

1 **Unorthodox features in two venerid bivalves with doubly uniparental**
2 **inheritance of mitochondria**

3

4

5

6 Charlotte Capt^{1,a}, Karim Bouvet¹, Davide Guerra¹, Brent M. Robicheau², Donald T.
7 Stewart³, Eric Pante^{4,*} Sophie Breton^{1,*}

8

9 ¹ Department of Biological Sciences, Université de Montréal, Montréal, QC, Canada

10 ² Department of Biology, Dalhousie University, Halifax, NS, Canada

11 ³ Department of Biology, Acadia University, Wolfville, NS B4P 2R6 Canada

12 ⁴ Littoral, Environnement et Sociétés (LIENSs), UMR 7266 CNRS–La Rochelle
13 Université, 2 rue Olympe de Gouges, 17000 La Rochelle, France

14

15

16

Figure S1. Secondary structures of trnP and trnA duplications in the M mtDNA of L. balthica.

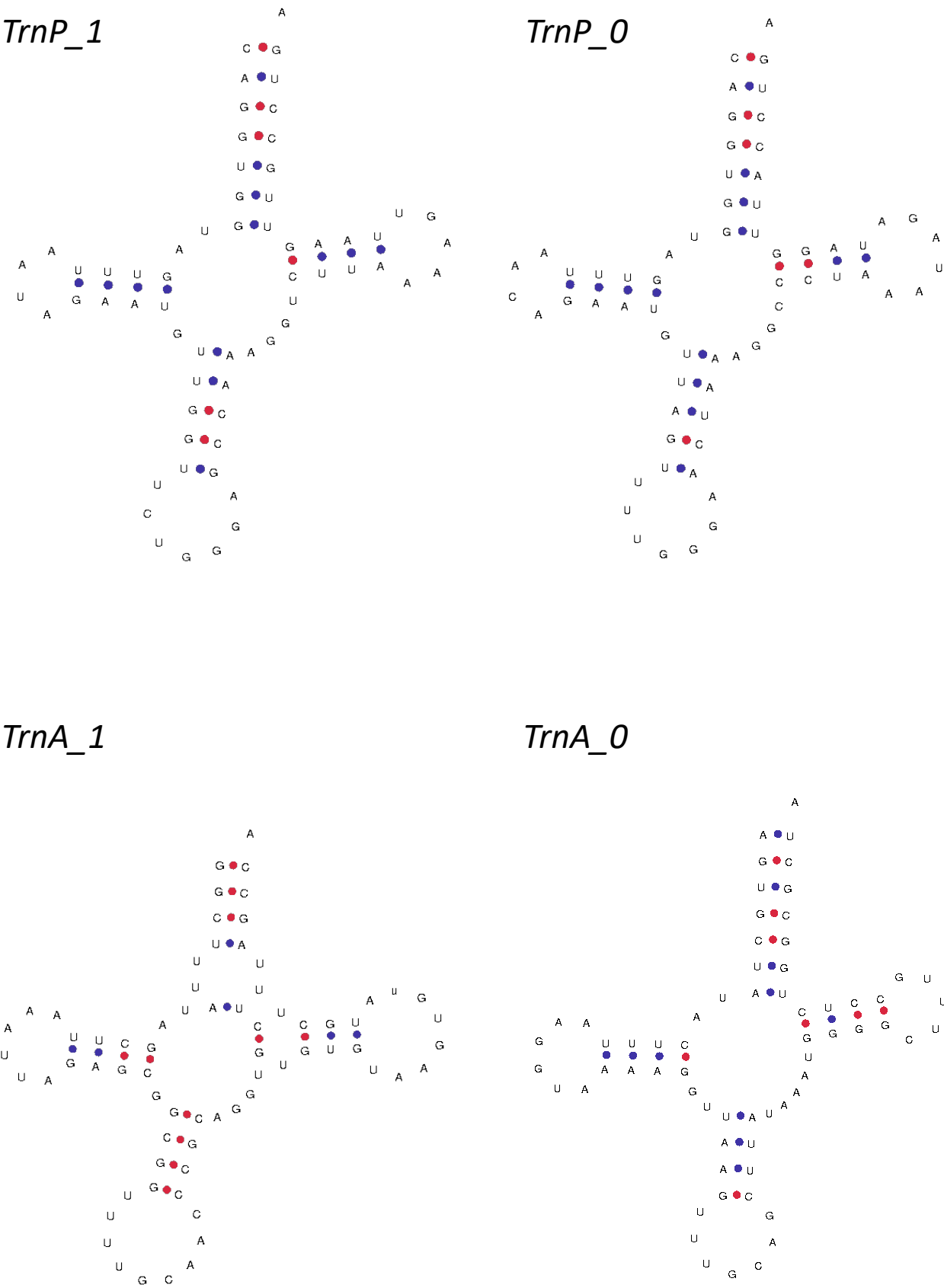
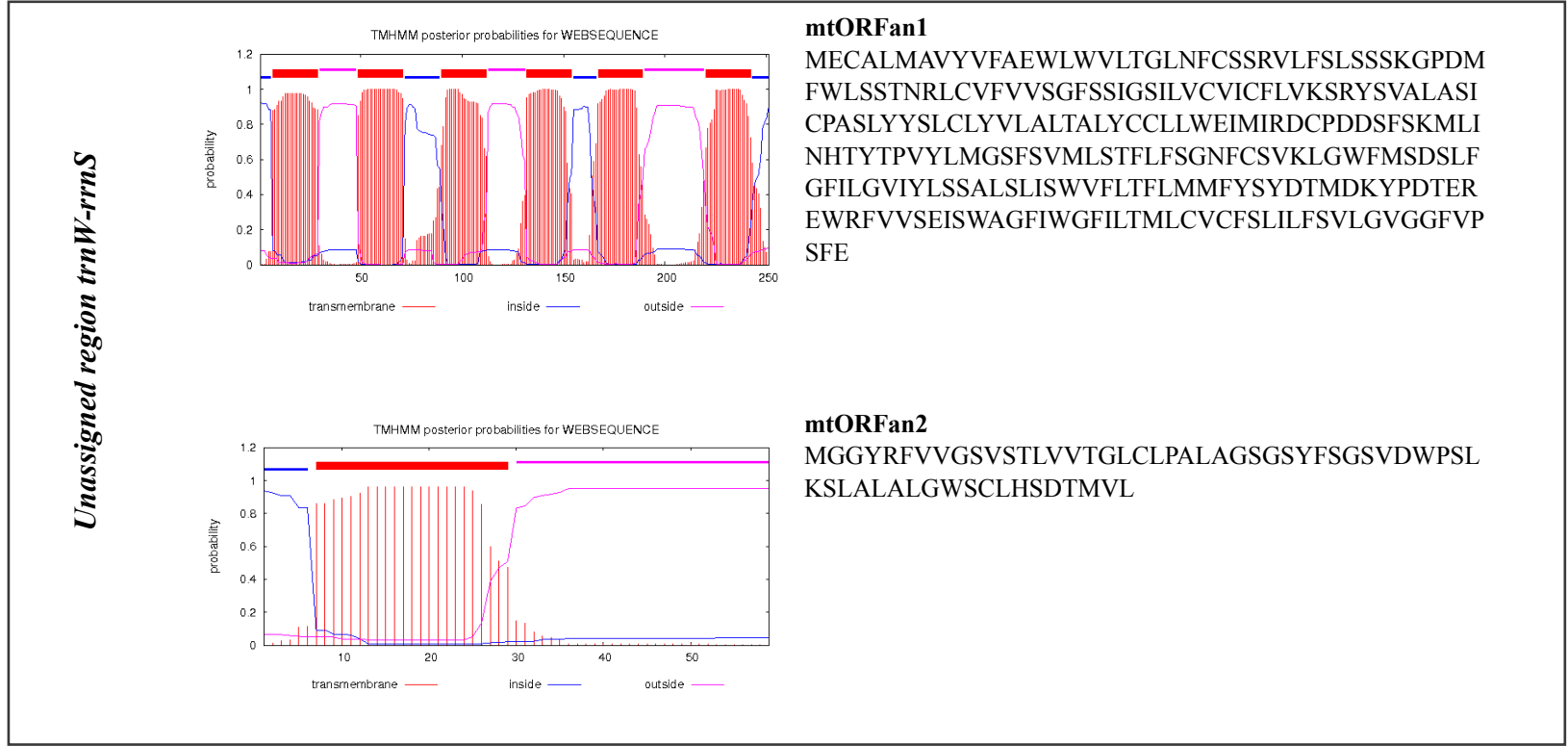


Figure S2. Sequence and secondary structure of predicted ORFs found in all unassigned regions longer than 150nt per sex per mitochondrial genome. Only ORFs with at least one predicted TMH were retained.

