
Supplementary information

Lsp2 links mTORC1 to TOP mRNA translation and lifespan in *Drosophila*

In the format provided by the
authors and unedited

Figure 1f

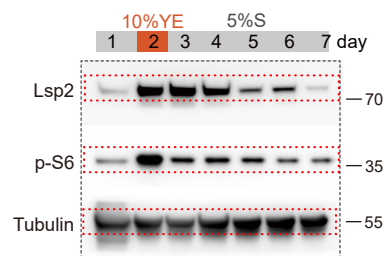


Figure 1j

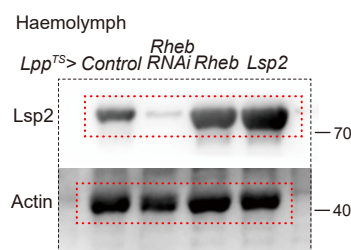


Figure 3a

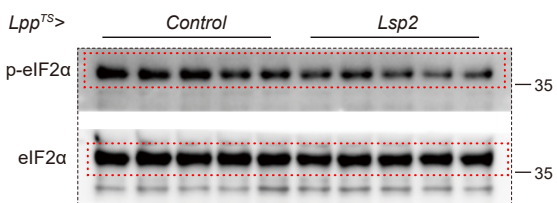
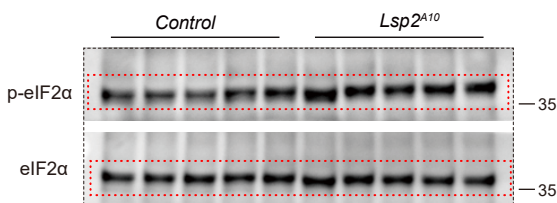


Figure 3b

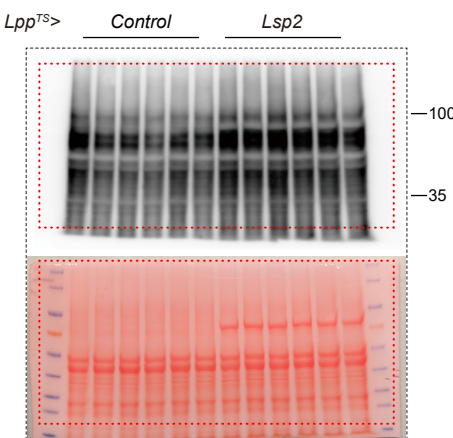
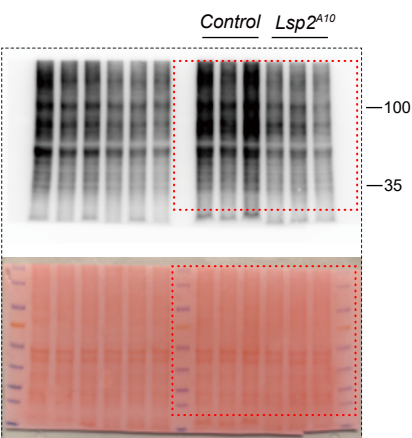


