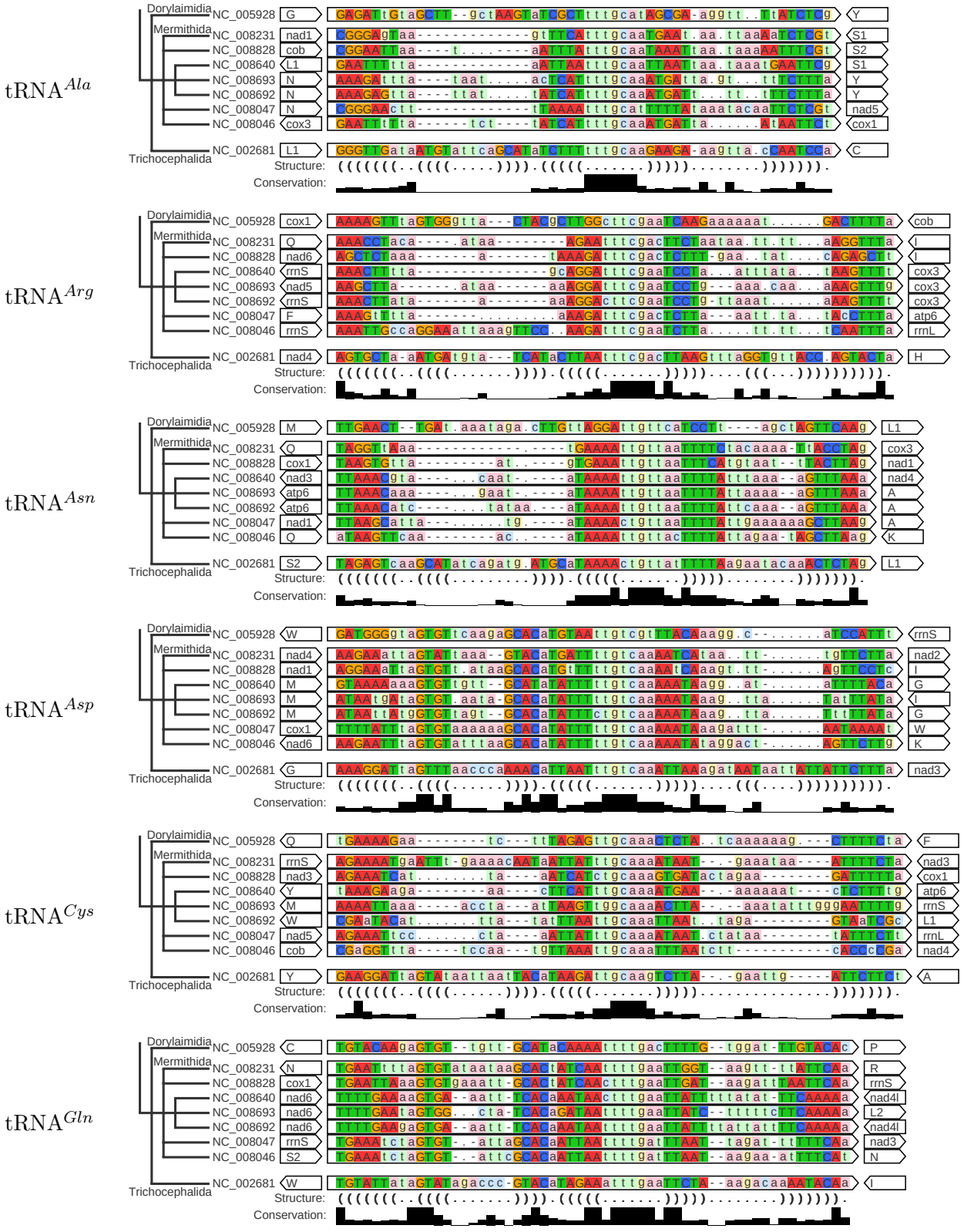