Scrobicularia plana *M mtDNA*



Limecola balthica *M mtDNA*

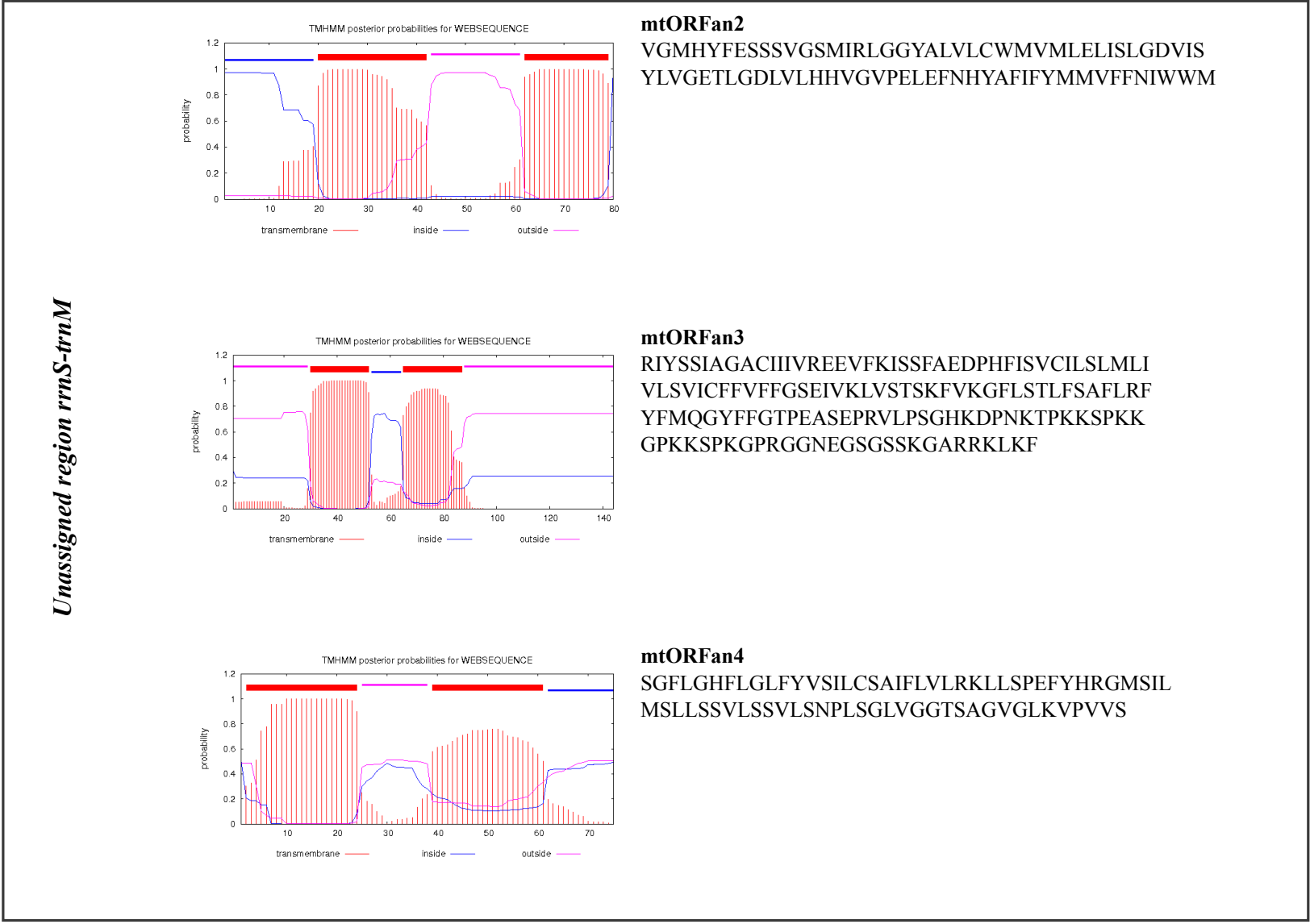