Figure 3j

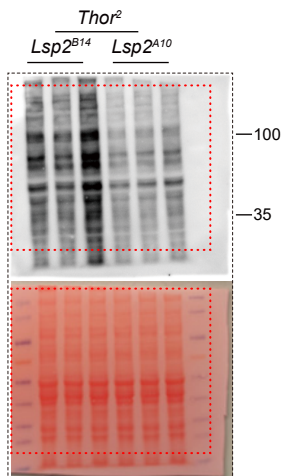


Figure 4a

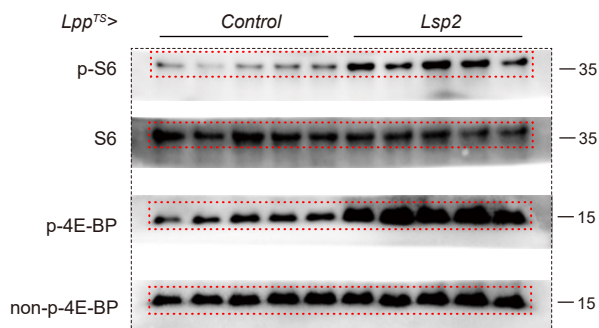


Figure 4b

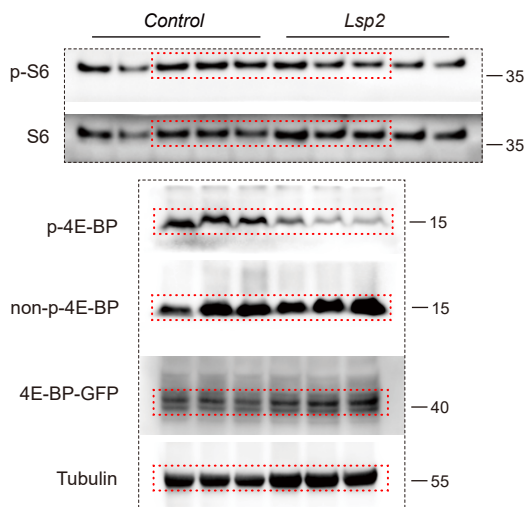


Figure 4c

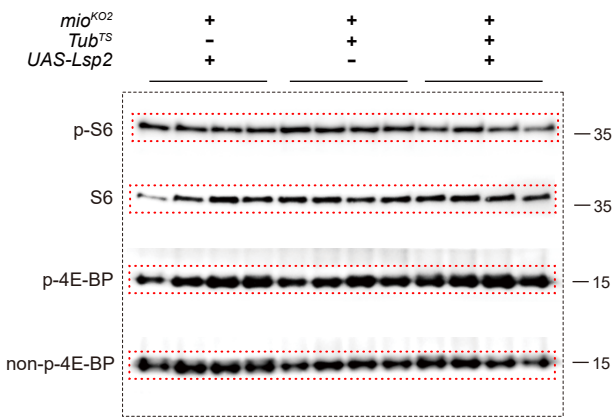


Figure 4d

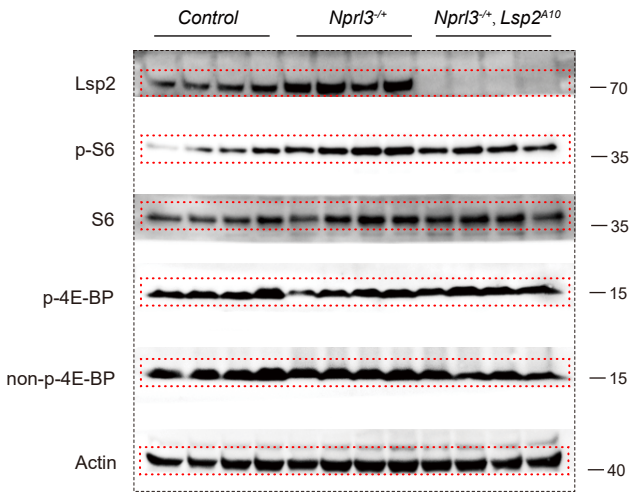


Figure 4e

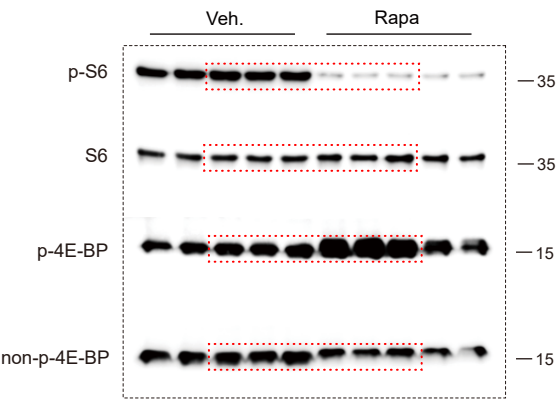
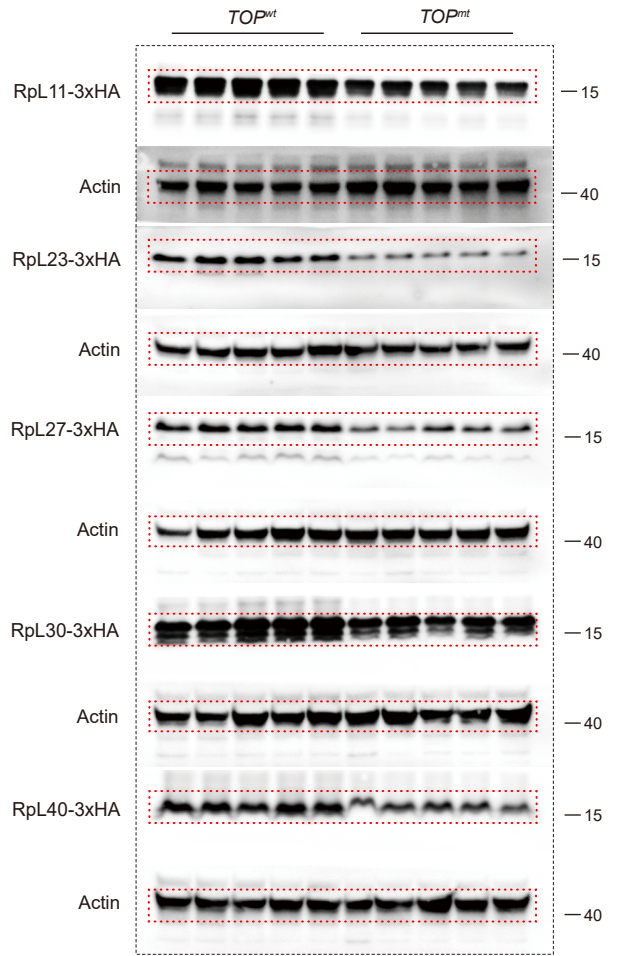
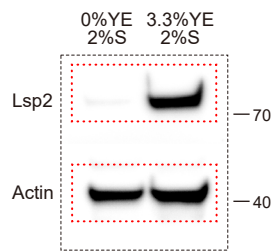


