAG156rev 5'- CGTCCTCGGGCTACATCCGCTC -3' for overlapping PCR with the primers mCherryfo 5'- TAGGTACCGGTAGAAAAAAT GGTGAGCAAGGGCGAGGAGG -3' and mCherryrev 5'-AGAATTCTTACTTGTACA GCTCGTCCATGCCG -3'. This PCR product was cloned in place of the GFP coding sequence in vector pPD95.77, using the *EcoR* I/*Kpn* I sites which were included on the primers. The *unc-54* promoter was amplified from pPD30.38 using the primers unc54pfo 5'- CCAAGCTTGTCTTCTTCTAAATTCCC -3' and unc54prev 5'- ATGGTACCCAA GGGTCCTCCTGAAAATGTTC -3' and inserted using *Hind* III/*Kpn* I sites also present on these primers. This entire fragment, including the *unc-54* 3' UTR was PCR amplified with the primers unc54Xhofo 5'- AACTCGAGCCCATAAAATCCCGAAACTC CTTCCCTC -3' and uncChrev 5'- CGTCATCACCGAAACGCGCG -3'and cloned into the MosSCI vector pCFJ151 (from E. Jorgensen) using *Xho* I and *Spe* I sites found on the primers, to create *p5605-unc-54p::mCherryTAG156*.

The plasmids for MosSCI integration of *unc-54p::luciferaseTAG185* were generated by PCR amplifying the *unc-54* promoter from *unc-54p*::*mCherryTAG156* using the primers GWunc54fo 5'-GGGGACAACTTTGTATAGAAAAGTTGCCCATAAAAT CCCGAAACTCCTTCC -3' and GWunc54rev 5'- GGGGACTGCTTTTTTGTACAAA CTTGCAAGGGTCCTCCTGAAAATGTTC -3' containing *att*B4 and *att*B1r flanking sites. The *Photinus pyralis* luciferase gene was amplified from pECL1 (*3*) using the primers GWlucfo 5'- GGGGACAAGTTTGTACAAAAAAGCAGGCTGGTAGAAA AAATGGAAGACGCC -3' and GWlucrev 5'- GGGGACCACTTTGTACAAGAAA

GCTGGGTTTACAATTTGGACTTTCCGCCC -3' containing *att*B1 and *att*B2 sites. The TAG mutation at position 185 was introduced by overlapping PCR with the primers lucTAG185fo 5'- CGATTTTGTACCAGAGTAGTTTGATCGTGACAAAAC -3' and lucTAG185rev 5'- GTTTTGTCACGATCAAACTACTCTGGTACAAAATCG -3' and the GWluc primers. These PCR products were recombined using BP Clonase II into the Gateway vectors pDONR P4-P1r and pDONR221, respectively (Invitrogen). These two plasmids, as well as a plasmid containing the *unc-54* 3' UTR flanked by *att*R2 and *att*L3 sequences (from E. Jorgensen) were recombined with LR Clonase II Plus (Invitrogen) with a MosSCI vector containing homologous regions surrounding the *ttTi*4348 locus on chromosome I in *C. elegans* (from E. Jorgensen) to create *p4348-unc-54p::luciferaseTAG185*.

The plasmids for integrating 3 copies of *rpr-1p::* tRNA$^{Leu}_{CUA}$ were made using the Gateway system. Identical copies of the gene cassette were PCR amplified for recombination from the *unc-54p::RS* plasmids with the plasmids. To amplify *rpr-1p::* tRNA$^{Leu}_{CUA}$ the following primers were used as pairs: B4RNAsePfo 5'- GGGGACAAC TTTGTATAGAAAAGTTGGGCTCAGCCTCAACCAATTTTTAGTG   -3'   and B1rLtRNArev 5'- GGGGACTGCTTTTTTGTACAAACTTGATGAAAAATGCTGT AAATTCAAAAAGATATACCCGG -3'; B2RNAsePfo 5'- GGGGACAAGTTTGTAC AAAAAAGCAGGCTGGCTCAGCCTCAACCAATTTTTAGTG -3' and B1LtRNArev 5'-   GGGGACCACTTTGTACAAGAAAGCTGGGTATGAAAAATGCTGTAAATT CAAAAAGATATACCCGG -3'; B2rRNAsePfo 5'- GGGGACAGCTTTCTTGTAC AAAGTGGGGCTCAGCCTCAACCAATTTTTAGTG -3' and B3LtRNArev 5'- GGGGACAACTTTGTATAATAAAGTTGATGAAAAATGCTGTAAATTCAAAAAG

ATATACCCGG -3'. Each PCR product was recombined into the appropriate Gateway entry vector with BP Clonase II (Invitrogen) and recombined into MosSCI vector pCFJ150 (from E. Jorgensen) with LR Clonase II Plus (Invitrogen) to create *p5605-rpr-1p::* tRNA$_{CUA}^{Leu}$ *3x*. The single copy was cut from *unc-54p::LeuRS* using *Nco* I, blunted using Klenow extension (NEB), and then cut with *Spe* I. The *rpr-1p::* tRNA$_{CUA}^{Leu}$ fragment was cloned into pCFJ151, which was cut with *Xho* I, blunted, and then cut with *Spe* I, to generate *p5605-rpr-1p::* tRNA$_{CUA}^{Leu}$. The *unc-54p::*LeuRS gene cassette was PCR amplified with the primers unc54Xhofo 5'- AACTCGAGCCCATAAAATCCCG AAACTCCTTCCCTC -3' and uncRSrev 5'- GCCTAATTTCTTTGCTTATTTTTT ACTAGTTTTCCTTCC -3'. This fragment was digested with *Xho* I and *Spe* I and ligated into pCFJ178 (from E. Jorgensen) for MosSCI integration into chromosome IV to generate *p10882-unc-54p::LeuRS*.

The triple *rpr-1p::* tRNA$_{CUA}^{Tyr}$ cassette was constructed using the same forward primers as the *rpr-1p::* tRNA$_{CUA}^{Leu}$ cassette and the reverse primers B1rYtRNArev 5'- GGGGACTGCTTTTTTGTACAAACTTGATGAAAAATGCTGTAAATTCAAAAAG ATATGGTGGG -3'; B2YtRNArev GGGGACCACTTTGTACAAGAAAGCTGGGT ATGAAAAATGCTGTAAATTCAAAAAGATATGGTGGG -3'; and B3YtRNArev 5'- GGGGACAACTTTGTATAATAAAGTTGATGAAAAATGCTGTAAATTCAAAAAG ATATGGTGGG -3'. This fragment was cut from the destination vector with *Avr* II/*Xho* I and ligated into pCFJ178 for MosSCI integration into Chromosome IV, to generate *p10882-rpr-1p::* tRNA$_{CUA}^{Tyr}$ *3x*.

The *Luciola cruciate* (Japanese) firefly luciferase plasmid (*unc-54p::JFFluciferaseTAG158)* for MosSCI integration was amplified from pJFF12 (from J.

Noel) with the primers JFFlucfo 5'- AAGGATCCATGGAAAACATGGAAAAT GATGAAAACATTGTGG -3' and JFFlucrev 5'- AAGCGGCCGCCAGAGGAGCCCA TTTTGGCCACCGGTTTTTTCAGAA -3' and cloned into pIRES-hrGFP II (Agilent Technologies) using *BamH* I and *Not* I, in frame with the 3xFLAG tag present on the vector. The TAG mutation was made with overlapping PCR using the above primers and JFFTAG158fo 5'- CCTGGATAGCAAATAGGATTATCGTGGTTATCAG -3' and JFFTAG158rev 5'- CTGATAACCACGATAATCCTATTTGCTATCCAGG -3' and cloned into the same vector. The full gene with the 3xFLAG was amplified with the primers GWJFFlucfo 5'- GGGGACAAGTTTGTACAAAAAAGCAGGCTGGTAG AAAAAAACCATGGAAAACATGGAAAATGATGAAAACATTGTGG -3' and GWFLAGrev 5'- GGGGACCACTTTGTACAAGAAAGCTGGGTCGTCGAGGAA TTGCTATTATTTGTCGTCAT -3' and recombined into pDONR221 with BP Clonase II (Invitrogen). This entry plasmid was recombined with the Gateway vector above containing the *unc-54* promoter and an entry vector containing the *tbb-2* 3'UTR followed the *gpd-2* operon linker and a histone H2B:GFP fusion (pCFJ236, from E. Jorgensen) to generate a MosSCI vector targeting Chromosome I, to generate *p4348-unc-54p::JFFluciferaseTAG158::H2B::GFP*.

All fragments were PCR amplified with phusion polymerase (NEB), and all constructs were sequenced before injection. All Gateway reactions are done according to the manufacturer's instructions (Invitrogen).

Mass Spectrometric Analysis of the JFFluc Protein and the Orthogonality of the OmeRS

To assess the orthogonality of the OmeRS in *C. elegans* and to verify the incorporation of OmeY into the JFFluc protein, we analyzed the JFFluc protein expressed in strain LWA717 with mass spectrometry.

Expression and immunoprecipitation of the JFFluc protein from LWA717 animals were described in the text and methods section. After incubating the anti-FLAG beads with the lysate from the animals, the beads were washed extensively and resuspended in 100 µL 50 mM Hepes buffer (pH 7.2). Proteins were reduced and alkylated using 1 mM Tris(2-carboxyethyl) phosphine (Fisher, AC36383) at 94 °C for 5 minutes and 2.5 mM iodoacetamide (Fisher, AC12227) at 37 °C in the dark for 30 minutes, respectively. Proteins were digested on beads with 1 µg Lys-C (Roche) at 37 °C overnight.

Automated 2D nanoflow LC-MS/MS analysis was performed using an LTQ tandem mass spectrometer (Thermo Electron Corporation, San Jose, CA) employing automated data-dependent acquisition. An Agilent 1100 HPLC system (Agilent Technologies, Wilmington, DE) was used to deliver a flow rate of 500 nL min^{-1} to the mass spectrometer through a splitter. Chromatographic separation was accomplished using a 3 phase capillary column. Using a pressure cell constructed in-house, 5 µm Zorbax SB-C18 (Agilent) packing material was packed into a fused silica capillary tubing (200 µm ID, 360 µm OD, 10 cm long) to form the first dimension RP column (RP1). A similar column (200 µm ID, 5 cm long) packed with 5 µm PolySulfoethyl (PolyLC) packing material was used as the SCX column. A zero dead volume 1 µm filter (Upchurch, M548) was attached to the exit of each column for column packing and connecting. A fused silica capillary (200 µm ID, 360 µm OD, 20 cm long) packed with 3.5 µm Zorbax SB-C18 (Agilent) packing material was used as the analytical column

(RP2). One end of the fused silica tubing was pulled to a sharp tip with the ID smaller than 1 μm using a laser puller (Sutter P-2000) as the electro-spray tip. The peptide mixtures were loaded onto the RP1 column using the same in-house pressure cell. To avoid sample carry-over and maintain reproducibility, a new set of three columns with the same length was used for each sample. Peptides were first eluted from the RP1 column to the SCX column using a 0 to 80% acetonitrile gradient for 150 minutes. Then, peptides were fractionated by the SCX column using a series of 8 step salt gradients (10 mM, 15 mM, 20 mM, 30 mM, 50 mM, 70 mM, 100 mM, and 1 M ammonium acetate for 20 minutes), followed by high resolution reverse phase separation using an acetonitrile gradient of 0 to 80% for 120 minutes.

Each sample was analyzed using mixed data-dependent and MRM (Multiple Reaction Monitoring) scan modes. The mass spectrometer was programmed to perform data-dependent MS/MS scans on the 5 most intense ions from the full MS scan (400-1600 Da), followed by 4 MRM scans of the non-substituted (Valine 158) peptide or OMe-tyrosine substituted peptide: m/z 928.4 (OMeY 158, 2+), 619.3 (OMeY 158, 3+), 889.4(Val 158, 2+), and 593.3 (Val 158, 3+).

Raw data were extracted and searched using Spectrum Mill (Agilent, version A.04.00). MS/MS spectra with a sequence tag length of 1 or less were considered poor spectra and discarded. The filtered MS/MS spectra were searched against a customized protein database containing common protein contaminants (keratins, trypsin, etc.) and the *Luciola cruciata* luciferase. The enzyme parameter was limited to full lys-C peptides with a maximum mis-cleavage of 1. All other search parameters were set to SpectrumMill's default settings (carbamidomethylation of cysteines, +/- 2.5 Da for

precursor ions, +/- 0.7 Da for fragment ions, and a minimum matched peak intensity (SPI) of 50%). Substitution of all 20 amino acid to OMeY was defined as variable modifications. A maximum of 1 substitution per peptide was used. Search results for individual spectra were automatically validated using the filtering criteria listed in Table S1.

Table S1. Filtering criteria for autovalidation of database search results.

Mode	Protein score	1+ peptide (Score, SPI%)	2+ peptide (Score, SPI%)	3+ peptide (Score, SPI%)
Protein Details	>20	>11, >50%	>11, >50%	>13, >50%
Peptide	NA	>13, >50%	>13, >50%	>15, >50%

For the purpose of verifying the incorporation of OmeY at site 158, we unfortunately did not detect the peptide containing this position. We then repeated the experiment with wild type *Luciola cruciata* luciferase purified from strain LWA1580. Again the peptide containing Val at position 158 was not detectable, indicating that this peptide has very weak ionization ability and is unlikely to be detected by the mass spectrometer.

We did identify 11 unique peptides from the JFFluc protein purified from strain LWA717. These peptides were colored in red in Figure S8, and their MS-MS spectra were shown in Figure S9. To assess whether the OmeRS is orthogonal in *C. elegans* cells, we interrogated whether OmeY was mis-incorporated at any position in these 11 peptides. A comprehensive search for OmeY substitution of all 20 amino acids was performed, and no peptide was found to have OmeY misincorporation. All identified peptides were from the non-substituted, wild-type luciferase sequence. These results support that the OmeRS did not mischarge OmeY onto endogenous *C. elegans* tRNAs and thus is orthogonal.

References

1. Wang, Q., and Wang, L. (2008) New Methods Enabling Efficient Incorporation of Unnatural Amino Acids in Yeast, *J. Am. Chem. Soc. 130*, 6066-6067.

2. Tranquilla, T. A., Cortese, R., Melton, D., and Smith, J. D. (1982) Sequences of four tRNA genes from Caenorhabditis elegans and the expression of C. elegans tRNALeu (anticodon IAG) in Xenopus oocytes, *Nucleic Acids Res 10*, 7919-7934.

3. Lagido, C., Pettitt, J., Porter, A. J., Paton, G. I., and Glover, L. A. (2001) Development and application of bioluminescent Caenorhabditis elegans as multicellular eukaryotic biosensors, *FEBS Lett 493*, 36-39.
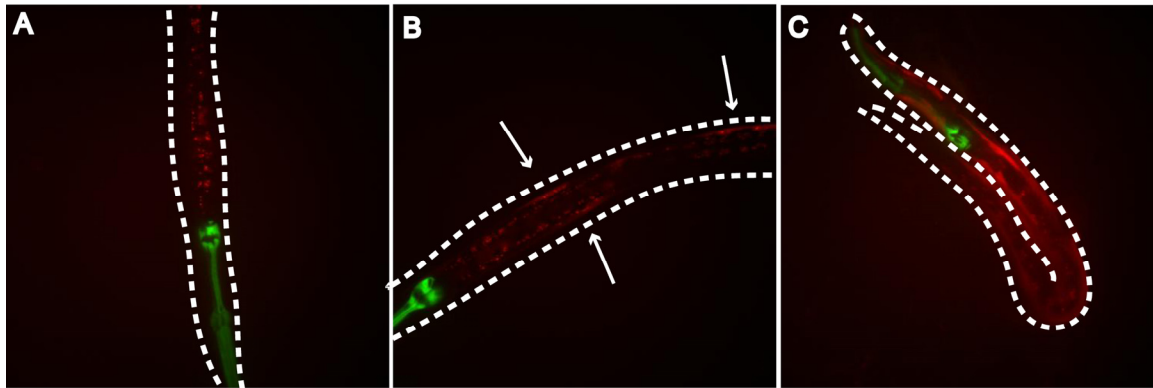
Supporting Figures

Figure S1. Integration of the orthogonal tRNA/RS array leads to uniform mCherry expression when crossed to the reporter strain. (*A*) LWA1565 with the tRNA$_{\text{CUA}}^{\text{Leu}}$/DanRS array integrated. Red dots are intestinal autofluorescence. (*B*) mCherry reporter line LWA1560 with extrachromosomal array *wlEx1565[unc-54::DanRS_rpr-1:: tRNA$_{\text{CUA}}^{\text{Leu}}$ + myo-2::GFP]* exposed to 2 mM Ala-DanAla dipeptide. Arrows point to individual red muscle cells; mCherry expression was mosaic. (*C*) LWA1565 exposed to 2 mM Ala-DanAla dipeptide. Note red fluorescence throughout head and body, rather than isolated muscles. All animals were raised in liquid culture for 1 generation at 15 $^{\text{o}}$C. Dashed lines indicate the outline of the worm. All images are confocal Z stacks and representative of each genotype at larval stage 3-4.
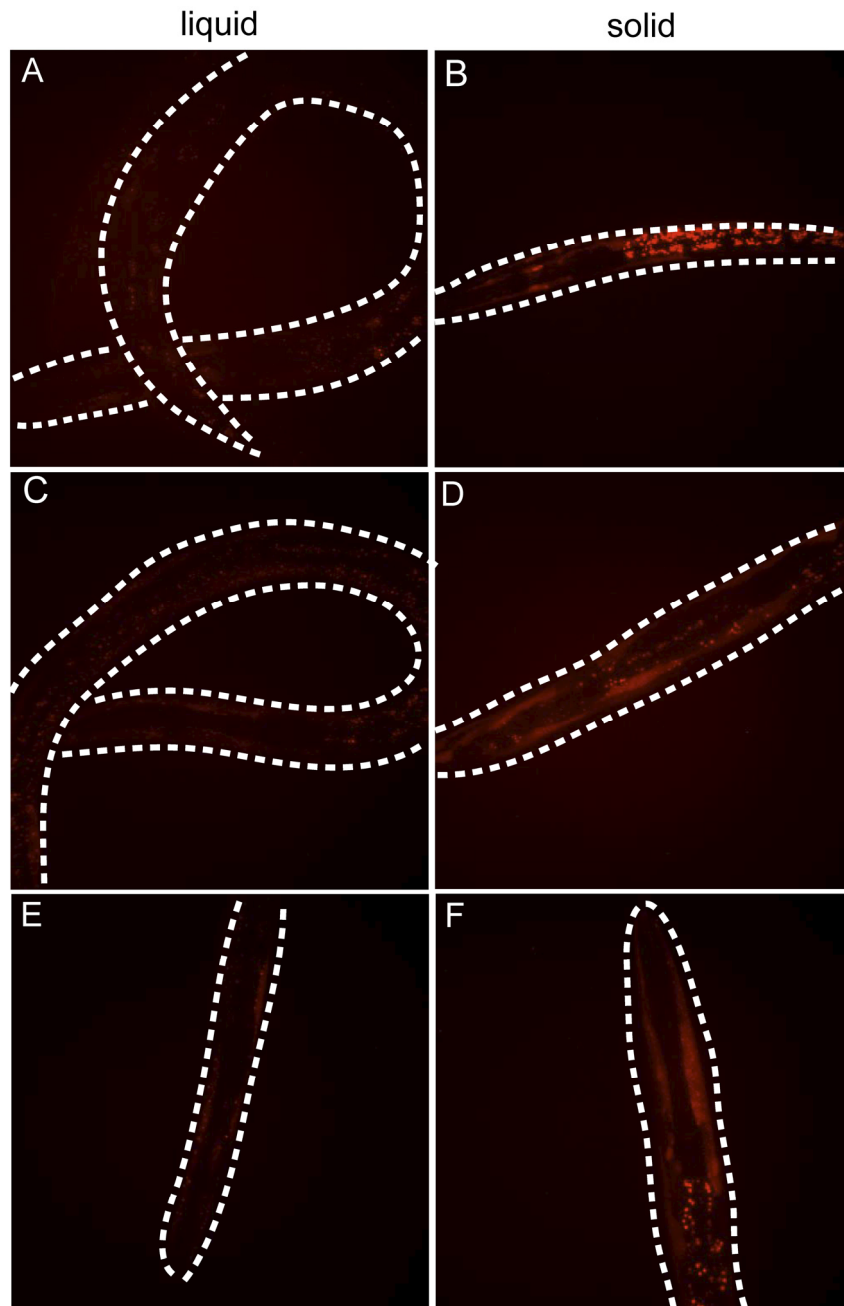
Figure S2. Addition of Uaa to solid media leads to greater Uaa incorporation than in liquid media. All animals are LWA1565. (*A-B*) 0.5 mM Ala-DanAla dipeptide. (*C-D*) 1 mM Ala-DanAla dipeptide. (*E-F*) 2.5 mM Ala-DanAla dipeptide. Punctate dots are intestinal autofluorescence. In each case, there was more uniform and bright mCherry expression when delivered with solid food, and animals appeared healthier on solid food.

All animals were raised for 1 generation at 15 °C. Dashed lines indicate the outline of the worm. All images are confocal Z stacks and the healthiest animals from each condition were imaged, ranging from larval stage 2-4.
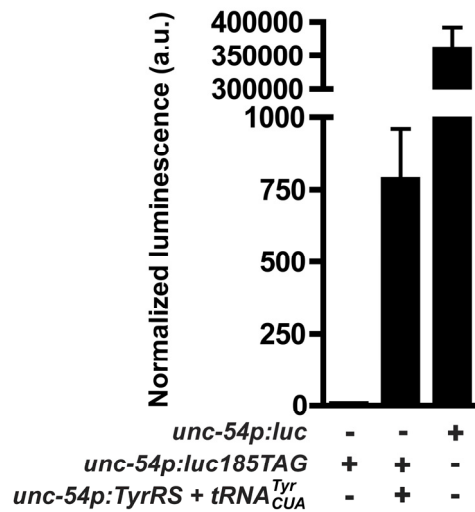

Figure S3. A singly integrated luciferase gene can be used to quantitatively report amber suppression in body wall muscle. Luciferase activity was readily detectable when the wild type luciferase gene was expressed from a single integrated copy in body wall muscle by the *unc-54* promoter. LWA1850 has a singly integrated luciferase gene with a TAG mutation at permissive site 185 driven by the *unc-54* promoter. No luciferase activity was detected from this reporter strain. Only when crossed to a strain with an integrated *E. coli* $tRNA_{CUA}^{Tyr}$/TyrRS array was luciferase detectable. Animals were grown in duplicate. Luminescence was normalized to total protein concentration. Error bars represent s.e.m.; n ≥ 2.
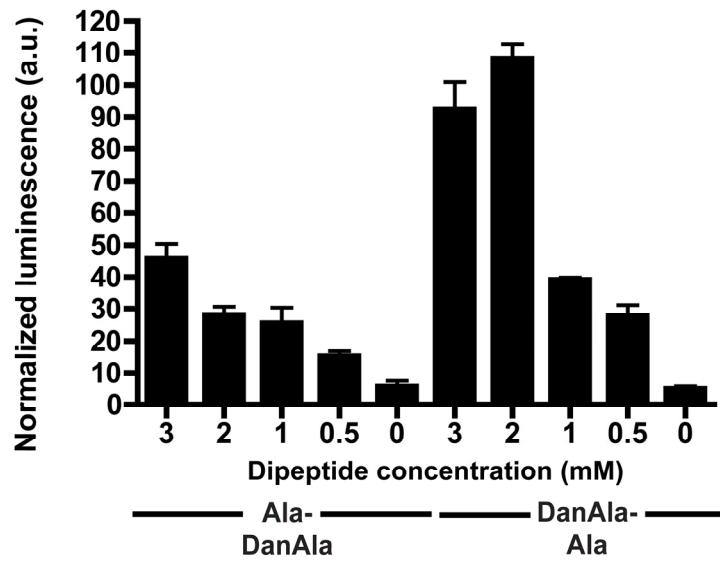
Figure S4. The orientation of Uaa dipeptide affects Uaa incorporation. LWA1031 showed differential luciferase activity depending on the Uaa position in the dipeptide. Animals were exposed to the indicated concentrations of dipeptides for 3 generations at 15 ^{o}C on solid media. Animals were grown in duplicate. Luminescence was normalized to total protein concentration. Error bars represent s.e.m.; n $\geq$ 2.
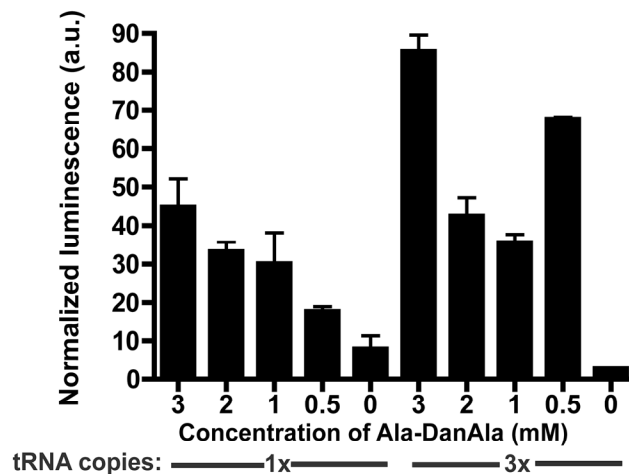

Figure S5. tRNA copy number affects Uaa incorporation with Ala-DanAla dipeptide. LWA1031 (with 1 copy of tRNA) or LWA1856 (with the 3x cassette of the tRNA) were

grown on the indicated concentrations of Ala-DanAla dipeptide. With additional tRNAs a moderate increase of luciferase activity was observed. Animals were grown in duplicate at 15 °C on solid media. Luminescence was normalized to total protein concentration. Error bars represent s.e.m.; $n \geq 2$.
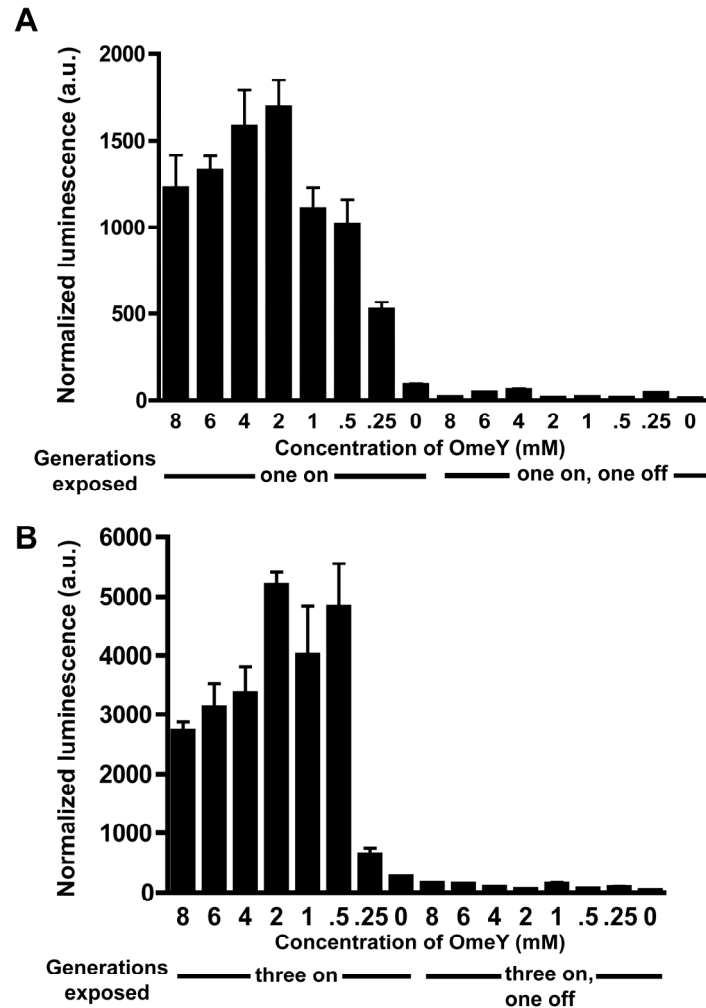

Figure S6. Withdrawal of Uaa for one generation precludes Uaa incorporation. (*A*) LWA1852 was grown at the indicated concentrations of OmeY for 1 generation in duplicate. Animals were removed from each plate to 0 mM plates for 1 generation and assayed. (*B*) LWA1852 was grown at the indicated concentrations of OmeY for 3

generations in duplicate. Animals were removed from each plate to 0 mM plates for 1 generation and assayed. All animals were grown in duplicate at 15 ^{o}C on solid media. After 1 generation in the absence of Uaa, the luciferase activity dropped back to background levels in all cases. Error bars represent s.e.m.; n $\geq$ 2.
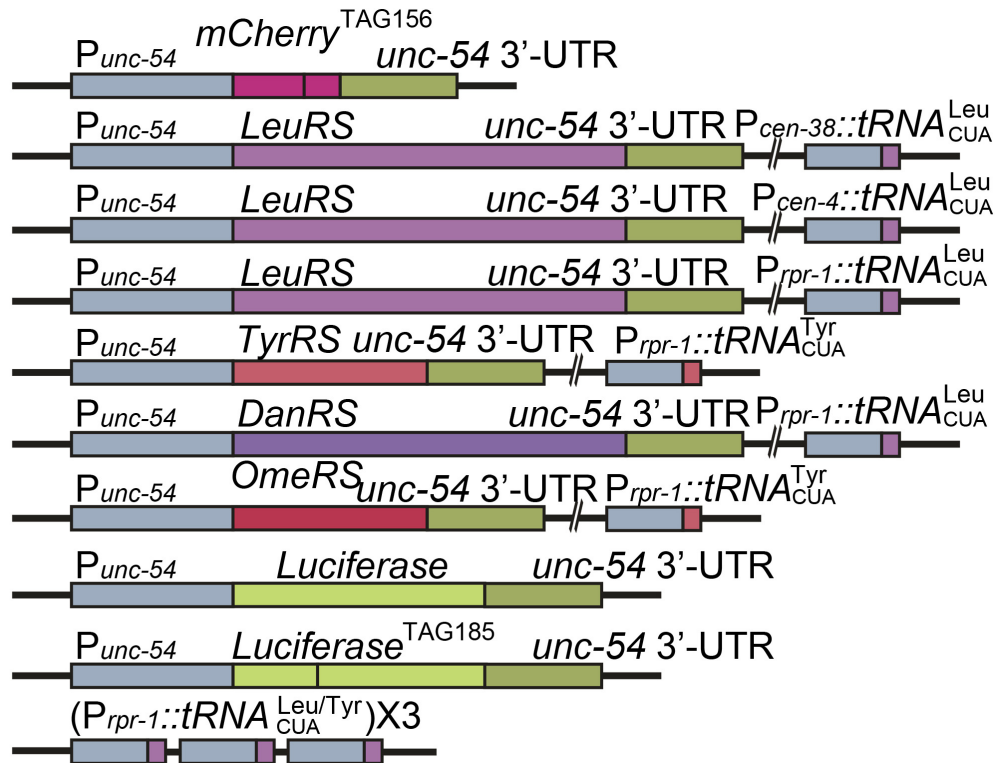

Figure S7. Constructs generated. Representation of the plasmids used to make the animals in this work. All tRNA 3' flanking sequences come from *C. elegans* tRNA$^{\text{Lys}}$.

```
1    MENMENDENI  VVGPKPFYPI  EEGSAGTQLR  KYMERYAKLG  AIAFTNAVTG  VDYSYAEYLE  KSCCLGKALQ  NYGLVVDGRI  80
81   ALCSENCEEF  FIPVIAGLFI  GVGVAPTNEI  YTLRELVHSL  GISKPTIVFS  SKKGLDKVIT  VQKTVTTIKT  IVILDSKVDY  160
161  RGYQCLDTFI  KRNTPPGFQA  SSFKTVEVDR  KEQVALIMNS  SGSTGLPKGV  QLTHENIVTR  FSHARDPIYG  NQVSPGTAVL  240
241  TVVPFHHGFG  MFTTLGYLIC  GFRVVMLTKF  DEETFLKTLQ  DYKCTSVILV  PTLFAILNKS  ELLNKYDLSN  LVEIASGGAP  320
321  LSKEVGEAVA  RRFNLPGVRQ  GYGLTETTSA  IIITPEGDDK  PGASGKVVPL  FKAKVIDLDT  KKSLGPNRRG  EVCVKGPMLM  400
401  KGYVNNPEAT  KELIDEEGWL  HTGDIGYYDE  EKHFFIVDRL  KSLIKYKGYQ  VPPAELESVL  LQHPSIFDAG  VAGVPDPVAG  480
481  ELPGAVVVLE  SGKNMTEKEV  MDYVASQVSN  AKRLRGGVRF  VDEVPKGLTG  KIDGRAIREI  LKKPVAKMGS  SGGRDYKDDD  560
561  DKDYKDDDDK  DYKDDDDK                                                                           578
```

Figure S8. Mass spectrometric analysis of the JFFluc protein purified from strain LWA717. Eleven unique peptides, highlighted in red, were identified. All identified peptides were from the luciferase sequence as indicated. No peptides with OmeY misincorporated at any position in these peptides were found, suggesting that the OmeRS did not mischarge the endogenous *C. elegans* tRNA with the Uaa.
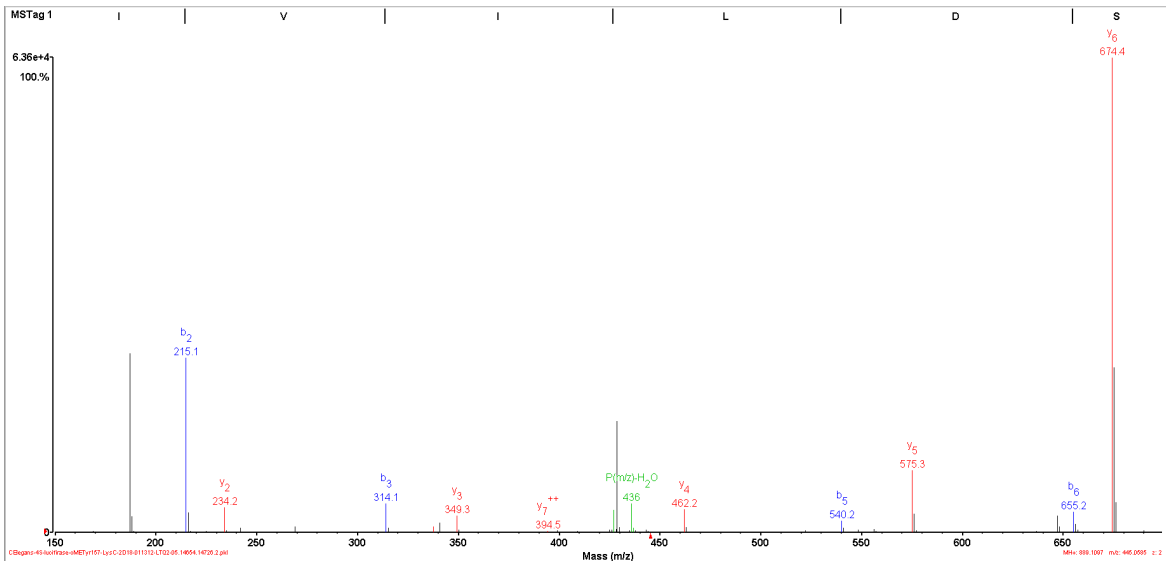
Peptide: (K)TIVILDSK(V); Score: 12.38;
Spectral count: 3; Start aa position: 150.
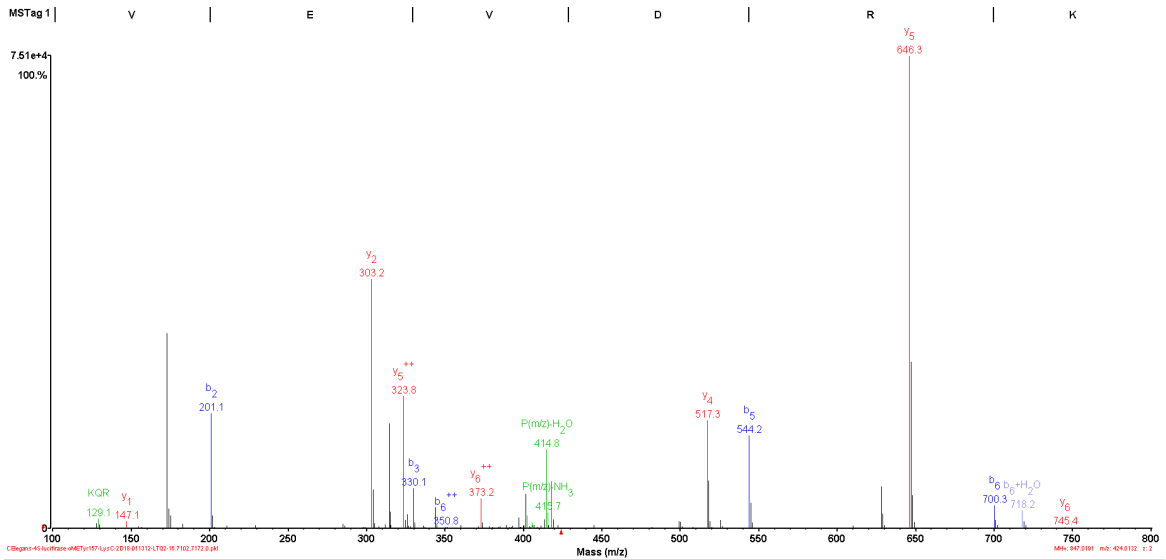
Peptide: (K)TVEVDRK(E); Score: 14.64;
Spectral count: 6; Start aa position: 185.

