

Supplemental Table 2. C to U RNA edit sites detected in the tobacco mitochondrial transcriptome alignment.

Edit % = the proportion of aligned nucleotides that differed from the genome sequence. PIES = Previously Identified Edit Sites (Genbank accession BA000042).

Grey highlighted PIES were overlooked as edit sites using our identification criteria.

Gene Name	Genome Position	Edit %	Depth of Coverage	PIES	Gene Name	Genome Position	Edit %	Depth of Coverage	PIES	Gene Name	Genome Position	Edit %	Depth of Coverage	PIES
mat-R	4159	59.80%	>1000	+	ccmC	19300	0.00%	77	+	atp6	25109	20.80%	48	+
	4169	93.20%	>1000	+		19304	32.98%	97	+		25114	25.60%	39	+
	4226	90.00%	>1000	+		19309	8.18%	110	+		25165	98.60%	>1000	+
	4257	96.20%	>1000	+		19316	35.60%	132	+		25222	97.10%	>1000	+
	4279	96.20%	>1000	+		19321	83.10%	338	+		25301	99.30%	>1000	+
	4313	90.90%	>1000	+		19346	86.90%	>1000	+	cob	40964	99.10%	>1000	+
	4334	93.90%	>1000	+		19367	94.00%	>1000	+		41066	99.20%	>1000	+
	5600	89.70%	>1000	+		19368	96.60%	>1000	+		41140	99.50%	>1000	+
	5687	77.20%	>1000	+		19436	94.50%	>1000	+		41195	96.90%	>1000	+
	5777	94.60%	>1000	+		19486	98.40%	>1000	+		41368	97.60%	>1000	+
nad1_ex4	5820	90.70%	>1000	+		19583	93.90%	>1000	+		41480	97.50%	>1000	+
	6710	82.60%	>1000	+		19588	98.50%	>1000	+		41667	>0.10%	>1000	+
	6719	88.80%	>1000	+		19606	95.50%	>1000	+		41690	99.20%	>1000	+
	6740	53.80%	491			19634	96.80%	>1000	+		41723	98.10%	>1000	+
	18704	75.30%	>1000			19652	94.20%	>1000	+		41750	93.70%	>1000	+
ccmC	18722	78.70%	>1000			19664	96.60%	>1000	+		41934	44.21%	>1000	+
	19094	94.10%	>1000	+		19683	2.37%	>1000	+		41995	55.26%	>1000	+
	19111	96.90%	>1000	+		19691	94.40%	>1000	+	rps14	43397	82.60%	>1000	+
	19117	92.30%	>1000	+		19762	88.60%	>1000	+	rpl5	43746	75.60%	>1000	+
	19143	1.86%	537	+	atp6	24620	97.10%	>1000	+		43749	84.20%	>1000	+
	19148	67.30%	388	+		24667	98.00%	>1000	+		44098	93.30%	>1000	+
	19159	56.30%	183	+		24674	99.00%	>1000	+		44166	70.50%	>1000	+
	19161	4.32%	208	+		24682	91.40%	>1000	+		44194	81.30%	>1000	+
	19162	59.00%	205	+		24811	99.90%	>1000	+		44199	92.50%	>1000	+
	19192	95.00%	>1000	+		24853	96.40%	>1000	+		44223	60.80%	>1000	+
	19199	90.20%	>1000	+		24878	97.00%	>1000	+	nad1_ex5	44590	90.20%	>1000	+
	19219	95.60%	>1000			25069	56.30%	71	+		44599	93.10%	>1000	+
	19270	97.90%	>1000	+		25084	68.00%	75	+		44629	96.40%	>1000	+
	19294	72.00%	304	+		25102	40.00%	75	+		44704	86.40%	>1000	+