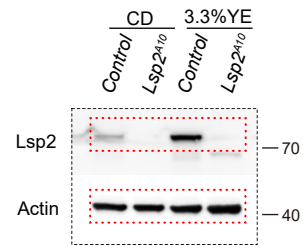
Figure 5c



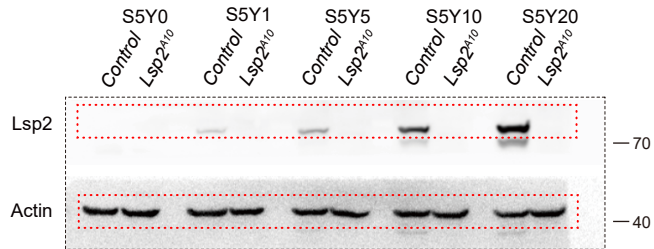
Extended Data Fig 1b



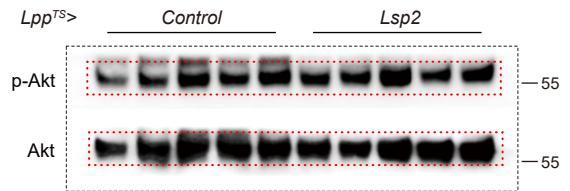
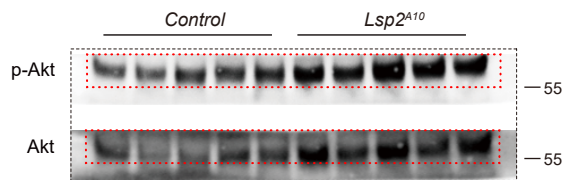
Extended Data Fig 3b