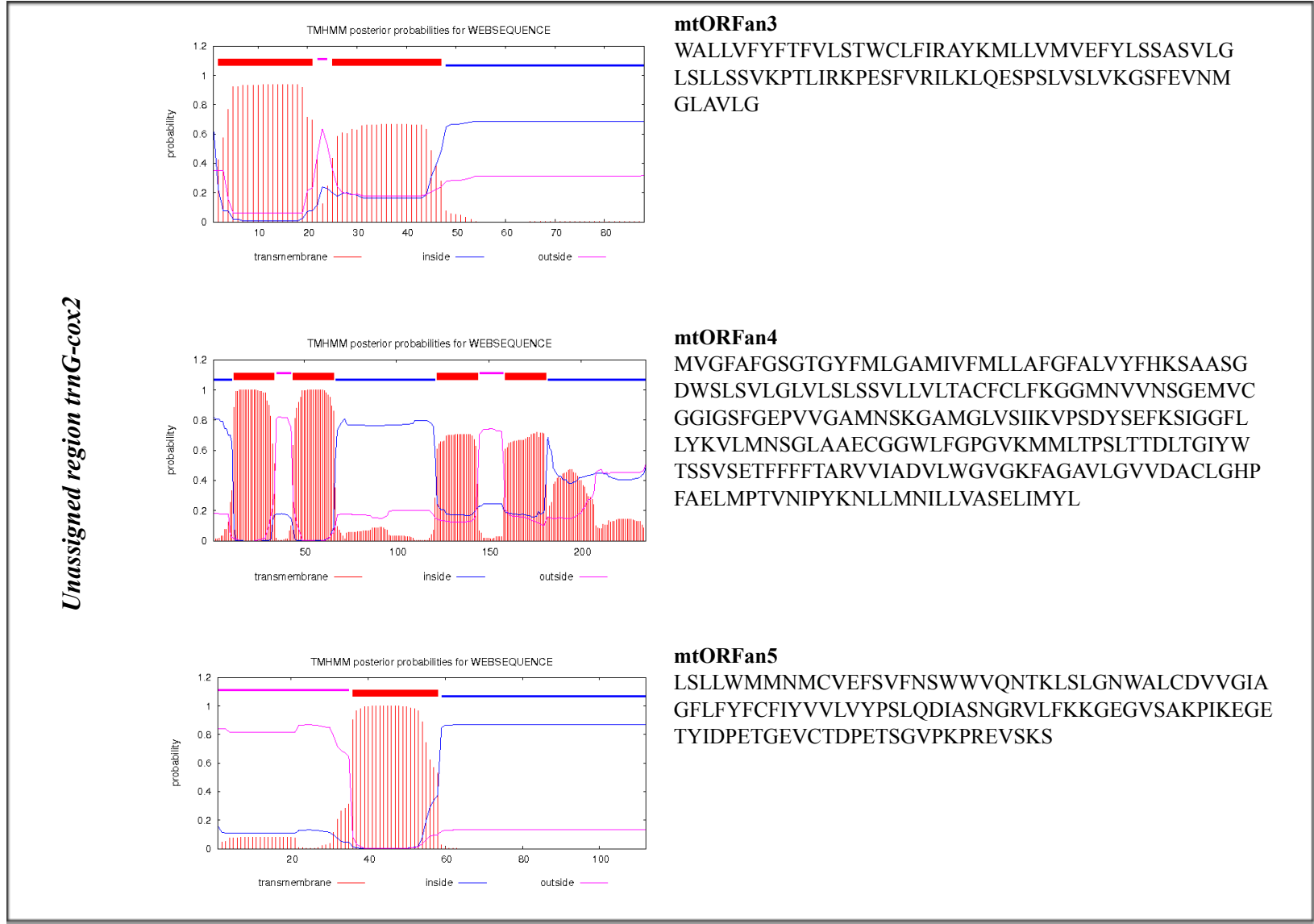
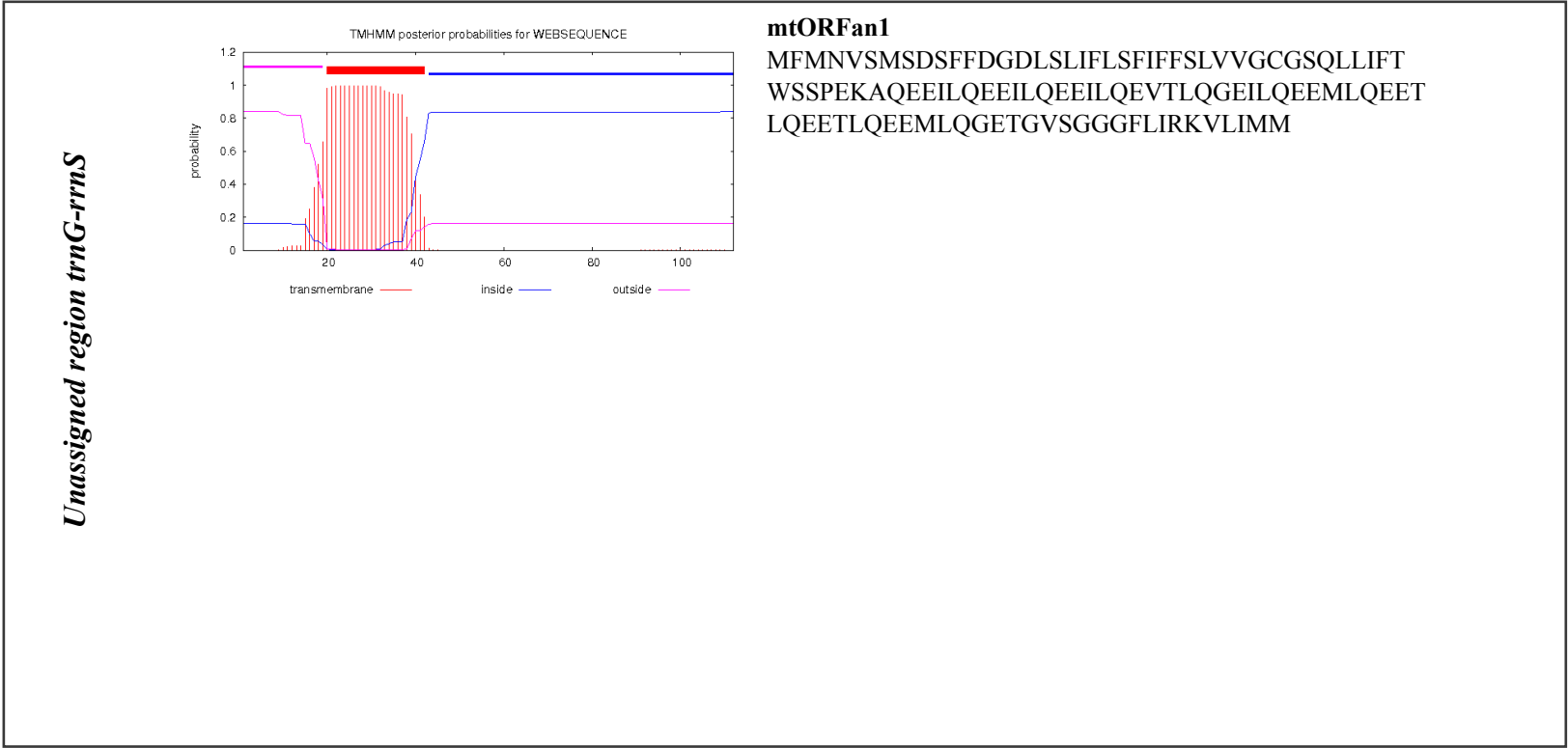
