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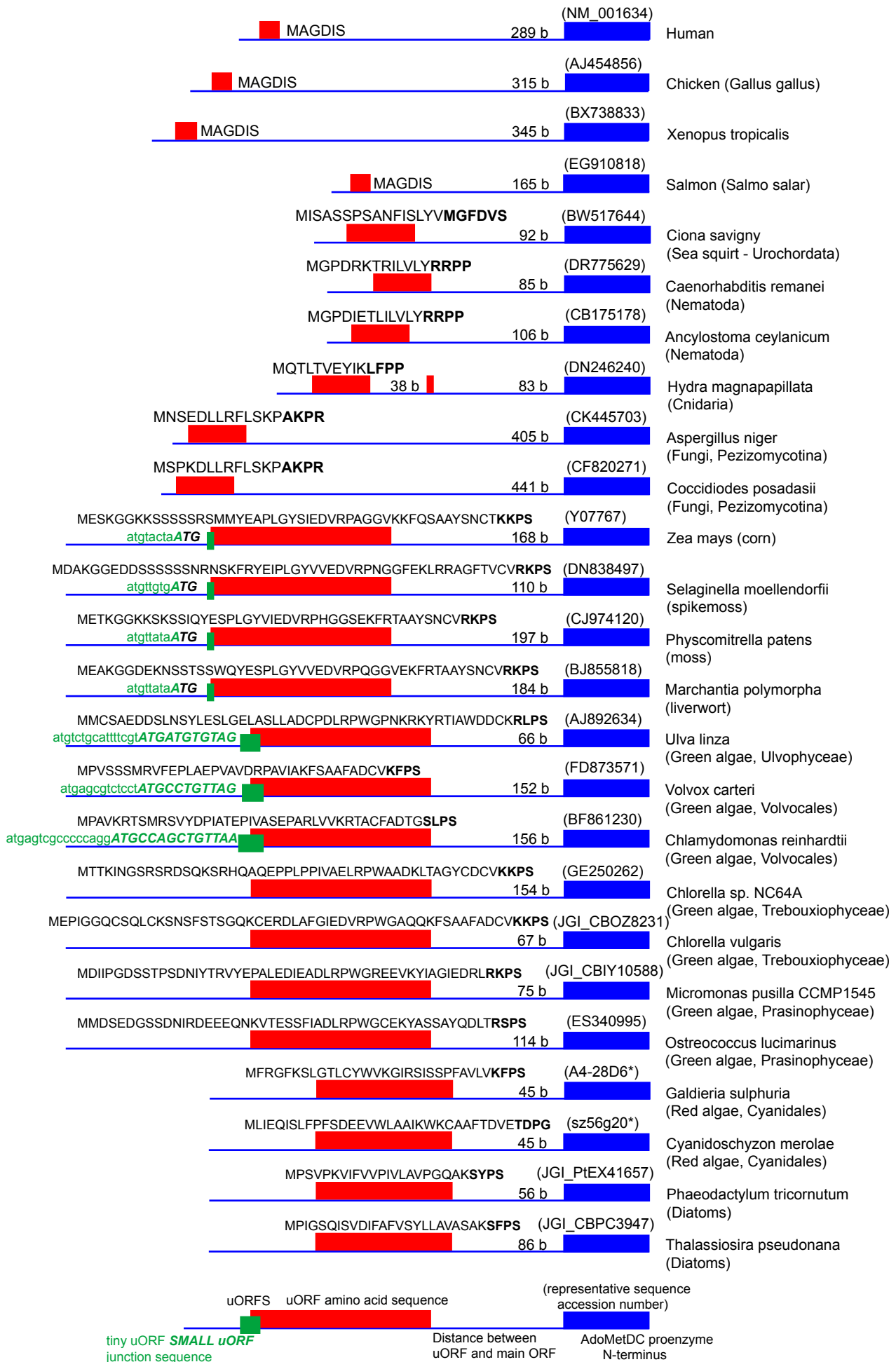
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Supplemental Data

Supplementary Figure 1. Previously unpublished conserved uORF sequences in the mRNA of AdoMetDC genes from eukaryotes. The full species names are given on the left. The corresponding peptide sequence is shown in the middle in single letter code. The RNA sequence is on the right-hand side. The consensus sequence in each case is given below the alignment. Non-synonymous changes are highlighted in light blue, synonymous changes in the RNA sequences are highlighted in gray. Absolutely conserved residues are indicated by “*” below each alignment. The initiation codon is highlighted in green and the termination in red. A) The conserved uORF in the 5 leader of AdoMetDC in Pezizomycotina. B) The conserved uORF in the 5 leader of AdoMetDC in nematodes.