S18
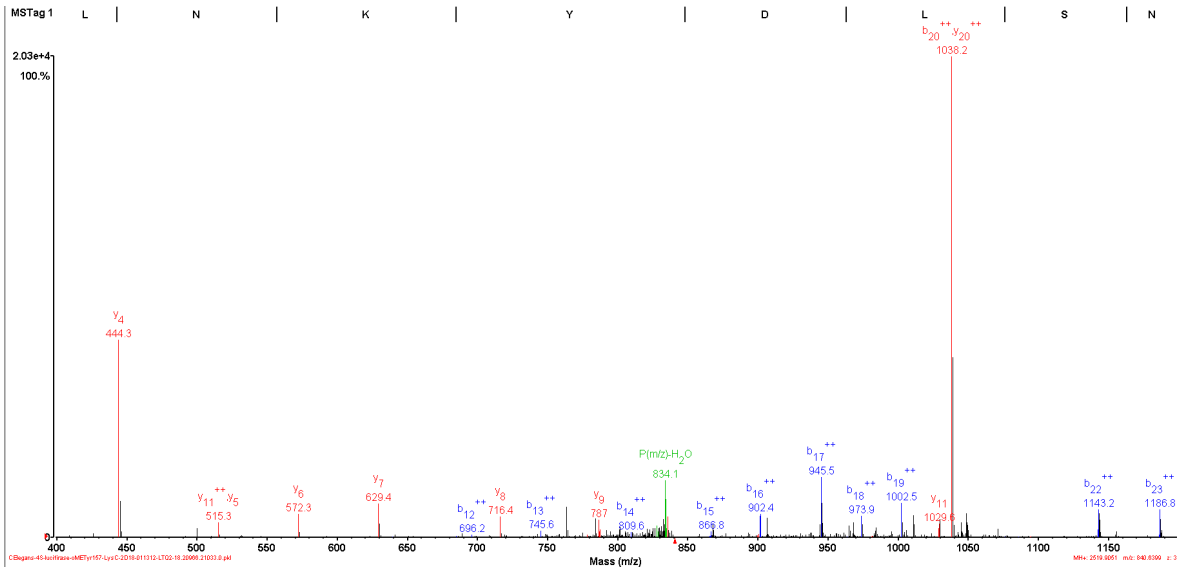
Peptide: (K)SELLNKYDLSNLVEIASGGAPLSK(E); Score: 14.36;
Spectral count: 1; Start aa position: 300.
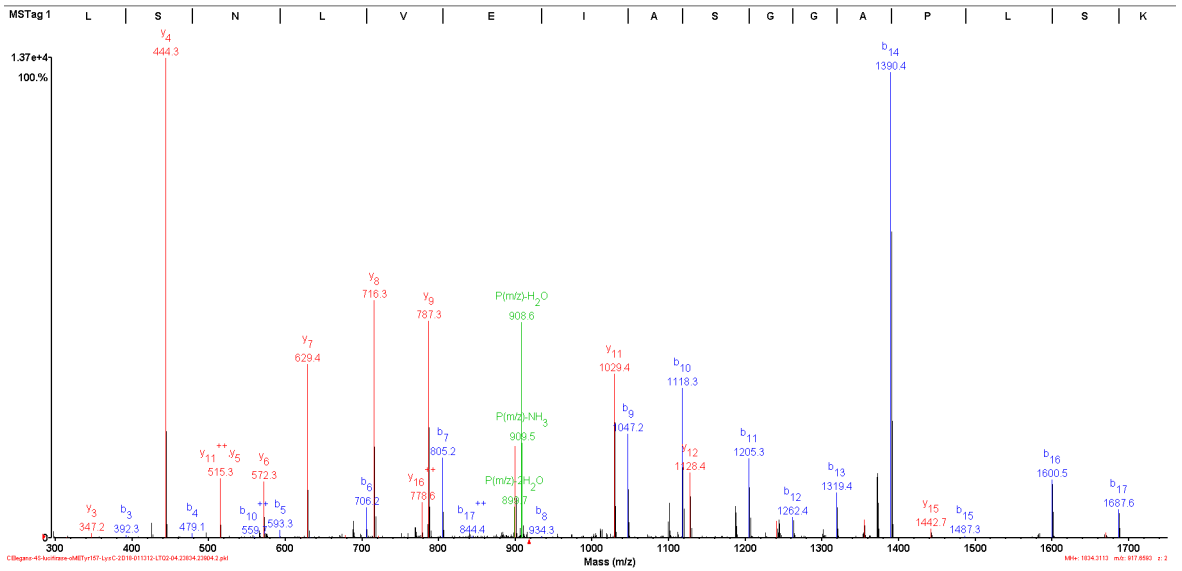
Peptide: (K)YDLSNLVEIASGGAPLSK(E); Score: 21.94;
Spectral count: 23; Start aa position: 306.
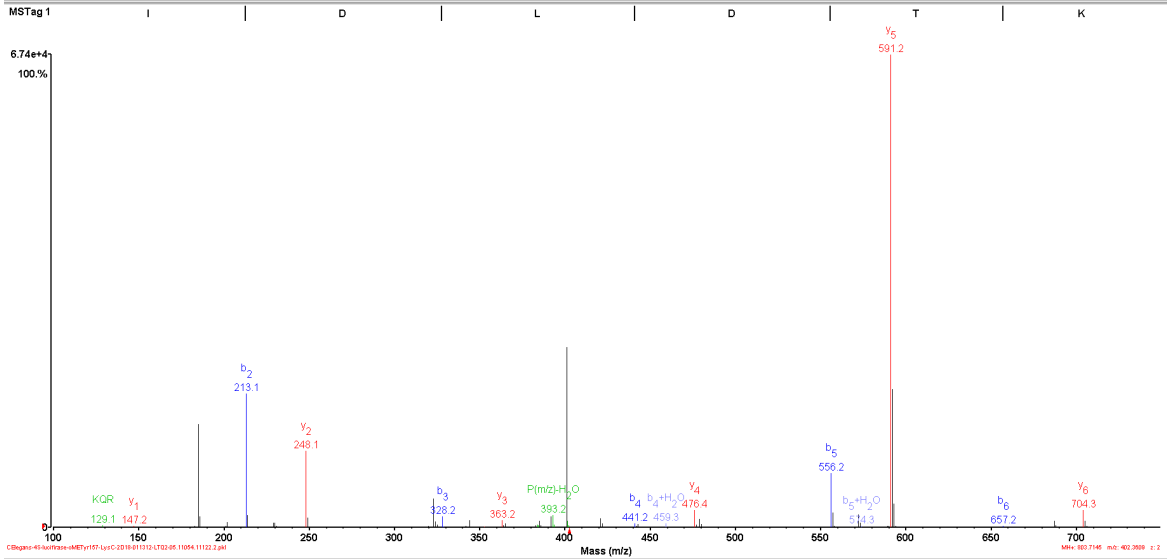
Peptide: (K)VIDLDTK(K); Score: 11.75;
Spectral count: 1; Start aa position: 375.
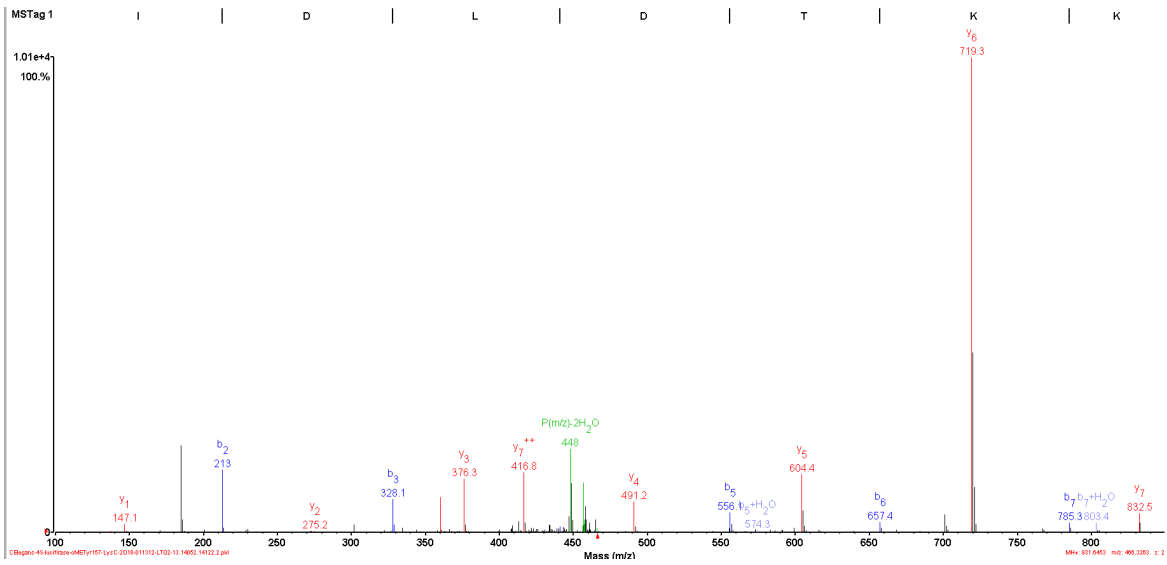
Peptide: (K)VIDLDTKK(S); Score: 16.38;
Spectral count: 42; Start aa position: 375.
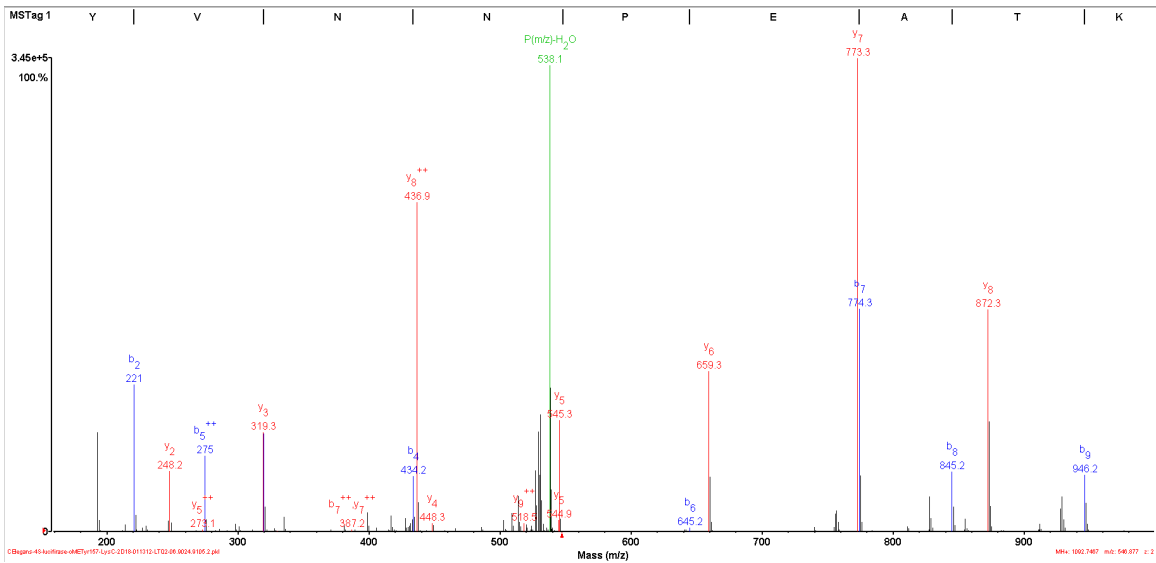
Peptide: (K)GYVNNPEATK(E); Score: 14.46;
Spectral count: 3; Start aa position: 402.
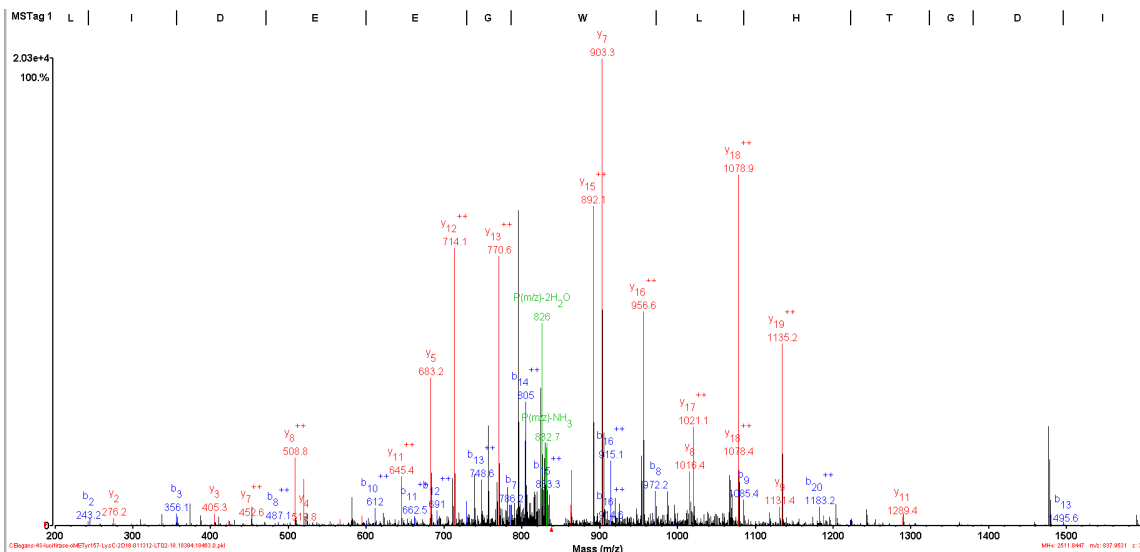
Peptide: (K)ELIDEEGWLHTGDIGYYDEEK(H); Score: 21.24;
Spectral count: 28; Start aa position: 412.
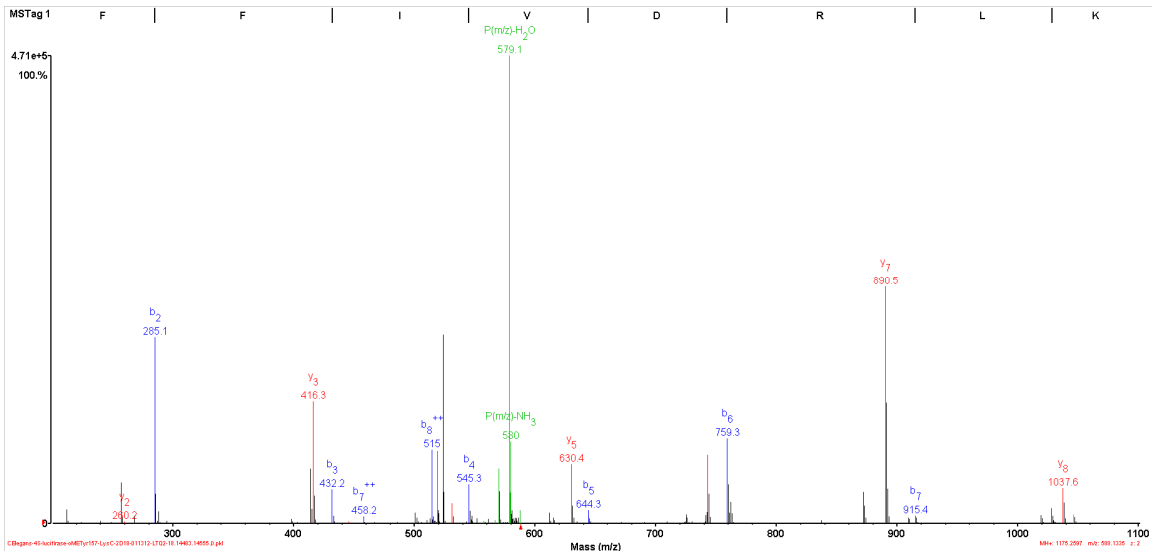
Peptide: (K)HFFIVDRLK(S); Score: 17.08;
Spectral count: 2; Start aa position: 433.
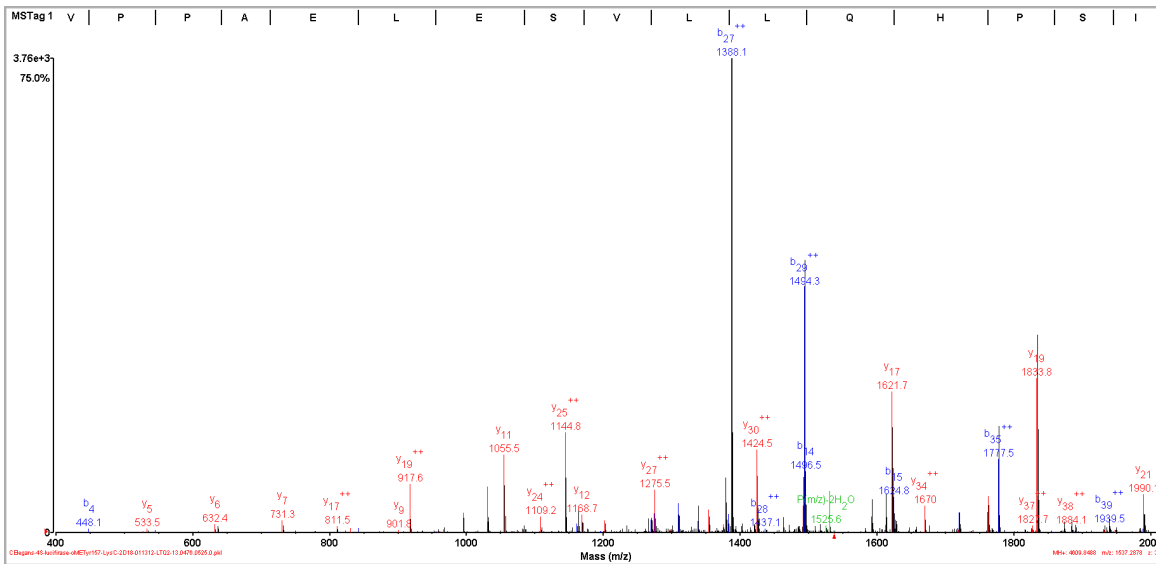
Peptide: (K)GYQVPPAELESVLLQHPSIFDAGVAGVPDPVAGELPGAVVVLESGK(N);
Score: 23.46; Spectral count: 9; Start aa position: 448.
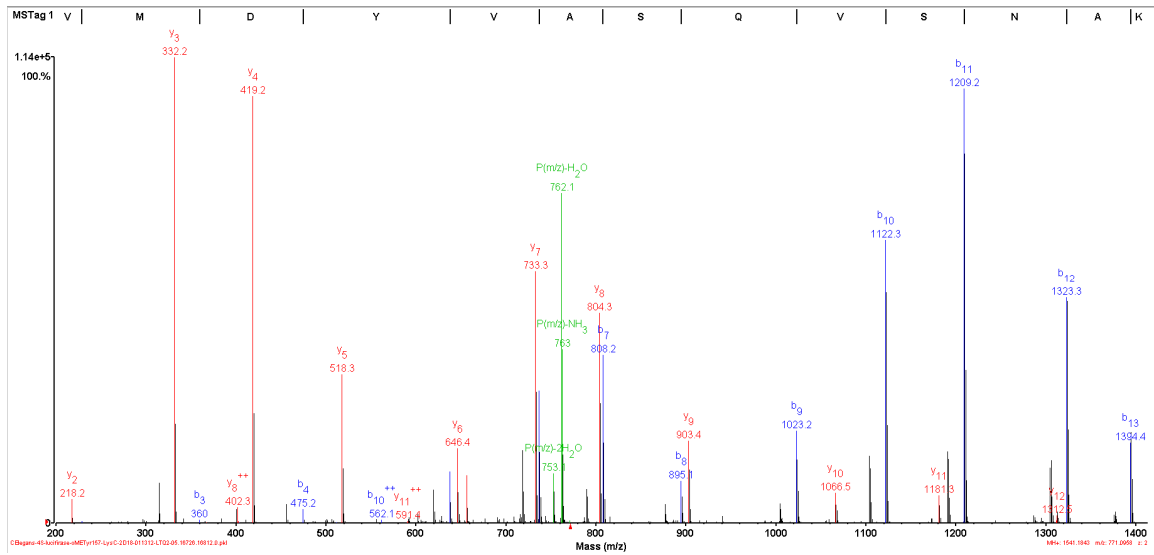
Peptide: (K)EVMDYVASQVSNAK(R); Score: 22.00;
Spectral count: 6; Start aa position: 499.

Figure S9. MS-MS spectra of peptides from JFFluc expressed in strain LWA717.

The fragment-ion masses were unambiguously identified, confirming that the sequences

of the peptides are from the *L. cruciata* luciferase. No peptide with any of the natural

amino acids substituted by the Uaa OmeY was identified.

Scheme S1. Synthesis of dipeptide Ala-DanAla (*A*, *B*) and DanAla-Ala (*C*).

A
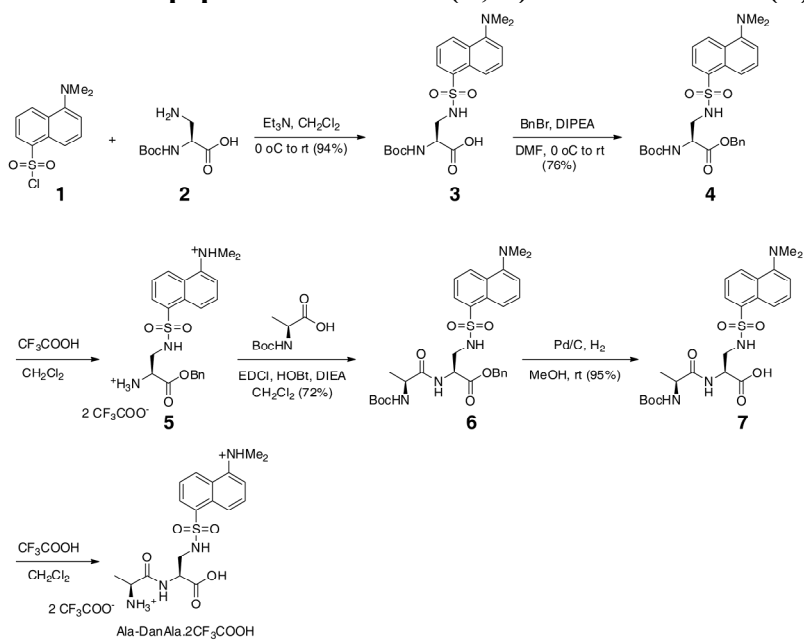
B
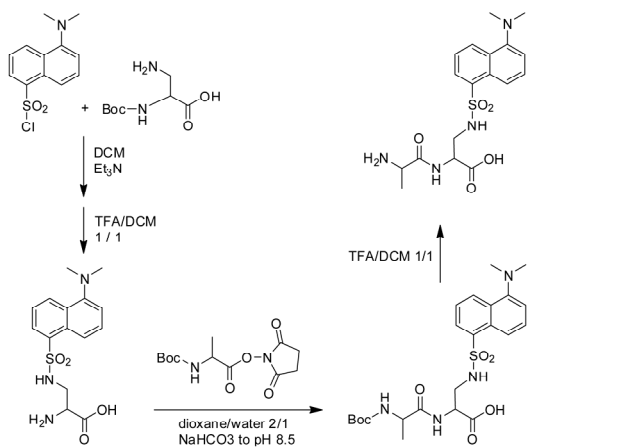
C
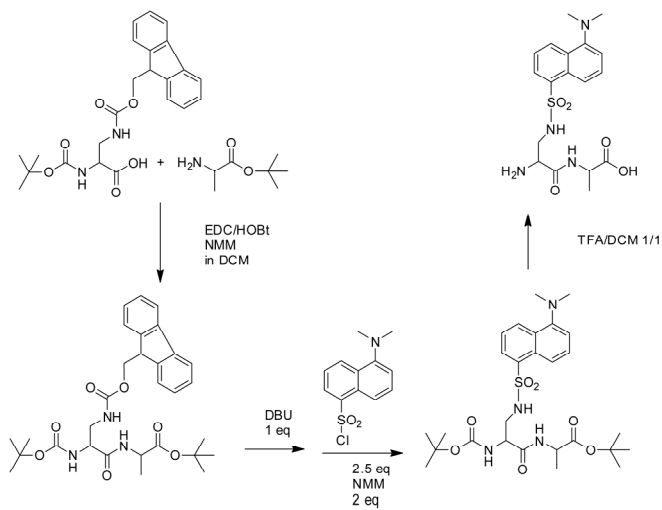
H-Ala-DanAla-OH

^{1}H NMR (500 MHz, DMSO-*d6*): δ = 8.63 (d, J = 8.0 Hz, 1H), 8.48 (d, J = 8.5 Hz, 1H), 8.28 (d, J = 9.0 Hz, 1H), 8.11-8.09 (m, 4H), 7.64 (dd, J = 7.0, 2.0 Hz, 1H), 7.60 (t, J = 8.0 Hz, 1H), 7.28 (d, J = 7.5 Hz, 1H), 4.40 (dt, J = 7.0, 5.5 Hz, 1H), 3.83 (t, J = 6.0 Hz, 1H), 3.14 (t, J = 5.5 Hz, 1H), 3.08 (dd, J = 13.5, 7.0 Hz, 1H), 2.84 (s, 6H), 1.35 (d, J = 7.0 Hz, 3H); ^{13}C NMR (125MHz, DMSO-*d6*): δ = 170.7, 169.5, 151.3, 135.5, 129.6, 129.1, 129.0, 128.2, 128.0, 123.6, 119.1, 115.3, 64.9, 52.6, 48.1, 45.1, 43.2, 25.2,16.9. LC-MS (245 nm, single peak), ESI-ion trap, [M+H]$^+_{expected}$: 409.15, [M+H]$^+_{found}$: 408.5, [2M+H]$^+_{found}$: 816.3

H-DanAla-Ala-OH

^{1}H NMR (500 MHz, DMSO-*d6*): δ = 8.49 (d, J = 8.5 Hz, 1 H), 8.28 (d, J = 8.5 Hz, 1H), 8.11 (d, J = 6.5 Hz, 1H), 7.64 (t, J = 8.0 Hz, 1H), 7.60 (t, J = 8.0 Hz, 1H), 7.27 (d, J = 7.0 Hz, 1H), 4.18 (t, J = 6.0 Hz, 1H), 3.66 (s, 1H), 3.07 (dd, J = 13.0, 4.0 Hz, 1H), 2.98 (dd, J = 13.0, 7.5 Hz, 1H), 2.83 (s, 6H), 1.26 (d, J = 7.0 Hz, 3H); ^{13}C NMR (125MHz, DMSO-*d6*): δ = 173.8, 168.2, 151.4, 135.1, 129.7, 129.1, 129.0, 128.4, 128.1, 123.6, 118.9, 115.3, 64.9, 52.9, 47.8, 45.1, 44.6, 17.2. LC-MS (245 nm, single peak), ESI-ion trap, [M+H]$^+_{expected}$: 409.15, [M+H]$^+_{found}$: 408.5, [2M+H]$^+_{found}$: 816.4

^{1}H NMR (500 MHz, DMSO-*d6*) of **H-Ala-DanAla-OH**

8.641
8.625
8.491
8.474
8.289
8.271
8.106
8.104
8.095
8.092
8.090
7.659
7.644
7.642
7.628
7.617
7.601
7.585
7.285
7.270

4.425
4.414
4.410
4.398
4.394
4.383
3.962
3.846
3.834
3.822
3.480
3.401
3.387
3.373
3.359
3.179
3.167
3.151
3.140
3.129
3.114
3.100
3.086
3.073
3.059
2.839
2.591
2.504
2.500
2.496
2.362
1.348
1.102
1.087
1.074

Sample: H-Ala-DanAla-OH
Sample ID: s_20100920_16
File: /home/walkup/Desktop/Irene/3201 (copy).fid

Pulse Sequence: s2pul

9   8   7   6   5   4   3   2   1   ppm

^{13}C NMR (125MHz, DMSO-*d6*) of **H-Ala-DanAla-OH**

170.711
169.529

151.277

135.480
129.588
129.059
128.992
128.240
127.959
123.619
119.057
115.261

64.896

52.624
48.121
45.073
43.162
40.004
39.837
39.670
39.500
39.333
39.167
39.000
25.206
16.885
15.145

Sample: H-Ala-DanAla-OH
Sample ID: s_20100920_16
File: /home/walkup/vnmrsys/data/auto_2010.09.20/3202.fid

Pulse Sequence: s2pul

180   160   140   120   100   80   60   40   20   ppm

^{1}H NMR (500 MHz, DMSO-*d6*) of **H-DanAla-Ala-OH**

8.512
8.497
8.480
8.288
8.271
8.120
8.107
7.661
7.644
7.629
7.620
7.604
7.587
7.280
7.266

4.190
4.178
4.165
3.662
3.402
3.388
3.374
3.360
3.168
3.088
3.079
3.061
3.054
3.000
2.985
2.974
2.959
2.834
2.500

1.266
1.252
1.103
1.089
1.075

10 9 8 7 6 5 4 3 2 1 ppm

^{13}C NMR (125MHz, DMSO-*d6*) of **H-DanAla-Ala-OH**

173.774
168.171
151.419
135.132
129.726
129.078
128.959
128.441
128.059
123.593
118.865
115.262

64.888
52.857
47.806
45.051
44.647
40.000
39.922
39.833
39.752
39.667
39.589
39.500
39.333
39.163
38.996

17.211
15.145

180 160 140 120 100 80 60 40 20 ppm

Plasmid Sequences

unc-54p::LeuRS

ATGACCATGATTACGCCAAGCTTGTCTTCTTCTAAATTCCCATAAAATCCCGA
AACTCCTTCCCTCTATCTTCTTTTTCTTCTCGTTTTCAAATGTTTCTCTCTATCC
CATTCTCTCATCAATTGAGTGGGATGAGGCTATCTCTGCCTCTCTTCTGAATCT
CTGAACCATCTTACATTACACTGTGGATGACGAGCCCCACAGGCTCCCTTGCA
TCAGATACTGCCATTGGGGATGGCAAAGAAGAGAGAAGGTATTGTGAGGAT
ATATTTTTCTAAGAAAAAACGTTTGAAGAAAAGAAGATGAAGAAGATCTGCT
TGATTCATTGCACAAGTTAGAAGTAACAGGGGTCTATATTTCGAAGAACTTA
AAGGGAATGCAACTGAACATAAAATTAAACAAAGGGATTGAATCCTGCAGT
GAGTATTTTCGGTTTTTCACTGGTTCTCTGTAAAAAGAGTAATGCAAAGGGCA
AGTTAACTTAGGTCGTAAATGTATTGAATTTGCTTAAAATCTGAAGATCTAGT
GGTGAACCGTGGAAGATTATCAAGAGGAGGCTGAAGATCTGTTTAAGAACCA
TTAATCAAACTGGTATTCTATTTTCACTGGTTGTATGTAAACATTCTATCTTAT
TCCTTTTATCACTGTTCTGCACTTTCCTATAAAAAAGTTGACCGACCGTACT
CTCTGAATTCATTTTTCCCGATCTTACCAACTCCCGATCTATCTCTATCCCTGG
TTTTTTCTTCGTGCTCCAATGGAATTCTTGAGACTTCCACTATCTTCTCTGGCA
CCCTCCACTACGCGTAGGCGTCTCTCGCTTCGTGTATTCCCGGGAAGCCGGTT
CCCGTCTCTCCCGCCGCTGCCGCTGCCGCACACAGCTTTACACCTCGTAGAAT
CCCCAAAGAGGGGCGTGGCTTGCGGGTGCCAACATCCTCCTGCCGAGGAAGA
AGCAGGCACTCATCACTCGCATCATCAACCTCGGGATTGGCCAAAGGACCCA
AAGGTATGTTTCGAATGATACTAACATAACATAGAACATTTTCAGGAGGACC
CTTGGCTAGCGGTAGAAAAAATGCAAGAGCAATACCGCCCGGAAGAGATAG
AATCCAAAGTACAGCTTCATTGGGATGAGAAGCGCACATTTGAAGTAACCGA
AGACGAGAGCAAAGAGAAGTATTACTGCCTGTCTATGCTTCCCTATCCTTCTG
GTCGACTACACATGGGCCACGTACGTAACTACACCATCGGTGACGTGATCGC
CCGCTACCAGCGTATGCTGGGCAAAAACGTCCTGCAGCCGATCGGCTGGGAC
GCGTTTGGTCTGCCTGCGGAAGGCGCGGCGGTGAAAAACAACACCGCTCCGG
CACCGTGGACGTACGACAACATCGCGTATATGAAAAACCAGCTCAAAATGCT
GGGCTTTGGTTATGACTGGAGCCGCGAGCTGGCAACCTGTACGCCGGAATAC
TACCGTTGGGAACAGAAATTCTTCACCGAGCTGTATAAAAAAGGCCTGGTAT
ATAAGAAGACTTCTGCGGTCAACTGGTGCCCGAACGACCAGACCGTACTGGC
GAACGAACAAGTTATCGACGGCTGCTGCTGGCGCTGCGATACCAAAGTTGAA
CGTAAAGAGATCCCGCAGTGGTTTATCAAAATCACTGCTTACGCTGACGAGC
TGCTCAACGATCTGGATAAACTGGATCACTGGCCAGACACCGTTAAAACCAT
GCAGCGTAACTGGATCGGTCGTTCCGAAGGCGTGGAGATCACCTTCAACGTT
AACGACTATGACAACACGCTGACCGTTACACTACCCGCCCGGACACCTTTA
TGGGTTGTACCTACCTGGCGGTAGCTGCGGGTCATCCGCTGGCGCAGAAAGC
GGCGGAAAATAATCCTGAACTGGCGGCCTTTATTGACGAATGCCGTAACACC
AAAGTTGCCGAAGCTGAAATGGCGACGATGGAGAAAAAAGGCGTCGATACT
GGCTTTAAAGCGGTTCACCCATTAACGGGCGAAGAAATTCCCGTTTGGGCAG
CAAACTTCGTATTGATGGAGTACGGCACGGGCGCAGTTATGGCGGTACCGGG
GCACGACCAGCGCGACTACGAGTTTGCCTCTAAATACGGCCTGAACATCAAA
CCGGTTATCCTGGCAGCTGACGGCTCTGAGCCAGATCTTTCTCAGCAAGCCCT