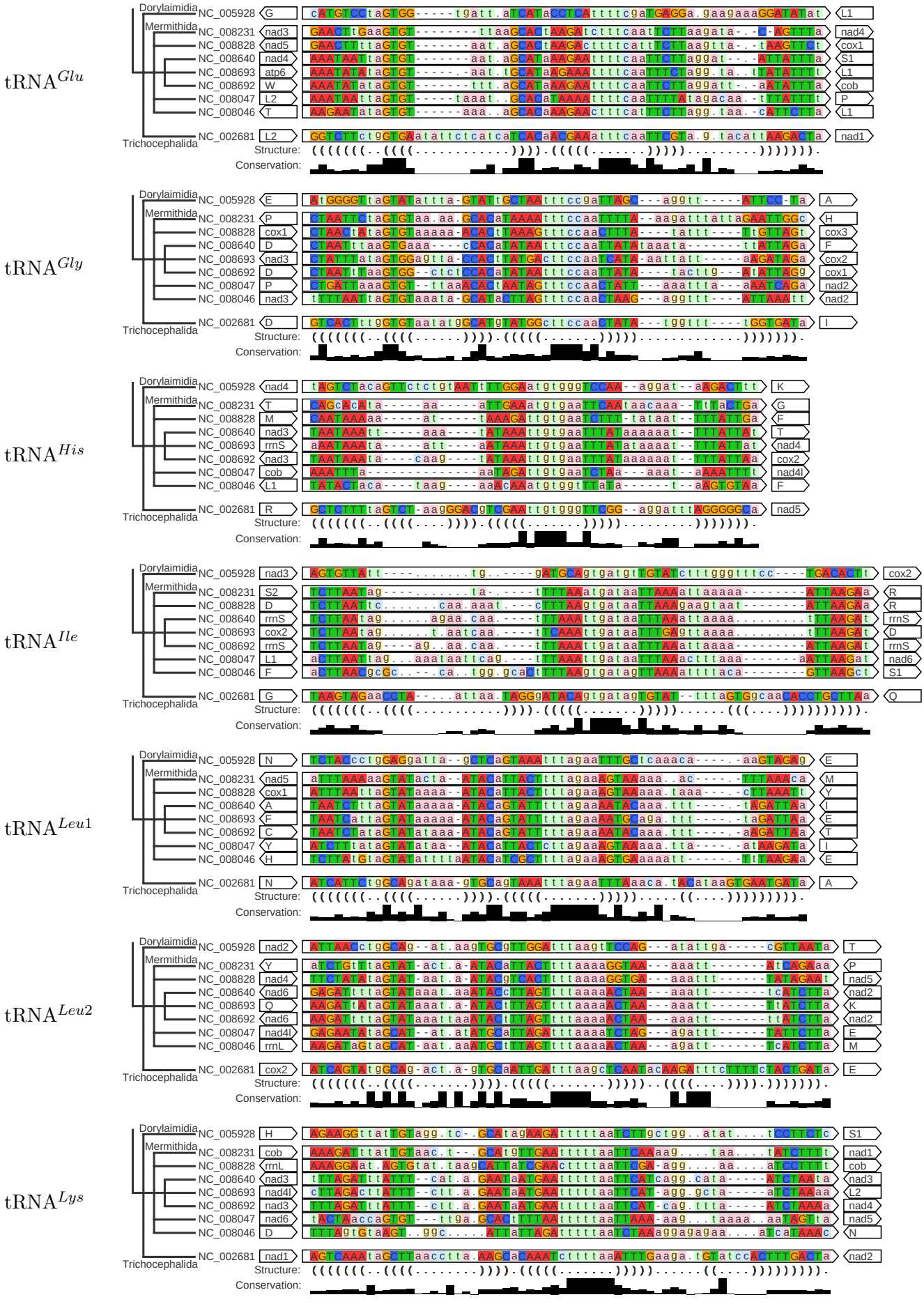
Supplementary Material