Gene Name	Genome Position	Edit %	Depth of Coverage	PIES		Gene Name	Genome Position	Edit %	Depth of Coverage	PIES		Gene Name	Genome Position	Edit %	Depth of Coverage	PIES		
nad1_ex5	44748	87.80%	>1000	+		orf265a	85532	87.50%	>1000			atp4	114202	85.30%	373	+		
	44772	14.57%	926	+			86326	81.20%	>1000				114223	94.40%	>1000	+		
	44784	63.73%	923	+			86340	88.50%	>1000	+			114235	95.50%	>1000	+		
	44787	62.10%	872	+		nad3	86399	76.90%	>1000	+			114361	97.90%	>1000	+		
	44793	55.90%	835	+				86438	92.60%	>1000		+		114379	99.40%	>1000	+	
	44816	69.50%	909					86455	41.05%	>1000		+		114391	97.50%	>1000	+	
	74362	97.40%	>1000					86456	86.80%	>1000		+	nad4L	114660	98.20%	>1000	+	
	74390	96.30%	>1000					86532	44.21%	>1000		+			114744	86.60%	>1000	+
	74443	98.30%	>1000					86540	91.50%	>1000		+			114753	90.00%	>1000	+
	74628	94.40%	465					86602	66.80%	786		+			114762	95.50%	>1000	+
	74677	71.60%	521					86603	71.00%	680		+			114783	81.20%	>1000	+
	74685	89.40%	463					86609	58.40%	586		+			114810	82.70%	>1000	+
orf197a	75164	96.70%	>1000				86624	13.41%	313	+		114831		78.50%	>1000	+		
	75191	93.60%	974			86641	5.05%	297	+		114855	36.04%		545	+			
	75225	89.30%	403			86645	10.00%	320	+		114886	79.90%	>1000	+				
	75231	80.30%	386			86660	73.10%	666	+		114894	82.50%	>1000	+				
	75284	95.30%	>1000			86669	79.10%	>1000	+		114900	81.60%	>1000	+				
	75340	88.60%	>1000			86711	91.50%	>1000	+		114933	92.50%	>1000	+				
	75369	90.00%	>1000			86738	89.90%	>1000	+		115729	69.10%	>1000					
	75499	63.40%	235			86743	91.60%	>1000	+		124295	65.70%	>1000					
nad2_ex1	76596	87.20%	>1000	+	rps12	86903	86.20%	>1000	+	ccmFN	124599	97.00%	>1000	+				
sdh3	77451	89.50%	>1000	+			86945	91.10%	>1000		+		124634	93.30%	>1000	+		
	77717	57.00%	628			86995	94.00%	>1000	+		124646	94.50%	>1000	+				
	77971	55.90%	513			87068	87.20%	>1000	+		124670	98.20%	>1000	+				
	77996	56.70%	566			93293	97.80%	>1000			124713	96.70%	>1000	+				
	78399	52.80%	267		atp4	114034	96.30%	>1000	+		124731	95.00%	>1000	+				
	79436	60.00%	405				114043	95.30%	>1000	+		124764	93.60%	>1000	+			
	80509	66.20%	130				114055	97.30%	>1000	+		124782	97.00%	>1000	+			
orf265a	85521	94.10%	>1000			114199	52.20%	67	+		124814	97.70%	>1000	+				