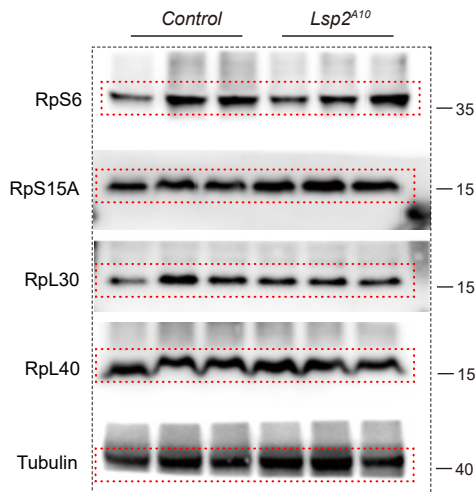
Extended Data Fig 3d



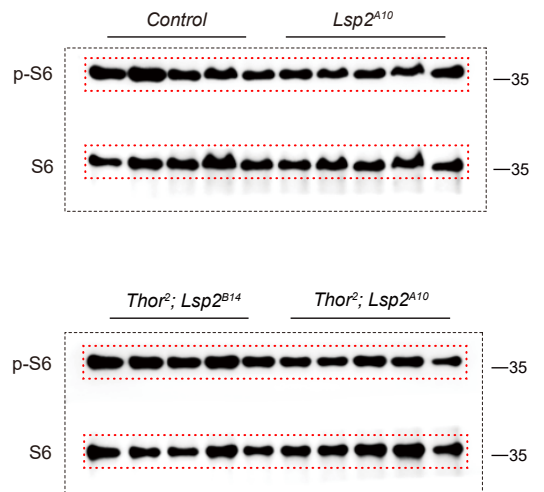
Extended Data Fig 5d



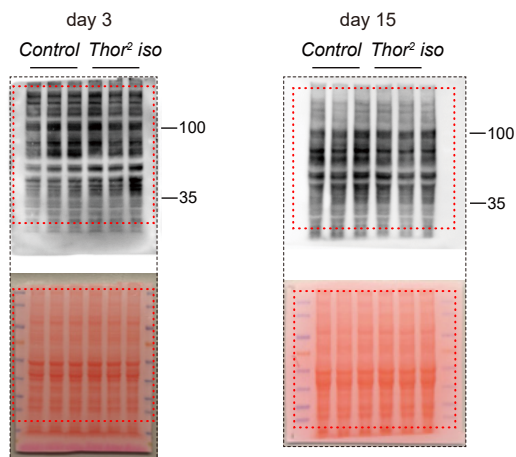
Extended Data Fig 6i



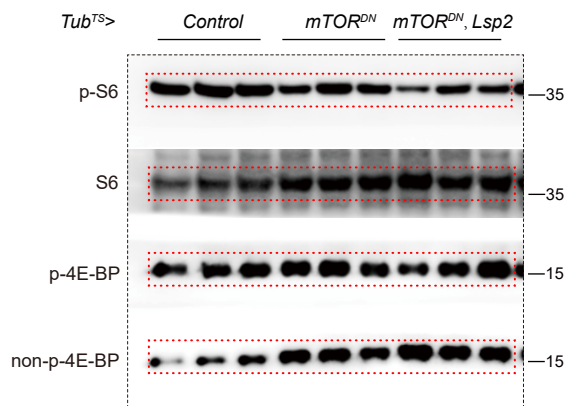
Extended Data Fig 6j



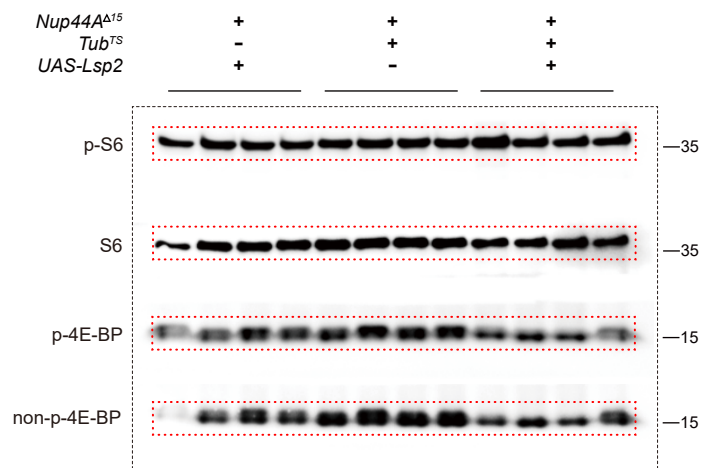
Extended Data Fig 6k



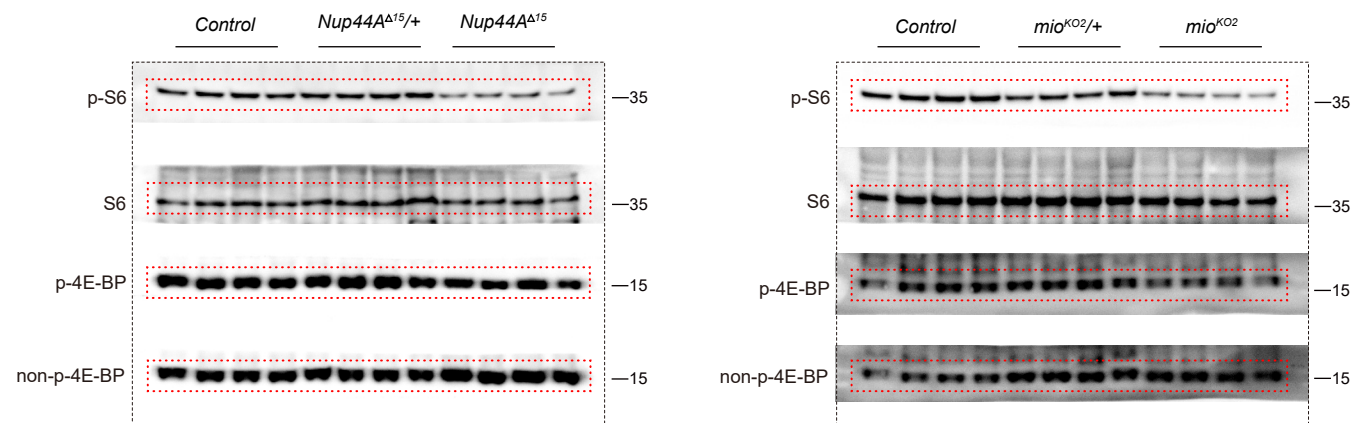
Extended Data Fig 7a



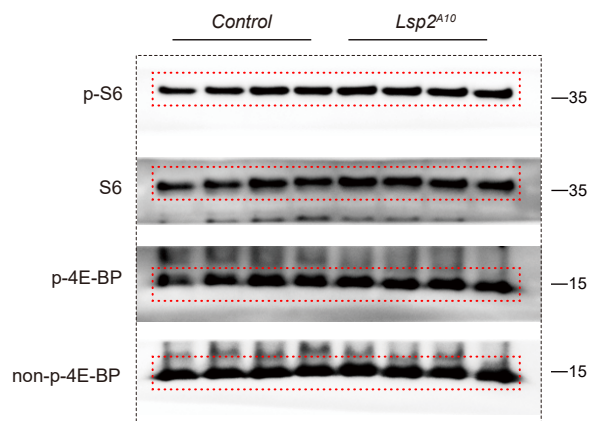
Extended Data Fig 7b



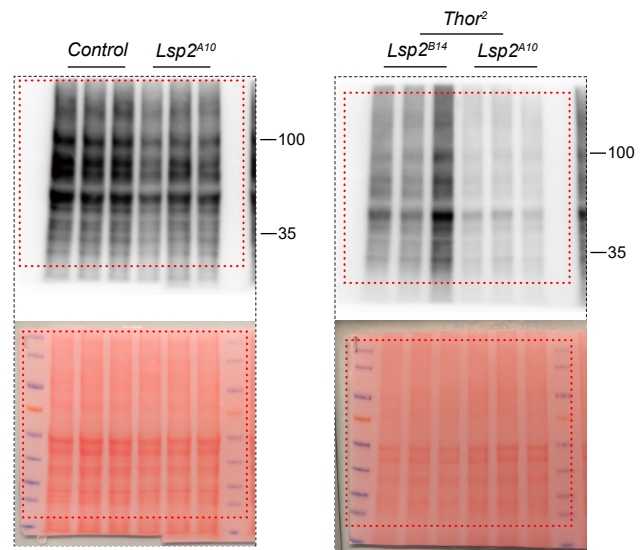
Extended Data Fig 7c



Extended Data Fig 7f



Extended Data Fig 7h



Primer sequence used for qPCR

Lsp2-3'UTR: 5'-CGGTGAAGCATGACTACTACTT-3' and 5'-TTCGTTGGGTCCAGGATCTAG-3'