GACTGAAAAAGGCGTGCTGTTCAACTCTGGCGAGTTCAACGGTCTTGACCAT
GAAGCGGCCTTCAACGCCATCGCCGATAAACTGACTGCGATGGGCGTTGGCG
AGCGTAAAGTGAACTACCGCCTGCGCGACTGGGGTGTTTCCCGTCAGCGTTA
CTGGGGCGCGCCGATTCCGATGGTGACGCTGGAAGACGGTACCGTAATGCCG
ACCCCGGACGACCAGCTGCCGGTGATCCTGCCGGAAGATGTGGTAATGGACG
GCATTACCAGCCCGATTAAAGCAGATCCGGAGTGGGCGAAAACTACCGTTAA
CGGTATGCCAGCACTGCGTGAAACCGACACTTTCGACACCTTTATGGAGTCCT
CCTGGTACTATGCGCGCTACACTTGCCCGCAGTACAAAGAAGGTATGCTGGA
TTCCGAAGCGGCTAACTACTGGCTGCCGGTGGATATCTACATTGGTGGTATTG
AACACGCCATTATGCACCTGCTCTACTTCCGCTTCTTCCACAAACTGATGCGT
GATGCAGGCATGGTGAACTCTGACGAACCAGCGAAACAGTTGCTGTGTCAGG
GTATGGTGCTGGCAGATGCCTTCTACTATGTTGGCGAAAACGGCGAACGTAA
CTGGGTTTCCCCGGTTGATGCTATCGTTGAACGTGACGAGAAAGGCCGTATC
GTGAAAGCGAAAGATGCGGCAGGCCATGAACTGGTTTATACCGGCATGAGCA
AAATGTCCAAGTCGAAGAACAACGGTATCGACCCGCAGGTGATGGTTGAACG
TTACGGCGCGGACACCGTTCGTCTGTTTATGATGTTTGCTTCTCCGGCTGATA
TGACTCTCGAATGGCAGGAATCCGGTGTGGAAGGGGCTAACCGCTTCCTGAA
ACGTGTCTGGAAACTGGTTTACGAGCACACAGCAAAAGGTGATGTTGCGGCA
CTGAACGTTGATGCGCTGACTGAAAATCAGAAAGCGCTGCGTCGCGATGTGC
ATAAAACGATCGCTAAAGTGACCGATGATATCGGCCGTCGTCAGACCTTCAA
CACCGCAATTGCGGCGATTATGGAGCTGATGAACAAACTGGCGAAAGCACCA
ACCGATGGCGAGCAGGATCGCGCTCTGATGCAGGAAGCACTGCTGGCCGTTG
TCCGTATGCTTAACCCGTTCACCCCGCACATCTGCTTCACGCTGTGGCAGGAA
CTGAAAGGCGAAGGCGATATCGACAACGCGCCGTGGCCGGTTGCTGACGAA
AAAGCGATGGTGGAAGACTCCACGCTGGTCGTGGTGCAGGTTAACGGTAAAG
TCCGTGCCAAAATCACCGTTCCGGTGGACGCAACGGAAGAACAGGTTCGCGA
ACGTGCTGGCCAGGAACATCTGGTAGCAAAATATCTTGATGGCGTTACTGTA
CGTAAAGTGATTTACGTACCAGGTAAACTCCTCAATCTGGTCGTTGGCTAAGA
GCTCCGCATCGGCCGCTGTCATCAGATCGCCATCTCGCGCCCGTGCCTCTGAC
TTCTAAGTCCAATTACTCTTCAACATCCCTACATGCTCTTTCTCCCTGTGCTCC
CACCCCCTATTTTTGTTATTATCAAAAAAACTTCTTCTTAATTTCTTTGTTTTTT
AGCTTCTTTTAAGTCACCTCTAACAATGAAATTGTGTAGATTCAAAAATAGAA
TTAATTCGTAATAAAAAGTCGAAAAAAATTGTGCTCCCTCCCCCCATTAATAA
TAATTCTATCCCAAAATCTACACAATGTTCTGTGTACACTTCTTATGTTTTTTT
TACTTCTGAATAAATTTTTTTTGAAACATCATAGAAAAAACCGCACACAAAT
ACCTTATCATATGTTACGTTTCAGTTTATGACCGCAATTTTTATTCTTCGCAC
GTCTGGGCCTCTCATGACGTCAAATCATGCTCATCGTGAAAAAGTTTTGGAGT
ATTTTTGGAATTTTTCAATCAAGTGAAAGTTTATGAAATTAATTTTCCTGCTTT
TGCTTTTTGGGGGTTTCCCCTATTGTTTGTCAAGAGTTTCGAGGACGGCGTTTT
TCTTGCTAAAATCACAAGTATTGATGAGCACGATGCAAGAAAGATCGGAAGA
AGGTTTGGGTTTGAGGCTCAGTGGAAGGTGAGTAGAAGTTGATAATTTGAAA
GTGGAGTAGTGTCTATGGGGTTTTTGCCTTAAATGACAGAATACATTCCCAAT
ATACCAAACATAACTGTTTAAAATTAAACATTTTTCTAAATTTTATATGATTT
CTTTTAAATTTGCAAAAATTACTTAAATTTGAATTCCCGCGCAAATGAGTGAC
TTCATTTTCTGCATTATTGTGTTTTCCGGCTATATTAATAGGTATTTGTTTGTG
TTTTTCTTTATTTTATGATTCGAACTCCAATTTGTAAATTTTCGAACATATTTC

CCTAAAGAAAAAATATGATTAATCTGGAAAAATTGGAAAATTATTTTTCAAA
TAAAAAACAAAGAAAAAAATGAAGAAAAACCTATTAGTTTGGCCATAAAAC
GCAAAAATGTCGAAAATGACGTCACTCATCTGCGCGGGAAATCAAGAATAAT
TCGGCCTTTTTTATTTTTTTGGAAAATCGTAAAACATTTAGAAAAATTTTTTAA
TAGTTATAGTGGGACTGTATTCTGTCATTTAGGGCAAAAGCCAGAGACGCTA
CTCCACCGTTGGGGGATCTCCATGGGGCTCAGCCTCAACCAATTTTTAGTGTT
AAAAATTTGATTTTTTCAGTTAAAAACGATGGTTTTTGATGCTTTTTACCTATT
TTACAGATAGAAATTTTAAATTTCGCAAAAATCTTTAAAAATAAACTTTTTT
GTTTGGTTTTCGCTCGAAAATAGCTTTAAATTTGCAGTTTTTCTCTCAAAAACT
CTAAATTTCATGCGTTCCACGTGGCTTTCTATCAATTTAAATACTAATATTAAT
ATTTTCTTCAAAATCTGCCACGTTACAGCCTGCCATAGCCTTCTGAAACTCTA
CAATTCCCCTCTAATCACTAGCGCCGCCTCCCCGCACACTCAACACAGCGAG
CGGCGGAACCCGCGGGGTGTCGGCCGCTCGGACACGCTCCCGTATATAACGA
CGCGGCGCGCGTGGATCCCCGCCCGGATGGTGGAATCGGTAGACACAAGGG
ATTCTAAATCCCTCGGCGTTCGCGCTGTGCGGGTTCAAGTCCCGCTCCGGGTA
TATCTTTTTGAATTTACAGCATTTTTCATACTAGTCGGCCGTACGGGCCCTTTC
GTCTCGCGCGTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCC
GGAGACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGT
CAGGGCGCGTCAGCGGGTGTTGGCGGGTGTCGGGGCTGGCTTAACTATGCGG
CATCAGAGCAGATTGTACTGAGAGTGCACCATATGCGGTGTGAAATACCGCA
CAGATGCGTAAGGAGAAAATACCGCATCAGGCGGCCTTAAGGGCCTCGTGAT
ACGCCTATTTTTATAGGTTAATGTCATGATAATAATGGTTTCTTAGACGTCAG
GTGGCACTTTTCGGGGAAATGTGCGCGGAACCCCTATTTGTTTATTTTTCTAA
ATACATTCAAATATGTATCCGCTCATGAGACAATAACCCTGATAAATGCTTCA
ATAATATTGAAAAAGGAAGAGTATGAGTATTCAACATTTCCGTGTCGCCCTT
ATTCCCTTTTTTGCGGCATTTTGCCTTCCTGTTTTTGCTCACCCAGAAACGCTG
GTGAAAGTAAAAGATGCTGAAGATCAGTTGGGTGCACGAGTGGGTTACATCG
AACTGGATCTCAACAGCGGTAAGATCCTTGAGAGTTTTCGCCCCGAAGAACG
TTTTCCAATGATGAGCACTTTTAAAGTTCTGCTATGTGGCGCGGTATTATCCC
GTATTGACGCCGGGCAAGAGCAACTCGGTCGCCGCATACACTATTCTCAGAA
TGACTTGGTTGAGTACTCACCAGTCACAGAAAAGCATCTTACGGATGGCATG
ACAGTAAGAGAATTATGCAGTGCTGCCATAACCATGAGTGATAACACTGCGG
CCAACTTACTTCTGACAACGATCGGAGGACCGAAGGAGCTAACCGCTTTTTT
GCACAACATGGGGGATCATGTAACTCGCCTTGATCGTTGGGAACCGGAGCTG
AATGAAGCCATACCAAACGACGAGCGTGACACCACGATGCCTGTAGCAATG
GCAACAACGTTGCGCAAACTATTAACTGGCGAACTACTTACTCTAGCTTCCCG
GCAACAATTAATAGACTGGATGGAGGCGGATAAAGTTGCAGGACCACTTCTG
CGCTCGGCCCTTCCGGCTGGCTGGTTTATTGCTGATAAATCTGGAGCCGGTGA
GCGTGGGTCTCGCGGTATCATTGCAGCACTGGGGCCAGATGGTAAGCCCTCC
CGTATCGTAGTTATCTACACGACGGGGAGTCAGGCAACTATGGATGAACGAA
ATAGACAGATCGCTGAGATAGGTGCCTCACTGATTAAGCATTGGTAACTGTC
AGACCAAGTTTACTCATATATACTTTAGATTGATTTAAAACTTCATTTTTAATT
TAAAAGGATCTAGGTGAAGATCCTTTTTGATAATCTCATGACCAAAATCCCTT
AACGTGAGTTTTCGTTCCACTGAGCGTCAGACCCCGTAGAAAAGATCAAAGG
ATCTTCTTGAGATCCTTTTTTTCTGCGCGTAATCTGCTGCTTGCAAACAAAAA
AACCACCGCTACCAGCGGTGGTTTGTTTGCCGGATCAAGAGCTACCAACTCTT

TTTCCGAAGGTAACTGGCTTCAGCAGAGCGCAGATACCAAATACTGTCCTTCT
AGTGTAGCCGTAGTTAGGCCACCACTTCAAGAACTCTGTAGCACCGCCTACA
TACCTCGCTCTGCTAATCCTGTTACCAGTGGCTGCTGCCAGTGGCGATAAGTC
GTGTCTTACCGGGTTGGACTCAAGACGATAGTTACCGGATAAGGCGCAGCGG
TCGGGCTGAACGGGGGGGTTCGTGCACACAGCCCAGCTTGGAGCGAACGACCT
ACACCGAACTGAGATACCTACAGCGTGAGCATTGAGAAAGCGCCACGCTTCC
CGAAGGGAGAAAGGCGGACAGGTATCCGGTAAGCGGCAGGGTCGGAACAGG
AGAGCGCACGAGGGAGCTTCCAGGGGGAAACGCCTGGTATCTTTATAGTCCT
GTCGGGTTTCGCCACCTCTGACTTGAGCGTCGATTTTTGTGATGCTCGTCAGG
GGGGCGGAGCCTATGGAAAAACGCCAGCAACGCGGCCTTTTTACGGTTCCTG
GCCTTTTGCTGGCCTTTTGCTCACATGTTCTTTCCTGCGTTATCCCCTGATTCT
GTGGATAACCGTATTACCGCCTTTGAGTGAGCTGATACCGCTCGCCGCAGCC
GAACGACCGAGCGCAGCGAGTCAGTGAGCGAGGAAGCGGAAGAGCGCCCAA
TACGCAAACCGCCTCTCCCCGCGCGTTGGCCGATTCATTAATGCAGCTGGCAC
GACAGGTTTCCCGACTGGAAAGCGGGCAGTGAGCGCAACGCAATTAATGTGA
GTTAGCTCACTCATTAGGCACCCCAGGCTTTACACTTTATGCTTCCGGCTCGT
ATGTTGTGTGGAATTGTGAGCGGATAACAATTTCACACAGGAAACAGCT

unc-54p::TyrRS

ATGACCATGATTACGCCAAGCTTGTCTTCTTCTAAATTCCCATAAAATCCCGA
AACTCCTTCCCTCTATCTTCTTTTTCTTCTCGTTTTCAAATGTTTCTCTCTATCC
CATTCTCTCATCAATTGAGTGGGATGAGGCTATCTCTGCCTCTCTTCTGAATCT
CTGAACCATCTTACATTACACTGTGGATGACGAGCCCCACAGGCTCCCTTGCA
TCAGATACTGCCATTGGGGATGGCAAAGAAGAGAGAAGGTATTGTGAGGAT
ATATTTTTCTAAGAAAAAACGTTTGAAGAAAGAAGATGAAGAAGATCTGCT
TGATTCATTGCACAAGTTAGAAGTAACAGGGGTCTATATTTCGAAGAACTTA
AAGGGAATGCAACTGAACATAAAATTAAACAAAGGGATTGAATCCTGCAGT
GAGTATTTTCGGTTTTTCACTGGTTCTCTGTAAAAAGAGTAATGCAAAGGGCA
AGTTAACTTAGGTCGTAAATGTATTGAATTTGCTTAAAATCTGAAGATCTAGT
GGTGAACCGTGGAAGATTATCAAGAGGAGGCTGAAGATCTGTTTAAGAACCA
TTAATCAAACTGGTATTCTATTTTCACTGGTTGTATGTAAACATTCTATCTTAT
TCCTTTTATCACTGTTCTGCACTTTCCTATAAAAAAGTTGACCGACCGTACT
CTCTGAATTCATTTTTCCCGATCTTACCAACTCCCGATCTATCTCTATCCCTGG
TTTTTTCTTCGTGCTCCAATGGAATTCTTGAGACTTCCACTATCTTCTCTGGCA
CCCTCCACTACGCGTAGGCGTCTCTCGCTTCGTGTATTCCCGGGAAGCCGGTT
CCCGTCTCTCCCGCCGCTGCCGCTGCCGCACACAGCTTTACACCTCGTAGAAT
CCCCAAAGAGGGGCGTGGCTTGCGGGTGCCAACATCCTCCTGCCGAGGAAGA
AGCAGGCACTCATCACTCGCATCATCAACCTCGGGATTGGCCAAAGGACCCA
AAGGTATGTTTCGAATGATACTAACATAACATAGAACATTTTCAGGAGGACC
CTTGGCTAGCGGTAGAAAAAATGGCAAGCAGTAACTTGATTAAACAATTGCA
AGAGCGGGGGCTGGTAGCCCAGGTGACGGACGAGGAAGCGTTAGCAGAGCG
ACTGGCGCAAGGCCCGATCGCGCTCTATTGCGGCTTCGATCCTACCGCTGAC
AGCTTGCATTTGGGGCATCTTGTTCCATTGTTATGCCTGAAACGCTTCCAGCA
GGCGGGCCACAAGCCGGTTGCGCTGGTAGGCGGCGCGACGGGTCTGATTGGC
GACCCGAGCTTCAAAGCTGCCGAGCGTAAGCTGAACACCGAAGAAACTGTTC

AGGAGTGGGTGGACAAAATCCGTAAGCAGGTTGCCCCGTTCCTCGATTTCGA
CTGTGGAGAAAACTCTGCTATCGCGGCGAACAACTATGACTGGTTCGGCAAT
ATGAATGTGCTGACCTTCCTGCGCGATATTGGCAAACACTTCTCCGTTAACCA
GATGATCAACAAAGAAGCGGTTAAGCAGCGTCTCAACCGTGAAGATCAGGG
GATTTCGTTCACTGAGTTTTCCTACAACCTGTTGCAGGGTTATGACTTCGCCT
GTCTGAACAAACAGTACGGTGTGGTGCTGCAAATTGGTGGTTCTGACCAGTG
GGGTAACATCACTTCTGGTATCGACCTGACCCGTCGTCTGCATCAGAATCAGG
TGTTTGGCCTGACCGTTCCGCTGATCACTAAAGCAGATGGCACCAAATTTGGT
AAAACTGAAGGCGGCGCAGTCTGGTTGGATCCGAAGAAAACCAGCCCGTAC
AAATTCTACCAGTTCTGGATCAACACTGCGAGAGCCGACGTTTACCGCTTCCT
GAAGTTCTTCACCTTTATGAGCATTGAAGAGATCAACGCCCTGGAAGAAGAA
GATAAAAACAGCGGTAAAGCACCGCGCGCCCAGTATGTACTGGCGGAGCAG
GTGACTCGTCTGGTTCACGGTGAAGAAGGTTTACAGGCGGCAAAACGTATTA
CCGAATGCCTGTTCAGCGGTTCTTTGAGTGCGCTGAGTGAAGCGGACTTCGA
ACAGCTGGCGCAGGACGGCGTACCGATGGTTGAGATGGAAAAGGGCGCAGA
CCTGATGCAGGCACTGGTCGATTCTGAACTGCAACCTTCCCGTGGTCAGGCA
CGTAAAACTATCGCCTCCAATGCCATCACCATTAACGGTGAAAAACAGTCCG
ATCCTGAATACTTCTTTAAAGAAGAAGATCGTCTGTTTGGTCGTTTTACCTTA
CTGCGTCGCGGTAAAAGAATTACTGTCTGATTTGCTGGAAATAAGAGCTCC
GCATCGGCCGCTGTCATCAGATCGCCATCTCGCGCCCGTGCCTCTGACTTCTA
AGTCCAATTACTCTTCAACATCCCTACATGCTCTTTCTCCCTGTGCTCCCACCC
CCTATTTTTGTTATTATCAAAAAAACTTCTTCTTAATTTCTTTGTTTTTTAGCTT
CTTTTAAGTCACCTCTAACAATGAAATTGTGTAGATTCAAAAATAGAATTAAT
TCGTAATAAAAGTCGAAAAAAATTGTGCTCCCTCCCCCCATTAATAATAATT
CTATCCCAAAATCTACACAATGTTCTGTGTACACTTCTTATGTTTTTTTTACTT
CTGAATAAATTTTTTTTGAAACATCATAGAAAAAACCGCACACAAAATACCT
TATCATATGTTACGTTTCAGTTTATGACCGCAATTTTTATTTCTTCGCACGTCT
GGGCCTCTCATGACGTCAAATCATGCTCATCGTGAAAAAGTTTTGGAGTATTT
TTGGAATTTTTCAATCAAGTGAAAGTTTATGAAATTAATTTTCCTGCTTTTGCT
TTTTGGGGGTTTCCCCTATTGTTTGTCAAGAGTTTCGAGGACGGCGTTTTTCTT
GCTAAAATCACAAGTATTGATGAGCACGATGCAAGAAAGATCGGAAGAAGG
TTTGGGTTTGAGGCTCAGTGGAAGGTGAGTAGAAGTTGATAATTTGAAAGTG
GAGTAGTGTCTATGGGGTTTTTGCCTTAAATGACAGAATACATTCCCAATATA
CCAAACATAACTGTTTAAAATTAAACATTTTTCTAAATTTTATATGATTTCTTT
TAAATTTGCAAAAATTACTTAAATTTGAATTCCCGCGCAAATGAGTGACTTCA
TTTTCTGCATTATTGTGTTTTCCGGCTATATTAATAGGTATTTGTTTGTGTTTTT
CTTTATTTTATGATTCGAACTCCAATTTGTAAATTTTCGAACATATTTCCCTAA
AGAAAAATATGATTAATCTGGAAAAATTGGAAAATTATTTTTCAAATAAAA
AACAAAGAAAAAAATGAAGAAAACCTATTAGTTTGGCCATAAAACGCAAA
AATGTCGAAAATGACGTCACTCATCTGCGCGGGAAATCAAGAATAATTCGGC
CTTTTTTATTTTTTTGGAAATCGTAAACATTTAGAAAATTTTTTAATAGTT
ATAGTGGGACTGTATTCTGTCATTTAGGGCAAAAGCCAGAGACGCTACTCCA
CCGTTGGGGGATCTCCATGGGGCTCAGCCTCAACCAATTTTTAGTGTTAAAAA
TTTGATTTTTTCAGTTAAAAACGATGGTTTTTGATGCTTTTTACCTATTTTACA
GATAGAAAATTTTAAATTTCGCAAAAATCTTTAAAAATAAACTTTTTTGTTTG
GTTTTCGCTCGAAAATAGCTTTAAATTTGCAGTTTTTCTCTCAAAAACTCTAA

ATTTCATGCGTTCCACGTGGCTTTCTATCAATTTAAATACTAATATTAATATTT
TCTTCAAAATCTGCCACGTTACAGCCTGCCATAGCCTTCTGAAACTCTACAAT
TCCCCTCTAATCACTAGCGCCGCCTCCCCGCACACTCAACACAGCGAGCGGC
GGAACCCGCGGGGTGTCGGCCGCTCGGACACGCTCCCGTATATAACGACGCG
GCGCGCGTGGATCCCCGGTGGGGTTCCCGAGCGGCCAAAGGGAGCAGACTCT
AAATCTGCCGTCATCGACTTCGAAGGTTCGAATCCTTCCCCCACCATATCTTT
TTGAATTTACAGCATTTTTCATACTAGTCGGCCGTACGGGCCCTTTCGTCTCG
CGCGTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAGAC
GGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGC
GCGTCAGCGGGTGTTGGCGGGTGTCGGGGCTGGCTTAACTATGCGGCATCAG
AGCAGATTGTACTGAGAGTGCACCATATGCGGTGTGAAATACCGCACAGATG
CGTAAGGAGAAAATACCGCATCAGGCGGCCTTAAGGGCCTCGTGATACGCCT
ATTTTTATAGGTTAATGTCATGATAATAATGGTTTCTTAGACGTCAGGTGGCA
CTTTTCGGGGAAATGTGCGCGGAACCCCTATTTGTTTATTTTTCTAAATACATT
CAAATATGTATCCGCTCATGAGACAATAACCCTGATAAATGCTTCAATAATAT
TGAAAAAGGAAGAGTATGAGTATTCAACATTTCCGTGTCGCCCTTATTCCCTT
TTTTGCGGCATTTTGCCTTCCTGTTTTTGCTCACCCAGAAACGCTGGTGAAAG
TAAAAGATGCTGAAGATCAGTTGGGTGCACGAGTGGGTTACATCGAACTGGA
TCTCAACAGCGGTAAGATCCTTGAGAGTTTTCGCCCCGAAGAACGTTTTCCAA
TGATGAGCACTTTTAAAGTTCTGCTATGTGGCGCGGTATTATCCCGTATTGAC
GCCGGGCAAGAGCAACTCGGTCGCCGCATACACTATTCTCAGAATGACTTGG
TTGAGTACTCACCAGTCACAGAAAAGCATCTTACGGATGGCATGACAGTAAG
AGAATTATGCAGTGCTGCCATAACCATGAGTGATAACACTGCGGCCAACTTA
CTTCTGACAACGATCGGAGGACCGAAGGAGCTAACCGCTTTTTTGCACAACA
TGGGGGATCATGTAACTCGCCTTGATCGTTGGGAACCGGAGCTGAATGAAGC
CATACCAAACGACGAGCGTGACACCACGATGCCTGTAGCAATGGCAACAAC
GTTGCGCAAACTATTAACTGGCGAACTACTTACTCTAGCTTCCCGGCAACAAT
TAATAGACTGGATGGAGGCGGATAAAGTTGCAGGACCACTTCTGCGCTCGGC
CCTTCCGGCTGGCTGGTTTATTGCTGATAAATCTGGAGCCGGTGAGCGTGGGT
CTCGCGGTATCATTGCAGCACTGGGGCCAGATGGTAAGCCCTCCCGTATCGT
AGTTATCTACACGACGGGGAGTCAGGCAACTATGGATGAACGAAATAGACA
GATCGCTGAGATAGGTGCCTCACTGATTAAGCATTGGTAACTGTCAGACCAA
GTTTACTCATATATACTTTAGATTGATTTAAAACTTCATTTTTAATTTAAAAGG
ATCTAGGTGAAGATCCTTTTTGATAATCTCATGACCAAAATCCCTTAACGTGA
GTTTTCGTTCCACTGAGCGTCAGACCCCGTAGAAAAGATCAAAGGATCTTCTT
GAGATCCTTTTTTTCTGCGCGTAATCTGCTGCTTGCAAACAAAAAAACCACCG
CTACCAGCGGTGGTTTGTTTGCCGGATCAAGAGCTACCAACTCTTTTTCCGAA
GGTAACTGGCTTCAGCAGAGCGCAGATACCAAATACTGTCCTTCTAGTGTAG
CCGTAGTTAGGCCACCACTTCAAGAACTCTGTAGCACCGCCTACATACCTCGC
TCTGCTAATCCTGTTACCAGTGGCTGCTGCCAGTGGCGATAAGTCGTGTCTTA
CCGGGTTGGACTCAAGACGATAGTTACCGGATAAGGCGCAGCGGTCGGGCTG
AACGGGGGGTTCGTGCACACAGCCCAGCTTGGAGCGAACGACCTACACCGA
ACTGAGATACCTACAGCGTGAGCATTGAGAAAGCGCCACGCTTCCCGAAGGG
AGAAAGGCGGACAGGTATCCGGTAAGCGGCAGGGTCGGAACAGGAGAGCGC
ACGAGGGAGCTTCCAGGGGGAAACGCCTGGTATCTTTATAGTCCTGTCGGGT
TTCGCCACCTCTGACTTGAGCGTCGATTTTTGTGATGCTCGTCAGGGGGGCGG

AGCCTATGGAAAAACGCCAGCAACGCGGCCTTTTTACGGTTCCTGGCCTTTTG
CTGGCCTTTTGCTCACATGTTCTTTCCTGCGTTATCCCCTGATTCTGTGGATAA
CCGTATTACCGCCTTTGAGTGAGCTGATACCGCTCGCCGCAGCCGAACGACC
GAGCGCAGCGAGTCAGTGAGCGAGGAAGCGGAAGAGCGCCCAATACGCAAA
CCGCCTCTCCCCGCGCGTTGGCCGATTCATTAATGCAGCTGGCACGACAGGTT
TCCCGACTGGAAAGCGGGCAGTGAGCGCAACGCAATTAATGTGAGTTAGCTC
ACTCATTAGGCACCCCAGGCTTTACACTTTATGCTTCCGGCTCGTATGTTGTG
TGGAATTGTGAGCGGATAACAATTTCACACAGGAAACAGCT

unc-54p::OmeRS

ATGACCATGATTACGCCAAGCTTGTCTTCTTCTAAATTCCCATAAAATCCCGA
AACTCCTTCCCTCTATCTTCTTTTTCTTCTCGTTTTCAAATGTTTCTCTCTATCC
CATTCTCTCATCAATTGAGTGGGATGAGGCTATCTCTGCCTCTCTTCTGAATCT
CTGAACCATCTTACATTACACTGTGGATGACGAGCCCCACAGGCTCCCTTGCA
TCAGATACTGCCATTGGGGATGGCAAAGAAGAGAGAAGGTATTGTGAGGAT
ATATTTTCTAAGAAAAAACGTTTGAAGAAAGAAGATGAAGAAGATCTGCT
TGATTCATTGCACAAGTTAGAAGTAACAGGGGTCTATATTTCGAAGAACTTA
AAGGGAATGCAACTGAACATAAAATTAAACAAAGGGATTGAATCCTGCAGT
GAGTATTTTCGGTTTTTCACTGGTTCTCTGTAAAAAGAGTAATGCAAAGGGCA
AGTTAACTTAGGTCGTAAATGTATTGAATTTGCTTAAAATCTGAAGATCTAGT
GGTGAACCGTGGAAGATTATCAAGAGGAGGCTGAAGATCTGTTTAAGAACCA
TTAATCAAACTGGTATTCTATTTTCACTGGTTGTATGTAAACATTCTATCTTAT
TCCTTTTATCACTGTTCTGCACTTTCCTATAAAAAAGTTGACCGACCGTACT
CTCTGAATTCATTTTTCCCGATCTTACCAACTCCCGATCTATCTCTATCCCTGG
TTTTTTCTTCGTGCTCCAATGGAATTCTTGAGACTTCCACTATCTTCTCTGGCA
CCCTCCACTACGCGTAGGCGTCTCTCGCTTCGTGTATTCCCGGGAAGCCGGTT
CCCGTCTCTCCCGCCGCTGCCGCTGCCGCACACAGCTTTACACCTCGTAGAAT
CCCCAAAGAGGGGCGTGGCTTGCGGGTGCCAACATCCTCCTGCCGAGGAAGA
AGCAGGCACTCATCACTCGCATCATCAACCTCGGGATTGGCCAAAGGACCCA
AAGGTATGTTTCGAATGATACTAACATAACATAGAACATTTTCAGGAGGACC
CTTGGCTAGCGGTAGAAAAAATGGCAAGCAGTAACTTGATTAAACAATTGCA
AGAGCGGGGGCTGGTAGCCCAGGTGACGGACGAGGAAGCGTTAGCAGAGCG
ACTGGCGCAAGGCCCGATCGCGCTCACCTGCGGCTTCGATCCTACCGCTGAC
AGCTTGCATTTGGGGCATCTTGTTCCATTGTTATGCCTGAAACGCTTCCAGCA
GGCGGGCCACAAGCCGGTTGCGCTGGTAGGCGGCGCGACGGGTCTGATTGGC
GACCCGAGCTTCAAAGCTGCCGAGCGTAAGCTGAACACCGAAGAAACTGTTC
AGGAGTGGGTGGACAAAATCCGTAAGCAGGTTGCCCCGTTCCTCGATTTCGA
CTGTGGAGAAACTCTGCTATCGCGGCGAACAACTATGACTGGTTCGGCAAT
ATGAATGTGCTGACCTTCCTGCGCGATATTGGCAAACACTTCTCCGTTAACCA
GATGATCAACAAAGAAGCGGTTAAGCAGCGTCTCAACCGTGAAGATCAGGG
GATTTCGTTCACTGAGTTTTCCTACAACCTGTTGCAGGGTTATACCATGGCCT
GTCTGAACAAACAGTACGGTGTGGTGCTGCAAATTGGTGGTTCTGACCAGTG
GGGTAACATCACTTCTGGTATCGACCTGACCCGTCGTCTGCATCAGAATCAGG
TGTTTGGCCTGACCGTTCCGCTGATCACTAAAGCAGATGGCACCAAATTTGGT

AAAACTGAAGGCGGCGCAGTCTGGTTGGATCCGAAGAAAACCAGCCCGTAC
AAATTCTACCAGTTCTGGATCAACACTGCGAGAGCCGACGTTTACCGCTTCCT
GAAGTTCTTCACCTTTATGAGCATTGAAGAGATCAACGCCCTGGAAGAAGAA
GATAAAACAGCGGTAAAGCACCGCGCGCCCAGTATGTACTGGCGGAGCAG
GTGACTCGTCTGGTTCACGGTGAAGAAGGTTTACAGGCGGCAAAACGTATTA
CCGAATGCCTGTTCAGCGGTTCTTTGAGTGCGCTGAGTGAAGCGGACTTCGA
ACAGCTGGCGCAGGACGGCGTACCGATGGTTGAGATGGAAAAGGGCGCAGA
CCTGATGCAGGCACTGGTCGATTCTGAACTGCAACCTTCCCGTGGTCAGGCA
CGTAAAACTATCGCCTCCAATGCCATCACCATTAACGGTGAAAAACAGTCCG
ATCCTGAATACTTCTTTAAAGAAGAAGATCGTCTGTTTGGTCGTTTTACCTTA
CTGCGTCGCGGTAAAAGAATTACTGTCTGATTTGCTGGAAATAAGAGCTCC
GCATCGGCCGCTGTCATCAGATCGCCATCTCGCGCCCGTGCCTCTGACTTCTA
AGTCCAATTACTCTTCAACATCCCTACATGCTCTTTCTCCCTGTGCTCCCACCC
CCTATTTTTGTTATTATCAAAAAAACTTCTTCTTAATTTCTTTGTTTTTTAGCTT
CTTTTAAGTCACCTCTAACAATGAAATTGTGTAGATTCAAAAATAGAATTAAT
TCGTAATAAAAAGTCGAAAAAATTGTGCTCCCTCCCCCCCATTAATAATAATT
CTATCCCAAAATCTACACAATGTTCTGTGTACACTTCTTATGTTTTTTTTACTT
CTGAATAAATTTTTTTTGAAACATCATAGAAAAAACCGCACACAAAATACCT
TATCATATGTTACGTTTCAGTTTATGACCGCAATTTTTATTTCTTCGCACGTCT
GGGCCTCTCATGACGTCAAATCATGCTCATCGTGAAAAAGTTTTGGAGTATTT
TTGGAATTTTTCAATCAAGTGAAAGTTTATGAAATTAATTTTCCTGCTTTTGCT
TTTTGGGGGTTTCCCCTATTGTTTGTCAAGAGTTTCGAGGACGGCGTTTTTCTT
GCTAAAATCACAAGTATTGATGAGCACGATGCAAGAAAGATCGGAAGAAGG
TTTGGGTTTGAGGCTCAGTGGAAGGTGAGTAGAAGTTGATAATTTGAAAGTG
GAGTAGTGTCTATGGGGTTTTTGCCTTAAATGACAGAATACATTCCCAATATA
CCAAACATAACTGTTTAAAATTAAACATTTTTCTAAATTTTATATGATTTCTTT
TAAATTTGCAAAAATTACTTAAATTTGAATTCCCGCGCAAATGAGTGACTTCA
TTTTCTGCATTATTGTGTTTTCCGGCTATATTAATAGGTATTTGTTTGTGTTTTT
CTTTATTTTATGATTCGAACTCCAATTTGTAAATTTTCGAACATATTTCCCTAA
AGAAAAAATATGATTAATCTGGAAAAATTGGAAAATTATTTTTCAAATAAAA
AACAAAGAAAAAAATGAAGAAAAACCTATTAGTTTGGCCATAAAACGCAAA
AATGTCGAAAATGACGTCACTCATCTGCGCGGGAAATCAAGAATAATTCGGC
CTTTTTATTTTTTTGGAAAATCGTAAAACATTTAGAAAAATTTTTTAATAGTT
ATAGTGGGACTGTATTCTGTCATTTAGGGCAAAAGCCAGAGACGCTACTCCA
CCGTTGGGGGATCTCCATGGGGCTCAGCCTCAACCAATTTTTAGTGTTAAAAA
TTTGATTTTTTCAGTTAAAAACGATGGTTTTTGATGCTTTTTACCTATTTTACA
GATAGAAAATTTTAAATTTCGCAAAAATCTTTAAAAATAAACTTTTTTGTTTG
GTTTTCGCTCGAAAATAGCTTTAAATTTGCAGTTTTTCTCTCAAAAACTCTAA
ATTTCATGCGTTCCACGTGGCTTTCTATCAATTTAAATACTAATATTAATATTT
TCTTCAAAATCTGCCACGTTACAGCCTGCCATAGCCTTCTGAAACTCTACAAT
TCCCCTCTAATCACTAGCGCCGCCTCCCCGCACACTCAACACAGCGAGCGGC
GGAACCCGCGGGGTGTCGGCCGCTCGGACACGCTCCCGTATATAACGACGCG
GCGCGCGTGGATCCCCGGTGGGGTTCCCGAGCGGCCAAAGGGAGCAGACTCT
AAATCTGCCGTCATCGACTTCGAAGGTTCGAATCCTTCCCCCACCATATCTTT
TTGAATTTACAGCATTTTTCATACTAGTCGGCCGTACGGGCCCTTTCGTCTCG
CGCGTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAGAC

GGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGC
GCGTCAGCGGGTGTTGGCGGGTGTCGGGGCTGGCTTAACTATGCGGCATCAG
AGCAGATTGTACTGAGAGTGCACCATATGCGGTGTGAAATACCGCACAGATG
CGTAAGGAGAAAATACCGCATCAGGCGGCCTTAAGGGCCTCGTGATACGCCT
ATTTTTATAGGTTAATGTCATGATAATAATGGTTTCTTAGACGTCAGGTGGCA
CTTTTCGGGGAAATGTGCGCGGAACCCCTATTTGTTTATTTTTCTAAATACATT
CAAATATGTATCCGCTCATGAGACAATAACCCTGATAAATGCTTCAATAATAT
TGAAAAAGGAAGAGTATGAGTATTCAACATTTCCGTGTCGCCCTTATTCCCTT
TTTTGCGGCATTTTGCCTTCCTGTTTTTGCTCACCCAGAAACGCTGGTGAAAG
TAAAAGATGCTGAAGATCAGTTGGGTGCACGAGTGGGTTACATCGAACTGGA
TCTCAACAGCGGTAAGATCCTTGAGAGTTTTCGCCCCGAAGAACGTTTTCCAA
TGATGAGCACTTTTAAAGTTCTGCTATGTGGCGCGGTATTATCCCGTATTGAC
GCCGGGCAAGAGCAACTCGGTCGCCGCATACACTATTCTCAGAATGACTTGG
TTGAGTACTCACCAGTCACAGAAAAGCATCTTACGGATGGCATGACAGTAAG
AGAATTATGCAGTGCTGCCATAACCATGAGTGATAACACTGCGGCCAACTTA
CTTCTGACAACGATCGGAGGACCGAAGGAGCTAACCGCTTTTTTGCACAACA
TGGGGGATCATGTAACTCGCCTTGATCGTTGGGAACCGGAGCTGAATGAAGC
CATACCAAACGACGAGCGTGACACCACGATGCCTGTAGCAATGGCAACAAC
GTTGCGCAAACTATTAACTGGCGAACTACTTACTCTAGCTTCCCGGCAACAAT
TAATAGACTGGATGGAGGCGGATAAAGTTGCAGGACCACTTCTGCGCTCGGC
CCTTCCGGCTGGCTGGTTTATTGCTGATAAATCTGGAGCCGGTGAGCGTGGGT
CTCGCGGTATCATTGCAGCACTGGGGCCAGATGGTAAGCCCTCCCGTATCGT
AGTTATCTACACGACGGGGAGTCAGGCAACTATGGATGAACGAAATAGACA
GATCGCTGAGATAGGTGCCTCACTGATTAAGCATTGGTAACTGTCAGACCAA
GTTTACTCATATATACTTTAGATTGATTTAAAACTTCATTTTTAATTTAAAAGG
ATCTAGGTGAAGATCCTTTTTGATAATCTCATGACCAAAATCCCTTAACGTGA
GTTTTCGTTCCACTGAGCGTCAGACCCCGTAGAAAAGATCAAAGGATCTTCTT
GAGATCCTTTTTTTCTGCGCGTAATCTGCTGCTTGCAAACAAAAAAACCACCG
CTACCAGCGGTGGTTTGTTTGCCGGATCAAGAGCTACCAACTCTTTTTCCGAA
GGTAACTGGCTTCAGCAGAGCGCAGATACCAAATACTGTCCTTCTAGTGTAG
CCGTAGTTAGGCCACCACTTCAAGAACTCTGTAGCACCGCCTACATACCTCGC
TCTGCTAATCCTGTTACCAGTGGCTGCTGCCAGTGGCGATAAGTCGTGTCTTA
CCGGGTTGGACTCAAGACGATAGTTACCGGATAAGGCGCAGCGGTCGGGCTG
AACGGGGGGTTCGTGCACACAGCCCAGCTTGGAGCGAACGACCTACACCGA
ACTGAGATACCTACAGCGTGAGCATTGAGAAAGCGCCACGCTTCCCGAAGGG
AGAAAGGCGGACAGGTATCCGGTAAGCGGCAGGGTCGGAACAGGAGAGCGC
ACGAGGGAGCTTCCAGGGGGAAACGCCTGGTATCTTTATAGTCCTGTCGGGT
TTCGCCACCTCTGACTTGAGCGTCGATTTTTGTGATGCTCGTCAGGGGGGCGG
AGCCTATGGAAAAACGCCAGCAACGCGGCCTTTTTACGGTTCCTGGCCTTTTG
CTGGCCTTTTGCTCACATGTTCTTTCCTGCGTTATCCCCTGATTCTGTGGATAA
CCGTATTACCGCCTTTGAGTGAGCTGATACCGCTCGCCGCAGCCGAACGACC
GAGCGCAGCGAGTCAGTGAGCGAGGAAGCGGAAGAGCGCCCAATACGCAAA
CCGCCTCTCCCCGCGCGTTGGCCGATTCATTAATGCAGCTGGCACGACAGGTT
TCCCGACTGGAAAGCGGGCAGTGAGCGCAACGCAATTAATGTGAGTTAGCTC
ACTCATTAGGCACCCCAGGCTTTACACTTTATGCTTCCGGCTCGTATGTTGTG
TGGAATTGTGAGCGGATAACAATTTCACACAGGAAACAGCT

unc-54p::DanRS

ATGACCATGATTACGCCAAGCTTGTCTTCTTCTAAATTCCCATAAAATCCCGA
AACTCCTTCCCTCTATCTTCTTTTTCTTCTCGTTTTCAAATGTTTCTCTCTATCC
CATTCTCTCATCAATTGAGTGGGATGAGGCTATCTCTGCCTCTCTTCTGAATCT
CTGAACCATCTTACATTACACTGTGGATGACGAGCCCCACAGGCTCCCTTGCA
TCAGATACTGCCATTGGGGATGGCAAAGAAGAGAGAAGGTATTGTGAGGAT
ATATTTTTCTAAGAAAAAACGTTTGAAGAAAAGAAGATGAAGAAGATCTGCT
TGATTCATTGCACAAGTTAGAAGTAACAGGGGTCTATATTTCGAAGAACTTA
AAGGGAATGCAACTGAACATAAAATTAAACAAAGGGATTGAATCCTGCAGT
GAGTATTTTCGGTTTTTCACTGGTTCTCTGTAAAAGAGTAATGCAAAGGGCA
AGTTAACTTAGGTCGTAAATGTATTGAATTTGCTTAAAATCTGAAGATCTAGT
GGTGAACCGTGGAAGATTATCAAGAGGAGGCTGAAGATCTGTTTAAGAACCA
TTAATCAAACTGGTATTCTATTTTCACTGGTTGTATGTAAACATTCTATCTTAT
TCCTTTTATCACTGTTCTGCACTTTCCTATAAAAAAGTTGACCGACCGTACT
CTCTGAATTCATTTTTCCCGATCTTACCAACTCCCGATCTATCTCTATCCCTGG
TTTTTTCTTCGTGCTCCAATGGAATTCTTGAGACTTCCACTATCTTCTCTGGCA
CCCTCCACTACGCGTAGGCGTCTCTCGCTTCGTGTATTCCCGGGAAGCCGGTT
CCCGTCTCTCCCGCCGCTGCCGCTGCCGCACACAGCTTTACACCTCGTAGAAT
CCCCAAAGAGGGGCGTGGCTTGCGGGTGCCAACATCCTCCTGCCGAGGAAGA
AGCAGGCACTCATCACTCGCATCATCAACCTCGGGATTGGCCAAAGGACCCA
AAGGTATGTTTCGAATGATACTAACATAACATAGAACATTTTCAGGAGGACC
CTTGGCTAGCGGTAGAAAAAATGGCAAGCAGTAACTTGATTAAACAATTGCA
AGAGCGGGGGCTGGTAGCCCAGGTGACGGACGAGGAAGCGTTAGCAGAGCG
ACTGGCGCAAGGCCCGATCGCGCTCACCTGCGGCTTCGATCCTACCGCTGAC
AGCTTGCATTTGGGGCATCTTGTTCCATTGTTATGCCTGAAACGCTTCCAGCA
GGCGGGCCACAAGCCGGTTGCGCTGGTAGGCGGCGCGACGGGTCTGATTGGC
GACCCGAGCTTCAAAGCTGCCGAGCGTAAGCTGAACACCGAAGAAACTGTTC
AGGAGTGGGTGGACAAAATCCGTAAGCAGGTTGCCCCGTTCCTCGATTTCGA
CTGTGGAGAAAACTCTGCTATCGCGGCGAACAACTATGACTGGTTCGGCAAT
ATGAATGTGCTGACCTTCCTGCGCGATATTGGCAAACACTTCTCCGTTAACCA
GATGATCAACAAAGAAGCGGTTAAGCAGCGTCTCAACCGTGAAGATCAGGG
GATTTCGTTCACTGAGTTTTCCTACAACCTGTTGCAGGGTTATACCATGGCCT
GTCTGAACAAACAGTACGGTGTGGTGCTGCAAATTGGTGGTTCTGACCAGTG
GGGTAACATCACTTCTGGTATCGACCTGACCCGTCGTCTGCATCAGAATCAGG
TGTTTGGCCTGACCGTTCCGCTGATCACTAAAGCAGATGGCACCAAATTTGGT
AAAACTGAAGGCGGCGCAGTCTGGTTGGATCCGAAGAAAACCAGCCCGTAC
AAATTCTACCAGTTCTGGATCAACACTGCGAGAGCCGACGTTTACCGCTTCCT
GAAGTTCTTCACCTTTATGAGCATTGAAGAGATCAACGCCCTGGAAGAAGAA
GATAAAAACAGCGGTAAAGCACCGCGCGCCCAGTATGTACTGGCGGAGCAG
GTGACTCGTCTGGTTCACGGTGAAGAAGGTTTACAGGCGGCAAAACGTATTA
CCGAATGCCTGTTCAGCGGTTCTTTGAGTGCGCTGAGTGAAGCGGACTTCGA
ACAGCTGGCGCAGGACGGCGTACCGATGGTTGAGATGGAAAAGGGCGCAGA
CCTGATGCAGGCACTGGTCGATTCTGAACTGCAACCTTCCCGTGGTCAGGCA
CGTAAAACTATCGCCTCCAATGCCATCACCATTAACGGTGAAAAACAGTCCG
ATCCTGAATACTTCTTTAAAGAAGAAGATCGTCTGTTTGGTCGTTTTACCTTA

CTGCGTCGCGGTAAAAAGAATTACTGTCTGATTTGCTGGAAATAAGAGCTCC
GCATCGGCCGCTGTCATCAGATCGCCATCTCGCGCCCGTGCCTCTGACTTCTA
AGTCCAATTACTCTTCAACATCCCTACATGCTCTTTCTCCCTGTGCTCCCACCC
CCTATTTTTGTTATTATCAAAAAAACTTCTTCTTAATTTCTTTGTTTTTTAGCTT
CTTTTAAGTCACCTCTAACAATGAAATTGTGTAGATTCAAAAATAGAATTAAT
TCGTAATAAAAAGTCGAAAAAAATTGTGCTCCCTCCCCCCATTAATAATAATT
CTATCCCAAAATCTACACAATGTTCTGTGTACACTTCTTATGTTTTTTTTACTT
CTGAATAAATTTTTTTTGAAACATCATAGAAAAAACCGCACACAAAATACCT
TATCATATGTTACGTTTCAGTTTATGACCGCAATTTTTATTTCTTCGCACGTCT
GGGCCTCTCATGACGTCAAATCATGCTCATCGTGAAAAAGTTTTGGAGTATTT
TTGGAATTTTTCAATCAAGTGAAAGTTTATGAAATTAATTTTCCTGCTTTTGCT
TTTTGGGGGTTTCCCCTATTGTTTGTCAAGAGTTTCGAGGACGGCGTTTTTCTT
GCTAAAATCACAAGTATTGATGAGCACGATGCAAGAAAGATCGGAAGAAGG
TTTGGGTTTGAGGCTCAGTGGAAGGTGAGTAGAAGTTGATAATTTGAAAGTG
GAGTAGTGTCTATGGGGTTTTTGCCTTAAATGACAGAATACATTCCCAATATA
CCAAACATAACTGTTTAAAATTAAACATTTTTCTAAATTTTATATGATTTCTTT
TAAATTTGCAAAAATTACTTAAATTTGAATTCCCGCGCAAATGAGTGACTTCA
TTTTCTGCATTATTGTGTTTTCCGGCTATATTAATAGGTATTTGTTTGTGTTTTT
CTTTATTTTATGATTCGAACTCCAATTTGTAAATTTTCGAACATATTTCCCTAA
AGAAAAAATATGATTAATCTGGAAAAATTGGAAAATTATTTTTCAAATAAAA
AACAAAGAAAAAAATGAAGAAAACCTATTAGTTTGGCCATAAAACGCAAA
AATGTCGAAAATGACGTCACTCATCTGCGCGGGAAATCAAGAATAATTCGGC
CTTTTTTATTTTTTTGGAAAATCGTAAAACATTTAGAAAAATTTTTTAATAGTT
ATAGTGGGACTGTATTCTGTCATTTAGGGCAAAAGCCAGAGACGCTACTCCA
CCGTTGGGGGATCTCCATGGGGCTCAGCCTCAACCAATTTTTAGTGTTAAAAA
TTTGATTTTTTCAGTTAAAAACGATGGTTTTTGATGCTTTTTACCTATTTTACA
GATAGAAAATTTTAAATTTCGCAAAAATCTTTAAAAATAAACTTTTTTGTTTG
GTTTTCGCTCGAAAATAGCTTTAAATTTGCAGTTTTTCTCTCAAAAACTCTAA
ATTTCATGCGTTCCACGTGGCTTTCTATCAATTTAAATACTAATATTAATATTT
TCTTCAAAATCTGCCACGTTACAGCCTGCCATAGCCTTCTGAAACTCTACAAT
TCCCCTCTAATCACTAGCGCCGCCTCCCCGCACACTCAACACAGCGAGCGGC
GGAACCCGCGGGGTGTCGGCCGCTCGGACACGCTCCCGTATATAACGACGCG
GCGCGCGTGGATCCCCGGTGGGGTTCCCGAGCGGCCAAAGGGAGCAGACTCT
AAATCTGCCGTCATCGACTTCGAAGGTTCGAATCCTTCCCCCACCATATCTTT
TTGAATTTACAGCATTTTTCATACTAGTCGGCCGTACGGGCCCTTTCGTCTCG
CGCGTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAGAC
GGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGC
GCGTCAGCGGGTGTTGGCGGGTGTCGGGGCTGGCTTAACTATGCGGCATCAG
AGCAGATTGTACTGAGAGTGCACCATATGCGGTGTGAAATACCGCACAGATG
CGTAAGGAGAAAATACCGCATCAGGCGGCCTTAAGGGCCTCGTGATACGCCT
ATTTTTATAGGTTAATGTCATGATAATAATGGTTTCTTAGACGTCAGGTGGCA
CTTTTCGGGGAAATGTGCGCGGAACCCCTATTTGTTTATTTTTCTAAATACATT
CAAATATGTATCCGCTCATGAGACAATAACCCTGATAAATGCTTCAATAATAT
TGAAAAAGGAAGAGTATGAGTATTCAACATTTCCGTGTCGCCCTTATTCCCTT
TTTTGCGGCATTTTGCCTTCCTGTTTTTGCTCACCCAGAAACGCTGGTGAAAG
TAAAAGATGCTGAAGATCAGTTGGGTGCACGAGTGGGTTACATCGAACTGGA

TCTCAACAGCGGTAAGATCCTTGAGAGTTTTCGCCCCGAAGAACGTTTTCCAA
TGATGAGCACTTTTAAAGTTCTGCTATGTGGCGCGGTATTATCCCGTATTGAC
GCCGGGCAAGAGCAACTCGGTCGCCGCATACACTATTCTCAGAATGACTTGG
TTGAGTACTCACCAGTCACAGAAAAGCATCTTACGGATGGCATGACAGTAAG
AGAATTATGCAGTGCTGCCATAACCATGAGTGATAACACTGCGGCCAACTTA
CTTCTGACAACGATCGGAGGACCGAAGGAGCTAACCGCTTTTTTGCACAACA
TGGGGGATCATGTAACTCGCCTTGATCGTTGGGAACCGGAGCTGAATGAAGC
CATACCAAACGACGAGCGTGACACCACGATGCCTGTAGCAATGGCAACAAC
GTTGCGCAAACTATTAACTGGCGAACTACTTACTCTAGCTTCCCGGCAACAAT
TAATAGACTGGATGGAGGCGGATAAAGTTGCAGGACCACTTCTGCGCTCGGC
CCTTCCGGCTGGCTGGTTTATTGCTGATAAATCTGGAGCCGGTGAGCGTGGGT
CTCGCGGTATCATTGCAGCACTGGGGCCAGATGGTAAGCCCTCCCGTATCGT
AGTTATCTACACGACGGGGAGTCAGGCAACTATGGATGAACGAAATAGACA
GATCGCTGAGATAGGTGCCTCACTGATTAAGCATTGGTAACTGTCAGACCAA
GTTTACTCATATATACTTTAGATTGATTTAAAACTTCATTTTTAATTTAAAAGG
ATCTAGGTGAAGATCCTTTTTGATAATCTCATGACCAAAATCCCTTAACGTGA
GTTTTCGTTCCACTGAGCGTCAGACCCCGTAGAAAAGATCAAAGGATCTTCTT
GAGATCCTTTTTTTCTGCGCGTAATCTGCTGCTTGCAAACAAAAAAACCACCG
CTACCAGCGGTGGTTTGTTTGCCGGATCAAGAGCTACCAACTCTTTTTCCGAA
GGTAACTGGCTTCAGCAGAGCGCAGATACCAAATACTGTCCTTCTAGTGTAG
CCGTAGTTAGGCCACCACTTCAAGAACTCTGTAGCACCGCCTACATACCTCGC
TCTGCTAATCCTGTTACCAGTGGCTGCTGCCAGTGGCGATAAGTCGTGTCTTA
CCGGGTTGGACTCAAGACGATAGTTACCGGATAAGGCGCAGCGGTCGGGCTG
AACGGGGGGTTCGTGCACACAGCCCAGCTTGGAGCGAACGACCTACACCGA
ACTGAGATACCTACAGCGTGAGCATTGAGAAAGCGCCACGCTTCCCGAAGGG
AGAAAGGCGGACAGGTATCCGGTAAGCGGCAGGGTCGGAACAGGAGAGCGC
ACGAGGGAGCTTCCAGGGGGAAACGCCTGGTATCTTTATAGTCCTGTCGGGT
TTCGCCACCTCTGACTTGAGCGTCGATTTTGTGATGCTCGTCAGGGGGGCGG
AGCCTATGGAAAAACGCCAGCAACGCGGCCTTTTTACGGTTCCTGGCCTTTTG
CTGGCCTTTTGCTCACATGTTCTTTCCTGCGTTATCCCCTGATTCTGTGGATAA
CCGTATTACCGCCTTTGAGTGAGCTGATACCGCTCGCCGCAGCCGAACGACC
GAGCGCAGCGAGTCAGTGAGCGAGGAAGCGGAAGAGCGCCCAATACGCAAA
CCGCCTCTCCCCGCGCGTTGGCCGATTCATTAATGCAGCTGGCACGACAGGTT
TCCCGACTGGAAAGCGGGCAGTGAGCGCAACGCAATTAATGTGAGTTAGCTC
ACTCATTAGGCACCCCAGGCTTTACACTTTATGCTTCCGGCTCGTATGTTGTG
TGGAATTGTGAGCGGATAACAATTTCACACAGGAAACAGCT

p5605-unc-54p::mCherryTAG156

TGTGAAATTGTTATCCGCTGGTATCAGCTCACTCAAAGGCGGTAATACGGTTA
TCCACAGAATCAGGGGATAACGCAGGAAAGAACATGTGAGCAAAAGGCCAG
CAAAAGACCAGGAACCGTAAAAAGGCCGCGTTGCTGGCGTTTTTCCATAGGC
TCCGCCCCCCTGACGAGCATCACAAAAATCGACGCTCAAGTCAGAGGTGGCG
AAACCCGACAGGACTATAAAGATACCAGGCGTTTCCCCCTGGAAGCTCCCTC
GTGCGCTCTCCTGTTCCGACCCTGCCGCTTACCGGATACCTGTCCGCCTTTCTC

CCTTCGGGAAGCGTGGCGCTTTCTCATAGCTCACGCTGTAGGTATCTCAGTTC
GGTGTAGGTCGTTCGCTCCAAGCTGGGCTGTGTGCACGAACCCCCCGTTCAG
CCCGACCGCTGCGCCTTATCCGGTAACTATCGTCTTGAGTCCAACCCGGTAAG
ACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCG
AGGTATGTAGGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCT
ACACTAGAAGGACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTC
GGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAACAAACCACCGCTGGTAGCG
GTGGTTTTTTGTTTGCAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCA
AGAAGATCCTTTGATCTTTTCTACGGGGTCTGACGCTCAGTGGAACGAAAACT
CACGTTAAGGGATTTTGGTCATGAGATTATCAAAAAGGATCTTCACCTAGATC
CTTTTAAATTAAAAATGAAGTTTTAAATCAATCTAAAGTATATATGAGTAAAC
TTGGTCTGACAGTTACCAATGCTTAATCAGTGAGGCACCTATCTCAGCGATCT
GTCTATTTCGTTCATCCATAGTTGCCTGACTCCCCGTCGTGTAGATAACTACG
ATACGGGAGGGCTTACCATCTGGCCCCAGTGCTGCAATGATACCGCGAGACC
CACGCTCACCGGCTCCAGATTTATCAGCAATAAACCAGCCAGCCGGAAGGGC
CGAGCGCAGAAGTGGTCCTGCAACTTTATCCGCCTCCATCCAGTCTATTAATT
GTTGCCGGGAAGCTAGAGTAAGTAGTTCGCCAGTTAATAGTTTGCGCAACGT
TGTTGCCATTGCTACAGGCATCGTGGTGTCACGCTCGTCGTTTGGTATGGCTT
CATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACATGATCCCCCATGTTG
TGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGAAGTAAGTT
GGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACTG
TCATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCA
TTCTGAGAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATACG
GGATAATACCGCGCCACATAGCAGAACTTTAAAAGTGCTCATCATTGGAAAA
CGTTCTTCGGGGCGAAAACTCTCAAGGATCTTACCGCTGTTGAGATCCAGTTC
GATGTAACCCACTCGTGCACCCAACTGATCTTCAGCATCTTTTACTTTCACCA
GCGTTTCTGGGTGAGCAAAACAGGAAGGCAAAATGCCGCAAAAAAGGGAA
TAAGGGCGACACGGAAATGTTGAATACTCATACTCTTCCTTTTTCAATATTAT
TGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATGTAT
TTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCGAAAAGTGCCA
CCTGACGTCTAAGAAACCATTATTATCATGACATTAACCTATAAAAATAGGC
GTATCACGAGGCCCTTTCGTCTCGCGCGTTTCGGTGATGACGGTGAAAACCTC
TGACACATGCAGCTCCCGGAGACGGTCACAGCTTGTCTGTAAGCGGATGCCG
GGAGCAGACAAGCCCGTCAGGGCGCGTCAGCGGGTGTTGGCGGGTGTCGGG
GCTGGCTTAACTATGCGGCATCAGAGCAGATTGTACTGAGAGTGCACCATAT
GCGGTGTGAAATACCGCACAGATGCGTAAGGAGAAAATACCGCATCAGGCG
CCATTCGCCATTCAGGCTGCGCAACTGTTGGGAAGGGCGATCGGTGCGGGCC
TCTTCGCTATTACGCCAGCTGGCGAAAGGGGGATGTGCTGCAAGGCGATTAA
GTTGGGTAACGCCAGCACGTGTGTTTTGAACACGGCGATATGTATCTGTAGA
TCATCCCCAATTTTCAACAATGAATCTAAATACTGAACTTTTTGTGTAATCTTT
AGTGCAGAAAAATGACCAAAATCAGCGATTTTCCGATTATACCCAAAATATC
TCAGCTCAATGAGCACCTATAAAAATGTAAAAATAAAGAAAGTAGTCGAACC
ATATTTTGTAAAGGCTAAAAAACTGAATAAATTTTTATCCATCCAGCGCGGCG
TTACAATCCGTGGCCCATGTCACGCACGGCTTTCAAAGAAAAAAAACAGTC
TGTTTGCGCGACATCGATCTGGCAAAAATCCTAAAAACGACTATGCGTGGCT
CACTTTATATTAATATGAAAAATACAAACTTGGTGGTGCAGGTGCTGCAGAG

GCCATCGATGAAGAAGTGGAGGCCTTGTTGTCGATCTACAAAATTGTATGGT
TGTTTGAGATTTTCCTTGAAACGCTCTCAATCTTGGATATGATATAAATTCTG
GATAAGATATGATGGATATGATCTATGTTTGATAGAGTGCATTTGAAAGGAT
AACGGCCCTGCAGACATTTTTGAAAAAATAACAAACATTTAATTTTCTCACTC
GTTTAGGCTATTCCCCTATTTTTGATATTCCTTCGCACATATGAAAACTACTTT
TTTTCGAAACTGTTAACTCCAGAATTTATAAATCTATAGCCCTTACTTGATTAT
TTATTATCATGGTTACTCACCTCATGTCTCTTTCTCTTTTCAAGAAGTCTTCGT
TCATATCTGTTGTCTCTTTCCTCCTTTTGAATCTCTGCTTTGCTCTTCGCCATTG
TTTCCTGAAAATAATGTAACTTGAATTGTGTAATATACTTTTTTAATTTGAATT
TGGCTTGTAACGCGGAATCACTACGTGCGGGATCATTTCTTACTAGAAAACCC
AGAAAATGCCATATTTCACTTATCTCGGGGTCATTTCTAATTAGAAAAGCTAC
AAAAACCATTTCTAATTACGGTGACTTTAGAACTGGTCGAAATAGCTAATTA
GAAATGGGTTTTTGCTAATTAGAGGTGACTCTATGTTATCTGAGTAAGCCTCG
TTTGTATGTAAACTCACAGTACTAATAAATGCAAGACACCCGGGTTTGTCTAG
ATATGAAATAATTGAAATATCAATTCTGACAGACAATAATGGTAATCTTGAT
AAGGAGTTCCACGCCCAGGAGAACACGTTAGTTTTCTTGTTTTTGATTGCGTG
CGTTATTTTGGAGAAAAACTCGATTTTTTACAAAATAATTTTTTGAAAGGAAC
ACTGTTCAATAAGTTTTGTCTTTTTTCTCAGTTGTGATACGGTTTTTTATTCTTT
TTTGTAGTTATACAGAAGACCGTTACGAAACAGACTGATATCGAAACAAACA
CTGATCTTACTTGCACTTATAATACGACTCACTAGTTTTCCTTCCTCCTCTATA
TATTTTTATGTTTTCTTTTAAACCTTCCTCCATATTTCTGAATTGAATGTTGTTG
CATATTGTGTGTCCTTATTTCATTTCCATCATCCTTTTGTGTGTTTCCCCCTTCC
ACCAATTCCCCCCACGTCCTAATGAAATGAAAGCGAGAAGATAAATAAACTT
GCACATTGTGTTCAGATGAGAGGAGCGGAATACGAATTGGGAGACGGAAAG
AGAAAAAAAAATGTTTAGATTTGGATTGAATTAATTTTTTAGAAAGCAAGAA
AAAAAACACAAAGAGAATAAATAAATAATAGGAAAAAAAACAAATATTCAG
TATTTAAAATTTGAAAATTCAACGACGTTGGCGTCGATCATCCGGATTACTTG
TATGGCCGGCTAGCGAATTCTTACTTGTACAGCTCGTCCATGCCGCCGGTGGA
GTGGCGGCCCTCGGCGCGTTCGTACTGTTCCACGATGGTGTAGTCCTCGTTGT
GGGAGGTGATGTCCAACTTGATGTTGACGTTGTAGGCGCCGGGCAGCTGCAC
GGGCTTCTTGGCCTTGTAGGTGGTCTTGACCTCAGCGTCGTAGTGGCCGCCGT
CCTTCAGCTTCAGCCTCTGCTTGATCTCGCCCTTCAGGGCGCCGTCCTCGGGC
TACATCCGCTCGGAGGAGGCCTCCCAGCCCATGGTCTTCTTCTGCATTACGGG
GCCGTCGGAGGGGAAGTTGGTGCCGCGCAGCTTCACCTTGTAGATGAACTCG
CCGTCCTGCAGGGAGGAGTCCTGGGTCACGGTCACCACGCCGCCGTCCTCGA
AGTTCATCACGCGCTCCCACTTGAAGCCCTCGGGGAAGGACAGCTTCAAGTA
GTCGGGGATGTCGGCGGGGTGCTTCACGTAGGCCTTGGAGCCGTACATGAAC
TGAGGGGACAGGATGTCCCAGGCGAAGGGCAGGGGGCCACCCTTGGTCACC
TTCAGCTTGGCGGTCTGGGTGCCCTCGTAGGGGCGGCCCTCGCCCTCGCCCTC
GATCTCGAACTCGTGGCCGTTCACGGAGCCCTCCATGTGCACCTTGAAGCGC
ATGAACTCCTTGATGATGGCCATGTTATCCTCCTCGCCCTTGCTCACCATTTTT
TCTACCGGTACCCAAGGGTCCTCCTGAAAATGTTCTATGTTATGTTAGTATCA
TTCGAAACATACCTTTGGGTCCTTTGGCCAATCCCGAGGTTGATGATGCGAGT
GATGAGTGCCTGCTTCTTCCTCGGCAGGAGGATGTTGGCACCCGCAAGCCAC
GCCCCTCTTTGGGGATTCTACGAGGTGTAAAGCTGTGTGCGGCAGCGGCAGC
GGCGGGAGAGACGGGAACCGGCTTCCCGGGAATACACGAAGCGAGAGACGC

CTACGCGTAGTGGAGGGTGCCAGAGAAGATAGTGGAAGTCTCAAGAATTCCA
TTGGAGCACGAAGAAAAACCAGGGATAGAGATAGATCGGGAGTTGGTAAG
ATCGGGAAAAATGAATTCAGAGAGTACGGTCGGTCAACTTTTTTTATAGGAA
AGTGCAGAACAGTGATAAAAGGAATAAGATAGAATGTTTACATACAACCAGT
GAAAATAGAATACCAGTTTGATTAATGGTTCTTAAACAGATCTTCAGCCTCCT
CTTGATAATCTTCCACGGTTCACCACTAGATCTTCAGATTTTAAGCAAATTCA
ATACATTTACGACCTAAGTTAACTTGCCCTTTGCATTACTCTTTTTACAGAGA
ACCAGTGAAAAACCGAAAATACTCACTGCAGGATTCAATCCCTTTGTTTAATT
TTATGTTCAGTTGCATTCCCTTTAAGTTCTTCGAAATATAGACCCCTGTTACTT
CTAACTTGTGCAATGAATCAAGCAGATCTTCTTCATCTTCTTTTCTTCAAACGT
TTTTTCTTAGAAAAATATATCCTCACAATACCTTCTCTCTTCTTTGCCATCCCC
AATGGCAGTATCTGATGCAAGGGAGCCTGTGGGGCTCGTCATCCACAGTGTA
ATGTAAGATGGTTCAGAGATTCAGAAGAGAGGCAGAGATAGCCTCATCCCAC
TCAATTGATGAGAATGGGATAGAGAGAAACATTTGAAAACGAGAAGAAA
AAGAAGATAGAGGGAAGGAGTTTCGGGATTTTATGGGAATTTAGAAGAAGA
CCTCGAGGAATTCCTGCAGGATATCTGGATCCACGAAGCTTCCCATGGTGAC
GTCACCGGTTCTAGATACCTAGGTGAGCTCTGGTACCCTCTAGTCAAGGCCTT
AAGTGAGTCGTATTACGTAGCCCGGGCCTAGTTCTAGACATTCTCTAATGAAA
AAATCTTTCAGTTGAAATTGAAAATGAGTTAAAGTTGGAGTTTTTATTGAAAA
CAGATTCCGTGTGATTAGTGTTTTAGCGAGTGTGACAGGACAGCGAAAAA
ATATAGAAACAAGGGGGGGAACTGAAAAGCTTAGGAATGCATTGAACATGAG
AAGGGGAAGGGGAAGGAACAAACTAGACAGGAATTATTGGAATTTAATCAC
ATTTGGAGTTTTTTTTCTATTCGACAGAATAATTATCCAGAACATTTTTGTATT
AAATATTTATGCATCATATGAGTAGTCGGCTTTGTTGTGCATGACGAGTTTGT
TATCGACGAAATAGAAGCTGTCAGAACGAGTCTCGTTTGGATTGTTGATCAT
GTCGTCCACTGAAAAAGAGATTAGTCTTTTGAATTGTACTTTTTAGAATAATG
ACTCACTGAGTTGTTGAGAGAGTTGAGGGAACTCATAGATATGTTCACAGTT
GTTTCGTGAATTCGGAATACAGAATCCGAATTCAAAGTCAAAACACTTCAGA
AGGCGATCTTTGAAGAAGTGACGTTCGATCATTCGGAAATGATGGATTGGGA
TGTCTCCTACTTTGAATTCCACAGTTGCTCCGACCGTTTTGAGTTTCAAAAAG
TTTGGAGCAAATCTATAACGCACGTATCTTGCCGACTCCTGTGGCGACTCATC
ATTCTCCTGATCGTTCTCCGGTTTGGCGATCTCGAAAGCACTTGCTCAGTGT
CCAGATCACGGATTTGGAACTTGGTGAACTCGATGTTATAGATGTTCGCAGAT
GGGGAGCATAAGAATCCTAAATTTATGTTTTAAACTGAAATCCAAAGGGAGC
AAGATACCTTGAGTGATTCCCGGAAGTGCTAAAACGTCGTTCGGAGTGATTT
GAGCTTTCTTCGCAAGCTCCGATTCCGTTGTGATTCCTTGTTCGGTGCTTGGTG
GTGGCCGTGGCATCTGGAAATATGGAAAGTTCAACAAAAGAAAAGAGAA
AAGAATGAAATCGGATATCAAGAGTTAGTTGAGCGGTTTCTCTAGTTTTCTGA
GTCTCACCTGCGACGGGAAGGTCGCCGAGCCGGGTGGAATCGATTGTTGTTG
CTCGGCTTTCATATCGGTTTGGTTGGAAGCGGCTGAAAACGGAAAGAAGTGG
AAGAAGGAAAAGAGTGTGGTGTGACAGGAAATGGTAATTAGAGGGTGCCA
AATAACCAGCTATATTTTGTTTTTTTTTGAAAACATTTTTAAAAAGAAAAATA
CGATAATGATATCAGATGGATTTCCGGAAAACTGGTATGAAAATTTCAACC
TTTTTGAGTACATGTAATCAAAATACACTTTGTAAATTATCATTTTTATTGAA
ACTCCACCATTTTTCTATTTATAACGCTAATAATTTGAAAAAGAAACCTGTTG
CGAACCGCGGGGGTGAATCCCAAAAACGAATGCGTTTTGGTGGAGTGATTGAT