Supplementary Figure 2. Schematic representation of the 5' leaders of AdoMetDC mRNAs with conserved uORFs. uORFs are shown as rectangular red boxes. Their amino acid sequences are indicated above each box. The "tiny" uORFs in plants are shown rectangular green boxes. Their nucleotide sequences are shown in front. The beginning of the main ORFs are shown as rectangular blue boxes. Species names are given on the right. "b" = bases

Supplementary Figure 2



Supplementary Figure 3. The nucleotide sequences of SpmSyn mRNAs surrounding the newly described uORFs in vertebrates. The full species names are given on the left. Absolutely conserved nucleotides are indicated by “*” below the alignment. The initiation codon of the uORF is highlighted in green and the termination codon in red. The initiation codon of the main ORF is highlighted in light blue.

Supplementary Figure 3

Papio anubis	CCC CCAGGC	UUGGACAGGGCCUC	GCCUCAU	AUGGACAGC	ACGGCACAGCACGCU	CAUUCUAGUCUGGCGCCAAAGCUGAUGGUGAGACCAUUC	UUA	AAGGCCUCCAGUC	CAUUUUUCCAGGAGCAAGGAAUUG
Macaca fascicularis	CCC CCAGGC	UUGGACAGGGCCUC	GCCUCAU	AUGGACAGC	ACGGCACAGCACGCU	CAUUCUAGUCUGGCGCCAAAGCUGAUGGUGAGACCAUUC	UUA	AAGGCCUCCAGUC	CAUUUUUCCAGGAGCAAGGAAUUG
Pan troglodytes	CCC CCAGGC	UUGGACAGGGCCUC	GCCUCAU	AUGGACAGC	ACGGCACAGCACGCU	CAUUCUAGUCUGGCGCCAAAGCUGAUGGUGAGACCAUUC	UUA	AAGGCCUCCAGUC	CAUUUUUCCAGGAGCAAGGAAUUG
Homo sapiens	CCC CCAGGC	UUGGACAGGGCCUC	GCCUCAU	AUGGACAGC	ACGGCACAGCACGCU	CAUUCUAGUCUGGCGCCAAAGCUGAUGGUGAGACCAUUC	UUA	AAGGCCUCCAGUC	CAUUUUUCCAGGAGCAAGGAAUUG
Sus scrofa	CCC CCAGGC	UUGGACAGGGCCUC	GCCUCAU	AUGGACAGC	ACGGCACAGCACGCU	CAUUCUAGUCUGGCGCCAAAGCUGAUGGUGAGACCAUUC	UUA	AAGGCCUCCAGUC	CAUUUUUCCAGGAGCAAGGAAUUG
Capra hircus	CCC CCAGGC	UUGGACAGGGCCUC	GCCUCAU	AUGGACAGC	ACGGCACAGCACGCU	CAUUCUAGUCUGGCGCCAAAGCUGAUGGUGAGACCAUUC	UUA	AAGGCCUCCAGUC	CAUUUUUCCAGGAGCAAGGAAUUG
Canis familiaris	GCC CCAGGC	UUGGACAGGGCCUC	GCCUCAU	AUGGACAGC	ACGGCACAGCACGCU	CAUUCUAGUCUGGCGCCAAAGCUGAUGGUGAGACCAUUC	UUA	AAGGCCUCCAGUC	CAUUUUUCCAGGAGCAAGGAAUUG