Lsp2-CDS: 5'-ATGAAGTCGTTACGGTGAT-3' and 5'-CTAGACCACATTGGTGTGCT-3'

Lsp1α: 5'-GCGGGATCCCATGTTCTATATG-3' and 5'-GAAGTTGCTCCTTGGTGTATTTG-3'

Lsp1β: 5'-GACCTACGCCAACTACGATATG-3' and 5'-CGGTCTTGTAGTAGCCCATTT-3'

Lsp1γ: 5'-ATCCGACTTCTTTGTG CCTAAT-3' and 5'-CGAACTGGGTGTACTTCTTCTC-3'

3xHA: 5'-TCCTGACTATGCGGGCTAT-3' and 5'-CTAAGCGTAATCTGGAACGTCATA-3'

dilp2: 5'-AGCAAGCCTTTGTCCTTCATCTC-3' and 5'-ACACCATACTCAGCACCTCGTTG-3'

Kr-h1: 5'- GGCTACAATCATGTGCTGAAAC-3' and 5'- CCTCCATCTCCTTCTTGTTCCTT -3'

Fbp1: 5'-ATCGTGGCGGCATTGATAAGG-3' and 5'-CGAAGGGTGTCAAAGTCCTG-3'

Fbp2: 5'-ATGAATCTGACTGGCATGATCCA-3' and 5'-CCAGGCCATAGACAGAGGACA-3'

RpL32: 5'-TCTGCATGAGCAGGACCTC-3' and 5'-ATCGGTTACGGATCGAACAA-3'

Rp-3xHA sequence that was cloned into the *pUAST-attB* vector

The following *Rp-3xHA* sequence for each RP gene (*RpL11*, *RpL23*, *RpL27*, *RpL30* and *RpL40*) was cloned into the *pUAST-attB* vector, replacing the sequence between the SphI and KpnI restriction sites. Key features of the cloned *Rp-3xHA* sequence are color-coded.