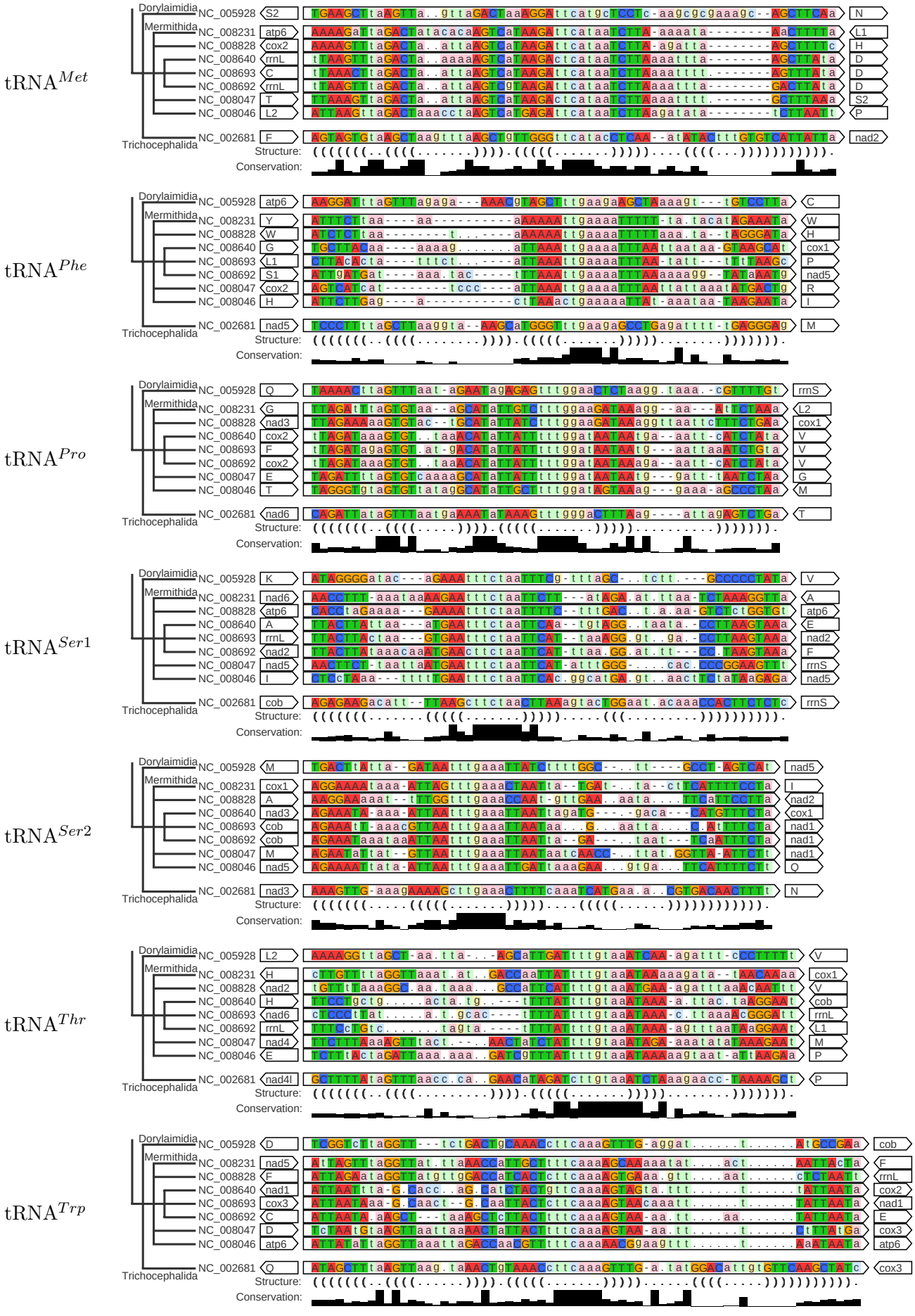
Suppl. Table 1: The mitochondrial genomes of Chromadorea analyzed within this study. All genomes are listed in the curated RefSeq database.