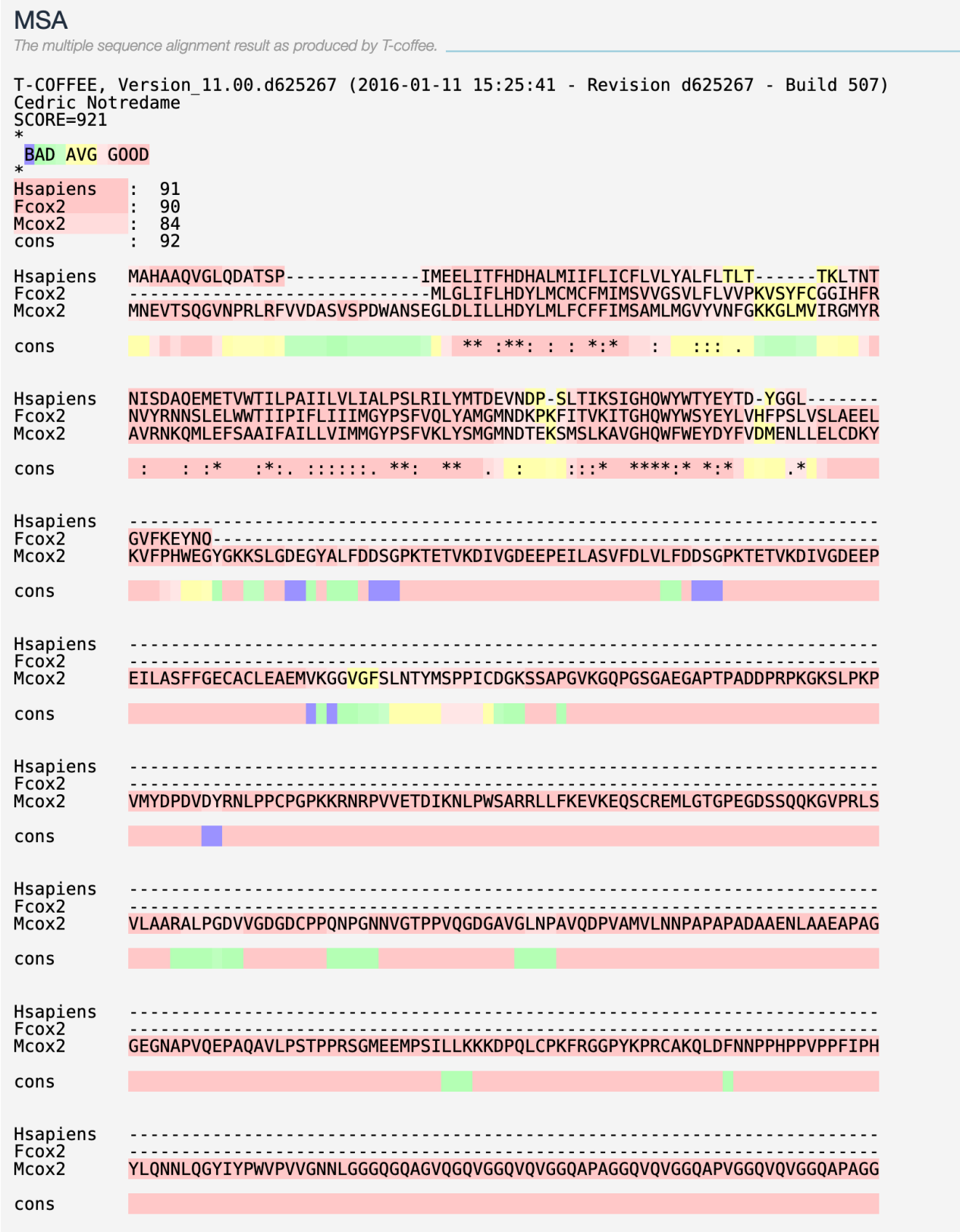
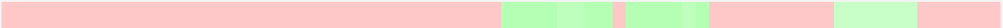
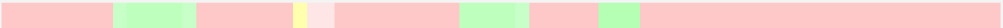
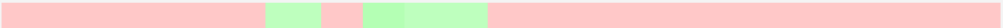
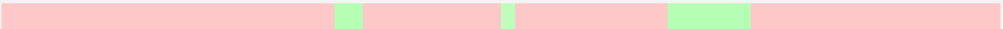