RpL11-3xHA

Predicted TOP motif in red; CDS in green; 3xHA in orange and highlighted

GCATGCCTGCAGGCTAAGCTCTACATACGAATTGATGCTACACACTTTAAAGTTGACGGACTTCTTCAATGGAATACACATTATTG
CTAAATTAATAATTCAAATAAACTATTATGGACGTTTACTTCGAGTTTTTCAATTGATATCACTGGAAGTGCCTTTTTTATTAA
TTTTGGCGCATTACTTAAACGATGTGTTTAAATGCGAAATGAAGTTAATTAAGCGGGCCGTATTTCAAATAAATTTTTATTCTAAAA
GGATTTTTCGTTACATGCGAATAACGCCAAGTAAACAAATATCAAATCAAGCTACCTCAAAGTAATTTAAACATCCGTGCAATCAA
ATAATCACAAATTATCGGCCATATTTGCTGTTTCAGCATTTAAATAAATTGAATAAAACCAATTTTCAGTGGTTAACATTTTAAGGAATA
CCCCATTTATTTACCGTTAGCCCTGTTAACCGTTAGTGATGGAACGACGTGCGCACAACAGCACGATAGTTGGATAACAGCACGAC
AACAGCACGTGTCGTGCGTTTTTTAGGTCCATTTGTGCGCCTCAGCGCGGCCACACTATCCTTTCTCTTCTTTCTTTACAAGTTTCC
GGTGAGTGCTCCGCGTTTTTTTTGCGGATATTTTATTTAACTTTTAAATCGTTTATTTGTAGCGAGGGATACCTGTGAGCAG
CTTTCACCTCTACATACCACAATGGCGGTAGGTTCAACCACAATTGCTGCACGCATCGACATATTTTCAACAATATTTTTGTCATG
CAAAATTTGTACGCTGTGTGTTTACGATGGCAGCACAAGAAGTGACGAGTTTCTTGGTTGTTTTTCAGGCGGTACCAAGAAGAT
TAAGCGCGATCCCGCAAGAACCCGATGAGGGATCTGCACATCCGCAAACTCTGCCTGAACATCTGCGTGGGCGAGTCCGGTGACA
GGCTGACCCGTGCCGCAAGGTAAGATATACCTAGATGCAGCATAACCATGATCACTGGCTAACTAGAGAATGCCAACAGGTGCTG
GAGCAGCTGACTGGTCAGCAGCCAGTGTTCTCCAAGGCCCGCTACACGTCGTTTCGTTTCGGTATTCGCGCTAACGAGAAGATCGC
TGTCCACTGCACGGTGCAGCGGCCCAAGGCTGAGGAGATTCTGGAGCGTGGCTGAAGGTGCGCGAGTACGAGCTGCGTCGGGAGA
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GGTCTGGACTTCTACGTCGTCCTCGGCCGCCCTGTAAGCATCTGTCTCCTACGTTTGAATCGTGCACTTAATTAGGTATCTCTG
CCAATCGAGGCTCTGATGCTCAGTGAATGTGCGCATAGCAAAGAAGATGTGCTTAGTTGGACTTGCTACATTCATGCGTGCCAC
ACGGTACAATTTTCGACAGCGTCTCATGGATTGCCAAAACGTTGATTACTTATCTGCTACTCTGGTTTATCTTGCAGGCTACAATGT
GAACCACAGGAAGCGCAAGTCCGGCACTGTGGCTTCCAGCACCGCTCACCAAGGAGGATGCCATGAAGTGGTTCCAGCAGAAAT
ACGATGGTATCATCTTGAACACCAAGAAGTACCCATACGATGTTCTCTGACTATGCGGGCTATCCCATGACGTCCCGGACTATGCA
CGATCCTATCCATATGACGTTCCAGATTAGCGCTAGAGGAGCTCTATCAGTAACCATGTTTTTAAAGAAGAATTCTACAATAAACC
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TAAAGCAATTTCTTGACTATTATAGAAATCAATTGTAAATATCAAAATGCCAAAATGAAAAAATTTTGTAAACAAAAGGAACAAA
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GTTTCAGTGTAGGTGTACATATGGCCAAAACAATTCCATCTTGGGCATGATGGGTGACCTCTTCCCCTACTGTTGTAATCGAACCCA
ATACTCAAAGTCACGCCTTAGGTGAACCTTGAATTCGTTGGGGCGAACAAATCGGATGCGGCAGCCAAAGTTGAAGGTGGCCATA
AGTTTCAATAAATCGATGCCAACACCAAGCGGGTGGCATGGCAATTGAAAGTCCTTTGCAGGGCCAAACATGTCAGGAAAATCGC
CGGTACC

RpL23-3xHA

Predicted TOP motif in red; CDS in green; 3xHA in orange and highlighted

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GACGCACAAATTGTATTAAATGGAGCCACATTTTAACTAAAAATATCTGAAACTTTGTTTCAGTCCATTGCTGTCGAGGAACTTTGT
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GACATCTGATTGGCCAGACCTGCCAACTTGTTCGAGGTGGGTGTAAACTCCGATGGTATGAGTACCTGCTAGGATTTTAGCAAAG
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CACATCGTATTTCCTCTCTTCGTTTTCCGGCGAAGTAAGTATAATAAAATCTCCACGTTTTTTTTAATGCTAATAATT
GAAACATCTCATTTGGCAAAGTACGGAATAATCTTGAATAACAGTCCGCGAGCAACAAAATGTCGAAGAGAGGTAAAAATCCGAA
CGAACCGCGCCGCTAAGCGTGCAGAAATGTGACGCGCCGGATGTGGAGAGTGTGGAAGTTGTGGTGTGCAAACTAATAACCTCTG
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TGTGCCGACAAACACCGAGCCAAGAACCCTGTACGTGATCGCCGTCCACGGAATCCGCGGTGCGCTTAACCGTCTGCCCGCCGCTGG
TGTCCGCGACATGTTCTGTCGCCACCGTGAAGAAGGGAAGCCCGAGCTCAGGAAGAAGGTAGTGTGGTGGCCAGTGTCTCCGGCTG
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AAGATAGCTTATCGCACAAACTCACGTTTTTAATATTTTGTATTATTGATAAGAATTTAAATTTGTAGTGAAGAAGGTTTATAAA
ACGGTTTTCACTGCATTCTCATAAATCCCCCACCTATAACAACGCACCTTTTGCATAACTAACCGATGCAGCAGGAGGTTTGCACAC
TGCCGAGCAACTTTGCTAACTACTATTTTCATTTGTTTCCAGTCATGCCTGCCGTGGTTATTTCGGCAGCGCAAACCGTTCAGGAG
GAGGACGGGGTGTATTATATACTTTGAGGACAATGCCGGGTAATAGTAAACAACAAGGGCGAAATGAAGGCTCGGCCATCACTG
GACCGGTGGCCAAGGAATGCGCCGATCTGTGGCCCCGATTGTCATCCAATGCAAGCTCTATAGCCFACCCATACGATGTTCTGTAG
TATGCGGGCTATCCCTATGACGTCCCGGACTATGCAGGATCCTATCCATATGACGTTCCAGATTACGCCTAAGGAGTTTCCTTTTC
AATAAACCCACAACGGAACAGATTGTTTGAATTCGAATTGTTGGTTCTTTTATTGAATTGCTGCACTGCTTCGCTACCGGAGG
AGGAGAATGAGGATCGTCTCTAGGGTACC