Gene Name	Genome Position	Edit %	Depth of Coverage	PIES	Gene Name	Genome Position	Edit %	Depth of Coverage	PIES	Gene Name	Genome Position	Edit %	Depth of Coverage	PIES
ccmFN	124842	99.10%	>1000	+	cox1	130046	99.40%	>1000	+	cox1	145810	98.30%	>1000	+
	125160	98.50%	>1000	+		130273	89.10%	>1000			145900	93.60%	>1000	+
	125309	96.30%	>1000	+		130277	98.20%	>1000	+		145902	64.10%	>1000	+
	125324	97.30%	>1000	+		130286	81.10%	>1000			145910	70.80%	89	+
	125336	97.10%	>1000	+	rps10_ex1	130483	95.80%	>1000	+		145942	98.90%	>1000	+
	125396	97.90%	>1000	+		130512	96.80%	>1000	+	rps19	145972	98.10%	>1000	+
	125405	91.00%	>1000	+	rps10_ex2	131329	90.10%	>1000			152330	85.40%	>1000	+
	125731	87.80%	>1000	+		131350	94.80%	>1000	+		152352	39.03%	>1000	+
	125738	96.60%	>1000	+		131545	93.60%	>1000	+		152377	85.90%	>1000	+
	125820	89.10%	>1000	+		131586	95.70%	>1000	+		152378	67.30%	>1000	+
	125847	93.80%	>1000	+		131636	94.60%	>1000	+		152435	87.40%	>1000	+
	125855	96.70%	>1000	+	nad1_ex3	132471	84.40%	643		rps3_ex2	154079	89.00%	554	+
	125952	95.80%	>1000	+		142436	91.50%	>1000			154113	5.80%	799	+
	125961	96.10%	>1000	+		142928	95.40%	>1000	+		154499	90.30%	>1000	+
	125966	92.30%	>1000	+		142983	99.10%	>1000	+		154700	79.10%	>1000	+
	126065	96.20%	>1000	+		143026	84.10%	>1000	+		155018	85.90%	>1000	+
cox1	128789	98.80%	>1000	+	nad 1_ex2	143027	96.70%	>1000	+	rps3	155351	96.10%	>1000	+
	128799	98.30%	>1000	+		143063	90.60%	>1000	+		155378	98.50%	>1000	+
	128855	99.50%	>1000	+		143070	97.80%	>1000	+		155542	96.80%	>1000	+
	128883	96.00%	>1000	+		143071	94.40%	>1000	+		155575	97.40%	>1000	+
	129102	87.40%	>1000	+		144339	94.40%	>1000	+		155606	91.70%	>1000	+
	129527	98.90%	>1000	+	rps13	144374	96.00%	>1000	+	rpl16	155575	97.40%	>1000	+
	129542	70.60%	741	+		144662	84.30%	>1000			155606	91.70%	>1000	+
	129620	20.33%	59	+		144993	92.20%	>1000	+		155754	94.80%	>1000	+
	129698	99.20%	>1000	+		145180	96.50%	>1000	+		155882	96.70%	>1000	+
	129737	95.60%	>1000	+		145224	92.50%	>1000	+		156057	91.20%	>1000	+
	129836	99.10%	>1000	+	atp9	145769	97.80%	>1000	+	cox2_ex1	156389	93.00%	>1000	+
	130034	96.20%	>1000	+		145780	98.40%	>1000	+		156422	99.60%	>1000	+

Gene Name	Genome Position	Edit %	Depth of Coverage	PIES	Gene Name	Genome Position	Edit %	Depth of Coverage	PIES	Gene Name	Genome Position	Edit %	Depth of Coverage	PIES
cox2_ex1	156458	97.00%	>1000	+	nad4_ex1	182535	91.50%	>1000	+	nad4_ex4	190797	81.70%	>1000	+
	156512	99.10%	>1000	+		182566	99.00%	>1000	+		190802	89.70%	>1000	+
	156604	98.90%	>1000	+		182731	95.90%	>1000	+	orf216	191167	76.80%	>1000	+
	156629	82.10%	>1000	+		182745	98.30%	>1000	+		191231	97.90%	>1000	+
	156730	98.00%	>1000	+		182802	94.40%	>1000	+		191250	64.00%	>1000	
cox2_ex2	158154	99.70%	>1000	+	nad4_ex2	182805	97.20%	>1000	+		191366	92.70%	>1000	+
	158172	97.70%	>1000	+		182806	98.30%	>1000	+	nad5_ex1	192075	84.40%	>1000	
	158187	97.90%	>1000	+		184364	94.40%	>1000	+		192303	96.30%	>1000	+
	158268	99.70%	>1000	+		184395	97.30%	>1000	+	nad5_ex2	193218	95.40%	>1000	
	158343	98.60%	>1000	+		184446	96.70%	>1000	+		193234	93.80%	>1000	+
nad5_ex3	158432	97.90%	>1000	+	nad4_ex3	184554	96.00%	>1000	+		193350	97.60%	>1000	+
	158453	98.00%	>1000	+		184623	99.00%	>1000	+		193351	99.30%	>1000	+
	172744	93.90%	>1000	+		184674	99.10%	>1000	+		193366	97.10%	>1000	+
	172804	95.10%	>1000	+		184739	95.40%	>1000	+		193390	98.60%	>1000	+
	172822	99.20%	>1000	+		187902	14.85%	>1000	+		193531	97.10%	>1000	+
nad5_ex4	172834	94.10%	>1000	+	nad2_ex3	187931	98.50%	>1000	+		193590	98.90%	>1000	+
	172864	98.40%	>1000	+		187935	97.70%	>1000	+		193600	90.40%	>1000	+
	174240	97.50%	>1000	+		187941	97.90%	>1000	+		193621	96.70%	>1000	+
	174261	93.00%	>1000	+		188034	90.50%	>1000	+		193705	99.40%	>1000	+
	174263	92.70%	>1000	+		188054	73.90%	>1000	+		193717	98.90%	>1000	+
trnD(guc)	174303	99.40%	>1000	+		188073	90.70%	788	+		193811	94.00%	>1000	+
	179057	90.90%	408			188076	90.00%	841	+		193827	96.80%	>1000	+
nad4_ex1	182398	92.40%	>1000	+	nad4_ex4	188097	97.60%	>1000	+		194302	98.60%	>1000	+
	182443	87.20%	>1000	+		188232	97.90%	>1000	+	nad2_ex4	194441	86.20%	>1000	
	182446	98.60%	>1000	+		188280	97.40%	>1000	+		194708	94.80%	679	
	182476	97.90%	>1000	+		188298	93.10%	>1000	+		194897	94.30%	772	
	182493	81.70%	>1000	+		190759	79.40%	374			201212	94.80%	>1000	+
	182523	89.70%	>1000	+		190769	25.00%	428	+		203737	97.40%	>1000	+
	182527	95.80%	>1000	+		190781	36.00%	821	+		203749	95.60%	>1000	+