TCGAATCGAAGAAGAAAAAGAAGAAGACGTGGAATAGAGAGCTCACTCTTA
ACCGAGCAGCACACACCGACAGAAAAAAAAATGAAATGAATGAGGGTCTTC
TTCTTCTTCTTCTTCGAATGATTGACAGAAATGGGAAAAGAGGAAGATTGA
GAAGGGAAAAAGGAAGGAGAAAAGAAGCAGAAGAAGACGTCAGAGAGGAG
AGGAACGAGCGGAAAAGCAGCGGGCGCAAGTCATAGAAGTAGCAGAGCTGG
GGAGAAGAAGACACTATCCAAGAAAGGAATGACGAGAGAGTATGCAAAGGG
GTATAGGGTGCAGACAGAATAGGAACAGAATAACAGATGATGAGCCAAGAA
GAGTTGAAAAGGGCGATGAATTTGTCATGTAACTTAATTTGGGTCAATTTGA
GCATGATGAATTGAAATCATCCCTTGTTGGGAGTTAATAACCGGTTTGTTATC
AGAAACCCTGTAATAGAAGGGCGCCCTAACTTTGAGCCAATTCATCCCGGTT
TCTGTCAAATATATCAAAAAGTGGTCAACTGACAAATTGTTTTTGATATTATA
ATAAACATTTTATCCGTTAACAATTTTCGAATACTTTTTACAAGGACTTGGAT
AAATTGGCTCAAAGACGAAGTGAGTTTGCTACCATCATGGAATCAGGAGGAC
ATTTCGACAATGTCATATAATGTTTGAAAAATGATTTTAACAAGGGTCTCATT
CGAGATAAGCAATGCTCTGAGCAAGTGGCTCGTCGTCTTCAAGAATCTCTTGT
TGATATTCATTTGGATCCTGTTTTGCACGAAGCATGTGCCATGGATATTCAGA
GTTTTTGCAAAAAGTTCCGCCAGGTCAAACAATCTTTTTAATTTTTATATGA
TACTTCGGGTGTATTTTTCTTCTTTTTCCTGTTCATTTTCGCTTTTTTCTCACTTT
TTTGTAACAAAATCTCTCACTTTTCTGTAAGTCTTAACAAAAGTTCAATTGGC
TCGATCAAGTAAAATTTCGGCCGTATGAACGTTTTCAAAGGTTTTCATTTTTTT
TTAAGTTCATTCACAATATCATGAATCTCTCGTCCTTTGGTTTCCGGTAAGTA
GCGAAATAATATAAGCATACTTATAAATGAAGGAATTGAATATAGAATAAGG
AAAGCATAACTACCAATAACGGAATATAGAGGTAATACTGTAAATGTACTGA
TAACCACCATTACAGTATTCATTGAATATGCCACAGATTGAGCAATACTACG
ATGTTTTTGAGGTACCAGTTCAGAGGATATAAACCACGAAATTGGACCAACT
CCAGTTCTGAAATTTCATTATTCGATTAAATCAAAATATATTTGAAAAACCTC
ACCCATAAGTATAACCGTAGATGATCAATGCAACTAGGCATCCGTATTTCATC
GGGTCAATCAGAATACGTATTTTTGCGAAGAATACGAATGCAATTAGAGCTA
AATTATTGAGAAATGTGAAGAGAAGGAGAAGCTTGCGTCGACCAACTCTGTA
AACTTATTCATACAATTTTGTCTTCAAATTTTGAACGTTTAAAACTATCTTATT
CAATGAGTTAGCGGGTTTTTATAGTGAGTTAGTTCACGATTATCTAATAAAAC
TATGTCCAAACATCCTAACTGCGACCGTATTCTCACTAACTCGTCTTAAAAAC
GTTGAGATTATTTTAAACCCTTCTTCAGTACAACTACAGTACTGATGCACAAA
TACAATAATAATAATACATTCAGACATACTCTGAACAATGTAACTTGTTTTTG
TTATACTGTGGTAACATTTATTGAAATGAAATATAACCTTACTTTTCAATCAC
AATTCCACCAGTAATTGTTCCAGAAACATAAGCTAAACCCATTGCAGTTGTAC
TCCATTCAGCAATTTCTGACTCAACATTTGCATTTTCTAGAAAGAAAGTAGAG
GATAAAGAAGAGCCCATAATCCGACAGGCCC

p4348-unc-54p::luciferaseTAG185

GTATAGAAAAGTTGCCCATAAAATCCCGAAACTCCTTCCCTCTATCTTCTTTT
TCTTCTCGTTTTCAAATGTTTCTCTCTATCCCATTCTCTCATCAATTGAGTGGG
ATGAGGCTATCTCTGCCTCTCTTCTGAATCTCTGAACCATCTTACATTACACTG
TGGATGACGAGCCCCACAGGCTCCCTTGCATCAGATACTGCCATTGGGGATG

```
GCAAAGAAGAGAGAAGGTATTGTGAGGATATATTTTTCTAAGAAAAAACGTT
TGAAGAAAGAAGATGAAGAAGATCTGCTTGATTCATTGCACAAGTTAGAAG
TAACAGGGGTCTATATTTCGAAGAACTTAAAGGGAATGCAACTGAACATAAA
ATTAAACAAAGGGATTGAATCCTGCAGTGAGTATTTTCGGTTTTTCACTGGTT
CTCTGTAAAAGAGTAATGCAAAGGGCAAGTTAACTTAGGTCGTAAATGTAT
TGAATTTGCTTAAAATCTGAAGATCTAGTGGTGAACCGTGGAAGATTATCAA
GAGGAGGCTGAAGATCTGTTTAAGAACCATTAATCAAACTGGTATTCTATTTT
CACTGGTTGTATGTAAACATTCTATCTTATTCCTTTTATCACTGTTCTGCACTT
TCCTATAAAAAAGTTGACCGACCGTACTCTCTGAATTCATTTTTCCCGATCT
TACCAACTCCCGATCTATCTCTATCCCTGGTTTTTTCTTCGTGCTCCAATGGAA
TTCTTGAGACTTCCACTATCTTCTCTGGCACCCTCCACTACGCGTAGGCGTCT
CTCGCTTCGTGTATTCCCGGGAAGCCGGTTCCCGTCTCTCCCGCCGCTGCCGC
TGCCGCACACAGCTTTACACCTCGTAGAATCCCCAAAGAGGGGCGTGGCTTG
CGGGTGCCAACATCCTCCTGCCGAGGAAGAAGCAGGCACTCATCACTCGCAT
CATCAACCTCGGGATTGGCCAAAGGACCCAAAGGTATGTTTCGAATGATACT
AACATAACATAGAACATTTTCAGGAGGACCCTTGCAAGTTTGTACAAAAAG
CAGGCTGGTAGAAAAAATGGAAGACGCCAAAAACATAAAGAAAGGCCCGGT
GCCATTCTATCCGCTAGAGGATGGAACCGCTGGAGAGCAACTGCATAAGGCT
ATGAAGAGATACGCCCTGGTTCCTGGAACAATTGCTTTTACAGATGCACATAT
CGAGGTGAACATCACGTACGCGGAATACTTCGAAATGTCCGTTCGGTTGGCA
GAAGCTATGAAACGATATGGGCTGAATACAAATCACAGAATCGTCGTATGCA
GTGAAAACTCTCTTCAATTCTTTATGCCGGTGTTGGGCGCGTTATTTATCGGA
GTTGCAGTTGCGCCCGCGAACGACATTTATAATGAACGTGAATTGCTCAACA
GTATGAACATTTCGCAGCCTACCGTAGTGTTTGTTTCCAAAAAGGGGTTGCAA
AAAATTTTGAACGTGCAAAAAAAATTACCAATAATCCAGAAAATTATTATCA
TGGATTCTAAAACGGATTACCAGGGATTTCAGTCGATGTACACGTTCGTCACA
TCTCATCTACCTCCCGGTTTTAATGAATACGATTTTGTACCAGAGTAGTTTGA
TCGTGACAAACAATTGCACTGATAATGAATTCCTCTGGATCTACTGGGTTAC
CTAAGGGTGTGGCCCTTCCGCATAGAACTGCCTGCGTCAGATTCTCGCATGCC
AGAGATCCTATTTTTGGCAATCAAATCATTCCGGATACTGCGATTTTAAGTGT
TGTTCCATTCCATCACGGTTTTGGAATGTTTACTACACTCGGATATTTGATATG
TGGATTTCGAGTCGTCTTAATGTATAGATTTGAAGAAGAGCTGTTTTTACGAT
CCCTTCAGGATTACAAAATTCAAAGTGCGTTGCTAGTACCAACCCTATTTTCA
TTCTTCGCCAAAAGCACTCTGATTGACAAATACGATTTATCTAACTTACACGA
AATTGCTTCTGGGGGCGCACCTCTTTCGAAAGAAGTCGGGGAAGCGGTTGCA
AAACGCTTCCATCTTCCAGGGATACGACAAGGATATGGGCTCACTGAGACTA
CATCAGCTATTCTGATTACACCCGAGGGGGATGATAAACCGGGCGCGGTCGG
TAAAGTTGTTCCATTTTTTGAAGCGAAGGTTGTGGATCTGGATACCGGGAAA
ACGCTGGGCGTTAATCAGAGAGGCGAATTATGTGTCAGAGGACCTATGATTA
TGTCCGGTTATGTAAACAATCCGGAAGCGACCAACGCCTTGATTGACAAGGA
TGGATGGCTACATTCTGGAGACATAGCTTACTGGGACGAAGACGAACACTTC
TTCATAGTTGACCGCTTGAAGTCTTTAATTAAATACAAAGGATACCAGGTGGC
CCCCGCTGAATTGGAGTCGATATTGTTACAACACCCCAACATCTTCGACGCG
GGCGTGGCAGGTCTTCCCGACGATGACGCCGGTGAACTTCCCGCCGCCGTTG
TTGTTTTGGAGCACGGAAAGACGATGACGGAAAAAGAGATCGTGGATTACGT
CGCCAGTCAAGTAACAACCGCGAAAAAGTTGCGCGGAGGAGTTGTGTTTGTG
```

```
GACGAAGTACCGAAAGGTCTTACCGGAAAACTCGACGCAAGAAAAATCAGA
GAGATCCTCATAAAGGCCAAGAAGGGCGGAAAGTCCAAATTGTAAACCCAG
CTTTCTTGTACAAAGTGGGTGATATCTGAGCTCCGCATCGGCCGCTGTCATCA
GATCGCCATCTCGCGCCCGTGCCTCTGACTTCTAAGTCCAATTACTCTTCAAC
ATCCCTACATGCTCTTTCTCCCTGTGCTCCCACCCCCTATTTTTGTTATTATCA
AAAAACTTCTCTTAATTTCTTTGTTTTTTAGCTTCTTTTAAGTCACCTCTAACA
ATGAAATTGTGTAGATTCAAAAATAGAATTAATTCGTAATAAAAAGTCGAAA
AAAATTGTGCTCCCTCCCCCCATTAATAATAATTCTATCCCAAAATCTACACA
ATGTTCTGTGTACACTTCTTATGTTTTTTACTTCTGATAAATTTTTTTGAAACA
TCATAGAAAAAACCGCACACAAAATACCTTATCATATGTTACGTTTCAGTTTA
TGACCGCAATTTTTATTTCTTCGCACGTCTGGGCCTCTCATGACGTCAAATCA
TGCTCATCGTGAAAAGTTTTGGAGTATTTTTGGAATTTTTCAATCAAGTGAA
AGTTTATGAAATTAATTTTCCTGCTTTTGCTTTTTGGGGTTTCCCCTATTGTTT
GTCAAGATTTCGAGGACGGCGTTTTTCTTGCTAAAATCACAAGTATTGATGAG
CACGATGCAAGAAAGATCGGAAGAAGGTTTGGGTTTGAGGCTCAGTGGAAG
GTGAGTAGAAGTTGATAATTTGAAAGTGGAGTAGTGTCTATGGGGTTTTTGCC
TTAAATGACAGAATACATTCCCAATATACCAAACATAACTGTTTCCAACTTTA
TTATACATAGTTGATAATTCACTGGCCGTCGTTTTACACTCGAGACGTACGGT
GCGCGCGATGCATTCGAAGATCTGCCCACTAGTGAGTCGTATTATAAGTGCA
AGTAAGATCAGTGTTTGTATTTCAGTAATCAATTATTTTTCGCTCCCCCCTCCT
CGCAAGTCGGCGATTTCTTTGAAGTTTTGTCAAAAGAAGAGACAAGGACTTG
ATAGATACGCTCATCAGAGTGAGATTCATTGCAAATAGTGTGTAAATCGTGG
AGAGACGAGAGAAAGGTGTGAGAAGCTTAGAAGATAAAGAATAGGAAGA
AGAACATATCTCATTTCCTATTTTCTCTAATTTTTCGTTCATTTTTCTAGACATT
ACCCATTTGATGGTTTTTCAATATGGTTATCAGGGTACTCATTTTGGTAGTTTT
CAAAGCAATTTGGAGTTTTTTTTTAAATTGTCAACTACAAAAACGCAGCTTAA
AGGTCCAAATATCATAGTATAAAAATTCTTTAAAAAATTCCAAATTTTATATG
ATTTTTTGAAAATTGGAAGAATGTTAGTTTTTGCCATTTTTTTGGAAGTTTTTC
TCCGGATTTTATGGTACTTATATTTCAAATATAAATTTTTGTAGGAATTCGAG
TATGCGAGAGAGCTATAGTTTACTAAAAAAAGTGGCAAAAACTCAGTAATT
GCCACTTTTTTCAAAAATGTTTTGAAAAATTTTACTATGATATTTGGCCATTTT
GGCACCATATGTACGTTACTTTTTACGAAACACTCTAATTTTTGAAATTTGAG
TTTCATGTTTAATCTTTTGTATAAAATTTTTATGGTCCTTTTGTGACAGGATAA
AAAATTGCAAAAAAATAGAAACTTTGTTTCGTGAAACACCTAGTTTAAAA
ATTGTGGGCCACTTAGCGATTCTAGTCAAAAATCAGACAAATGTCAGCTGCC
GTAACTTTTTCCGGATCAGGGTTATCAAATTTTAATTTTAATTGTAAATGTAG
AAAAATGATCGGCAACATTTTGCTAATTGAAAATATTTTGAAAATTGCTATAG
TACATATTAATCTAGTATTAATATAGTATTAATGTTATAATATCAGTTATGTG
TTTGAATAACTCAAGCGTAAGTTTCCGTAAAATATCTTTAAATTTTGGTAATT
TTTTACGGTTTGGTATAAATTTTTGCATTTTTTGATTTTCTACACTTTTTTTCGA
TTTCGCATTTTCCGAATTTCTCTGAAATAAATCGAACAATCGGAAAATTTTCG
AGGGCACCCTTAGCCATGCAGCTCAGGAATTTGACTTTATGTTCCCATTCAAA
TTTTTTTAAAATTAAATAAAATGCTAATTGTAAGATAAATTACAAAAATTATT
AAATCTCATCATCCTTATGATGATAGTGCAGTGCATGAATATATTTTTCCAAA
TAGGATATGATTCGTCGAGTAGCTTCACGTAATCCGTTTTCTTCAATCACCAT
TTCGAACTGCAATTTTTTTTTTGGATTTTTGTAACAATATTGTCATAAATTGTG
```

ATTTTGATATTTTGCGTAGAGCATCAGAACCTTTCTGCTTTGAATTTTAATGG
GATTAAAAATTATAAAAAACTTGCACCCTAATTAAAGCGCGATACCTGGTGA
CCCATGGTCATAGCTGTTTCCTGTGTGAAATTGTTATCCGCTCACAATTCCAC
ACAACATACGAGCCGGAAGCATAAAGTGTAAAGCCTGGGGTGCCTAATGAGT
GAGCTAACTCACATTACATGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACC
GTAAAAAGGCCGCGTTGCTGGCGTTTTTCCATAGGCTCCGCCCCCCTGACGA
GCATCACAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACT
ATAAAGATACCAGGCGTTTCCCCCTGGAAGCTCCCTCGTGCGCTCTCCTGTTC
CGACCCTGCCGCTTACCGGATACCTGTCCGCCTTTCTCCCTTCGGGAAGCGTG
GCGCTTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCG
CTCCAAGCTGGGCTGTGTGCACGAACCCCCCGTTCAGCCCGACCGCTGCGCC
TTATCCGGTAACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCC
ACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGT
GCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAG
TATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGT
AGCTCTTGATCCGGCAAACAAACCACCGCTGGTAGCGGTGGTTTTTTTGTTTG
CAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATC
TTTTCTACGGGGTCTGACGCTCAGTGGAACGAAAACTCACGTTAAGGGATTTT
GGTCATGAGATTATCAAAAAGGATCTTCACCTAGATCCTTTTACGCGCCCTGT
AGCGGCGCATTAAGCGCGGCGGGTGTGGTGGTTACGCGCAGCGTGACCGCTA
CACTTGCCAGCGCCCTAGCGCCCGCTCCTTTCGCTTTCTTCCCTTCCTTTCTCG
CCACGTTCGCTTTCCCCGTCAAGCTCTAAATCGGGGGCTCCCTTTAGGGTTCC
GATTTAGTGCTTTACGGCACCTCGACCCCAAAAAACTTGATTTGGGTGATGGT
TCACGTAGTGGGCCATCGCCCTGATAGACGGTTTTTCGCCCTTTGACGTTGGA
GTCCACGTTCTTTAATAGTGGACTCTTGTTCCAAACTGGAACAACACTCAACC
CTATCTCGGGCTATTCTTTTGATTTATAAGGGATTTTGCCGATTTCGGCCTATT
GGTTAAAAAATGAGCTGATTTAACAAAAATTTAACGCGAATTTTAACAAAAT
ATTAACGTTTACAATTTAAATATTTGCTTATACAATCTTCCTGTTTTTGGGGCT
TTTCTGATTATCAACCGGGGTAAATCAATCTAAAGTATATATGAGTAAACTTG
GTCTGACAGTTACCAATGCTTAATCAGTGAGGCACCTATCTCAGCGATCTGTC
TATTTCGTTCATCCATAGTTGCCTGACTCCCCGTCGTGTAGATAACTACGATA
CGGGAGGGCTTACCATCTGGCCCCAGTGCTGCAATGATACCGCGAGACCCAC
GCTCACCGGCTCCAGATTTATCAGCAATAAACCAGCCAGCCGGAAGGGCCGA
GCGCAGAAGTGGTCCTGCAACTTTATCCGCCTCCATCCAGTCTATTAATTGTT
GCCGGGAAGCTAGAGTAAGTAGTTCGCCAGTTAATAGTTTGCGCAACGTTGT
TGCCATTGCTACAGGCATCGTGGTGTCACGCTCGTCGTTTGGTATGGCTTCAT
TCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACATGATCCCCCATGTTGTGC
AAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGAAGTAAGTTGG
CCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACTGTC
ATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATT
CTGAGAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAACACGG
GATAATACCGCGCCACATAGCAGAACTTTAAAAGTGCTCATCATTGGAGAAC
GTTCTTCGGGGCGAAAACTCTCAAGGATCTTACCGCTGTTGAGATCCAGTTCG
ATGTAACCCACTCGTGCACCCAACTGATCTTCAGCATCTTTTACTTTCACCAG
CGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAATGCCGCAAAAAAGGGAAT
AAGGGCGACACGGAAATGTTGAATACTCATACTCTTCCTTTTTCAATATTATT

GAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATGTATT
TAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCGAAAAGTGCCAC
CTGACGTAGTTAACAAAAAAAGCCCGCCGAAGCGGGCTTTATTACCAAGCG
AAGCGCCATTCGCCATTCAGGCTGCGCAACTGTTGGGAAGGGCGATCGGTGC
GGGCCTCTTCGCTATTACGCCAGCTGGCGAAAGGGGGATGTGCTGCAAGGCG
ATTAAGTTGGGTAACGCCAGGGTTTTCCCAGTCACGACGTTGTAAAACGACG
GCCAGTTGATCAGTCGATCCAAGTGGGGATCAGGAAGAAGTTGATAAAGTGA
TTCAAAAACTCGAGGAGCTCAACACAGCGATGAACCCAATTTTGAGAGCAAC
ACTGACGAAGAACTATGACGCGAGGGTAGGCACTACCTTGAAGCTATCCACC
TGCCTGCCTGCCGCCTATTTCCATGTGCAGTAGGAACGTGTGTAGGTATAGGC
AGGCATTATCGCGTCTCCTTTCGAACTACCTAGTACCTAGTAGGTAGTTTGAA
GGGAGGCGCGATAATGCCTGCCTATGTCTACACATGTGCCTACTGCGCATGG
AAATAGGCGGTAGTCAGGCAGGTAGATAGCCTCATAAAATTCAATACTTCCT
TTTCAGAAAGAATGCTGGAATGTATTCAAAGAGGAGTCACTCTTCCCATTGCT
CAGAGAATATGAAGAGTTGCTCGGCGAGCAAAAGTTCATGATTGGAGATCGA
TATTCATGGGCTGACATCGCTGTCGTCGAGTTTCTAACTCGGTGTCAGCAGTG
CTACGATAGCTTCTATCTGGCTCATTTCGAGAGGCTCCGAACTTTTTGCCAGA
CTTTTGAGTCTCTTCCGCACATTCGTCCCTACATTCAGGGACGTGTTGATTCAT
TTATCTAATTTTTTAAAATGGATATTTTTCGTTTTTTATTTGTTTGTTTTGCTGA
TAATTCAATAAAGTTACGCAACGAATTTTAGACATTTATGAAAACCGAAAAT
CGACAAAATATTTTAAGAAAAATAGCAGCAAAATTCAATATTTTATCAAAT
TTTGTTTATGGTAATGAGAAAGAAAACATACAATATTTTTCTAAGAAGAAGA
AAAATGACCAGAATTTTAAGATTTTTCTCGAATATACGAAAAATTGATAAAC
TAAAATTTTCGATTTTTCCATTTATTTTGAAAAAAAAACTCTTGACGGTTTTCA
CCATGCGAAGAGGTGAGAAATATTCTGAAAGTTATGCATTTTGAAAAAATTG
CAAAAAAATACGTTAAAATTTTTTGATCTATTGTTTTTTTTTGAAAACCGGAA
TTTAAAATGGAATTTTTTTTCAAAAATTAAAATTAAAATTTAAATATTTCTAG
TGTTTGGATAGTTTTTCAAAAGCTAGATTTAACCCGCGAGATGTCGACCGCTA
GTGTAGCTTACAGATGGCTGAAGACTTCGCAAAAATCTTATCTTAGAAACCC
GCGAGGTGTCGGCCGCTAAAACTTTGTAAACCTGCCAACAAAATGCTTCGCA
TTGTCTGAACAGATGAAACCTTGAAACAAAACATATACAATTGAAATCCCGT
AAAGTGTCGGGCGCAAGAACTGCGATTAGTTGTATAATTGGACTAGCTCAAA
TTTGACCAAAATCTCATTTTTAGACCTCTAAGATGTCGGCCACTATAACTTTA
TTCAACTTGAAACTGCAAAAAAACTTATCAACTGTATAGATTCAAGTATTATG
TCAAGTATTGGTTTTAGAGCTACAGTACACTCTGATAACAAAATCTGCAGAA
ATACCTCCCTGTCAATTCCCAAAATACCTCCCTCATCTCAATTATCCCGAAA
ATCGGTTAGTCATTGCCATCAGAAATCGAATTAAAAAATAAAGATGAAATA
TGGTAGCAAACTCACTTCGTCTTTGAGCCAATTTATCCAAGTCCTTGTAAAAA
GTATTCGAAAATTGTTAACGGATAAATGTTTATTATAATATCAAAACAATT
TGTCAGTTGACCACTTTTTGATATATTTGACAGAACCGGGATGAATTGGCTC
AAAGTTAGGGCGCCCTTCTATTACAGGGTTTCTGATAACAAACCGGTTATTAA
CTCCCAACAAGGGATGATTTCAATTCATCATGCTCAAATTGACCCAAATTAAG
TTACATGACAAATTCATCGCCCTTTTCAACTCTTCTTGGCTCATCATCTGTTAT
TCTGTTCCTATTCTGTCTGCACCCTATACCCCTTTGCATACTCTCTCGTCATTC
CTTTCTTGGATAGTGTCTTCTTCTCCCCAGCTCTGCTACTTCTATGACTTGCGC
CCGCTGCTTTTCCGCTCGTTCCTCTCCTCTCTGACGTCTTCTTCTGCTTCTTTTC

TCCTTCCTTTTTCCCTTCTCAATCTTCCTCTTTTTCCCATTTCTGTCAATCATTC
GAAGAAGAAGAAGAAGAAGACCCTCATTCATTTCATTTTTTTTTCTGTCGGTG
TGTGCTGCTCGGTTAAGAGTGAGCTCTCTATTCCACGTCTTCTTCTTTTTCTTC
TTCGATTCGAATCAATCACTCCACCAAAACGCATTCGTTTTTGGGATTCACCC
CGCGGTTCGCAATAGGTTTCTTTTTCAAATTATTAGCGTTATAAATAGAAAAA
TGGTGGAGTTTCAATAAAAATGATAATTTACAAAGTGTATTTTGATTACATGT
ACTCAAAAAGGTTGAAATTTTTCATACCAGTTTTCCGGAAATCCATCTGATAT
CATTATCGTATTTTTCTTTTTAAAAATGTTTTCAAAAAAAAACAAAATATAGC
TGGTTATTTGGCACCCTCTAATTACCATTTTCCTGTCACACCACACTCTTTTCC
TTCTTCCACTTCTTTCCGTTTTCAGCCGCTTCCAACCAAACCGATATGAAAGC
CGAGCAACAACGATCGATTCCACCCGGCTCGGCGACCTTCCCGTCGCAGGTG
AGACTCAGAAAACTAGAGAAACCGCTCAACTAACTCTTGATATCCGATTTCA
TTCTTTTCTCTTTTCTTTTTGTTGAACTTTTCCATATTTCCAGATGCCACGGCCA
CCACCAAGCACCGAACAAGGAATCACAACGGAATCGGAGCTTGCGAAGAAA
GCTCAAATCACTCCGAACGACGTTTTAGCACTTCCGGGAATCACTCAAGGTAT
CTTGCTCCCTTTGGATTTCAGTTTAAAACATAAATTTAGGATTCTTATGCTCCC
CATCTGCGAACATCTATAACATCGAGTTCACCAAGTTCCAAATCCGTGATCTG
GACACTGAGCAAGTGCTTTTCGAGATCGCCAAACCGGAGAACGATCAGGAGA
ATGATGAGTCGCCACAGGAGTCGGCAAGATACGTGCGTTATAGATTTGCTCC
AAACTTTTTGAAACTCAAAACGGTCGGAGCAACTGTGGAATTCAAAGTAGGA
GACATCCCAATCCATCATTTCCGAATGATCGAACGTCACTTCTTCAAAGATCG
CCTTCTGAAGTGTTTTGACTTTGAATTCGGATTCTGTATTCCGAATTCACGAA
ACAACTGTGAACATATCTATGAGTTCCCTCAACTCTCTCAACAACTCAGTGAG
TCATTATTCTAAAAGTACAATTCAAAAGACTAATCTCTTTTTCAGTGGACGA
CATGATCAACAATCCAAACGAGACTCGTTCTGACAGCTTCTATTTCGTCGATA
ACAAACTCGTCATGCACAACAAAGCCGACTACTCATATGATGCATAAATATT
TAATACAAAAATGTTCTGGATAATTATTCTGTCGAATAGAAAAAAAACTCCA
AATGTGATTAAATTCCAATAATTCCTGTCTAGTTTGTTCCTTCCCCTTCCCCTT
CTCATGTTCAATGCATTCCTAAGCTTTTCAGTTCCCCCCTTGTTTCTATATTTTT
TCGCTGTCCTGTCACACTCGCTAAAAACACTAATCACACGGAAATCTGTTTTC
AATAAAAACTCCAACTTTAACTCATTTTCAATTTCAACTGAAAGATTTTTTCA
TTAGAGAATGTCTAGAACTAGGCCCGGGCTACGTAATACGACTCACTTAAGG
CCTTGACTAGAGGGTACCAGAGCTCACCTAGGCAGGAACAGCTATGACCATG
ATTACGCCAAGCTATCAACTTT

p5605-rpr-1p:: tRNA$_{CUA}^{Leu}$ *3x*

GTATAGAAAAGTTGGGCTCAGCCTCAACCAATTTTTAGTGTTAAAAATTTGAT
TTTTTCAGTTAAAAACGATGGTTTTTGATGCTTTTTACCTATTTTACAGATAGA
AAATTTTAAATTTCGCAAAAATCTTTAAAAATAAACTTTTTTGTTTGGTTTTCG
CTCGAAAATAGCTTTAAATTTGCAGTTTTTCTCTCAAAAACTCTAAATTTCAT
GCGTTCCACGTGGCTTTCTATCAATTTAAATACTAATATTAATATTTTCTTCAA
AATCTGCCACGTTACAGCCTGCCATAGCCTTCTGAAACTCTACAATTCCCCTC
TAATCACTAGCGCCGCCTCCCCGCACACTCAACACAGCGAGCGGCGGAACCC
GCGGGGTGTCGGCCGCTCGGACACGCTCCCGTATATAACGACGCGGCGCGCG

TGGATCCCCGCCCGGATGGTGGAATCGGTAGACACAAGGGATTCTAAATCCC
TCGGCGTTCGCGCTGTGCGGGTTCAAGTCCCGCTCCGGGTATATCTTTTTGAA
TTTACAGCATTTTTCATCAAGTTTGTACAAAAAAGCAGGCTGGCTCAGCCTCA
ACCAATTTTTAGTGTTAAAAATTTGATTTTTTCAGTTAAAAACGATGGTTTTTG
ATGCTTTTTACCTATTTTACAGATAGAAAATTTTAAATTTCGCAAAAATCTTT
AAAAATAAACTTTTTTGTTTGGTTTTCGCTCGAAAATAGCTTTAAATTTGCAG
TTTTTCTCTCAAAAACTCTAAATTTCATGCGTTCCACGTGGCTTTCTATCAATT
TAAATACTAATATTAATATTTTCTTCAAAATCTGCCACGTTACAGCCTGCCAT
AGCCTTCTGAAACTCTACAATTCCCCTCTAATCACTAGCGCCGCCTCCCCGCA
CACTCAACACAGCGAGCGGCGGAACCCGCGGGGTGTCGGCCGCTCGGACAC
GCTCCCGTATATAACGACGCGGCGCGCGTGGATCCCCGCCCGGATGGTGGAA
TCGGTAGACACAAGGGATTCTAAATCCCTCGGCGTTCGCGCTGTGCGGGTTC
AAGTCCCGCTCCGGGTATATCTTTTTGAATTTACAGCATTTTTCATACCCAGCT
TTCTTGTACAAAGTGGGGCTCAGCCTCAACCAATTTTTAGTGTTAAAAATTTG
ATTTTTTCAGTTAAAAACGATGGTTTTTGATGCTTTTTACCTATTTTACAGATA
GAAAATTTTAAATTTCGCAAAAATCTTTAAAAATAAACTTTTTTGTTTGGTTTT
CGCTCGAAAATAGCTTTAAATTTGCAGTTTTTCTCTCAAAAACTCTAAATTTC
ATGCGTTCCACGTGGCTTTCTATCAATTTAAATACTAATATTAATATTTTCTTC
AAAATCTGCCACGTTACAGCCTGCCATAGCCTTCTGAAACTCTACAATTCCCC
TCTAATCACTAGCGCCGCCTCCCCGCACACTCAACACAGCGAGCGGCGGAAC
CCGCGGGGTGTCGGCCGCTCGGACACGCTCCCGTATATAACGACGCGGCGCG
CGTGGATCCCCGCCCGGATGGTGGAATCGGTAGACACAAGGGATTCTAAATC
CCTCGGCGTTCGCGCTGTGCGGGTTCAAGTCCCGCTCCGGGTATATCTTTTTG
AATTTACAGCATTTTTCATCAACTTTATTATACATAGTTGATAATTCACTGGCC
GTCGTTTTACACTCGAGACGTACGGTGCGCGCGATGCATTCGAAGATCTGCCC
ACTAGTGAGTCGTATTATAAGTGCAAGTAAGATCAGTGTTTGTTTCGATATCA
GTCTGTTTCGTAACGGTCTTCTGTATAACTACAAAAAAGAATAAAAAACCGT
ATCACAACTGAGAAAAAAGACAAAACTTATTGAACAGTGTTCCTTTCAAAAA
ATTATTTTGTAAAAAATCGAGTTTTTCTCCAAAATAACGCACGCAATCAAAAA
CAAGAAAACTAACGTGTTCTCCTGGGCGTGGAACTCCTTATCAAGATTACCAT
TATTGTCTGTCAGAATTGATATTTCAATTATTTCATATCTAGACAAACCCGGG
TGTCTTGCATTTATTAGTACTGTGAGTTTACATACAAACGAGGCTTACTCAGA
TAACATAGAGTCACCTCTAATTAGCAAAAACCCATTTCTAATTAGCTATTTCG
ACCAGTTCTAAAGTCACCGTAATTAGAAATGGTTTTTGTAGCTTTTCTAATTA
GAAATGACCCCGAGATAAGTGAAATATGGCATTTTCTGGGTTTTCTAGTAAG
AAATGATCCCGCACGTAGTGATTCCGCGTTACAAGCCAAATTCAAATTAAAA
AAGTATATTACACAATTCAAGTTACATTATTTTCAGGAAACAATGGCGAAGA
GCAAAGCAGAGATTCAAAAGGAGGAAAGAGACAACAGATATGAACGAAGAC
TTCTTGAAAAGAGAAAGAGACATGAGGTGAGTAACCATGATAATAAATAATC
AAGTAAGGGCTATAGATTTATAAATTCTGGAGTTAACAGTTTCGAAAAAAAG
TAGTTTTCATATGTGCGAAGGAATATCAAAAATAGGGGAATAGCCTAAACGA
GTGAGAAAATTAAATGTTTGTTATTTTTTCAAAAATGTCTGCAGGGCCGTTAT
CCTTTCAAATGCACTCTATCAAACATAGATCATATCCATCATATCTTATCCAG
AATTTATATCATATCCAAGATTGAGAGCGTTTCAAGGAAAATCTCAAACAAC
CATACAATTTTGTAGATCGACAACAAGGCCTCCACTTCTTCATCGATGGCCTC
TGCAGCACCTGCACCACCAAGTTTGTATTTTTCATATTAATATAAAGTGAGCC