Figure S3. Scrobicularia plana F and M COX2 proteins alignment. Identical amino acids are indicated by an *.

Alignment of COX2: H. sapiens vs S. plana FCOX2 and MCOX2



Hsapiens	-----GFTKGS	-----
Fcox2	-----GFTKGS	-----
Mcox2	QGGAGVDNGSGVDEMSQCTRMSGEGDVGSGPTMLVDKSLPSGLYLKKCEGGYNLGKGVDLLKVLKKVH	
cons		
Hsapiens	-----	-----
Fcox2	-----	-----
Mcox2	PEFGSGPRGEGPSNDGPQPQGMGPLEFLYIFWCEGCIWYSKLNLAFFVQDLWAVNRSWGRGHAVNPELFSSA	
cons		
Hsapiens	-----	-----
Fcox2	-----	-----
Mcox2	DKSFMCLWRMPLVSKVIMPLWHNLGLASQVSVEYHNDPSVLRVVTVLSPGPDNSVYMKVIYNQGVNLES	LN
cons		
Hsapiens	-----	-----
Fcox2	-----	-----
Mcox2	SKSMMFQGLSVSGLNSDIKVALIWLKKGPPEDINGPNRPSRPFKGPSVGGGTSKSDPFAGLTNRPM	DPSPE
cons		
Hsapiens	-----EES-----	-----
Fcox2	-----EES-----	-----
Mcox2	RPVQDEPSNGGSGAQGGAEGSTQSEWSEGSYDGGTGRADRCLLDPSPKRSGGEAGPKEPQPADEAGEQEPS	
cons		
Hsapiens	-----	-----
Fcox2	-----	-----
Mcox2	LPEGSNTSVSDLSNCEFP	SGLNLFVSGASNLLDDKPLGAAVYDGNGNMVIDENNLIMIELSDEEEDMEGVE
cons		
Hsapiens	-----	-----
Fcox2	-----	-----
Mcox2	VNNPSSQLGSGFALS	IFEMMDPFYDPSEHEDQVVEATIVEMPDPKTGSQLVPEEELPAPEPVQEIEPLD
cons		
Hsapiens	-----	-----
Fcox2	-----	-----
Mcox2	ESRSEDIPRPSAQCISSFFDFMKVFCFFMSSPFLGISCFPGDFNPWDIDYALLGAGSVMGGYDSLYEDGF	
cons		
Hsapiens	-----	-----
Fcox2	-----	-----
Mcox2	KLFMDTG	GPKKNSSPGGPEQGSSGESRALLPKNSSVKKTYGSLGNTPPFPHTPDH
cons		SKVTEPLPGTVVPKSY
Hsapiens	-----	-----
Fcox2	-----	-----
Mcox2	IMGALDWAYKKLLRPRVKSHPPILPGTSKM	QSGEAPLRPSPSRVKTMVDDCVVPTISKLLFNRNMVKDYP
cons		

Hsapiens	-----
Fcox2	-----
Mcox2	LNFPTLKSGNKPIYVISQRRSPSPSQSLESSTPNLAYKSLFMGPPKKDVVDQGVQTSDEHGSSESSGTSGR
cons	
Hsapiens	-----
Fcox2	-----
Mcox2	GHYLSTFEIMETLRASAAQSSTPIPGAPMPKNLDRIMEILNTSGEGIWDEEARQEAEAFMDDDSWRGHNLEL
cons	
Hsapiens	-----
Fcox2	-----
Mcox2	HGVIDSDPLLEALSEIGFDEVDRRLNSEQTLVASISGKVKFISLDDTRTNIYWYTLVVDSSDDMTGGGRD
cons	
Hsapiens	-----
Fcox2	-----
Mcox2	DNSGGGGSNRSLVLENTNDNAKSGSKGFNPPSLKSSKGKLGMR EYVIKSF SISFLGGGCCQKFDSSSSPMEVI
cons	
Hsapiens	-----
Fcox2	-----SIDF-
Mcox2	SEFEWRVEEVLCS EEMKVYIKSVAGSKLNGSRESMDRMIAEDMVNSNLFHYFFNSGESAPNSLASSSVYEFN
cons	
Hsapiens	-----
Fcox2	-----
Mcox2	PCKDSSESLSFVGVSIDQRNVYVPVPLWGQYRSWGGKQSLSSGSGDLTSLFPKGNQDSISGVSGQVAPPR
cons	
Hsapiens	-----IFNSYMLPPL--FLEPGDLRLLDVDNRVVL
Fcox2	-----GNVSDWLISYDSYTTASDSSMDFGYRYGQYVDYPMVLP
Mcox2	SPRRPRGSSLVASRYSSDSNGLGSAESGLFSNVFFTKAWLISYDSYTPAESMADVPKFKYQTVDYPAVLM
cons	
Hsapiens	IEAPIRMMITSODVLHSAVPTLGLKTD AIPGRLNOTTFTATRPGV-YYGOCSEICGANHSFMPIVLELIPL
Fcox2	GDSNVEVKVTSADVIHCWTIHGLGVKMDAVPGRVNTSHLANLRPGFAGWGGCSEMCGINHWQMSAEVEVLSP
Mcox2	GDSNVEVMVTSSDVIHSWTVTGLGVKIDAIPGRLNAVHLRNLRPGFTSWGGCSEICGVNHWQMGVEVEVLSP
cons	
Hsapiens	KIFEMGPVFTL-----
Fcox2	EDFILWILT WVYS DMKDE-E
Mcox2	RD FLLWLLMMVF LDMSSLDE
cons	

Figure S4. Limecola balthica F and M COX2 proteins alignment. Identical amino acids are indicated by an *.