Gene Name	Genome Position	Edit %	Depth of Coverage	PIES	Gene Name	Genome Position	Edit %	Depth of Coverage	PIES	Gene Name	Genome Position	Edit %	Depth of Coverage	PIES
nad2_ex4	203758	96.70%	>1000	+	cox3	259157	84.80%	297	+	nad2_ex1	276869	85.20%	>1000	+
	203877	98.10%	>1000	+		259262	97.60%	>1000	+		276999	60.20%	206	
	203907	98.50%	>1000	+		259355	97.20%	>1000	+		278096	87.20%	>1000	
	203911	96.90%	>1000	+		259496	98.70%	>1000	+	sdh3	278951	88.10%	>1000	
	203977	98.60%	>1000	+		259597	99.10%	>1000	+		279217	53.30%	659	
	204195	98.20%	>1000	+	orf125e	259721	55.70%	>1000	+		279471	52.60%	534	
	204196	98.00%	>1000	+		259723	97.90%	>1000	+		279496	55.50%	586	
	204225	97.30%	>1000	+		259760	79.40%	>1000	+		279899	52.80%	271	
nad2_ex5	205707	97.50%	>1000	+		259771	99.70%	>1000	+		280936	55.80%	428	
	205809	90.90%	>1000	+		259827	99.60%	>1000	+		282009	73.70%	133	
	205817	75.50%	580	+		259916	88.30%	>1000		orf265	287021	91.20%	>1000	
	205818	51.70%	572	+		259921	94.30%	>1000			287032	85.80%	>1000	
	205825	5.25%	495	+		260162	52.70%	313			287826	80.00%	>1000	
	205866	92.20%	949	+	atp1	262325	99.20%	>1000	+		287840	87.60%	>1000	
	205989	1.10%	171	+		262464	96.50%	>1000	+	nad3	287899	78.00%	>1000	
	222196	82.30%	>1000			262502	96.40%	>1000	+		287938	93.40%	>1000	
	222840	68.70%	>1000			262578	98.90%	>1000	+		287956	88.50%	>1000	
trnE(uuc)	247026	96.80%	221			262701	99.30%	>1000	+		288040	93.50%	>1000	
	247080	92.80%	469			262776	99.10%	>1000	+		288102	67.10%	797	
orfB/atp8	257766	24.20%	>1000	+		276539	73.50%	494			288103	69.70%	687	
	257783	96.10%	>1000	+	nad2_ex1	276569	95.60%	>1000	+		288109	59.50%	602	
	257794	94.40%	>1000	+		276595	98.50%	>1000	+		288160	71.50%	688	
	257812	92.00%	>1000	+		276664	98.70%	>1000	+		288169	78.20%	>1000	
	257901	55.70%	>1000	+		276691	96.50%	>1000	+		288211	93.40%	>1000	
	258179	98.00%	>1000	+		276725	91.10%	644	+		288238	91.60%	>1000	
	258211	67.80%	>1000	+		276731	79.00%	343	+		288243	91.00%	>1000	
	259088	99.00%	>1000	+		276736	76.00%	175	+	nad1_ex1	288662	95.30%	>1000	+
cox3	259141	58.10%	>1000	+		276751	82.50%	143	+		288712	98.10%	>1000	+
	259147	83.20%	346	+		276784	95.80%	>1000	+		288754	97.80%	>1000	+
	259154	46.55%	232	+		276840	88.00%	>1000	+		288755	98.30%	>1000	+