ACGCATAGTCGTTTTTAGGATTTTTGCCAGATCGATGTCGCGCAAACAGACTG
TTTTTTTTTCTTTGAAAGCCGTGCGTGACATGGGCCACGGATTGTAACGCCGC
GCTGGATGGATAAAAATTTATTCAGTTTTTTAGCCTTTACAAAATATGGTTCG
ACTACTTTCTTTATTTTTACATTTTTATAGGTGCTCATTGAGCTGAGATATTTT
GGGTATAATCGGAAAATCGCTGATTTTGGTCATTTTTCTGCACTAAAGATTAC
ACAAAAAGTTCAGTATTTAGATTCATTGTTGAAAATTGGGGATGATCTACAG
ATACATATCGCCGTGTTCAAAAACACACGTGACGTCGTGACTGGGAAAACCC
TGGCGTTACCCAACTTAATCGCCTTGCAGCACATCCCCCTTTCGCCAGCTGGC
GTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCCAACAGTTGCGCAGCCT
GAATGGCGAATGGCGCCTGATGCGGTATTTTCTCCTTACGCATCTGTGCGGTA
TTTCACACCGCATATGGTGCACTCTCAGTACAATCTGCTCTGATGCCGCATAG
TTAAGCCAGCCCCGACACCCGCCAACACCCGCTGACGCGCCCTGACGGGCTT
GTCTGCTCCCGGCATCCGCTTACAGACAAGCTGTGACCGTCTCCGGGAGCTG
CATGTGTCAGAGGTTTTCACCGTCATCACCGAAACGCGCGAGACGAAAGGGC
CTCGTGATACGCCTATTTTTATAGGTTAATGTCATGATAATAATGGTTTCTTA
GACGTCAGGTGGCACTTTTCGGGGAAATGTGCGCGGAACCCCTATTTGTTTAT
TTTTCTAAATACATTCAAATATGTATCCGCTCATGAGACAATAACCCTGATAA
ATGCTTCAATAATATTGAAAAAGGAAGAGTATGAGTATTCAACATTTCCGTG
TCGCCCTTATTCCCTTTTTTGCGGCATTTTGCCTTCCTGTTTTTGCTCACCCAG
AAACGCTGGTGAAAGTAAAAGATGCTGAAGATCAGTTGGGTGCACGAGTGG
GTTACATCGAACTGGATCTCAACAGCGGTAAGATCCTTGAGAGTTTTCGCCCC
GAAGAACGTTTTCCAATGATGAGCACTTTTAAAGTTCTGCTATGTGGCGCGGT
ATTATCCCGTATTGACGCCGGGCAAGAGCAACTCGGTCGCCGCATACACTAT
TCTCAGAATGACTTGGTTGAGTACTCACCAGTCACAGAAAAGCATCTTACGG
ATGGCATGACAGTAAGAGAATTATGCAGTGCTGCCATAACCATGAGTGATAA
CACTGCGGCCAACTTACTTCTGACAACGATCGGAGGACCGAAGGAGCTAACC
GCTTTTTTGCACAACATGGGGGATCATGTAACTCGCCTTGATCGTTGGGAACC
GGAGCTGAATGAAGCCATACCAAACGACGAGCGTGACACCACGATGCCTGT
AGCAATGGCAACAACGTTGCGCAAACTATTAACTGGCGAACTACTTACTCTA
GCTTCCCGGCAACAATTAATAGACTGGATGGAGGCGGATAAAGTTGCAGGAC
CACTTCTGCGCTCGGCCCTTCCGGCTGGCTGGTTTATTGCTGATAAATCTGGA
GCCGGTGAGCGTGGGTCTCGCGGTATCATTGCAGCACTGGGGCCAGATGGTA
AGCCCTCCCGTATCGTAGTTATCTACACGACGGGGAGTCAGGCAACTATGGA
TGAACGAAATAGACAGATCGCTGAGATAGGTGCCTCACTGATTAAGCATTGG
TAACTGTCAGACCAAGTTTACTCATATATACTTTAGATTGATTTAAAACTTCA
TTTTTAATTTAAAAGGATCTAGGTGAAGATCCTTTTTGATAATCTCATGACCA
AAATCCCTTAACGTGAGTTTTCGTTCCACTGAGCGTCAGACCCCGTAGAAAA
GATCAAAGGATCTTCTTGAGATCCTTTTTTTCTGCGCGTAATCTGCTGCTTGCA
AACAAAAAAACCACCGCTACCAGCGGTGGTTTGTTTGCCGGATCAAGAGCTA
CCAACTCTTTTTCCGAAGGTAACTGGCTTCAGCAGAGCGCAGATACCAAATA
CTGTCCTTCTAGTGTAGCCGTAGTTAGGCCACCACTTCAAGAACTCTGTAGCA
CCGCCTACATACCTCGCTCTGCTAATCCTGTTACCAGTGGCTGCTGCCAGTGG
CGATAAGTCGTGTCTTACCGGGTTGGACTCAAGACGATAGTTACCGGATAAG
GCGCAGCGGTCGGGCTGAACGGGGGGTTCGTGCACACAGCCCAGCTTGGAGC
GAACGACCTACACCGAACTGAGATACCTACAGCGTGAGCTATGAGAAAGCG
CCACGCTTCCCGAAGGGAGAAAGGCGGACAGGTATCCGGTAAGCGGCAGGG

TCGGAACAGGAGAGCGCACGAGGGAGCTTCCAGGGGGAAACGCCTGGTATC
TTTATAGTCCTGTCGGGTTTCGCCACCTCTGACTTGAGCGTCGATTTTTGTGAT
GCTCGTCAGGGGGGCGGAGCCTATGGAAAAACGCCAGCAACGCGGCCTTTTT
ACGGTTCCTGGTCTTTTGCTGGCCTTTTGCTCACATGTTCTTTCCTGCGTTATC
CCCTGATTCTGTGGATAACCGTATTACCGCCTTTGAGTGAGCTGATACCAGCG
GATAACAATTTCACAGGGCCCTGTCGGATTATGGGCTCTTCTTTTATCCTCTA
CTTTCTTTCTAGAAAATGCAAATGTTGAGTCAGAAATTGCTGAATGGAGTACA
ACTGCAATGGGTTTAGCTTATGTTTCTGGAACAATTACTGGTGGAATTGTGAT
TGAAAAGTAAGGTTATATTTCATTTCAATAAATGTTACCACAGTATAACAAA
AACAAGTTACATTGTTCAGAGTATGTCTGAATGTATTATTATTATTGTATTTGT
GCATCAGTACTGTAGTTGTACTGAAGAAGGGTTTAAAATAATCTCAACGTTTT
TAAGACGAGTTAGTGAGAATACGGTCGCAGTTAGGATGTTTGGACATAGTTT
TATTAGATAATCGTGAACTAACTCACTATAAAAACCCGCTAACTCATTGAATA
AGATAGTTTTAAACGTTCAAAATTTGAAGACAAAATTGTATGAATAAGTTTA
CAGAGTTGGTCGACGCAAGCTTCTCCTTCTCTTCACATTTCTCAATAATTTAG
CTCTAATTGCATTCGTATTCTTCGCAAAAATACGTATTCTGATTGACCCGATG
AAATACGGATGCCTAGTTGCATTGATCATCTACGGTTATACTTATGGGTGAGG
TTTTTCAAATATATTTTGATTTAATCGAATAATGAAATTTCAGAACTGGAGTT
GGTCCAATTTCGTGGTTTATATCCTCTGAACTGGTACCTCAAAAACATCGTAG
TATTGCTCAATCTGTGGCATATTCAATGAATACTGTAATGGTGGTTATCAGTA
CATTTACAGTATTACCTCTATATTCCGTTATTGGTAGTTATGCTTTCCTTATTC
TATATTCAATTCCTTCATTTATAAGTATGCTTATATTATTTCGCTACTTACCGG
AAACCAAAGGACGAGAGATTCATGATATTGTGAATGAACTTAAAAAAAAAT
GAAAACCTTTGAAAACGTTCATACGGCCGAAATTTTACTTGATCGAGCCAATT
GAACTTTTGTTAAGACTTACAGAAAGTGAGAGATTTTGTTACAAAAAGTG
AGAAAAAAGCGAAAATGAACAGGAAAAAGAAGAAAAATACACCCGAAGTA
TCATATAAAAATTAAAAAGATTGTTTGACCTGGCGGAACTTTTTTGCAAAAAC
TCTGAATATCCATGGCACATGCTTCGTGCAAAACAGGATCCAAATGAATATC
AACAAGAGATTCTTGAAGACGACGAGCCACTTGCTCAGAGCATTGCTTATCT
CGAATGAGACCCTTGTTAAAATCATTTTTCAAACATTATATGACATTGTCGAA
ATGTCCTCCTGATTCCATGATGGTAGCAAACTCACTTCGTCTTTGAGCCAATT
TATCCAAGTCCTTGTAAAAGTATTCGAAAATTGTTAACGGATAAAATGTTTA
TTATAATATCAAAAACAATTTGTCAGTTGACCACTTTTTGATATATTTGACAG
AAACCGGGATGAATTGGCTCAAAGTTAGGGCGCCCTTCTATTACAGGGTTTCT
GATAACAAACCGGTTATTAACTCCCAACAAGGGATGATTTCAATTCATCATG
CTCAAATTGACCCAAATTAAGTTACATGACAAATTCATCGCCCTTTTCAACTC
TTCTTGGCTCATCATCTGTTATTCTGTTCCTATTCTGTCTGCACCCTATACCCC
TTTGCATACTCTCTCGTCATTCCTTTCTTGGATAGTGTCTTCTTCTCCCCAGCT
CTGCTACTTCTATGACTTGCGCCCGCTGCTTTTCCGCTCGTTCCTCTCCTCT
GACGTCTTCTTCTGCTTCTTTTCTCCTTCCTTTTTCCCTTCTCAATCTTCCTCTTT
TTCCCATTTCTGTCAATCATTCGAAGAAGAAGAAGAAGAAGACCCTCATTCA
TTTCATTTTTTTTTCTGTCGGTGTGTGCTGCTCGGTTAAGAGTGAGCTCTCTAT
TCCACGTCTTCTTCTTTTTCTTCTTCGATTCGAATCAATCACTCCACCAAAACG
CATTCGTTTTTGGGATTCACCCCGCGGTTCGCAATAGGTTTCTTTTTCAAATTA
TTAGCGTTATAAATAGAAAAATGGTGGAGTTTCAATAAAAATGATAATTTAC
AAAGTGTATTTTGATTACATGTACTCAAAAAGGTTGAAATTTTTCATACCAGT

TTTCCGGAAATCCATCTGATATCATTATCGTATTTTTCTTTTTAAAAATGTTTT
CAAAAAAAAACAAAATATAGCTGGTTATTTGGCACCCTCTAATTACCATTTTC
CTGTCACACCACACTCTTTTCCTTCTTCCACTTCTTTCCGTTTTCAGCCGCTTC
CAACCAAACCGATATGAAAGCCGAGCAACAACAATCGATTCCACCCGGCTCG
GCGACCTTCCCGTCGCAGGTGAGACTCAGAAAACTAGAGAAACCGCTCAACT
AACTCTTGATATCCGATTTCATTCTTTTCTCTTTTCTTTTTGTTGAACTTTTCCA
TATTTCCAGATGCCACGGCCACCACCAAGCACCGAACAAGGAATCACAACGG
AATCGGAGCTTGCGAAGAAAGCTCAAATCACTCCGAACGACGTTTTAGCACT
TCCGGGAATCACTCAAGGTATCTTGCTCCCTTTGGATTTCAGTTTAAAACATA
AATTTAGGATTCTTATGCTCCCCATCTGCGAACATCTATAACATCGAGTTCAC
CAAGTTCCAAATCCGTGATCTGGACACTGAGCAAGTGCTTTTCGAGATCGCC
AAACCGGAGAACGATCAGGAGAATGATGAGTCGCCACAGGAGTCGGCAAGA
TACGTGCGTTATAGATTTGCTCCAAACTTTTTGAAACTCAAAACGGTCGGAGC
AACTGTGGAATTCAAAGTAGGAGACATCCCAATCCATCATTTCCGAATGATC
GAACGTCACTTCTTCAAAGATCGCCTTCTGAAGTGTTTTGACTTTGAATTCGG
ATTCTGTATTCCGAATTCACGAAACAACTGTGAACATATCTATGAGTTCCCTC
AACTCTCTCAACAACTCAGTGAGTCATTATTCTAAAAGTACAATTCAAAAG
ACTAATCTCTTTTTCAGTGGACGACATGATCAACAATCCAAACGAGACTCGTT
CTGACAGCTTCTATTTCGTCGATAACAAACTCGTCATGCACAACAAAGCCGA
CTACTCATATGATGCATAAATATTTAATACAAAAATGTTCTGGATAATTATTC
TGTCGAATAGAAAAAAAACTCCAAATGTGATTAAATTCCAATAATTCCTGTCT
AGTTTGTTCCTTCCCCTTCCCCTTCTCATGTTCAATGCATTCCTAAGCTTTTCA
GTTCCCCCCTTGTTTCTATATTTTTTCGCTGTCCTGTCACACTCGCTAAAAACA
CTAATCACACGGAAATCTGTTTTCAATAAAAACTCCAACTTTAACTCATTTTC
AATTTCAACTGAAAGATTTTTTCATTAGAGAATGTCTAGAACTAGGCCCGGGC
TACGTAATACGACTCACTTAAGGCCTTGACTAGAGGGTACCAGAGCTCACCT
AGGCAGGAACAGCTATGACCATGATTACGCCAAGCTATCAACTTT

p5605-rpr-1p:: tRNA$_{CUA}^{Leu}$

GGGCCCTGTCGGATTATGGGCTCTTCTTTTATCCTCTACTTTCTTTCTAGAAAA
TGCAAATGTTGAGTCAGAAATTGCTGAATGGAGTACAACTGCAATGGGTTTA
GCTTATGTTTCTGGAACAATTACTGGTGGAATTGTGATTGAAAAGTAAGGTTA
TATTTCATTTCAATAAATGTTACCACAGTATAACAAAAACAAGTTACATTGTT
CAGAGTATGTCTGAATGTATTATTATTATTGTATTTGTGCATCAGTACTGTAG
TTGTACTGAAGAAGGGTTTAAAATAATCTCAACGTTTTTAAGACGAGTTAGTG
AGAATACGGTCGCAGTTAGGATGTTTGGACATAGTTTTATTAGATAATCGTGA
ACTAACTCACTATAAAAACCCGCTAACTCATTGAATAAGATAGTTTTAAACGT
TCAAAATTTGAAGACAAAATTGTATGAATAAGTTTACAGAGTTGGTCGACGC
AAGCTTCTCCTTCTCTTCACATTTCTCAATAATTTAGCTCTAATTGCATTCGTA
TTCTTCGCAAAAATACGTATTCTGATTGACCCGATGAAATACGGATGCCTAGT
TGCATTGATCATCTACGGTTATACTTATGGGTGAGGTTTTTCAAATATATTTTG
ATTTAATCGAATAATGAAATTTCAGAACTGGAGTTGGTCCAATTTCGTGGTTT
ATATCCTCTGAACTGGTACCTCAAAAACATCGTAGTATTGCTCAATCTGTGGC
ATATTCAATGAATACTGTAATGGTGGTTATCAGTACATTTACAGTATTACCTC

TATATTCCGTTATTGGTAGTTATGCTTTCCTTATTCTATATTCAATTCCTTCATT
TATAAGTATGCTTATATTATTTCGCTACTTACCGGAAACCAAAGGACGAGAG
ATTCATGATATTGTGAATGAACTTAAAAAAAAATGAAAACCTTTGAAAACGT
TCATACGGCCGAAATTTTACTTGATCGAGCCAATTGAACTTTTGTTAAGACTT
ACAGAAAGTGAGAGATTTTGTTACAAAAAGTGAGAAAAAGCGAAAATG
AACAGGAAAAGAAGAAAAATACACCCGAAGTATCATATAAAAATTAAAAA
GATTGTTTGACCTGGCGGAACTTTTTTGCAAAAACTCTGAATATCCATGGCAC
ATGCTTCGTGCAAAACAGGATCCAAATGAATATCAACAAGAGATTCTTGAAG
ACGACGAGCCACTTGCTCAGAGCATTGCTTATCTCGAATGAGACCCTTGTTAA
AATCATTTTTCAAACATTATATGACATTGTCGAAATGTCCTCCTGATTCCATG
ATGGTAGCAAACTCACTTCGTCTTTGAGCCAATTATCCAAGTCCTTGTAAAA
AGTATTCGAAAATTGTTAACGGATAAATGTTTATTATAATATCAAAAACAA
TTTGTCAGTTGACCACTTTTTGATATATTTGACAGAAACCGGGATGAATTGGC
TCAAAGTTAGGGCGCCCTTCTATTACAGGGTTTCTGATAACAAACCGGTTATT
AACTCCCAACAAGGGATGATTTCAATTCATCATGCTCAAATTGACCCAAATTA
AGTTACATGACAAATTCATCGCCCTTTTCAACTCTTCTTGGCTCATCATCTGTT
ATTCTGTTCCTATTCTGTCTGCACCCTATACCCCTTTGCATACTCTCTCGTCAT
TCCTTTCTTGGATAGTGTCTTCTTCTCCCCAGCTCTGCTACTTCTATGACTTGC
GCCCGCTGCTTTTCCGCTCGTTCCTCTCCTCTCTGACGTCTTCTTCTGCTTCTTT
TCTCCTTCCTTTTTCCCTTCTCAATCTTCCTCTTTTTCCCATTTCTGTCAATCAT
TCGAAGAAGAAGAAGAAGAAGACCCTCATTCATTTCATTTTTTTTTCTGTCGG
TGTGTGCTGCTCGGTTAAGAGTGAGCTCTCTATTCCACGTCTTCTTCTTTTTCT
TCTTCGATTCGAATCAATCACTCCACCAAAACGCATTCGTTTTGGGATTCAC
CCCGCGGTTCGCAACAGGTTTCTTTTTCAAATTATTAGCGTTATAAATAGAAA
AATGGTGGAGTTTCAATAAAAATGATAATTTACAAGTGTATTTTGATTACAT
GTACTCAAAAAGGTTGAAATTTTTCATACCAGTTTTCCGGAAATCCATCTGAT
ATCATTATCGTATTTTTCTTTTTAAAAATGTTTTCAAAAAAAAACAAAATATA
GCTGGTTATTTGGCACCCTCTAATTACCATTTTCCTGTCACACCACACTCTTTT
CCTTCTTCCACTTCTTTCCGTTTTCAGCCGCTTCCAACCAAACCGATATGAAA
GCCGAGCAACAACAATCGATTCCACCCGGCTCGGCGACCTTCCCGTCGCAGG
TGAGACTCAGAAAACTAGAGAAACCGCTCAACTAACTCTTGATATCCGATTT
CATTCTTTTCTCTTTTCTTTTTGTTGAACTTTTCCATATTTCCAGATGCCACGGC
CACCACCAAGCACCGAACAAGGAATCACAACGGAATCGGAGCTTGCGAAGA
AAGCTCAAATCACTCCGAACGACGTTTTAGCACTTCCGGGAATCACTCAAGG
TATCTTGCTCCCTTTGGATTTCAGTTTAAAACATAAATTTAGGATTCTTATGCT
CCCCATCTGCGAACATCTATAACATCGAGTTCACCAAGTTCCAAATCCGTGAT
CTGGACACTGAGCAAGTGCTTTTCGAGATCGCCAAACCGGAGAACGATCAGG
AGAATGATGAGTCGCCACAGGAGTCGGCAAGATACGTGCGTTATAGATTTGC
TCCAAACTTTTTGAAACTCAAAACGGTCGGAGCAACTGTGGAATTCAAAGTA
GGAGACATCCCAATCCATCATTTCCGAATGATCGAACGTCACTTCTTCAAAGA
TCGCCTTCTGAAGTGTTTTGACTTTGAATTCGGATTCTGTATTCCGAATTCACG
AAACAACTGTGAACATATCTATGAGTTCCCTCAACTCTCTCAACAACTCAGTG
AGTCATTATTCTAAAAGTACAATTCAAAAGACTAATCTCTTTTTCAGTGGAC
GACATGATCAACAATCCAAACGAGACTCGTTCTGACAGCTTCTATTTCGTCGA
TAACAAACTCGTCATGCACAACAAAGCCGACTACTCATATGATGCATAAATA
TTTAATACAAAAATGTTCTGGATAATTATTCTGTCGAATAGAAAAAAAACTCC

AAATGTGATTAAATTCCAATAATTCCTGTCTAGTTTGTTCCTTCCCCTTCCCCT
TCTCATGTTCAATGCATTCCTAAGCTTTTCAGTTCCCCCCTTGTTTCTATATTTT
TTCGCTGTCCTGTCACACTCGCTAAAAACACTAATCACACGGAAATCTGTTTT
CAATAAAAACTCCAACTTTAACTCATTTTCAATTTCAACTGAAAGATTTTTTC
ATTAGAGAATGTCTAGAACTAGGCCCGGGCTACGTAATACGACTCACTTAAG
GCCTTGACTAGAGGGTACCAGAGCTCACCTAGGTATCTAGAACCGGTGACGT
CACCATGGGAAGCTTCGTGGATCCAGATATCCTGCAGGAATTCCTCGAGCCA
TGGGGCTCAGCCTCAACCAATTTTTAGTGTTAAAAATTTGATTTTTTCAGTTA
AAAACGATGGTTTTTGATGCTTTTTACCTATTTTACAGATAGAAAATTTTAAA
TTTCGCAAAAATCTTTAAAAATAAACTTTTTTGTTTGGTTTTCGCTCGAAAAT
AGCTTTAAATTTGCAGTTTTTCTCTCAAAAACTCTAAATTTCATGCGTTCCACG
TGGCTTTCTATCAATTTAAATACTAATATTAATATTTTCTTCAAAATCTGCCAC
GTTACAGCCTGCCATAGCCTTCTGAAACTCTACAATTCCCCTCTAATCACTAG
CGCCGCCTCCCCGCACACTCAACACAGCGAGCGGCGGAACCCGCGGGGTGTC
GGCCGCTCGGACACGCTCCCGTATATAACGACGCGGCGCGCGTGGATCCCCG
CCCGGATGGTGGAATCGGTAGACACAAGGGATTCTAAATCCCTCGGCGTTCG
CGCTGTGCGGGTTCAAGTCCCGCTCCGGGTATATCTTTTTGAATTTACAGCAT
TTTTCATACTAGTGAGTCGTATTATAAGTGCAAGTAAGATCAGTGTTTGTTTC
GATATCAGTCTGTTTCGTAACGGTCTTCTGTATAACTACAAAAAAGAATAAA
AAACCGTATCACAACTGAGAAAAAGACAAACTTATTGAACAGTGTTCCTT
TCAAAAAATTATTTTGTAAAAAATCGAGTTTTTCTCCAAAATAACGCACGCAA
TCAAAAACAAGAAAACTAACGTGTTCTCCTGGGCGTGGAACTCCTTATCAAG
ATTACCATTATTGTCTGTCAGAATTGATATTTCAATTATTTCATATCTAGACAA
ACCCGGGTGTCTTGCATTTATTAGTACTGTGAGTTTACATACAAACGAGGCTT
ACTCAGATAACATAGAGTCACCTCTAATTAGCAAAAACCCATTTCTAATTAGC
TATTTCGACCAGTTCTAAAGTCACCGTAATTAGAAATGGTTTTTGTAGCTTTT
CTAATTAGAAATGACCCCGAGATAAGTGAAATATGGCATTTTCTGGGTTTTCT
AGTAAGAAATGATCCCGCACGTAGTGATTCCGCGTTACAAGCCAAATTCAAA
TTAAAAAAGTATATTACACAATTCAAGTTACATTATTTTCAGGAAACAATGGC
GAAGAGCAAAGCAGAGATTCAAAAGGAGGAAAGAGACAACAGATATGAAC
GAAGACTTCTTGAAAAGAGAAAGAGACATGAGGTGAGTAACCATGATAATA
AATAATCAAGTAAGGGCTATAGATTTATAAATTCTGGAGTTAACAGTTTCGA
AAAAAAGTAGTTTTCATATGTGCGAAGGAATATCAAAAATAGGGGAATAGCC
TAAACGAGTGAGAAAATTAAATGTTTGTTATTTTTTCAAAAATGTCTGCAGGG
CCGTTATCCTTTCAAATGCACTCTATCAAACATAGATCATATCCATCATATCT
TATCCAGAATTTATATCATATCCAAGATTGAGAGCGTTTCAAGGAAAATCTCA
AACAACCATACAATTTTGTAGATCGACAACAAGGCCTCCACTTCTTCATCGAT
GGCCTCTGCAGCACCTGCACCACCAAGTTTGTATTTTTCATATTAATATAAAG
TGAGCCACGCATAGTCGTTTTTAGGATTTTTGCCAGATCGATGTCGCGCAAAC
AGACTGTTTTTTTTTCTTTGAAAGCCGTGCGTGACATGGGCCACGGATTGTAA
CGCCGCGCTGGATGGATAAAAATTTATTCAGTTTTTTAGCCTTTACAAAATAT
GGTTCGACTACTTTCTTTATTTTTACATTTTTATAGGTGCTCATTGAGCTGAGA
TATTTTGGGTATAATCGGAAATCGCTGATTTTGGTCATTTTTCTGCACTAAA
GATTACACAAAAGTTCAGTATTTAGATTCATTGTTGAAAATTGGGGATGATC
TACAGATACATATCGCCGTGTTCAAAAACACACGTGCTGGCGTTACCCAACTT
AATCGCCTTGCAGCACATCCCCCTTTCGCCAGCTGGCGTAATAGCGAAGAGG

```
CCCGCACCGATCGCCCTTCCCAACAGTTGCGCAGCCTGAATGGCGAATGGCG
CCTGATGCGGTATTTTCTCCTTACGCATCTGTGCGGTATTTCACACCGCATAT
GGTGCACTCTCAGTACAATCTGCTCTGATGCCGCATAGTTAAGCCAGCCCCG
ACACCCGCCAACACCCGCTGACGCGCCCTGACGGGCTTGTCTGCTCCCGGCA
TCCGCTTACAGACAAGCTGTGACCGTCTCCGGGAGCTGCATGTGTCAGAGGT
TTTCACCGTCATCACCGAAACGCGCGAGACGAAAGGGCCTCGTGATACGCCT
ATTTTTATAGGTTAATGTCATGATAATAATGGTTTCTTAGACGTCAGGTGGCA
CTTTTCGGGGAAATGTGCGCGGAACCCCTATTTGTTTATTTTTCTAAATACATT
CAAATATGTATCCGCTCATGAGACAATAACCCTGATAAATGCTTCAATAATAT
TGAAAAAGGAAGAGTATGAGTATTCAACATTTCCGTGTCGCCCTTATTCCCTT
TTTTGCGGCATTTTGCCTTCCTGTTTTTGCTCACCCAGAAACGCTGGTGAAAG
TAAAAGATGCTGAAGATCAGTTGGGTGCACGAGTGGGTTACATCGAACTGGA
TCTCAACAGCGGTAAGATCCTTGAGAGTTTTCGCCCCGAAGAACGTTTTCCAA
TGATGAGCACTTTTAAAGTTCTGCTATGTGGCGCGGTATTATCCCGTATTGAC
GCCGGGCAAGAGCAACTCGGTCGCCGCATACACTATTCTCAGAATGACTTGG
TTGAGTACTCACCAGTCACAGAAAAGCATCTTACGGATGGCATGACAGTAAG
AGAATTATGCAGTGCTGCCATAACCATGAGTGATAACACTGCGGCCAACTTA
CTTCTGACAACGATCGGAGGACCGAAGGAGCTAACCGCTTTTTTGCACAACA
TGGGGGATCATGTAACTCGCCTTGATCGTTGGGAACCGGAGCTGAATGAAGC
CATACCAAACGACGAGCGTGACACCACGATGCCTGTAGCAATGGCAACAAC
GTTGCGCAAACTATTAACTGGCGAACTACTTACTCTAGCTTCCCGGCAACAAT
TAATAGACTGGATGGAGGCGGATAAAGTTGCAGGACCACTTCTGCGCTCGGC
CCTTCCGGCTGGCTGGTTTATTGCTGATAAATCTGGAGCCGGTGAGCGTGGGT
CTCGCGGTATCATTGCAGCACTGGGGCCAGATGGTAAGCCCTCCCGTATCGT
AGTTATCTACACGACGGGGAGTCAGGCAACTATGGATGAACGAAATAGACA
GATCGCTGAGATAGGTGCCTCACTGATTAAGCATTGGTAACTGTCAGACCAA
GTTTACTCATATATACTTTAGATTGATTTAAAACTTCATTTTTAATTTAAAAGG
ATCTAGGTGAAGATCCTTTTTGATAATCTCATGACCAAAATCCCTTAACGTGA
GTTTTCGTTCCACTGAGCGTCAGACCCCGTAGAAAAGATCAAAGGATCTTCTT
GAGATCCTTTTTTTCTGCGCGTAATCTGCTGCTTGCAAACAAAAAAACCACCG
CTACCAGCGGTGGTTTGTTTGCCGGATCAAGAGCTACCAACTCTTTTTCCGAA
GGTAACTGGCTTCAGCAGAGCGCAGATACCAAATACTGTCCTTCTAGTGTAG
CCGTAGTTAGGCCACCACTTCAAGAACTCTGTAGCACCGCCTACATACCTCGC
TCTGCTAATCCTGTTACCAGTGGCTGCTGCCAGTGGCGATAAGTCGTGTCTTA
CCGGGTTGGACTCAAGACGATAGTTACCGGATAAGGCGCAGCGGTCGGGCTG
AACGGGGGGTTCGTGCACACAGCCCAGCTTGGAGCGAACGACCTACACCGA
ACTGAGATACCTACAGCGTGAGCTATGAGAAAGCGCCACGCTTCCCGAAGGG
AGAAAGGCGGACAGGTATCCGGTAAGCGGCAGGGTCGGAACAGGAGAGCGC
ACGAGGGAGCTTCCAGGGGGAAACGCCTGGTATCTTTATAGTCCTGTCGGGT
TTCGCCACCTCTGACTTGAGCGTCGATTTTTGTGATGCTCGTCAGGGGGGCGG
AGCCTATGGAAAAACGCCAGCAACGCGGCCTTTTTACGGTTCCTGGTCTTTTG
CTGGCCTTTTGCTCACATGTTCTTTCCTGCGTTATCCCCTGATTCTGTGGATAA
CCGTATTACCGCCTTTGAGTGAGCTGATACCAGCGGATAACAATTTCACA
```

p10882-unc-54p::LeuRS

GTATAGAAAAGTTGCTGAGGGACTTCCAGCTGTCTGCGAGCCAGTCCAAAAG
GGAGAGCCAGGATCCACCGGAGAGCCAGGACCAGTCGGACCACCAGGACCA
TCCGGACAACCAGGAAACGACGGAACCCCAGGTAATCATTTCATAGTTTTTC
AATCCATATCTAATCACCACATCTTTCAGGACAACCTGGACCAAAGGGACCA
CCAGGACCAGACGGCAAGCCAGGAGCCGACGGAAACCCAGGACAGCCAGGA
CCAGTCGGACCACCAGGAACCCCAGGAGAGCGTGGAATCTGTCCAAAGTACT
GCGCCATCGATGGAGGAATCTTCTTCGAGGACGGAACTCGCCGCTAAGCGGA
TCGCCTTTAATTTATTCTTTGCCTTATGCGTTGCTCAAAATAAAACATTATTTC
ATCCAAAATAATTTTTTGAGGTTTTAGATGAATTTGATAGTTTAGCTTGTCAC
TTTCTCCTGTGCGAAGAAACTTGCTAAGCAGGTAAGCAGCATCCTTATCAAGT
TTCGACCTTATCTCTCAGTAGTCGCATACGTCGTATCCCTCATCTGCTTGTTT
TAGCCACTTCAAGGGAATTCAGATCACTTTTTCTCATGTGTTTTCAAATTTACT
TTTGTGGAGTGACCTTAATTGACCCTCTCGTCATAAGTGGACGGTGGGTAGTT
ACTTAACAAATTTCGAGTACAGGATAGTGTCAATGGCATGAGACATGTAGTA
GCCAAGCAATTATGGCGAATAAGTTTCAAAAACCAACATTCTGTCAAATACA
AAGACCTGCAACATTAGAGAATTCATTAAATACATCTTCGAGGAAATCAAAT
TTTCCCGTAGACGATCCCGTAGACCTACTTGTACAATATGTTCTAGATATACA
CTCCGAACTTAAAATATCTCGAACATTTGTGTTGAATATTTATTTTAATTCTAG
GTTTTTCAAATTCCGCACGATTTTTGCCATACTACTGCCCAATAGTTTACATTT
ATTGGGCCTGGATCTGTAAGGCACTTTTGGGAGCTCCCTTTCTTTTCCTTCAA
ATTACCCATACAGATCTATAAATCACAATTTAATACAAGATTTTATTCAAGTT
AAAAACATAAAAGGGGCTTTGCGGTGGTCCCCATTTCACCAGAGAACTATAA
AAAATATAAATTTAACATCAAATGTTGCAATTGATTCCCTCTCAAAGCTGCTT
GAAGAACCCTGATTCTGTCAAGCCTATGAAGATTTAAAAAAAATTGGGAAGA
CCCTTAGTTCCAAACAAGTGTCGTTGACCCAGTAGGCGATATTCTGAAAAGTC
ATAAAATGGGGTTGCTAAAAAATTGGTCGCTAACTTACATTTAGCTAGGAAT
GTTAATTGGAATAACTCATAATTTACAGTAAAATTATCAAAAAATAGCAAAA
ATCAATAGAGGACCGCTACACAGGCATCCAACAGTACGAGTTCTGCGTTTTT
GAATTGCAAGTTTGTACAAAAAAGCAGGCTCTTTGAGCCAATTTATCCAAGT
CCTTGTAAAAAGTATTCGAAAATTGTTAACGGATAAAATGTTTATTATAATAT
CAAAAACAATTTGTCAGTTGACCACTTTTTGATATATTTGACAGAAACCGGGA
TGAATTGGCTCAAAGTTAGGGCGCCCTTCTATTACAGGGTTTCTGATAACAAA
CCGGTTATTAACTCCCAACAAGGGATGATTTCAATTCATCATGCTCAAATTGA
CCCAAATTAAGTTACATGACAAATTCATCGCCCTTTTCAACTCTTCTTGGCTC
ATCATCTGTTATTCTGTTCCTATTCTGTCTGCACCCTATACCCCTTTGCATACT
CTCTCGTCATTCCTTTCTTGGATAGTGTCTTCTTCTCCCCAGCTCTGCTACTTCT
ATGACTTGCGCCCGCTGCTTTTCCGCTCGTTCCTCTCCTCTCTGACGTCTTCTT
CTGCTTCTTTTCTCCTTCCTTTTTCCCTTCTCAATCTTCCTCTTTTTCCCATTTCT
GTCAATCATTCGAAGAAGAAGAAGAAGAAGACCCTCATTCATTTCATTTTTTT
TTCTGTCGGTGTGTGCTGCTCGGTTAAGAGTGAGCTCTCTATTCCACGTCTTCT
TCTTTTTCTTCTTCGATTCGAATCAATCACTCCACCAAAACGCATTCGTTTTTG
GGATTCACCCCGCGGTTCGCAACAGGTTTCTTTTTCAAATTATTAGCGTTATA
AATAGAAAATGGTGGAGTTTCAATAAAAATGATAATTTACAAAGTGTATTT
TGATTACATGTACTCAAAAAGGTTGAAATTTTTCATACCAGTTTTCCGGAAAT
CCATCTGATATCATTATCGTATTTTTCTTTTTAAAAATGTTTTCAAAAAAAAAC
AAAATATAGCTGGTTATTTGGCACCCTCTAATTACCATTTTCCTGTCACACCA