RpL27-3xHA

Predicted TOP motif in red; CDS in green; 3xHA in orange and highlighted

GCATGCCTGCAGGGTAAGTGAAGGATTTACCTACATTTTTGTGGCATTGTGTTATAATCATTTACCTTTCTCGGCAGAAAACCT
TTTCGCGCTACTTCGACGCCACCCATGTTACTGCCCACTGGAGCCACGCTGCTCAGCAAGATCAACACGGGCGTCCAGTTGGCC
ACCATTTGGACTGAGCCTGGGAGCTCCCATTTGGAACATTTGGGTGAGATACAGCAAACACTTTTATCACTACTGATGGATTAATC
AATCTGTATCATCCCATTCAGATCACCCAGCTTTGCAGGGACTTTGGTATCTGACTGGCCTGACTACGGCTGCCACTGCCCTCA
GCTACGTCTAATCGGCATAATACCTTTAAGATTATCCAAAAAAGACGTAGGGCCGGGCATTTCCGCTAAATATCTGAGTACTA
TGAAGGAGTAGTATCTCTCCTTAAGCAATGATTAGTATGTACCATGTTTCTAAATGATTAACATATTAATTTAAAAAATCTAT
TTTGTTAATAAATTTTAAGTGTTTTCCACAATTATATGATGTTATGAATTTACAAAGGAAAAATTTAAATTTGTGATAAAAAA
ATACTTGTGCCAGTGTGACCAGATAGTAGAAACACAGCCATATGGTAGAGTGACCGCTCAAAAATACCGGAAATGTTGCCACTA
AGTATCGATAAAAAGACGACGTTTGGCATCTCTAAATCTC**CCCTTCTTTTCTTTT**CGCCCGTTCCGGTGAGTGGTGTGTCCG
CGTGTAATTTTGTAAATTTTAGCCAAAATATAAATTTCTACGCTGCGGTAGGAATGCGAGTGGCGTGCAATGTACAGGCTATGC
CCCCCAAAATGGATAATGATTTTAAAGGAGGAAAAATACGGTTTGTAGTCCCGTAGAGCAGAAAAAAGATTCTATGGTGGCTC
TGCTCCCATCTCTCTATGAAAAACAATATCTGGTTATAACTTACCACATGGTTTAGCCGACTATGACTTCTGAGTTGCATAT
GATTTGTGTATGCCAGTTTGAATATATTATGTGTGTTAACAGATAATAAGTGAATTCAGACATCCGGCAAACTAATACTACAATA
CCAAGCACACAATGACCAAAAACGTGTTGCTTTAAAAACCTATTTTGGTTTACTTGCAGATGATGTTATAAACTCTGCCGCCAAAT
AGTTATTAAATAATGTTTTGAGATCTGACGATTTTACTAACGTTTTTCCCTTAATTTACAGAGCAAACCGCCAAG**ATGAGGAAAAAT**
CATGAAGCAGGGCAAGATCGTAATCGTCCTTAGCGGACGTTACGCCGGTCGCAAGGCCATCATCGTCAAGACCCACGACGATGGAA
CCCCGGAGAAGCCCTTCGGACACGCCCTCGTCGCCGGTATCGATCGCTACCCGCGCAAGGTGACCAAGAAGATGGGCAAGAACAAG
CTGAAGAAGAAGTCCAAGGTCAAGCCCTTCTGAAGAGCTGAATCACAATCATCTGATGCCACCCGCTACACGGCGCACGACAT
CAGCTTTGAGAAGCTGTGCCCCAAGGACCTGAAGGATCCCGTAAAGCGCAAGACGACCGCTTCCAGACCCGCGTCAAGTTCGAGT
CCGTCTACAAGGAGGGCAAGAACAAGTGGTCTCTCCAGAAGCTGCGTTTC**TACCCATACGATGTTCTGACTATGCGGGCTATCCG**
TATGACGTCCCGGACTATGCAGGATCCTATCCATATGACGTTCCAGATTACGCTAAGCTGCCCATTCGCTACTTGTGGTTACTGG
ATTTGTCGCTCTTTTTTAAGGTTTAATAAACAAAGAAGTAATCTGATAAACTGACCGAAGTGGATCCTGTGCCTTCTTATTAAG
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ACCGCCCGAATCCAAAACATAATAGTTACAGTGTCTTTTTTACTTTTTCTTTACTAATAAATATTGCAACAGAATAATACATTTT
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CAGTTGGTTGAATTCGGTAGTGCGATAGTGCCTAAGGTACC