Gene Name	Genome Position	Edit %	Depth of Coverage	PIES		Gene Name	Genome Position	Edit %	Depth of Coverage	PIES		Gene Name	Genome Position	Edit %	Depth of Coverage	PIES
ccmFc_ex1	307094	83.60%	617	+		rps4	314221	60.20%	>1000	+		tatC(orfx)	350714	94.50%	>1000	+
	307106	90.80%	403	+			314236	90.90%	>1000	+			350720	85.60%	>1000	+
	307108	91.80%	403	+			314246	47.30%	1410	+			350752	87.40%	>1000	+
	307159	92.50%	613	+			314257	79.40%	>1000	+			350776	87.40%	563	+
	307178	89.80%	502	+			314680	95.50%	>1000	+			350782	52.50%	547	+
	307202	91.00%	335	+			314688	45.26%	>1000	+			350789	92.00%	501	+
	307207	80.80%	308	+			314728	77.90%	>1000	+			350825	91.50%	>1000	+
	307211	78.60%	351	+			314763	63.80%	>1000	+			350833	92.90%	>1000	+
	307366	96.20%	>1000	+			314827	93.70%	>1000	+			350858	97.10%	>1000	+
	307390	90.40%	>1000	+			314872	95.40%	>1000	+			350889	40.00%	>1000	+
	307447	95.80%	>1000	+			314884	96.00%	>1000	+			350893	91.30%	>1000	+
	307462	91.90%	>1000	+			314896	95.40%	>1000	+			350923	85.50%	833	+
	307762	95.60%	994	+			314998	95.10%	>1000	+			350951	0.59%	338	+
	307763	97.00%	994	+			315124	87.50%	>1000	+			350984	85.21%	257	+
	308719	91.40%	304			trnH(gug)	332001	67.90%	527		350984	84.80%	256	+		
ccmFc_ex2	309170	97.10%	>1000	+	332015		62.60%	486		350986	2.67%	262	+			
	309244	96.60%	>1000	+	nad9	334383	54.70%	223		350999	74.80%	322	+			
	309249	82.20%	>1000	+		336024	94.40%	>1000		351002	65.20%	353	+			
	309278	97.80%	>1000	+		336202	98.20%	>1000	+	351045	31.33%	>1000	+			
nad6	312895	86.50%	>1000		nad6	336277	91.90%	>1000	+	351068	93.60%	>1000	+			
	313273	96.90%	>1000	+		336408	96.70%	>1000	+	351078	68.42%	>1000	+			
313303	97.90%	>1000		336438		97.20%	>1000	+	351106	81.80%	802	+				
313361	96.10%	>1000		336478		97.50%	>1000	+	351107	22.22%	797	+				
313369	98.60%	>1000		336508		98.70%	>1000	+	351128	84.80%	858	+				
nad6	313376	89.40%	>1000			336549	97.50%	>1000	+	351142	93.70%	589	+			
	313438	94.70%	>1000			trnW(cca)	337885	95.70%	>1000		351152	96.30%	542	+		
313535	90.10%	>1000		tatC(orfx)	350617		95.60%	>1000	+	351199	82.50%	555	+			
rps4	314156	94.40%	>1000		+	350662	90.30%	>1000	+	351200	22.88%	555	+			
	314170	95.20%	>1000		+	350663	94.60%	>1000	+	351202	87.10%	533	+			