CACTCTTTTCCTTCTTCCACTTCTTTCCGTTTTCAGCCGCTTCCAACCAAACCG
ATATGAAAGCCGAGCAACAACAATCGATTCCACCCGGCTCGGCGACCTTCCC
GTCGCAGGTGAGACTCAGAAAACTAGAGAAACCGCTCAACTAACTCTTGATA
TCCGATTTCATTCTTTTCTCTTTTCTTTTTGTTGAACTTTTCCATATTTCCAGAT
GCCACGGCCACCACCAAGCACCGAACAAGGAATCACAACGGAATCGGAGCT
TGCGAAGAAAGCTCAAATCACTCCGAACGACGTTTTAGCACTTCCGGGAATC
ACTCAAGGTATCTTGCTCCCTTTGGATTTCAGTTTAAAACATAAATTTAGGAT
TCTTATGCTCCCCATCTGCGAACATCTATAACATCGAGTTCACCAAGTTCCAA
ATCCGTGATCTGGACACTGAGCAAGTGCTTTTCGAGATCGCCAAACCGGAGA
ACGATCAGGAGAATGATGAGTCGCCACAGGAGTCGGCAAGATACGTGCGTTA
TAGATTTGCTCCAAACTTTTTGAAACTCAAAACGGTCGGAGCAACTGTGGAA
TTCAAAGTAGGAGACATCCCAATCCATCATTTCCGAATGATCGAACGTCACTT
CTTCAAAGATCGCCTTCTGAAGTGTTTTGACTTTGAATTCGGATTCTGTATTCC
GAATTCACGAAACAACTGTGAACATATCTATGAGTTCCCTCAACTCTCTCAAC
AACTCAGTGAGTCATTATTCTAAAAAGTACAATTCAAAAGACTAATCTCTTTT
TCAGTGGACGACATGATCAACAATCCAAACGAGACTCGTTCTGACAGCTTCT
ATTTCGTCGATAACAAACTCGTCATGCACAACAAAGCCGACTACTCATATGA
TGCATAAATATTTAATACAAAAATGTTCTGGATAATTATTCTGTCGAATAGAA
AAAAAACTCCAAATGTGATTAAATTCCAATAATTCCTGTCTAGTTTGTTCCTT
CCCCTTCCCCTTCTCATGTTCAATGCATTCCTAAGCTTTTCAGTTCCCCCCTTG
TTTCTATATTTTTTCGCTGTCCTGTCACACTCGCTAAAAACACTAATCACACG
GAAATCTGTTTTCAATAAAAACTCCAACTTTAACTCATTTTCAATTTCAACTG
AAAGATTTTTTCATTAGAGAATGTCTAGAACTAGGCCCGGGCTACGTAATAC
GACTCACTTAAGGCCTTGACTAGAGGGTACCAGAGCTCACCTAGGTATCTAG
AACCGGTGACGTCACCATGGGAAGCTTCGTGGATCCAGATATCCTGCAGGAA
TTCGTCTTCTTCTAAATTCCCATAAAATCCCGAAACTCCTTCCCTCTATCTTCT
TTTTCTTCTCGTTTTCAAATGTTTCTCTCTATCCCATTCTCTCATCAATTGAGTG
GGATGAGGCTATCTCTGCCTCTCTTCTGAATCTCTGAACCATCTTACATTACA
CTGTGGATGACGAGCCCCACAGGCTCCCTTGCATCAGATACTGCCATTGGGG
ATGGCAAAGAAGAGAGAAGGTATTGTGAGGATATATTTTTCTAAGAAAAAAC
GTTTGAAGAAAGAAGATGAAGAAGATCTGCTTGATTCATTGCACAAGTTAG
AAGTAACAGGGGTCTATATTTCGAAGAACTTAAAGGGAATGCAACTGAACAT
AAAATTAAACAAAGGGATTGAATCCTGCAGTGAGTATTTTCGGTTTTTCACTG
GTTCTCTGTAAAAAGAGTAATGCAAAGGGCAAGTTAACTTAGGTCGTAAATG
TATTGAATTTGCTTAAAATCTGAAGATCTAGTGGTGAACCGTGGAAGATTATC
AAGAGGAGGCTGAAGATCTGTTTAAGAACCATTAATCAAACTGGTATTCTAT
TTTCACTGGTTGTATGTAAACATTCTATCTTATTCCTTTTATCACTGTTCTGCA
CTTTCCTATAAAAAAGTTGACCGACCGTACTCTCTGAATTCATTTTTCCCGA
TCTTACCAACTCCCGATCTATCTCTATCCCTGGTTTTTTCTTCGTGCTCCAATG
GAATTCTTGAGACTTCCACTATCTTCTCTGGCACCCTCCACTACGCGTAGGCG
TCTCTCGCTTCGTGTATTCCCGGGAAGCCGGTTCCCGTCTCTCCCGCCGCTGC
CGCTGCCGCACACAGCTTTACACCTCGTAGAATCCCCAAAGAGGGGCGTGGC
TTGCGGGTGCCAACATCCTCCTGCCGAGGAAGAAGCAGGCACTCATCACTCG
CATCATCAACCTCGGGATTGGCCAAAGGACCCAAAGGTATGTTTCGAATGAT
ACTAACATAACATAGAACATTTTCAGGAGGACCCTTGGCTAGCGGTAGAAAA
AATGCAAGAGCAATACCGCCCGGAAGAGATAGAATCCAAAGTACAGCTTCAT

TGGGATGAGAAGCGCACATTTGAAGTAACCGAAGACGAGAGCAAAGAGAAG
TATTACTGCCTGTCTATGCTTCCCTATCCTTCTGGTCGACTACACATGGGCCAC
GTACGTAACTACACCATCGGTGACGTGATCGCCCGCTACCAGCGTATGCTGG
GCAAAAACGTCCTGCAGCCGATCGGCTGGGACGCGTTTGGTCTGCCTGCGGA
AGGCGCGGCGGTGAAAAACAACACCGCTCCGGCACCGTGGACGTACGACAA
CATCGCGTATATGAAAAACCAGCTCAAAATGCTGGGCTTTGGTTATGACTGG
AGCCGCGAGCTGGCAACCTGTACGCCGGAATACTACCGTTGGGAACAGAAAT
TCTTCACCGAGCTGTATAAAAAAGGCCTGGTATATAAGAAGACTTCTGCGGT
CAACTGGTGCCCGAACGACCAGACCGTACTGGCGAACGAACAAGTTATCGAC
GGCTGCTGCTGGCGCTGCGATACCAAAGTTGAACGTAAAGAGATCCCGCAGT
GGTTTATCAAAATCACTGCTTACGCTGACGAGCTGCTCAACGATCTGGATAA
ACTGGATCACTGGCCAGACACCGTTAAAACCATGCAGCGTAACTGGATCGGT
CGTTCCGAAGGCGTGGAGATCACCTTCAACGTTAACGACTATGACAACACGC
TGACCGTTTACACTACCCGCCCGGACACCTTTATGGGTTGTACCTACCTGGCG
GTAGCTGCGGGTCATCCGCTGGCGCAGAAAGCGGCGGAAAATAATCCTGAAC
TGGCGGCCTTTATTGACGAATGCCGTAACACCAAAGTTGCCGAAGCTGAAAT
GGCGACGATGGAGAAAAAGGCGTCGATACTGGCTTTAAAGCGGTTCACCCA
TTAACGGGCGAAGAAATTCCCGTTTGGGCAGCAAACTTCGTATTGATGGAGT
ACGGCACGGGCGCAGTTATGGCGGTACCGGGGCACGACCAGCGCGACTACG
AGTTTGCCTCTAAATACGGCCTGAACATCAAACCGGTTATCCTGGCAGCTGAC
GGCTCTGAGCCAGATCTTTCTCAGCAAGCCCTGACTGAAAAAGGCGTGCTGT
TCAACTCTGGCGAGTTCAACGGTCTTGACCATGAAGCGGCCTTCAACGCCAT
CGCCGATAAACTGACTGCGATGGGCGTTGGCGAGCGTAAAGTGAACTACCGC
CTGCGCGACTGGGGTGTTTCCCGTCAGCGTTACTGGGGCGCGCCGATTCCGAT
GGTGACGCTGGAAGACGGTACCGTAATGCCGACCCCGGACGACCAGCTGCCG
GTGATCCTGCCGGAAGATGTGGTAATGGACGGCATTACCAGCCCGATTAAAG
CAGATCCGGAGTGGGCGAAAACTACCGTTAACGGTATGCCAGCACTGCGTGA
AACCGACACTTTCGACACCTTTATGGAGTCCTCCTGGTACTATGCGCGCTACA
CTTGCCCGCAGTACAAAGAAGGTATGCTGGATTCCGAAGCGGCTAACTACTG
GCTGCCGGTGGATATCTACATTGGTGGTATTGAACACGCCATTATGCACCTGC
TCTACTTCCGCTTCTTCCACAAACTGATGCGTGATGCAGGCATGGTGAACTCT
GACGAACCAGCGAAACAGTTGCTGTGTCAGGGTATGGTGCTGGCAGATGCCT
TCTACTATGTTGGCGAAAACGGCGAACGTAACTGGGTTTCCCCGGTTGATGCT
ATCGTTGAACGTGACGAGAAAGGCCGTATCGTGAAAGCGAAAGATGCGGCA
GGCCATGAACTGGTTTATACCGGCATGAGCAAAATGTCCAAGTCGAAGAACA
ACGGTATCGACCCGCAGGTGATGGTTGAACGTTACGGCGCGGACACCGTTCG
TCTGTTTATGATGTTTGCTTCTCCGGCTGATATGACTCTCGAATGGCAGGAAT
CCGGTGTGGAAGGGGCTAACCGCTTCCTGAAACGTGTCTGGAAACTGGTTTA
CGAGCACACAGCAAAAGGTGATGTTGCGGCACTGAACGTTGATGCGCTGACT
GAAAATCAGAAAGCGCTGCGTCGCGATGTGCATAAAACGATCGCTAAAGTGA
CCGATGATATCGGCCGTCGTCAGACCTTCAACACCGCAATTGCGGCGATTAT
GGAGCTGATGAACAAACTGGCGAAAGCACCAACCGATGGCGAGCAGGATCG
CGCTCTGATGCAGGAAGCACTGCTGGCCGTTGTCCGTATGCTTAACCCGTTCA
CCCCGCACATCTGCTTCACGCTGTGGCAGGAACTGAAAGGCGAAGGCGATAT
CGACAACGCGCCGTGGCCGGTTGCTGACGAAAAAGCGATGGTGGAAGACTC
CACGCTGGTCGTGGTGCAGGTTAACGGTAAAGTCCGTGCCAAAATCACCGTT

```
CCGGTGGACGCAACGGAAGAACAGGTTCGCGAACGTGCTGGCCAGGAACAT
CTGGTAGCAAAATATCTTGATGGCGTTACTGTACGTAAAGTGATTTACGTACC
AGGTAAACTCCTCAATCTGGTCGTTGGCTAAGAGCTCCGCATCGGCCGCTGTC
ATCAGATCGCCATCTCGCGCCCGTGCCTCTGACTTCTAAGTCCAATTACTCTT
CAACATCCCTACATGCTCTTTCTCCCTGTGCTCCCACCCCCTATTTTTGTTATT
ATCAAAAAACTTCTCTTAATTTCTTTGTTTTTTAGCTTCTTTTAAGTCACCTCT
AACAATGAAATTGTGTAGATTCAAAAATAGAATTAATTCGTAATAAAAAGTC
GAAAAAATTGTGCTCCCTCCCCCCATTAATAATAATTCTATCCCAAATCTA
CACAATGTTCTGTGTACACTTCTTATGTTTTTTACTTCTGATAAATTTTTTTGA
AACATCATAGAAAAAACCGCACACAAAATACCTTATCATATGTTACGTTTCA
GTTTATGACCGCAATTTTTATTTCTTCGCACGTCTGGGCCTCTCATGACGTCAA
ATCATGCTCATCGTGAAAAGTTTTGGAGTATTTTTGGAATTTTTCAATCAAG
TGAAAGTTTATGAAATTAATTTTCCTGCTTTTGCTTTTTGGGGTTTCCCCTATT
GTTTGTCAAGATTTCGAGGACGGCGTTTTTCTTGCTAAAATCACAAGTATTGA
TGAGCACGATGCAAGAAAGATCGGAAGAAGGTTTGGGTTTGAGGCTCAGTGG
AAGGTGAGTAGAAGTTGATAATTTGAAAGTGGAGTAGTGTCTATGGGGTTTT
TGCCTTAAATGACAGAATACATTCCCAATATACCAAACATAACTGTTTAAAAT
TAAACATTTTTCTAAATTTTATATGATTTCTTTTAAATTTGCAAAAATTACTTA
AATTTGAATTCCCGCGCAAATGAGTGACTTCATTTTCTGCATTATTGTGTTTTC
CGGCTATATTAATAGGTATTTGTTTGTGTTTTTCTTTATTTTATGATTCGAACT
CCAATTTGTAAATTTTCGAACATATTTCCCTAAAGAAAAAATATGATTAATCT
GGAAAAATTGGAAAATTATTTTTCAAATAAAAAACAAAGAAAAAAATGAAG
AAAAACCTATTAGTTTGGCCATAAAACGCAAAAATGTCGAAAATGACGTCAC
TCATCTGCGCGGGAAATCAAGAATAATTCGGCCTTTTTTATTTTTTTGGAAAA
TCGTAAACATTTAGAAAAATTTTTTAATAGTTATAGTGGGACTGTATTCTGT
CATTTAGGGCAAAAGCCAGAGACGCTACTCCACCGTTGGGGGATCCACTAGT
GAGTCGTATTAACCCAGCTTTCTTGTACAAAGTGGCTATAGAATCAAGCATGC
TCCGCGTTTGCTGTACTATTTCTCGCAGAGCAGTTTTTTTTCTCACACTTTATT
ATTCTGTACTGCCCCTCCACGCTATAATTTTTTGCATAGAGGGCCATAAAGGA
AAACGGTACGGTAAAAATAATGGGTCCTTTTTACCGTTGTGTAGATTGTTTCT
AACGGGATGCAAATTTTCACTAAAACTCTGGAAAACTGATGGAATTCTACGG
GCAGCCGGCAATTTTAGATATTTGAAGAATCCTTCTTGATCAGTGCCAAGCTT
TCCCATGGACCAAAGATGTGGATCCAAGATCAAATGCACAGGATCTGAACTC
CTTTGTTCCAAAAACAAGGATTTCTTTTCTATAGTTTGACCTAAATATTATAGT
AGAACATATACATTTGATGATTTCATGAATAATTTATTGTTAAAAAATAATAC
ATGTGTTAAAAAATAATTCTAAAAAATTAATTGGAGCGTCCTTGGCGGATAT
GGCGGATTGGAAGGTCATAAGTAACTCGAACTAACCTGTAAATATAATTAAT
TTAGAAGTAATCATTTTGAAATGTTTCTAAATTTTTGTAAACGTAATCAATGA
TTTACTTACAAAATTTTTCGAAATATTAGTAGAAATATAAAAAACCAGTAAA
ATTCAAAAGAGGCCAGCCACACATGCATCTTACAATACGAATGATGCGTTTT
TTGTCGCCTCGGAGAAGGAATCAAGCAGGCTCCGCGTTTTCTGTACTATTTCT
CCCAGAGCCGTTTATTTTGCATAGGGGGTGGGTCATAAACGGAGACGTTTTG
GTATAAAATTTGCCCCTTCTTCCACCGTTGAAAAAATTGGAAAATGAACCGG
GACAGGAAAGGGGATTTCAGGATAATGGTTCAATTATCGATGCTACTGTCAT
ATCTGAGTAGTGGATTTGAGCAAGGTTTCCAAATTTTGAGTACAAGCGTCTAG
TGCATGTGTCAAAAAAGTCGGGCAAAAATTAGTTTTAATCAATAAGGTTTAA
```

AGATCAGAAATTTTTGTCTGACCTAATGGGCCGCAACTTTATTATACATAGTT
GATAATTCACTGGCCGTCGTTTTACAACGTCGTGACTGGGAAAACCCTGGCGT
TACCCAACTTAATCGCCTTGCAGCACATCCCCCTTTCGCCAGCTGGCGTAATA
GCGAAGAGGCCCGCACCGATCGCCCTTCCCAACAGTTGCGCAGCCTGAATGG
CGAATGGCGCCTGATGCGGTATTTTCTCCTTACGCATCTGTGCGGTATTTCAC
ACCGCATATGGTGCACTCTCAGTACAATCTGCTCTGATGCCGCATAGTTAAGC
CAGCCCCGACACCCGCCAACACCCGCTGACGCGCCCTGACGGGCTTGTCTGC
TCCCGGCATCCGCTTACAGACAAGCTGTGACCGTCTCCGGGAGCTGCATGTG
TCAGAGGTTTTCACCGTCATCACCGAAACGCGCGAGACGAAAGGGCCTCGTG
ATACGCCTATTTTTATAGGTTAATGTCATGATAATAATGGTTTCTTAGACGTC
AGGTGGCACTTTTCGGGGAAATGTGCGCGGAACCCCTATTTGTTTATTTTTCT
AAATACATTCAAATATGTATCCGCTCATGAGACAATAACCCTGATAAATGCTT
CAATAATATTGAAAAAGGAAGAGTATGAGTATTCAACATTTCCGTGTCGCCC
TTATTCCCTTTTTTGCGGCATTTTGCCTTCCTGTTTTTGCTCACCCAGAAACGC
TGGTGAAAGTAAAAGATGCTGAAGATCAGTTGGGTGCACGAGTGGGTTACAT
CGAACTGGATCTCAACAGCGGTAAGATCCTTGAGAGTTTTCGCCCCGAAGAA
CGTTTTCCAATGATGAGCACTTTTAAAGTTCTGCTATGTGGCGCGGTATTATC
CCGTATTGACGCCGGGCAAGAGCAACTCGGTCGCCGCATACACTATTCTCAG
AATGACTTGGTTGAGTACTCACCAGTCACAGAAAAGCATCTTACGGATGGCA
TGACAGTAAGAGAATTATGCAGTGCTGCCATAACCATGAGTGATAACACTGC
GGCCAACTTACTTCTGACAACGATCGGAGGACCGAAGGAGCTAACCGCTTTT
TTGCACAACATGGGGGATCATGTAACTCGCCTTGATCGTTGGGAACCGGAGC
TGAATGAAGCCATACCAAACGACGAGCGTGACACCACGATGCCTGTAGCAAT
GGCAACAACGTTGCGCAAACTATTAACTGGCGAACTACTTACTCTAGCTTCCC
GGCAACAATTAATAGACTGGATGGAGGCGGATAAAGTTGCAGGACCACTTCT
GCGCTCGGCCCTTCCGGCTGGCTGGTTTATTGCTGATAAATCTGGAGCCGGTG
AGCGTGGGTCTCGCGGTATCATTGCAGCACTGGGGCCAGATGGTAAGCCCTC
CCGTATCGTAGTTATCTACACGACGGGGAGTCAGGCAACTATGGATGAACGA
AATAGACAGATCGCTGAGATAGGTGCCTCACTGATTAAGCATTGGTAACTGT
CAGACCAAGTTTACTCATATATACTTTAGATTGATTTAAAACTTCATTTTTAAT
TTAAAAGGATCTAGGTGAAGATCCTTTTTGATAATCTCATGACCAAAATCCCT
TAACGTGAGTTTTCGTTCCACTGAGCGTCAGACCCCGTAGAAAAGATCAAAG
GATCTTCTTGAGATCCTTTTTTTCTGCGCGTAATCTGCTGCTTGCAAACAAAA
AAACCACCGCTACCAGCGGTGGTTTGTTTGCCGGATCAAGAGCTACCAACTC
TTTTTCCGAAGGTAACTGGCTTCAGCAGAGCGCAGATACCAAATACTGTCCTT
CTAGTGTAGCCGTAGTTAGGCCACCACTTCAAGAACTCTGTAGCACCGCCTA
CATACCTCGCTCTGCTAATCCTGTTACCAGTGGCTGCTGCCAGTGGCGATAAG
TCGTGTCTTACCGGGTTGGACTCAAGACGATAGTTACCGGATAAGGCGCAGC
GGTCGGGCTGAACGGGGGGTTCGTGCACACAGCCCAGCTTGGAGCGAACGA
CCTACACCGAACTGAGATACCTACAGCGTGAGCTATGAGAAAGCGCCACGCT
TCCCGAAGGGAGAAAGGCGGACAGGTATCCGGTAAGCGGCAGGGTCGGAAC
AGGAGAGCGCACGAGGGAGCTTCCAGGGGGAAACGCCTGGTATCTTTATAGT
CCTGTCGGGTTTCGCCACCTCTGACTTGAGCGTCGATTTTTGTGATGCTCGTC
AGGGGGGCGGAGCCTATGGAAAAACGCCAGCAACGCGGCCTTTTTACGGTTC
CTGGTCTTTTGCTGGCCTTTTGCTCACATGTTCTTTCCTGCGTTATCCCCTGAT

TCTGTGGATAACCGTATTACCGCCTTTGAGTGAGCTGATACCAGCGGATAAC
AATTTCACACAGGAAACAGCTATGACCATGATTACGCCAAGCTATCAACTTT

p10882-rpr-1p:: tRNA$_{CUA}^{Tyr}$ *3x*

GTATAGAAAAGTTGCTGAGGGACTTCCAGCTGTCTGCGAGCCAGTCCAAAAG
GGAGAGCCAGGATCCACCGGAGAGCCAGGACCAGTCGGACCACCAGGACCA
TCCGGACAACCAGGAAACGACGGAACCCCAGGTAATCATTTCATAGTTTTTC
AATCCATATCTAATCACCACATCTTTCAGGACAACCTGGACCAAAGGGACCA
CCAGGACCAGACGGCAAGCCAGGAGCCGACGGAAACCCAGGACAGCCAGGA
CCAGTCGGACCACCAGGAACCCCAGGAGAGCGTGGAATCTGTCCAAAGTACT
GCGCCATCGATGGAGGAATCTTCTTCGAGGACGGAACTCGCCGCTAAGCGGA
TCGCCTTTAATTTATTCTTTGCCTTATGCGTTGCTCAAAATAAAACATTATTTC
ATCCAAAATAATTTTTTGAGGTTTTAGATGAATTTGATAGTTTAGCTTGTCAC
TTTCTCCTGTGCGAAGAAACTTGCTAAGCAGGTAAGCAGCATCCTTATCAAGT
TTCGACCTTATCTCTCAGTAGTCGCATACGTCGTATCCCTCATCTGCTTTGTTT
TAGCCACTTCAAGGGAATTCAGATCACTTTTTCTCATGTGTTTTCAAATTTACT
TTTGTGGAGTGACCTTAATTGACCCTCTCGTCATAAGTGGACGGTGGGTAGTT
ACTTAACAAATTTCGAGTACAGGATAGTGTCAATGGCATGAGACATGTAGTA
GCCAAGCAATTATGGCGAATAAGTTTCAAAAACCAACATTCTGTCAAATACA
AAGACCTGCAACATTAGAGAATTCATTAAATACATCTTCGAGGAAATCAAAT
TTTCCCGTAGACGATCCCGTAGACCTACTTGTACAATATGTTCTAGATATACA
CTCCGAACTTAAAATATCTCGAACATTTGTGTTGAATATTTATTTTAATTCTAG
GTTTTTCAAATTCCGCACGATTTTTGCCATACTACTGCCCAATAGTTTACATTT
ATTGGGCCTGGATCTGTAAGGCACTTTTGGGAGCTCCCTTTCTTTTCCTTCAA
ATTACCCATACAGATCTATAAATCACAATTTAATACAAGATTTTATTCAAGTT
AAAAACATAAAAGGGGCTTTGCGGTGGTCCCCATTTCACCAGAGAACTATAA
AAAATATAAATTTAACATCAAATGTTGCAATTGATTCCCTCTCAAAGCTGCTT
GAAGAACCCTGATTCTGTCAAGCCTATGAAGATTTAAAAAAAATTGGGAAGA
CCCTTAGTTCCAAACAAGTGTCGTTGACCCAGTAGGCGATATTCTGAAAAGTC
ATAAAATGGGGTTGCTAAAAAATTGGTCGCTAACTTACATTTAGCTAGGAAT
GTTAATTGGAATAACTCATAATTTACAGTAAAATTATCAAAAAATAGCAAAA
ATCAATAGAGGACCGCTACACAGGCATCCAACAGTACGAGTTCTGCGTTTTT
GAATTGCAAGTTTGTACAAAAAAGCAGGCTCTTTGAGCCAATTTATCCAAGT
CCTTGTAAAAGTATTCGAAAATTGTTAACGGATAAAATGTTTATTATAATAT
CAAAAACAATTTGTCAGTTGACCACTTTTTGATATATTTGACAGAAACCGGGA
TGAATTGGCTCAAAGTTAGGGCGCCCTTCTATTACAGGGTTTCTGATAACAAA
CCGGTTATTAACTCCCAACAAGGGATGATTTCAATTCATCATGCTCAAATTGA
CCCAAATTAAGTTACATGACAAATTCATCGCCCTTTTCAACTCTTCTTGGCTC
ATCATCTGTTATTCTGTTCCTATTCTGTCTGCACCCTATACCCCTTTGCATACT
CTCTCGTCATTCCTTTCTTGGATAGTGTCTTCTTCTCCCCAGCTCTGCTACTTCT
ATGACTTGCGCCCGCTGCTTTTCCGCTCGTTCCTCTCCTCTCTGACGTCTTCTT
CTGCTTCTTTTCTCCTTCCTTTTTCCCTTCTCAATCTTCCTCTTTTTCCCATTTCT
GTCAATCATTCGAAGAAGAAGAAGAAGACCCTCATTCATTTCATTTTTTT
TTCTGTCGGTGTGTGCTGCTCGGTTAAGAGTGAGCTCTCTATTCCACGTCTTCT

TCTTTTTCTTCTTCGATTCGAATCAATCACTCCACCAAAACGCATTCGTTTTTG
GGATTCACCCCGCGGTTCGCAACAGGTTTCTTTTTCAAATTATTAGCGTTATA
AATAGAAAAATGGTGGAGTTTCAATAAAAATGATAATTTACAAAGTGTATTT
TGATTACATGTACTCAAAAAGGTTGAAATTTTTCATACCAGTTTTCCGGAAAT
CCATCTGATATCATTATCGTATTTTTCTTTTTAAAAATGTTTTCAAAAAAAAAC
AAAATATAGCTGGTTATTTGGCACCCTCTAATTACCATTTTCCTGTCACACCA
CACTCTTTTCCTTCTTCCACTTCTTTCCGTTTTCAGCCGCTTCCAACCAAACCG
ATATGAAAGCCGAGCAACAACAATCGATTCCACCCGGCTCGGCGACCTTCCC
GTCGCAGGTGAGACTCAGAAAACTAGAGAAACCGCTCAACTAACTCTTGATA
TCCGATTTCATTCTTTTCTCTTTTCTTTTTGTTGAACTTTTCCATATTTCCAGAT
GCCACGGCCACCACCAAGCACCGAACAAGGAATCACAACGGAATCGGAGCT
TGCGAAGAAAGCTCAAATCACTCCGAACGACGTTTTAGCACTTCCGGGAATC
ACTCAAGGTATCTTGCTCCCTTTGGATTTCAGTTTAAAACATAAATTTAGGAT
TCTTATGCTCCCCATCTGCGAACATCTATAACATCGAGTTCACCAAGTTCCAA
ATCCGTGATCTGGACACTGAGCAAGTGCTTTTCGAGATCGCCAAACCGGAGA
ACGATCAGGAGAATGATGAGTCGCCACAGGAGTCGGCAAGATACGTGCGTTA
TAGATTTGCTCCAAACTTTTTGAAACTCAAAACGGTCGGAGCAACTGTGGAA
TTCAAAGTAGGAGACATCCCAATCCATCATTTCCGAATGATCGAACGTCACTT
CTTCAAAGATCGCCTTCTGAAGTGTTTTGACTTTGAATTCGGATTCTGTATTCC
GAATTCACGAAACAACTGTGAACATATCTATGAGTTCCCTCAACTCTCTCAAC
AACTCAGTGAGTCATTATTCTAAAAAGTACAATTCAAAAGACTAATCTCTTTT
TCAGTGGACGACATGATCAACAATCCAAACGAGACTCGTTCTGACAGCTTCT
ATTTCGTCGATAACAAACTCGTCATGCACAACAAAGCCGACTACTCATATGA
TGCATAAATATTTAATACAAAAATGTTCTGGATAATTATTCTGTCGAATAGAA
AAAAAACTCCAAATGTGATTAAATTCCAATAATTCCTGTCTAGTTTGTTCCTT
CCCCTTCCCCTTCTCATGTTCAATGCATTCCTAAGCTTTTCAGTTCCCCCCTTG
TTTCTATATTTTTTCGCTGTCCTGTCACACTCGCTAAAAACACTAATCACACG
GAAATCTGTTTTCAATAAAAACTCCAACTTTAACTCATTTTCAATTTCAACTG
AAAGATTTTTTCATTAGAGAATGTCTAGAACTAGGCCCGGGCTACGTAATAC
GACTCACTTAAGGCCTTGACTAGAGGGTACCAGAGCTCACCTAGGCAGGAAC
AGCTATGACCATGATTACGCCAAGCTATCAACTTTGTATAGAAAGTTGGGC
TCAGCCTCAACCAATTTTTAGTGTTAAAAATTTGATTTTTTCAGTTAAAAACG
ATGGTTTTTGATGCTTTTTACCTATTTTACAGATAGAAAATTTTAAATTTCGCA
AAAATCTTTAAAAATAAACTTTTTTGTTTGGTTTTCGCTCGAAAATAGCTTTA
AATTTGCAGTTTTTCTCTCAAAAACTCTAAATTTCATGCGTTCCACGTGGCTTT
CTATCAATTTAAATACTAATATTAATATTTTCTTCAAAATCTGCCACGTTACA
GCCTGCCATAGCCTTCTGAAACTCTACAATTCCCCTCTAATCACTAGCGCCGC
CTCCCCGCACACTCAACACAGCGAGCGGCGGAACCCGCGGGGTGTCGGCCGC
TCGGACACGCTCCCGTATATAACGACGCGGCGCGCGTGGATCCCCGGTGGGG
TTCCCGAGCGGCCAAAGGGAGCAGACTCTAAATCTGCCGTCATCGACTTCGA
AGGTTCGAATCCTTCCCCCACCATATCTTTTTGAATTTACAGCATTTTTCATCA
AGTTTGTACAAAAAAGCAGGCTGGCTCAGCCTCAACCAATTTTTAGTGTTAA
AAATTTGATTTTTTCAGTTAAAAACGATGGTTTTTGATGCTTTTTACCTATTTT
ACAGATAGAAAATTTTAAATTTCGCAAAAATCTTTAAAAATAAACTTTTTTGT
TTGGTTTTCGCTCGAAAATAGCTTTAAATTTGCAGTTTTTCTCTCAAAAACTCT
AAATTTCATGCGTTCCACGTGGCTTTCTATCAATTTAAATACTAATATTAATA