RpL30-3xHA

Predicted TOP motif in red; CDS in green; 3xHA in orange and highlighted

GCATGCCTGCAGGATATATCTATAACAATAATTTGCTATCAAGCAAATGGTTCAAAATACAGACTGAACCTTATGGATAATAAAAT
ATAAAATCCTAATCCTGCCTTAAATTTTATGTCCTGCTAACGATCCATATCACGTAAGCTACCACAGGGAGATGATTTAAGTCAAT
CCTATAATAGAACCTTTTACTATATGTGGGAGACCAGTAGCCACACAGATCGATGAGCATTTCGCAACTTCATCATCGCAGCGACT
TGGACTTAATTTTCGCGGGGAAGTTCAGAGCTCCCCCGTGGCTATTGGCAAGGAGATCCCAGCATCCCAGCTTCCCAGCAGCCAAG
CATCCAACCATCAAGACAGCCGGCTAGTGAAAGAATTTCCGGACTCTATGTCAAAGGTTGAATCTTATTTGTGCAGCAGCACGCGT
CGCCAGGGGAATGGAAATGATAGGACAGTGGAGGTGGAGGATGTAACGACCCAGACGAGGCGCCACCACCCACGGTGGTGCAGGCG
GCAATCATTTCTGACAGCATGCGGCCACGTAAATGGCGTTGAATTACAGCCCGACAATCGAAGTGTGAAGTCCCGAACTGAAAG
TTCACTCCTGCCCTCCGGCAGCGCAGCAGCAGCGCTGTGCATCATTCATAAGCCGGCCAGGCCACAGATTGTCTGGAAGCG
AGTCGAGTGCACGCACGCAACGAGCCGATGATGATGAGCTCAGGACTCCCAAACAGGCAACTTTATGACTGTGGCCATGGGTT
GGCATTGGGTTGTGGTGTCTGCATCGCTGCCGCTAGCCGTCTGCGACTGACTCTGACTCCGGATGTGGATGCGGATGAGGATGCGGAT
GAGGATGCTCCGTGCCGCCCTCCTTGGAGCTCCCTAATCCACGTTGTATAATTCATTTGGCGTTGCCGACCCGTTCGCCGTGCGGA
ACTATTTATTCATAATTCGACGTAAAAGCTTGACACAGCAATCCGGGGTTGTGAGCCGTACAAAGCAACTGGGTCTCTTCCAAT
CACGCAGTTGTAGATACCTTAATGCCACACCCACTGTTTAGTGTTTTAAGCTCTATCACAAATAGATTTTAAATAAAACACATGC
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ATATGTTTTCGCATCAATAAACGCCGTGCCATCTAATTTTAGCTTAGATTGTTGCTCGACGCATTATCACGATTTAAAAAATTTAA
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GAGGTTGTACTGGCTAAAAGATAGTTTCGGTGCGTGTCCACGCTAATTGTGGATTGTGTACACGCTAATTGGTATTTTAAACCTAT
TTGTATTAATTGGTGGTATTTTCTCGCATCCCCCGTGGTTCACACCAACACAAACGTGGTACCCATTTCCGCCTGTTCTTCTCTCT
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GCCTGCAGTGCTTTAACCCAACTATCAACATGGTGGCCGTTAAGAAACAAAGAGGCTCTGGAGAGCACCAACGCCCGTCTGGC
GCTGGTGATGAAGTCCGGCAAATACTGCTGGGTACAAGCAGACCTTGAAGACCTGCGCCAGGGCAAGGCCAACTGTTGCTCA
TCGCCAGCAACACGCCCGCCCTGAGGTGAGATGCCCATGCGTCTGCTGCTAAGCAGTAGGTTTCCACTGTGCCAAGTGACCACGT
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CCGGCATATAAACACCTAGCTGTAGTCTACTGCCATAATGATGATCCTATTGATTCCGAATGCCTTGACGAATCCTTTTTTATACT
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AACATTTATTTTAAATCGAACAAGACGACACAATAAAGTTTTGTATGAGCAGAGATAAAGTTTAAATAAAAAACATATTGTTTTG
GTAAATTCAGTGAAAGCAATGTTGGGATTATCATCAAAGATTGGCACGTGATTCTTGTGTTTAAAGTAGCATTTTATTTAAAG
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CATTACAATTGGGCCCAATATACATTACGTAGACAAACACATTAATATGATAAAAAATGTTAGCTTCAAATATGGTTTTGTTGGTC
TAAATAGAAAGGAAAGTTAGTTTATTAATGAAATTTTCGACTTTAGTACTTACAGGTACC

RpL40-3xHA

Predicted TOP motif in red; CDS in green; 3xHA in orange and highlighted

GCATGCCTGCAGGTGCTCTGTTCTCAAGGGTTTTCCACGCTTTCCCTTAGTTTCCCGTTTTCCGCACAACTTGTGCTACTGTCAT
CGATAGGTAAGTGTGAGGACCTATCGAGCCATTAGAACTTCGATATCGAAAGGGGTATTTTTCAGAATCTATCGATTGACGCAG
AATGGAAAAGCACGGTGTCTCACTATAAAGACATACTTTTTTCACTAAGTCAAATACAAATTTATTTATTATATGTGACATATTT
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