Ovis aries	CCC CCAGGC	UUGGACAGGGCCUC	GCCUCAU	AUGGACAGC	ACGGCACAGCACGCU	CAUUCUAGUCUGGCGCCAAAGCUGAUGGUGAGACCAUUC	UUA	AAGGCCUCCAGUC	CAUUUUUCCAGGAGCAAGGAAUUG
Bos Taurus	UCC CCAGGC	UUGGACAGGGCCUC	GCCUCAU	AUGGACAGC	ACGGCACAGCACGCU	CAUUCUAGUCUGGCGCCAAAGCUGAUGGUGAGACCAUUC	UUA	AAGGCCUCCAGUC	CAUUUUUCCAGGAGCAAGGAAUUG
Mus musculus	UCC CCAGGC	UUGGACAGGGCCUC	GCCUCAU	AUGGACAGC	ACGGCACAGCACGCU	CAUUCUAGUCUGGCGCCAAAGCUGAUGGUGAGACCAUUC	UUA	AAGGCCUCCAGUC	CAUUUUUCCAGGAGCAAGGAAUUG
Rattus norvegicus	UCC CCAGGC	UUGGACAGGGCCUC	GCCUCAU	AUGGACAGC	ACGGCACAGCACGCU	CAUUCUAGUCUGGCGCCAAAGCUGAUGGUGAGACCAUUC	UUA	AAGGCCUCCAGUC	CAUUUUUCCAGGAGCAAGGAAUUG
Peromyscus polionotus	UCC CCAGGC	UUGGACAGGGCCUC	GCCUCAU	AUGGACAGC	ACGGCACAGCACGCU	CAUUCUAGUCUGGCGCCAAAGCUGAUGGUGAGACCAUUC	UUA	AAGGCCUCCAGUC	CAUUUUUCCAGGAGCAAGGAAUUG
Gallus gallus	CCU CCAGGC	UUGGACAGGGCCUC	ACCCUCAU	AUGGACAGC	GCGGCACAGCACCCU	UGAUCUAGUCUGGCGCCAAAGCUGAUGGUGAGACCAUUC	UUA	AAGGCCUCCAGUC	CAUUUUUCCAGGAGCAAGGAAUUG
Anas platyrhynchos	CCU CCAGGC	UUGGACAGGGCCUC	ACCCUCAU	AUGGACAGC	GCGGCACAGCACCCU	UGAUCUAGUCUGGCGCCAAAGCUGAUGGUGAGACCAUUC	UUA	AAGGCCUCCAGUC	CAUUUUUCCAGGAGCAAGGAAUUG
Taeniopygia guttata	GCU CCAGGC	UUGGACAGGGCCUC	ACCCUCAU	AUGGACAGC	GCGGCACAGCACCCU	UGAUCUAGUCUGGCGCCAAAGCUGAUGGUGAGACCAUUC	UUA	AAGGCCUCCAGUC	CAUUUUUCCAGGAGCAAGGAAUUG
Agkistrodon piscivorus	CCA CCAGGC	UUGGACAGGGCCUC	ACCCUCAU	AUGGACAGC	GCGGCACAGCACCCU	UGAUCUAGUCUGGCGCCAAAGCUGAUGGUGAGACCAUUC	UUA	AAGGCCUCCAGUC	CAUUUUUCCAGGAGCAAGGAAUUG
Xenopus laevis	CC CCAGGC	UUGGACAGGGCCUC	ACU	AUGGACAGC	GCGGCACAGCACCCU	UGAUCUAGUCUGGCGCCAAAGCUGAUGGUGAGACCAUUC	UUA	AAGGCCUCCAGUC	CAUUUUUCCAGGAGCAAGGAAUUG
Xenopus tropicalis	CC CCAGGC	UUGGACAGGGCCUC	ACU	AUGGACAGC	GCGGCACAGCACCCU	UGAUCUAGUCUGGCGCCAAAGCUGAUGGUGAGACCAUUC	UUA	AAGGCCUCCAGUC	CAUUUUUCCAGGAGCAAGGAAUUG
Trichosurus vulpecula	CCA CCAGGC	UUGGACAGGGCCUC	ACCCUCAU	AUGGACAGC	GCGGCACAGCACCCU	UGAUCUAGUCUGGCGCCAAAGCUGAUGGUGAGACCAUUC	UUA	AAGGCCUCCAGUC	CAUUUUUCCAGGAGCAAGGAAUUG
Gasterosteus aculeatus	AUUUCCAGGC	UUGGACAGGGCCUC	ACCCUCAU	AUGGACAGC	GCGGCACAGCACCCU	UGAUCUAGUCUGGCGCCAAAGCUGAUGGUGAGACCAUUC	UUA	AAGGCCUCCAGUC	CAUUUUUCCAGGAGCAAGGAAUUG