Taxonomy	Organism	Accession
Chromadorea		
Ascaridida	*Anisakis simplex*	NC_007934
	Ascaris suum	NC_001327
	Toxocara canis	NC_010690
	Toxocara cati	NC_010773
	Toxocara malaysiensis	NC_010527
Oxyuroidea	*Enterobius vermicularis*	NC_011300
Rhabditida	*Ancylostoma caninum*	NC_012309
	Ancylostoma duodenale	NC_003415
	Angiostrongylus cantonensis	NC_013065
	Angiostrongylus costaricensis	NC_013067
	Bunostomum phlebotomum	NC_012308
	Caenorhabditis briggsae	NC_009885
	Caenorhabditis elegans	NC_001328
	Cooperia oncophora	NC_004806
	Haemonchus contortus	NC_010383
	Heterorhabditis bacteriophora	NC_008534
	Necator americanus	NC_003416
	Steinernema carpocapsae	NC_005941
	Strongyloides stercoralis	NC_005143
Spirurida	*Brugia malayi*	NC_004298
	Dirofilaria immitis	NC_005305
	Onchocerca volvulus	NC_001861
Tylenchida	*Radopholus similis*	NC_013253

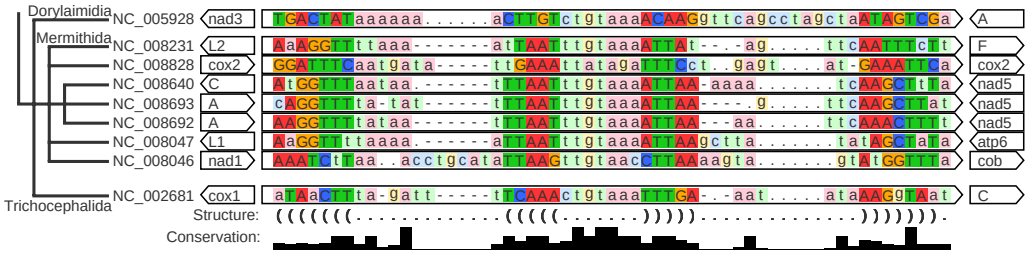
Suppl. Figure 1: The full set of detected mt-tRNAs in 9 Enoplea species. The NCBI taxonomy was used for sorting the sequences which were aligned with Infernal. The conservation scores plotted below the alignments were calculated using `ClustalX`, normalized and squared to improve the readability.



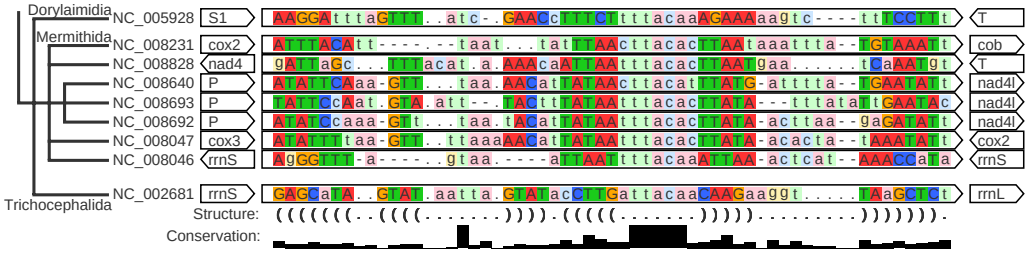

tRNA^Glu
tRNA^Gly
tRNA^His
tRNA^Ile
tRNA^Leu1
tRNA^Leu2
tRNA^Lys
Dorylaimidia
Mermithida
Trichocephalida
Structure:
Conservation:


tRNA^Met
tRNA^Phe
tRNA^Pro
tRNA^Ser1
tRNA^Ser2
tRNA^Thr
tRNA^Trp
Dorylaimidia
Mermithida
Trichocephalida
Structure:
Conservation:

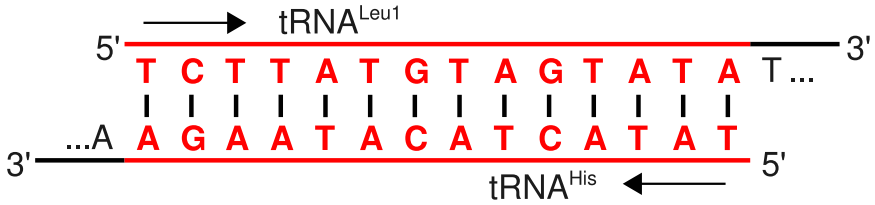
tRNA^{Tyr}

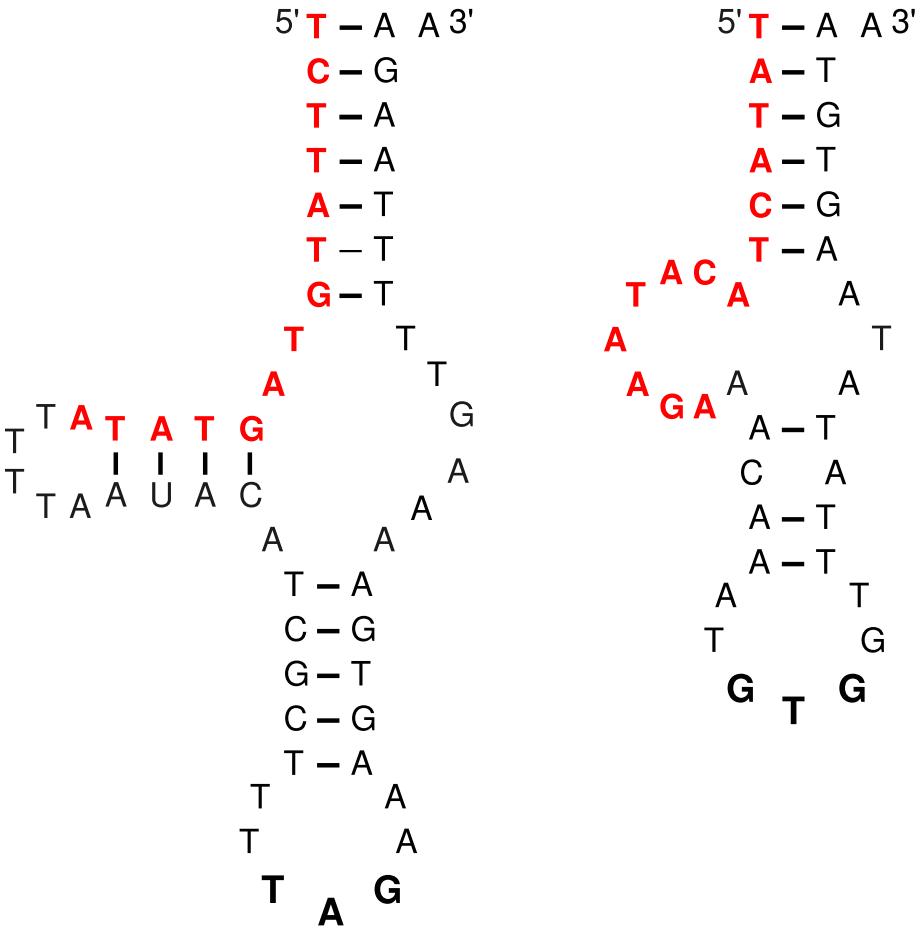


tRNA^{Val}



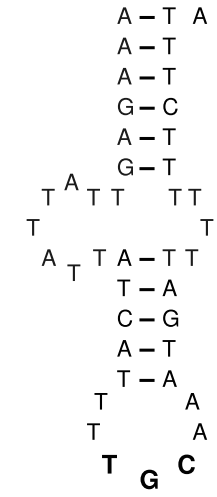
Suppl. Figure 2: Overlapping tRNA^{Leu1} and tRNA^{His} in *Thaumamermis cosgrovei*. Both mitochondrial tRNA genes overlap for 14 nt (red). The anticodons are highlighted in bold.