Gene Name	Genome Position	Edit %	Depth of Coverage	PIES	Gene Name	Genome Position	Edit %	Depth of Coverage	PIES	Gene Name	Genome Position	Edit %	Depth of Coverage	PIES
tatC(orfX)	351218	17.77%	303	+	ccmB	359565	22.05%	136	+	ccmB	359983	95.70%	>1000	+
	351219	11.97%	334	+		359566	38.12%	160	+		360232	95.30%	>1000	
	351230	83.60%	298	+		359658	92.70%	>1000	+	orf159b	360524	96.80%	>1000	
	351266	89.40%	624	+		359676	88.80%	>1000	+		360629	98.00%	>1000	
	351271	30.00%	622	+		359685	95.10%	>1000	+		360630	85.70%	>1000	
	351293	10.59%	387	+		359709	45.08%	>1000	+		360662	96.00%	>1000	
	351304	75.10%	373	+		359710	91.80%	>1000	+	rpl2_ex2	363743	82.40%	642	+
	351305	17.42%	373	+		359739	93.70%	>1000	+	nad7_ex1	375344	99.60%	>1000	+
	351314	70.10%	442	+		359752	85.90%	>1000	+		375386	99.80%	>1000	+
	351701	84.70%	248			359796	96.30%	>1000	+		375407	96.10%	>1000	+
ccmB	351896	78.80%	226			359800	96.50%	>1000	+		375422	88.80%	>1000	+
	359400	90.70%	633	+	ccmB	359839	65.80%	465	+		375453	98.50%	>1000	+
	359411	16.83%	398	+		359847	50.50%	212	+		375460	96.60%	>1000	+
	359415	84.00%	344	+		359848	85.84%	212	+		375537	97.80%	>1000	+
	359417	34.46%	264	+		359852	9.09%	132	+		375547	61.05%	>1000	+
	359420	8.89%	281	+		359857	0.80%	124	+		375566	97.10%	>1000	+
	359452	91.90%	>1000	+		359866	2.56%	117	+		375584	95.78%	>1000	+
	359459	79.90%	>1000	+		359874	8.16%	98	+		375713	91.80%	625	
	359500	78.50%	354	+		359875	10.30%	97	+	nad7_ex2	377477	98.10%	>1000	+
	359509	76.10%	201	+		359884	37.07%	89	+		377506	95.10%	>1000	+
	359520	8.98%	89	+		359886	16.09%	87	+		377507	95.80%	>1000	+
	359521	0.00%	88	+		359923	82.60%	242	+		377522	99.30%	>1000	+
	359526	6.74%	89	+		359926	62.40%	242	+		377668	99.00%	>1000	+
	359532	15.90%	88	+		359938	23.17%	82	+		377863	93.80%	>1000	+
	359536	9.52%	84	+		359941	14.10%	78	+		377902	98.00%	>1000	+
	359544	16.09%	87	+		359944	26.92%	78	+		377911	99.30%	>1000	+
	359551	7.86%	89	+		359948	36.95%	230	+	nad7_ex2	377930	99.20%	>1000	+
	359555	1.09%	91	+		359968	86.60%	>1000	+		377995	97.80%	>1000	+

Gene Name	Genome Position	Edit %	Depth of Coverage	PIES	Gene Name	Genome Position	Edit %	Depth of Coverage	PIES
nad7_ex2	378002	96.40%	>1000	+		429149	55.60%	268	
	378042	89.30%	>1000			430186	60.30%	433	
nad7_ex3	379492	96.50%	>1000	+					
	379501	97.30%	>1000	+					
nad7_ex4	380517	33.68%	>1000	+					
	380533	91.80%	>1000	+					
	380539	91.00%	>1000	+					
	380571	65.50%	>1000	+					
	380578	92.30%	>1000	+					
	424956	99.80%	>1000						
	425112	97.60%	>1000						
	425378	95.50%	491						
	425427	75.80%	566						
	425435	91.60%	501						
orf197b	425914	96.10%	>1000						
	425941	91.50%	>1000						
	425975	88.30%	409						
	425981	77.80%	392						
	426034	95.80%	>1000						
	426090	88.60%	>1000						
	426119	84.40%	>1000						
	426249	63.70%	204						
	427346	87.10%	>1000						
sdh3	428201	86.30%	>1000						
	428467	57.60%	668						
	428721	53.90%	571						
	428746	57.80%	592						