Hippoglossus hippoglossus	AUU CCAGGC	UUGGACAGGGCCUC	AGUCAGAC	AUGGACAGC	GCGGCACAGCACCCU	UGAUCUAGUCUGGCGCCAAAGCUGAUGGUGAGACCAUUC	UUA	AAGGCCUCCAGUC	CAUUUUUCCAGGAGCAAGGAAUUG
Thunnus thynnus	AUU CCAGGC	UUGGACAGGGCCUC	AGUCAGAC	AUGGACAGC	GCGGCACAGCACCCU	UGAUCUAGUCUGGCGCCAAAGCUGAUGGUGAGACCAUUC	UUA	AAGGCCUCCAGUC	CAUUUUUCCAGGAGCAAGGAAUUG
Oryzias latipes	UUUCCAGGC	UUGGACAGGGCCUC	AGUCAGAC	AUGGACAGC	GCGGCACAGCACCCU	UGAUCUAGUCUGGCGCCAAAGCUGAUGGUGAGACCAUUC	UUA	AAGGCCUCCAGUC	CAUUUUUCCAGGAGCAAGGAAUUG
Petraodon fluviatilis	UAC CUAGGC	UUGGACAGGGCCUC	ACUCAAAC	AUGGACAGC	ACUCAAAC	AUGGACAGC	UUA	AAGGCCUCCAGUC	CAUUUUUCCAGGAGCAAGGAAUUG
Danio rerio	CAU CCAGGC	UUGGACAGGGCCUC	ACCCCAUC	AUGGACAGC	GCUACAUAUA	CAUUCUAGUCUGGCGCCAAAGCUGAUGGUGAGACCAUUC	UUA	AAGGCCUCCAGUC	CAUUUUUCCAGGAGCAAGGAAUUG
Pimephales promelas	CAU CCAGGC	UUGGACAGGGCCUC	ACCCCAUC	AUGGACAGC	GCUACAUAUA	CAUUCUAGUCUGGCGCCAAAGCUGAUGGUGAGACCAUUC	UUA	AAGGCCUCCAGUC	CAUUUUUCCAGGAGCAAGGAAUUG
Ictalurus furcatus	UCU CCAGGC	UUGGACAGGGCCUC	GUCCCAUC	AUGGACAGC	GCGGCACAGCACCCU	UGAUCUAGUCUGGCGCCAAAGCUGAUGGUGAGACCAUUC	UUA	AAGGCCUCCAGUC	CAUUUUUCCAGGAGCAAGGAAUUG
Ictalurus punctatus	UCU CCAGGC	UUGGACAGGGCCUC	GUCCCAUC	AUGGACAGC	GCGGCACAGCACCCU	UGAUCUAGUCUGGCGCCAAAGCUGAUGGUGAGACCAUUC	UUA	AAGGCCUCCAGUC	CAUUUUUCCAGGAGCAAGGAAUUG
Salmo salar	ACU CCAGGC	UUGGACAGGGCCUC	ACCCCAUC	AUGGACAGC	GCGGCACAGCACCCU	UGAUCUAGUCUGGCGCCAAAGCUGAUGGUGAGACCAUUC	UUA	AAGGCCUCCAGUC	CAUUUUUCCAGGAGCAAGGAAUUG
Oncorhynchus mykiss	ACU CCAGGC	UUGGACAGGGCCUC	ACCCCAUC	AUGGACAGC	GCGGCACAGCACCCU	UGAUCUAGUCUGGCGCCAAAGCUGAUGGUGAGACCAUUC	UUA	AAGGCCUCCAGUC	CAUUUUUCCAGGAGCAAGGAAUUG
Osmerus mordax	UUU CUAGGC	UUGGACAGGGCCUC	ACCCGGUC	AUGGACAGC	ACGACAUAUA	CAUUCUAGUCUGGCGCCAAAGCUGAUGGUGAGACCAUUC	UUA	AAGGCCUCCAGUC	CAUUUUUCCAGGAGCAAGGAAUUG

uORF

main ORF

Supplementary Figure 4. Schematic representation of the newly described uORFs in vertebrate SSAT mRNAs. The discrete “uORF1” is shown as rectangular red box. The overlapping “uORF2” shown as rectangular yellow box. The main ORF is shown as rectangular blue box. “b” = bases; “a.a” = “amino acids”

Supplementary Figure 4