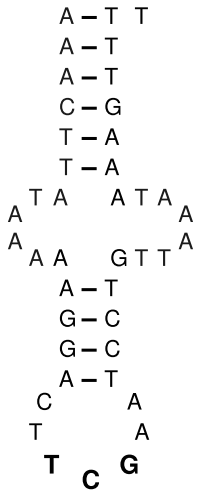


tRNA^{Leu1} tRNA^{His}

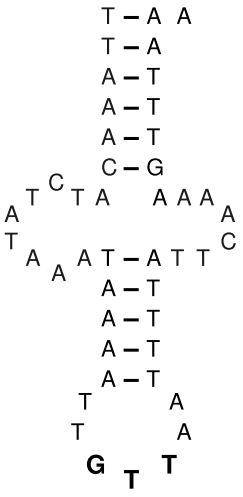
Suppl. Figure 3: Comparison of all armless mitochondrial tRNAs of *Romanomermis nielseni*. Anticodons are shown in bold.



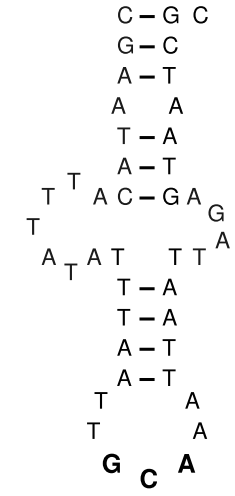
tRNA^{Ala}



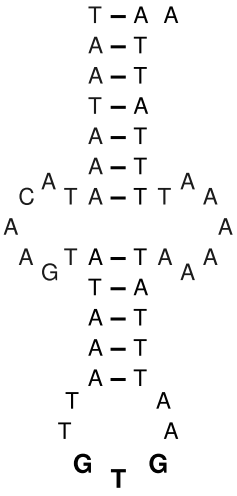
tRNA^{Arg}



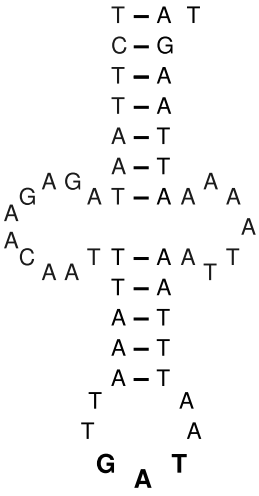
tRNA^{Asn}



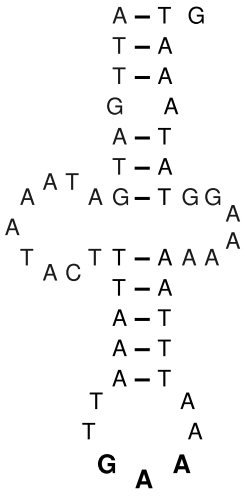
tRNA^{Cys}



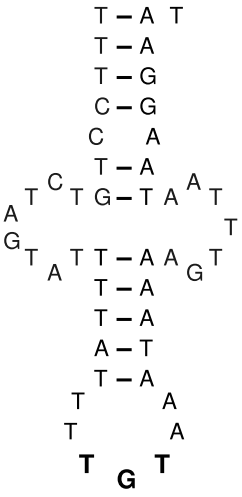
tRNA^{His}



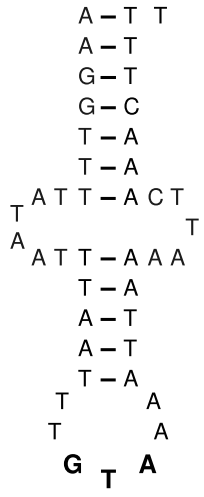
tRNA^{Ile}



tRNA^{Phe}



tRNA^{Thr}



tRNA^{Tyr}