TTTTCTTCAAAATCTGCCACGTTACAGCCTGCCATAGCCTTCTGAAACTCTAC
AATTCCCCTCTAATCACTAGCGCCGCCTCCCCGCACACTCAACACAGCGAGC
GGCGGAACCCGCGGGGTGTCGGCCGCTCGGACACGCTCCCGTATATAACGAC
GCGGCGCGCGTGGATCCCCGGTGGGGTTCCCGAGCGGCCAAAGGGAGCAGA
CTCTAAATCTGCCGTCATCGACTTCGAAGGTTCGAATCCTTCCCCCACCATAT
CTTTTTGAATTTACAGCATTTTTCATACCCAGCTTTCTTGTACAAAGTGGGGCT
CAGCCTCAACCAATTTTTAGTGTTAAAAATTTGATTTTTTCAGTTAAAAACGA
TGGTTTTTGATGCTTTTTACCTATTTTACAGATAGAAAATTTTAAATTTCGCAA
AAATCTTTAAAAATAAACTTTTTTGTTTGGTTTTCGCTCGAAAATAGCTTTAA
ATTTGCAGTTTTTCTCTCAAAAACTCTAAATTTCATGCGTTCCACGTGGCTTTC
TATCAATTTAAATACTAATATTAATATTTTCTTCAAAATCTGCCACGTTACAG
CCTGCCATAGCCTTCTGAAACTCTACAATTCCCCTCTAATCACTAGCGCCGCC
TCCCCGCACACTCAGGATCCCCGGTGGGGTTCCCGAGCGGCCAAAGGGAGCA
GACTCTAAATCTGCCGTCATCGACTTCGAAGGTTCGAATCCTTCCCCCACCAT
ATCTTTTTGAATTTACAGCATTTTTCATCAACTTTATTATACATAGTTGATAAT
TCACTGGCCGTCGTTTTACACTCGAGACGTACGGTGCGCGGATGCATTCGAA
GATCTGCCCACTAGTGAGTCGTATTAACCCAGCTTTCTTGTACAAAGTGGCTA
TAGAATCAAGCATGCTCCGCGTTTGCTGTACTATTTCTCGCAGAGCAGTTTTT
TTTCTCACACTTTATTATTCTGTACTGCCCCTCCACGCTATAATTTTTTGCATA
GAGGGCCATAAAGGAAAACGGTACGGTAAAAATAATGGGTCCTTTTTACCGT
TGTGTAGATTGTTTCTAACGGGATGCAAATTTTCACTAAAACTCTGGAAAACT
GATGGAATTCTACGGGCAGCCGGCAATTTTAGATATTTGAAGAATCCTTCTTG
ATCAGTGCCAAGCTTTCCCATGGACCAAAGATGTGGATCCAAGATCAAATGC
ACAGGATCTGAACTCCTTTGTTCCAAAAACAAGGATTTCTTTTCTATAGTTTG
ACCTAAATATTATAGTAGAACATATACATTTGATGATTTCATGAATAATTTAT
TGTTAAAAAATAATACATGTGTTAAAAAATAATTCTAAAAAATTAATTGGAG
CGTCCTTGGCGGATATGGCGGATTGGAAGGTCATAAGTAACTCGAACTAACC
TGTAAATATAATTAATTTAGAAGTAATCATTTTGAAATGTTTCTAAATTTTTGT
AAACGTAATCAATGATTTACTTACAAAATTTTTCGAAATATTAGTAGAAATAT
AAAAAACCAGTAAAATTCAAAAGAGGCCAGCCACACATGCATCTTACAATAC
GAATGATGCGTTTTTTGTCGCCTCGGAGAAGGAATCAAGCAGGCTCCGCGTTT
TCTGTACTATTTCTCCCAGAGCCGTTTATTTTGCATAGGGGGTGGGTCATAAA
CGGAGACGTTTTGGTATAAAATTTGCCCCTTCTTCCACCGTTGAAAAAATTGG
AAAATGAACCGGGACAGGAAAGGGGATTTCAGGATAATGGTTCAATTATCGA
TGCTACTGTCATATCTGAGTAGTGGATTTGAGCAAGGTTTCCAAATTTTGAGT
ACAAGCGTCTAGTGCATGTGTCAAAAAGTCGGGCAAAAATTAGTTTTAATC
AATAAGGTTTAAAGATCAGAAATTTTTGTCTGACCTAATGGGCCGCAACTTTA
TTATACATAGTTGATAATTCACTGGCCGTCGTTTTACAACGTCGTGACTGGGA
AAACCCTGGCGTTACCCAACTTAATCGCCTTGCAGCACATCCCCCTTTCGCCA
GCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCCAACAGTTGCG
CAGCCTGAATGGCGAATGGCGCCTGATGCGGTATTTTCTCCTTACGCATCTGT
GCGGTATTTCACACCGCATATGGTGCACTCTCAGTACAATCTGCTCTGATGCC
GCATAGTTAAGCCAGCCCCGACACCCGCCAACACCCGCTGACGCGCCCTGAC
GGGCTTGTCTGCTCCCGGCATCCGCTTACAGACAAGCTGTGACCGTCTCCGGG
AGCTGCATGTGTCAGAGGTTTTCACCGTCATCACCGAAACGCGCGAGACGAA
AGGGCCTCGTGATACGCCTATTTTTATAGGTTAATGTCATGATAATAATGGTT

TCTTAGACGTCAGGTGGCACTTTTCGGGGAAATGTGCGCGGAACCCCTATTTG
TTTATTTTTCTAAATACATTCAAATATGTATCCGCTCATGAGACAATAACCCT
GATAAATGCTTCAATAATATTGAAAAAGGAAGAGTATGAGTATTCAACATTT
CCGTGTCGCCCTTATTCCCTTTTTTGCGGCATTTTGCCTTCCTGTTTTTGCTCAC
CCAGAAACGCTGGTGAAAGTAAAAGATGCTGAAGATCAGTTGGGTGCACGA
GTGGGTTACATCGAACTGGATCTCAACAGCGGTAAGATCCTTGAGAGTTTTC
GCCCCGAAGAACGTTTTCCAATGATGAGCACTTTTAAAGTTCTGCTATGTGGC
GCGGTATTATCCCGTATTGACGCCGGGCAAGAGCAACTCGGTCGCCGCATAC
ACTATTCTCAGAATGACTTGGTTGAGTACTCACCAGTCACAGAAAAGCATCTT
ACGGATGGCATGACAGTAAGAGAATTATGCAGTGCTGCCATAACCATGAGTG
ATAACACTGCGGCCAACTTACTTCTGACAACGATCGGAGGACCGAAGGAGCT
AACCGCTTTTTTGCACAACATGGGGGATCATGTAACTCGCCTTGATCGTTGGG
AACCGGAGCTGAATGAAGCCATACCAAACGACGAGCGTGACACCACGATGC
CTGTAGCAATGGCAACAACGTTGCGCAAACTATTAACTGGCGAACTACTTAC
TCTAGCTTCCCGGCAACAATTAATAGACTGGATGGAGGCGGATAAAGTTGCA
GGACCACTTCTGCGCTCGGCCCTTCCGGCTGGCTGGTTTATTGCTGATAAATC
TGGAGCCGGTGAGCGTGGGTCTCGCGGTATCATTGCAGCACTGGGGCCAGAT
GGTAAGCCCTCCCGTATCGTAGTTATCTACACGACGGGGAGTCAGGCAACTA
TGGATGAACGAAATAGACAGATCGCTGAGATAGGTGCCTCACTGATTAAGCA
TTGGTAACTGTCAGACCAAGTTTACTCATATATACTTTAGATTGATTTAAAAC
TTCATTTTTAATTTAAAAGGATCTAGGTGAAGATCCTTTTTGATAATCTCATG
ACCAAAATCCCTTAACGTGAGTTTTCGTTCCACTGAGCGTCAGACCCCGTAGA
AAAGATCAAAGGATCTTCTTGAGATCCTTTTTTTCTGCGCGTAATCTGCTGCT
TGCAAACAAAAAAACCACCGCTACCAGCGGTGGTTTGTTTGCCGGATCAAGA
GCTACCAACTCTTTTTCCGAAGGTAACTGGCTTCAGCAGAGCGCAGATACCA
AATACTGTCCTTCTAGTGTAGCCGTAGTTAGGCCACCACTTCAAGAACTCTGT
AGCACCGCCTACATACCTCGCTCTGCTAATCCTGTTACCAGTGGCTGCTGCCA
GTGGCGATAAGTCGTGTCTTACCGGGTTGGACTCAAGACGATAGTTACCGGA
TAAGGCGCAGCGGTCGGGCTGAACGGGGGGTTCGTGCACACAGCCCAGCTTG
GAGCGAACGACCTACACCGAACTGAGATACCTACAGCGTGAGCTATGAGAA
AGCGCCACGCTTCCCGAAGGGAGAAAGGCGGACAGGTATCCGGTAAGCGGC
AGGGTCGGAACAGGAGAGCGCACGAGGGAGCTTCCAGGGGGAAACGCCTGG
TATCTTTATAGTCCTGTCGGGTTTCGCCACCTCTGACTTGAGCGTCGATTTTTG
TGATGCTCGTCAGGGGGGCGGAGCCTATGGAAAAACGCCAGCAACGCGGCC
TTTTTACGGTTCCTGGTCTTTTGCTGGCCTTTTGCTCACATGTTCTTTCCTGCGT
TATCCCCTGATTCTGTGGATAACCGTATTACCGCCTTTGAGTGAGCTGATACC
AGCGGATAACAATTTCACACAGGAAACAGCTATGACCATGATTACGCCAAGC
TATCAACTTT

p4348-unc-54p::JFFluciferaseTAG158::H2B::GFP

GTATAGAAAAGTTGCCCATAAAATCCCGAAACTCCTTCCCTCTATCTTCTTTT
TCTTCTCGTTTTCAAATGTTTCTCTCTATCCCATTCTCTCATCAATTGAGTGGG
ATGAGGCTATCTCTGCCTCTCTTCTGAATCTCTGAACCATCTTACATTACACTG
TGGATGACGAGCCCCACAGGCTCCCTTGCATCAGATACTGCCATTGGGGATG
GCAAAGAAGAGAGAAGGTATTGTGAGGATATATTTTTCTAAGAAAAAACGTT

TGAAGAAAAGAAGATGAAGAAGATCTGCTTGATTCATTGCACAAGTTAGAAG
TAACAGGGGTCTATATTTCGAAGAACTTAAAGGGAATGCAACTGAACATAAA
ATTAAACAAAGGGATTGAATCCTGCAGTGAGTATTTTCGGTTTTTCACTGGTT
CTCTGTAAAAAGAGTAATGCAAAGGGCAAGTTAACTTAGGTCGTAAATGTAT
TGAATTTGCTTAAAATCTGAAGATCTAGTGGTGAACCGTGGAAGATTATCAA
GAGGAGGCTGAAGATCTGTTTAAGAACCATTAATCAAACTGGTATTCTATTTT
CACTGGTTGTATGTAAACATTCTATCTTATTCCTTTTATCACTGTTCTGCACTT
TCCTATAAAAAAGTTGACCGACCGTACTCTCTGAATTCATTTTTCCCGATCT
TACCAACTCCCGATCTATCTCTATCCCTGGTTTTTTCTTCGTGCTCCAATGGAA
TTCTTGAGACTTCCACTATCTTCTCTGGCACCCTCCACTACGCGTAGGCGTCT
CTCGCTTCGTGTATTCCCGGGAAGCCGGTTCCCGTCTCTCCCGCCGCTGCCGC
TGCCGCACACAGCTTTACACCTCGTAGAATCCCCAAAGAGGGGCGTGGCTTG
CGGGTGCCAACATCCTCCTGCCGAGGAAGAAGCAGGCACTCATCACTCGCAT
CATCAACCTCGGGATTGGCCAAAGGACCCAAAGGTATGTTTCGAATGATACT
AACATAACATAGAACATTTTCAGGAGGACCCTTGCAAGTTTGTACAAAAAG
CAGGCTGGTAGAAAAAACCATGGAAACATGGAAAATGATGAAACATTG
TGGTTGGCCCGAAACCGTTTTATCCGATCGAAGAAGGTAGCGCGGGCACCCA
GCTGCGTAAATATATGGAACGCTATGCCAAACTGGGTGCAATTGCATTCACC
AATGCGGTTACCGGCGTGGATTATAGCTATGCCGAATATCTGGAAAAAGCT
GCTGTCTGGGTAAAGCACTGCAGAACTATGGCCTGGTTGTCGATGGTCGTATC
GCACTGTGCAGCGAAAATTGTGAAGAATTTTTCATTCCGGTGATCGCGGGCCT
GTTTATCGGTGTTGGCGTTGCCCCGACCAACGAAATCTATACCCTGCGCGAAC
TGGTGCATAGCCTGGGTATTAGCAAACCGACCATCGTTTTCAGCTCTAAAAA
AGGCCTGGATAAAGTTATTACCGTGCAGAAAACCGTTACCACCATCAAAACC
ATTGTTATCCTGGATAGCAAATAGGATTATCGTGGTTATCAGTGCCTGGATAC
CTTTATTAAACGCAATACCCCGCCGGGCTTCCAGGCAAGCAGCTTTAAAACC
GTTGAAGTTGATCGTAAAGAACAGGTGGCACTGATCATGAACAGCAGCGGTT
CTACCGGCCTGCCGAAAGGTGTTCAGCTGACCCACGAAAATATTGTTACCCG
CTTCAGCCATGCGCGTGATCCGATCTATGGCAACCAAGTGAGCCCGGGTACC
GCCGTTCTGACCGTTGTGCCGTTTCATCACGGTTTCGGCATGTTTACCACCCT
GGGCTATCTGATTTGTGGTTTCCGCGTTGTTATGCTGACCAAATTTGATGAAG
AAACCTTCCTGAAAACCCTGCAGGATTATAAATGCACCAGCGTGATCCTGGT
TCCGACCCTGTTTGCAATTCTGAATAAAAGCGAACTGCTGAACAAATATGAT
CTGAGCAATCTGGTTGAAATCGCAAGCGGCGGTGCGCCGCTGAGCAAAGAAG
TGGGCGAAGCCGTTGCACGTCGCTTCAACCTGCCGGGTGTTCGTCAGGGCTAT
GGTCTGACCGAAACCACCAGCGCAATTATCATTACCCCGGAAGGCGATGATA
AACCGGGTGCGAGCGGCAAAGTGGTTCCGCTGTTTAAAGCCAAAGTTATCGA
TCTGGATACCAAAAAATCGCTGGGTCCGAATCGCCGTGGCGAAGTGTGTGTT
AAAGGTCCGATGCTGATGAAAGGCTATGTTAACAATCCGGAAGCAACCAAAG
AACTGATTGATGAAGAAGGTTGGCTGCACACCGGCGATATCGGTTATTATGA
TGAAGAAAACATTTCTTTATTGTGGATCGCCTGAAAAGCCTGATCAAATAT
AAAGGCTATCAGGTTCCGCCGGCAGAACTGGAAAGCGTTCTGCTGCAGCACC
CGAGCATTTTTGATGCGGGTGTGGCCGGCGTTCCTGATCCAGTGGCAGGTGA
ACTGCCGGGCGCGGTTGTGGTTCTGGAAAGCGGTAAAAACATGACCGAAAAA
GAAGTGATGGATTATGTTGCCAGCCAAGTGAGCAATGCAAAACGTCTGCGCG
GCGGTGTTCGTTTTGTGGATGAAGTGCCGAAAGGCCTGACCGGTAAAATCGA

TGGCCGCGCGATTCGTGAAATTCTGAAAAAACCGGTGGCCAAAATGGGCTCC
TCTGGCGGCCGCGACTACAAGGATGACGATGACAAGGATTACAAAGACGAC
GATGATAAGGACTATAAGGATGATGACGACAAATAATAGCAATTCCTCGACG
ACCCAGCTTTCTTGTACAAAGTGGGATAAATGCAAAATCCTTTCAAGCATTCC
CTTCTTCTCTATCACTCTTCTTTCTTTTTGTCAAAAAATTCTCTCGCTAATTTAT
TTGCTTTTTTAATGTTATTATTTTATGACTTTTTATAGTCACTGAAAAGTTTGC
ATCTGAGTGAAGTGAATGCTATCAAAATGTGATTCTGTCTGATGTACTTTCAC
AATCTCTCTTCAATTCCATTTTGAAGTGCTTTAAACCCGAAAGGTTGAGAAAA
ATGCGAGCGCTCAAATATTTGTATTGTGTTCGTTGAGTGACCCAACAAAAAG
AGGAAACTTTATTGTGCCGCCAAGAAAAAAGTCTCAGGTTGTATATTTATTCA
TCTTATTGAATCTGCCATTTCCTCGTTTTTGCGAGTTTATATACCTTCCAATTT
TCTTTCTATTGTATTTTCAACTTCTAATTTTAATTCAGGGAAACTGCTTCAACG
CATCATGAGTAAAGGAGAAGAACTTTTCACTGGAGTTGTCCCAATTCTTGTTG
AATTAGATGGTGATGTTAATGGGCACAAATTTTCTGTCAGTGGAGAGGGTGA
AGGTGATGCAACATACGGAAAACTTACCCTTAAATTTATTTGCACTACTGGA
AAACTACCTGTTCCATGGGTAAGTTTAAACATATATATACTAACTAACCCTGA
TTATTTAAATTTTCAGCCAACACTTGTCACTACTTTCTGTTATGGTGTTCAATG
CTTCTCGAGATACCCAGATCATATGAAACGGCATGACTTTTTCAAGAGTGCCA
TGCCCGAAGGTTATGTACAGGAAAGAACTATATTTTTCAAAGATGACGGGAA
CTACAAGACACGTAAGTTTAAACAGTTCGGTACTAACTAACCATACATATTTA
AATTTTCAGGTGCTGAAGTCAAGTTTGAAGGTGATACCCTTGTTAATAGAATC
GAGTTAAAAGGTATTGATTTTAAAGAAGATGGAAACATTCTTGGACACAAAT
TGGAATACAACTATAACTCACACAATGTATACATCATGGCAGACAAACAAAA
GAATGGAATCAAAGTTGTAAGTTTAAACATGATTTTACTAACTAACTAATCTG
ATTTAAATTTTCAGAACTTCAAAATTAGACACAACATTGAAGATGGAAGCGT
TCAACTAGCAGACCATTATCAACAAAATACTCCAATTGGCGATGGCCCTGTC
CTTTTACCAGACAACCATTACCTGTCCACACAATCTGCCCTTTCGAAAGATCC
CAACGAAAAGAGAGACCACATGGTCCTTCTTGAGTTTGTAACAGCTGCTGGG
ATTACACATGGCATGGATGAACTATACAAATGCCCGGGGGGATCGGTGGAGCT
CCACCGGTGGCGGCCGCTCTAGAACTAGTCCACCAAAGCCATCTGCCAAGGG
AGCCAAGAAGGCCGCCAAGACCGTCGTTGCCAAGCCAAAGGACGGAAAGAA
GAGACGTCATGCCCGCAAGGAATCGTACTCCGTCTACATCTACCGTGTTCTCA
AGCAAGTTCACCCAGACACCGGAGTCTCCTCCAAGGCCATGTCTATCATGAA
CTCCTTCGTCAACGATGTATTCGAACGCATCGCTTCGGAAGCTTCCCGTCTTG
CTCATTACAACAAACGCTCAACGATCTCATCCCGCGAAATTCAAACCGCTGT
CCGTTTGATTCTCCCAGGAGAACTTGCCAAGCACGCCGTGTCTGAGGGAACC
AAGGCCGTCACCAAGTACACTTCCAGCAAGTAAAATAACCCGCAATAGGATT
CTTTTATCATCGAAATTTCTGTAGATTACTTACTTCAAATAATCATGCACACA
GGTTGTCCCCGTTAATTCTTTCCTTCAATCTCTTTCTCTCTTTCACCTAGTCTGT
GCCATTTCAATATGATTGCACCCCGGAAAATATCAAAAACTTCACTTAACAA
GTGATCCCATATTACAAAAATATTCAAATTCCGAAATCGAAAGATGCATTT
CCGTTTTATTTTACCGAATTTTGATGTTTTTGTAATGTGTTTAAACCCCTTTTA
CAATTAACTTATTAATGTTTTGTTTTACTCATCTCACTTCCCCTTCTTACTTTGT
GCTTATTTTATGTTTTAGGTTTTTTTATTGTATCATAAAACTGGAAATTTTGAA
ATAGGCTTCTTTCTCCCTAAACTTTTTTAACAGGTACTGTAACTGGTACATATC
CTCTGCCCCACCCCGCTCCCAACTCGTCTTTGTCTGTTTGTTTATACGAAATAC

```
AATTTTTAACGAGTATGCGGGTTTCTGTTAGCTTCAACAATACGATCATTCAA
ATTTTAAAATTAAGAAACTATAAAAGCACAGTATTTACGTGAGTTGAAACAA
AATGCCTTCTCCAAATTTCTTAACACTGAAAAATTTTCGGAAAAAAAGCAGA
AATTACTCCGCAAAAAATTAAGGACATCATTCCAATATTTTTTTTACTTATTT
GATGAAAATTAATATATTCCAATAAATTAAAATGAATTATCATCTCAGGAA
TACTGTAGAATTACTTTCAACTTTATTATACATAGTTGATAATTCACTGGCCG
TCGTTTTACACTCGAGACGTACGGTGCGCGCGATGCATTCGAAGATCTGCCCA
CTAGTGAGTCGTATTATAAGTGCAAGTAAGATCAGTGTTTGTATTTCAGTAAT
CAATTATTTTTCGCTCCCCCCTCCTCGCAAGTCGGCGATTTCTTTGAAGTTTTG
TCAAAAGAAGAGACAAGGACTTGATAGATACGCTCATCAGAGTGAGATTCAT
TGCAAATAGTGTGTAAATCGTGGAGAGACGAGAGAAAAGGTGTGAGAAGCT
TAGAAGATAAAGAATAGGAAGAAGAACATATCTCATTTCCTATTTTCTCTAAT
TTTTCGTTCATTTTTCTAGACATTACCCATTTGATGGTTTTTCAATATGGTTAT
CAGGGTACTCATTTTGGTAGTTTTCAAAGCAATTTGGAGTTTTTTTTTAAATTG
TCAACTACAAAAACGCAGCTTAAAGGTCCAAATATCATAGTATAAAAATTCT
TTAAAAAATTCCAAATTTTATATGATTTTTTGAAAATTGGAAGAATGTTAGTT
TTTGCCATTTTTTTGGAAGTTTTTCTCCGGATTTTATGGTACTTATATTTCAAA
TATAAATTTTTGTAGGAATTCGAGTATGCGAGAGAGCTATAGTTTACTAAAA
AAAAGTGGCAAAAACTCAGTAATTGCCACTTTTTTCAAAAATGTTTTGAAAA
ATTTTACTATGATATTTGGCCATTTTGGCACCATATGTACGTTACTTTTTACGA
AACACTCTAATTTTTGAAATTTGAGTTTCATGTTTAATCTTTTGTATAAAATTT
TTATGGTCCTTTTGTGACAGGATAAAAAATTGCAAAAAAATAGAAAACTTTG
TTTCGTGAAAACACCTAGTTTAAAAATTGTGGGCCACTTAGCGATTCTAGTCA
AAAATCAGACAAATGTCAGCTGCCGTAACTTTTTCCGGATCAGGGTTATCAA
ATTTTAATTTTAATTGTAAATGTAGAAAAATGATCGGCAACATTTTGCTAATT
GAAAATATTTTGAAAATTGCTATAGTACATATTAATCTAGTATTAATATAGTA
TTAATGTTATAATATCAGTTATGTGTTTGAATAACTCAAGCGTAAGTTTCCGT
AAAATATCTTTAAATTTTGGTAATTTTTTACGGTTTGGTATAAATTTTTGCATT
TTTTGATTTTCTACACTTTTTTTCGATTTCGCATTTTCCGAATTTCTCTGAAATA
AATCGAACAATCGGAAAATTTTCGAGGGCACCCTTAGCCATGCAGCTCAGGA
ATTTGACTTTATGTTCCCATTCAAATTTTTTTAAAATTAAATAAAATGCTAATT
GTAAGATAAATTACAAAAATTATTAAATCTCATCATCCTTATGATGATAGTGC
AGTGCATGAATATATTTTTCCAAATAGGATATGATTCGTCGAGTAGCTTCACG
TAATCCGTTTTCTTCAATCACCATTTCGAACTGCAATTTTTTTTTTGGATTTTT
GTAACAATATTGTCATAAATTGTGATTTTGATATTTTGCGTAGAGCATCAGAA
CCTTTCTGCTTTGAATTTTAATGGGATTAAAAATTATAAAAAACTTGCACCCT
AATTAAAGCGCGATACCTGGTGACCCATGGTCATAGCTGTTTCCTGTGTGAAA
TTGTTATCCGCTCACAATTCCACACAACATACGAGCCGGAAGCATAAAGTGT
AAAGCCTGGGGTGCCTAATGAGTGAGCTAACTCACATTACATGTGAGCAAAA
GGCCAGCAAAAGGCCAGGAACCGTAAAAGGCCGCGTTGCTGGCGTTTTTCC
ATAGGCTCCGCCCCCCTGACGAGCATCACAAAAATCGACGCTCAAGTCAGAG
GTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTCCCCCTGGAAGC
TCCCTCGTGCGCTCTCCTGTTCCGACCCTGCCGCTTACCGGATACCTGTCCGC
CTTTCTCCCTTCGGGAAGCGTGGCGCTTTCTCATAGCTCACGCTGTAGGTATC
TCAGTTCGGTGTAGGTCGTTCGCTCCAAGCTGGGCTGTGTGCACGAACCCCCC
GTTCAGCCCGACCGCTGCGCCTTATCCGGTAACTATCGTCTTGAGTCCAACCC
```

GGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGC
AGAGCGAGGTATGTAGGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACT
ACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGT
TACCTTCGGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAACAAACCACCGCT
GGTAGCGGTGGTTTTTTTGTTTGCAAGCAGCAGATTACGCGCAGAAAAAAAG
GATCTCAAGAAGATCCTTTGATCTTTTCTACGGGGTCTGACGCTCAGTGGAAC
GAAAACTCACGTTAAGGGATTTTGGTCATGAGATTATCAAAAAGGATCTTCA
CCTAGATCCTTTTACGCGCCCTGTAGCGGCGCATTAAGCGCGGCGGGTGTGGT
GGTTACGCGCAGCGTGACCGCTACACTTGCCAGCGCCCTAGCGCCCGCTCCTT
TCGCTTTCTTCCCTTCCTTTCTCGCCACGTTCGCTTTCCCCGTCAAGCTCTAAA
TCGGGGGCTCCCTTTAGGGTTCCGATTTAGTGCTTTACGGCACCTCGACCCCA
AAAAACTTGATTTGGGTGATGGTTCACGTAGTGGGCCATCGCCCTGATAGAC
GGTTTTTCGCCCTTTGACGTTGGAGTCCACGTTCTTTAATAGTGGACTCTTGTT
CCAAACTGGAACAACACTCAACCCTATCTCGGGCTATTCTTTTGATTTATAAG
GGATTTTGCCGATTTCGGCCTATTGGTTAAAAAATGAGCTGATTTAACAAAAA
TTTAACGCGAATTTTAACAAAATATTAACGTTTACAATTTAAATATTTGCTTA
TACAATCTTCCTGTTTTTGGGGCTTTTCTGATTATCAACCGGGGTAAATCAAT
CTAAAGTATATATGAGTAAACTTGGTCTGACAGTTACCAATGCTTAATCAGTG
AGGCACCTATCTCAGCGATCTGTCTATTTCGTTCATCCATAGTTGCCTGACTC
CCCGTCGTGTAGATAACTACGATACGGGAGGGCTTACCATCTGGCCCCAGTG
CTGCAATGATACCGCGAGACCCACGCTCACCGGCTCCAGATTTATCAGCAAT
AAACCAGCCAGCCGGAAGGGCCGAGCGCAGAAGTGGTCCTGCAACTTTATCC
GCCTCCATCCAGTCTATTAATTGTTGCCGGGAAGCTAGAGTAAGTAGTTCGCC
AGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCAC
GCTCGTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGA
GTTACATGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCC
GATCGTTGTCAGAAGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAG
CACTGCATAATTCTCTTACTGTCATGCCATCCGTAAGATGCTTTTCTGTGACTG
GTGAGTACTCAACCAAGTCATTCTGAGAATAGTGTATGCGGCGACCGAGTTG
CTCTTGCCCGGCGTCAACACGGGATAATACCGCGCCACATAGCAGAACTTTA
AAAGTGCTCATCATTGGAGAACGTTCTTCGGGGCGAAAACTCTCAAGGATCT
TACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTGCACCCAACTGATCT
TCAGCATCTTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGC
AAAATGCCGCAAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCA
TACTCTTCCTTTTTCAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGA
GCGGATACATATTTGAATGTATTTAGAAAAATAAACAAATAGGGGTTCCGCG
CACATTTCCCCGAAAAGTGCCACCTGACGTAGTTAACAAAAAAAGCCCGCC
GAAGCGGGCTTTATTACCAAGCGAAGCGCCATTCGCCATTCAGGCTGCGCAA
CTGTTGGGAAGGGCGATCGGTGCGGGCCTCTTCGCTATTACGCCAGCTGGCG
AAAGGGGGATGTGCTGCAAGGCGATTAAGTTGGGTAACGCCAGGGTTTTCCC
AGTCACGACGTTGTAAAACGACGGCCAGTTGATCAGTCGATCCAAGTGGGGA
TCAGGAAGAAGTTGATAAAGTGATTCAAAAACTCGAGGAGCTCAACACAGC
GATGAACCCAATTTTGAGAGCAACACTGACGAAGAACTATGACGCGAGGGTA
GGCACTACCTTGAAGCTATCCACCTGCCTGCCTGCCGCCTATTTCCATGTGCA
GTAGGAACGTGTGTAGGTATAGGCAGGCATTATCGCGTCTCCTTTCGAACTAC
CTAGTACCTAGTAGGTAGTTTGAAGGGAGGCGCGATAATGCCTGCCTATGTC

TACACATGTGCCTACTGCGCATGGAAATAGGCGGTAGTCAGGCAGGTAGATA
GCCTCATAAAATTCAATACTTCCTTTTCAGAAAGAATGCTGGAATGTATTCAA
AGAGGAGTCACTCTTCCCATTGCTCAGAGAATATGAAGAGTTGCTCGGCGAG
CAAAAGTTCATGATTGGAGATCGATATTCATGGGCTGACATCGCTGTCGTCG
AGTTTCTAACTCGGTGTCAGCAGTGCTACGATAGCTTCTATCTGGCTCATTTC
GAGAGGCTCCGAACTTTTTGCCAGACTTTTGAGTCTCTTCCGCACATTCGTCC
CTACATTCAGGGACGTGTTGATTCATTTATCTAATTTTTTAAAATGGATATTTT
TCGTTTTTTATTTGTTTGTTTTGCTGATAATTCAATAAAGTTACGCAACGAATT
TTAGACATTTATGAAAACCGAAAATCGACAAAAATATTTTAAGAAAAATAGC
AGCAAAATTCAATATTTTATCAAATTTTGTTTATGGTAATGAGAAAGAAAC
ATACAATATTTTTCTAAGAAGAAGAAAAATGACCAGAATTTTAAGATTTTTCT
CGAATATACGAAAAATTGATAAACTAAAATTTTCGATTTTTCCATTTATTTTG
AAAAAAAAACTCTTGACGGTTTTCACCATGCGAAGAGGTGAGAAATATTCTG
AAAGTTATGCATTTTGAAAAAATTGCAAAAAAATACGTTAAAATTTTTTGATC
TATTGTTTTTTTTTGAAAACCGGAATTTAAAATGGAATTTTTTTTCAAAAATTA
AAATTAAAATTTAAATATTTCTAGTGTTTGGATAGTTTTTCAAAAGCTAGATT
TAACCCGCGAGATGTCGACCGCTAGTGTAGCTTACAGATGGCTGAAGACTTC
GCAAAAATCTTATCTTAGAAACCCGCGAGGTGTCGGCCGCTAAAACTTTGTA
AACCTGCCAACAAAATGCTTCGCATTGTCTGAACAGATGAAACCTTGAAACA
AAACATATACAATTGAAATCCCGTAAAGTGTCGGGCGCAAGAACTGCGATTA
GTTGTATAATTGGACTAGCTCAAATTTGACCAAAATCTCATTTTTAGACCTCT
AAGATGTCGGCCACTATAACTTTATTCAACTTGAAACTGCAAAAAAACTTATC
AACTGTATAGATTCAAGTATTATGTCAAGTATTGGTTTTAGAGCTACAGTACA
CTCTGATAACAAAATCTGCAGAAATACCTCCCTGTCAATTCCCAAAATACCTC
CCCTCATCTCAATTATCCCGAAAATCGGTTAGTCATTGCCATCAGAAAATCGA
ATTAAAAAATAAAGATGAAATATGGTAGCAAACTCACTTCGTCTTTGAGCCA
ATTTATCCAAGTCCTTGTAAAAGTATTCGAAAATTGTTAACGGATAAAATGT
TTATTATAATATCAAAAACAATTTGTCAGTTGACCACTTTTTGATATATTTGA
CAGAAACCGGGATGAATTGGCTCAAAGTTAGGGCGCCCTTCTATTACAGGGT
TTCTGATAACAAACCGGTTATTAACTCCCAACAAGGGATGATTTCAATTCATC
ATGCTCAAATTGACCCAAATTAAGTTACATGACAAATTCATCGCCCTTTTCAA
CTCTTCTTGGCTCATCATCTGTTATTCTGTTCCTATTCTGTCTGCACCCTATAC
CCCTTTGCATACTCTCTCGTCATTCCTTTCTTGGATAGTGTCTTCTTCTCCCCA
GCTCTGCTACTTCTATGACTTGCGCCCGCTGCTTTTCCGCTCGTTCCTCTCCTC
TCTGACGTCTTCTTCTGCTTCTTTTCTCCTTCCTTTTTCCCTTCTCAATCTTCCT
CTTTTTCCCATTTCTGTCAATCATTCGAAGAAGAAGAAGAAGAAGACCCTCAT
TCATTTCATTTTTTTTTCTGTCGGTGTGTGCTGCTCGGTTAAGAGTGAGCTCTC
TATTCCACGTCTTCTTCTTTTTCTTCTTCGATTCGAATCAATCACTCCACCAAA
ACGCATTCGTTTTTGGGATTCACCCCGCGGTTCGCAATAGGTTTCTTTTTCAA
ATTATTAGCGTTATAAATAGAAAATGGTGGAGTTTCAATAAAAATGATAAT
TTACAAAGTGTATTTTGATTACATGTACTCAAAAAGGTTGAAATTTTTCATAC
CAGTTTTCCGGAAATCCATCTGATATCATTATCGTATTTTTCTTTTTAAAAATG
TTTTCAAAAAAAAACAAAATATAGCTGGTTATTTGGCACCCTCTAATTACCAT
TTTCCTGTCACACCACACTCTTTTCCTTCTTCCACTTCTTTCCGTTTTCAGCCGC
TTCCAACCAAACCGATATGAAAGCCGAGCAACAACGATCGATTCCACCCGGC
TCGGCGACCTTCCCGTCGCAGGTGAGACTCAGAAAACTAGAGAAACCGCTCA

ACTAACTCTTGATATCCGATTTCATTCTTTTCTCTTTTCTTTTTGTTGAACTTTT
CCATATTTCCAGATGCCACGGCCACCACCAAGCACCGAACAAGGAATCACAA
CGGAATCGGAGCTTGCGAAGAAAGCTCAAATCACTCCGAACGACGTTTTAGC
ACTTCCGGGAATCACTCAAGGTATCTTGCTCCCTTTGGATTTCAGTTTAAAAC
ATAAATTTAGGATTCTTATGCTCCCCATCTGCGAACATCTATAACATCGAGTT
CACCAAGTTCCAAATCCGTGATCTGGACACTGAGCAAGTGCTTTTCGAGATC
GCCAAACCGGAGAACGATCAGGAGAATGATGAGTCGCCACAGGAGTCGGCA
AGATACGTGCGTTATAGATTTGCTCCAAACTTTTTGAAACTCAAAACGGTCGG
AGCAACTGTGGAATTCAAAGTAGGAGACATCCCAATCCATCATTTCCGAATG
ATCGAACGTCACTTCTTCAAAGATCGCCTTCTGAAGTGTTTTGACTTTGAATT
CGGATTCTGTATTCCGAATTCACGAAACAACTGTGAACATATCTATGAGTTCC
CTCAACTCTCTCAACAACTCAGTGAGTCATTATTCTAAAAAGTACAATTCAAA
AGACTAATCTCTTTTTCAGTGGACGACATGATCAACAATCCAAACGAGACTC
GTTCTGACAGCTTCTATTTCGTCGATAACAAACTCGTCATGCACAACAAAGCC
GACTACTCATATGATGCATAAATATTTAATACAAAAATGTTCTGGATAATTAT
TCTGTCGAATAGAAAAAAACTCCAAATGTGATTAAATTCCAATAATTCCTGT
CTAGTTTGTTCCTTCCCCTTCCCCTTCTCATGTTCAATGCATTCCTAAGCTTTTC
AGTTCCCCCCTTGTTTCTATATTTTTTCGCTGTCCTGTCACACTCGCTAAAAAC
ACTAATCACACGGAAATCTGTTTTCAATAAAAACTCCAACTTTAACTCATTTT
CAATTTCAACTGAAAGATTTTTTCATTAGAGAATGTCTAGAACTAGGCCCGGG
CTACGTAATACGACTCACTTAAGGCCTTGACTAGAGGGTACCAGAGCTCACC
TAGGCAGGAACAGCTATGACCATGATTACGCCAAGCTATCAACTTT