Alignment of COX2: H. sapiens vs. L. balthica FCOX2 and MCOX2a



cons

Hsapiens Fcox2Lbal Mcox2Lbal	----- ----- TPSLTPVFSSLAATTDSSEMNGISPINPLNQVSLMWDPEYNYDEFVNLTVSRVFPDRDGVSAEVSFAE
cons	
Hsapiens Fcox2Lbal Mcox2Lbal	----- ----- RQLFRNFLDNMFCVEGVNTVRMVPSQISVVPSSVYLAPSGTSLTNSTTSNESFLGSIGAVISNGASAGE
cons	
Hsapiens Fcox2Lbal Mcox2Lbal	-----EYT----- -----EYLVHL----- LSIAHRPEPFADSVAVEDGEVPGTSSTPEGEEGAVGGLVSQRKKEYEALVDLGKSGKILPKDLPKKYSS
cons	
Hsapiens Fcox2Lbal Mcox2Lbal	----- -PSLISLADELGVFNYYNNQG----- APLTLMIRLRGIFSGSNINQSDTSVFHPRFVSGPTDSKSAPAISESPNRGNSVGPQADPSSVKPVNIN
cons	
Hsapiens Fcox2Lbal Mcox2Lbal	----- ----- SAPSIPGGPDRGNSIGPQADPSSVKPVNINSAPSIPGGLDRGNSVGPQADPINVEPVSVNSAPALSEGF
cons	
Hsapiens Fcox2Lbal Mcox2Lbal	----- -----ASKG----- NLGNTIDFQPGASNPKVPVKDQAVPSNTVLDGVVNSTNKVESDDGSHGASLVDNAQKKGKKVKKKAVVV
cons	
Hsapiens Fcox2Lbal Mcox2Lbal	----- -----ELEA KFWDKRHTFKLGRHKPSDGGSGPDRGSVVGPPGPSVKTMVKGQTGPSNKKVSDSDNTESDDGGQGGGA
cons	
Hsapiens Fcox2Lbal Mcox2Lbal	----- -----NVQ----- LIDKTQKQGKKVKKKLFVKVGDHNSHKLERKWLDDDDSDGPGGFGSGPLQPSESFHGGGKVVPSNT
cons	
Hsapiens Fcox2Lbal Mcox2Lbal	----- -----FE----- NNNSANFDYCEGGSVCGVYYEEVAEFTGGLNSVICGVLNFSSACFSFMPIQSFIQFYFANSYSSLCLNW
cons	
Hsapiens Fcox2Lbal Mcox2Lbal	----- -----DYGGLIFNSYMLPPL--FL -----GVSDWLISYDSYTVNNVDGVL LMVFEEGCVCFITYGSILMSWSSYAHLLMMFLEELIKIFCKSWPASHMPVTWAIGFDSYLVFFSSLMM
cons	
Hsapiens Fcox2Lbal Mcox2Lbal	EPGDLRLLDVDNRVVLPIEAPIRMMITSODVLHSAWVPTLGLKTDaipgrlnOTTFTATRPgv-YYGQC ESGFRYGQFVDYPMVLPGDSNVEVKVTSADVIHCWTIQGLGVKMDAVPGRVNSAHFSDLRPGFSAWGGC PWGFKYGCYVDYPAVLMGDSNIEVKVTSADVHHSWTINGLGMKVDAIPGRINTVQLSGLRPGFSAWGGC
cons	
Hsapiens Fcox2Lbal Mcox2Lbal	SEICGANHSFMPiVLELIPLKIFEMGPVFTL----- SEMCGVNHwOMSAEVEVLTvSDFILWILTwySDIKDLD SEMCGVNHwQMGAEEVLSRKDFNLWLLT-----
cons	