Gene Cluster ID	Atp6v0a
Drosophila melanogaster gene	**Vha100-2 (CG18617)**
FlyBase ID	FBgn0028670
Predicted function	**ATPase, H+ transporting, lysosomal V0 subunit a**
Protein size	834 amino acids
Cytogenetic map	91A5-91A5
Gene sequence location	3R:14216039..14224876[-]
Dmel CLEAR sequence	**TCATGTGA**
CLEAR sequence location	3R:14224185..14224192
Drosophila Atp6v0a paralogs	**Vha100-1** (CG1709); **Vha100-3** (CG30329); **Vha100-4** (CG7678); **Vha100-5** (CG12602)

FlyBase Vha100-2 (CG18617) gene model & CLEAR element (red) position:
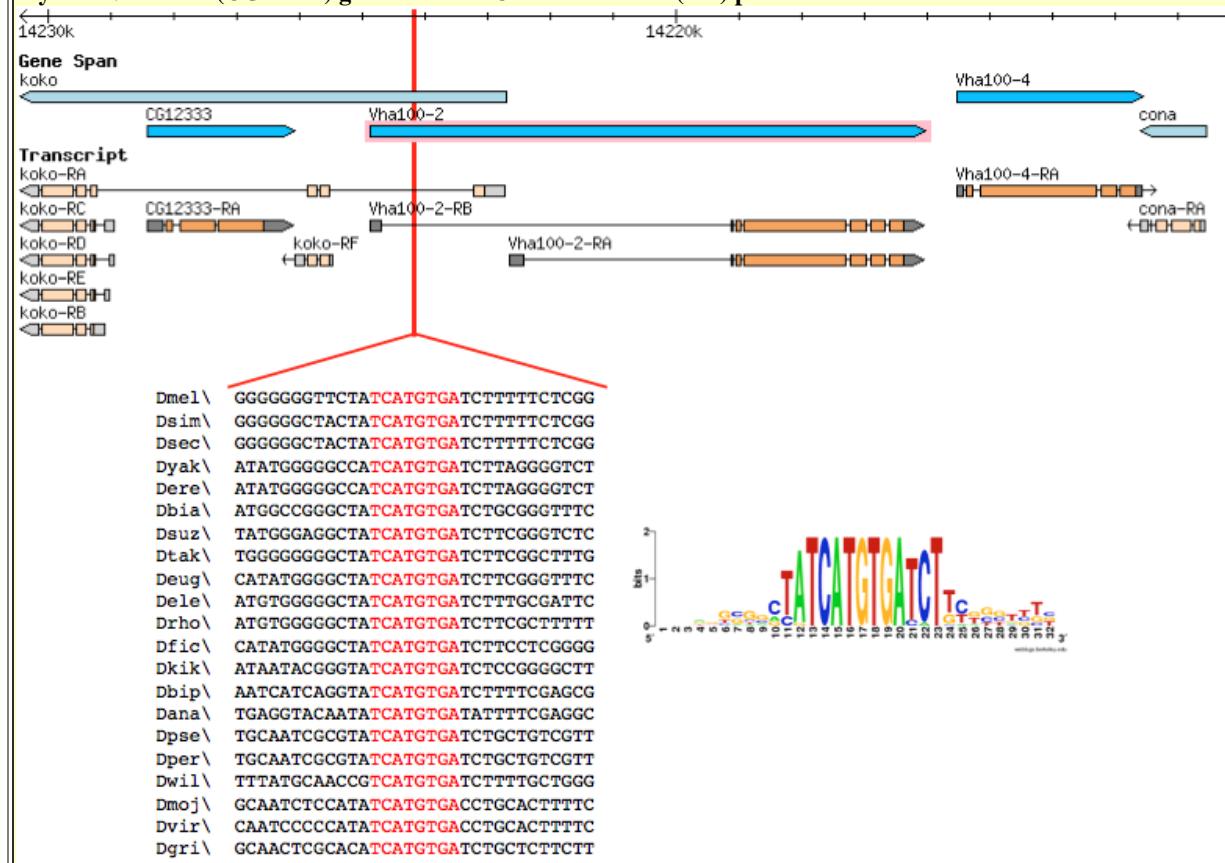
Vha100-2 (CG18617) gene structure comparison in Drosophila species:

Key: UTR region, CDS region

Vha100-2 Atp6v0a orthologs gene structure comparison in Drosophila species

Species	Vha100-2 Atp6v0a orthologs	5'exon	intron	exon	exon	intron	exon	intron	exon	intron	exon	intron	exon3'	exon3'	Extended CLEAR region	Position	bps from TSS
Drosophila_melanogaster	Dmel\Vha100-2	163	5582	21	117	66	1628	60	259	62	235	71	266	308	ggggggggttctaTCATGTGAtcttttctcgg	intron1	685
Drosophila_simulans	Dsim\GD20170				117	66	1628	59	259	62	235	60	266		gggggggctactaTCATGTGAtcttttctcgg	intron1?	
Drosophila_sechellia	Dsec\GM18705	162	3187	21	117	66	1628	60	259	62	235	60	266		gggggggctactaTCATGTGAtcttttctcgg	intron1?	
Drosophila_yakuba	Dyak\GE25199				117	66	1628	60	259	62	235	57	266		atatgggggccaTCATGTGAtcttaggggtct	intron1?	
Drosophila_erecta	Dere\Vha100-2	114	ND	21	117	66	1628	56	259	62	235	58	266		atatgggggccaTCATGTGAtcttaggggtct	intron1?	
Drosophila_biarmipes	Dbia\Vha100-2				117	67	1628	61	259	62	235	59	266		atggccgggctaTCATGTGAtctgcgggtttc	intron1?	
Drosophila_suzukii	Dsuz\Vha100-2				117	67	1628	61	259	69	235	59	266		tatgggaggctaTCATGTGAtcttcgggtctc	intron1?	
Drosophila_takahashii	Dtak\Vha100-2				117	65	1631	325	259	472	235	58	266		tggggggggctaTCATGTGAtcttcggctttg	intron1?	
Drosophila_eugracilis	Deug\Vha100-2				117	68	1628	60	494 (259+235)			56	266		catatggggctaTCATGTGAtcttcgggtttc	intron1?	
Drosophila_elegans	Dele\Vha100-2				117	60	1625	65	259	71	235	58	266		atgtggggctaTCATGTGAtctttgcgattc	intron1?	
Drosophila_rhopaloa	Drho\Vha100-2				117	60	1625	66	259	71	235	58	266		atgtgggggctaTCATGTGAtcttcgctttt	intron1?	
Drosophila_ficusphila	Dfic\Vha100-2				117	60	1628	60	259	58	235	57	266		catatggggctaTCATGTGAtcttcctcgggg	intron1?	
Drosophila_kikkawai	Dkik\Vha100-2				117	59	1628	58	259	74	235	58	266		ataatacgggtaTCATGTGAtctccgggggctt	intron1?	
Drosophila_bipectinata	Dbip\Vha100-2				117	62	1628	69	259	57	238	61	266		aatcatcaggtaTCATGTGAtctttcgagcg	intron1?	
Drosophila_ananassae	Dana\GF18112				117	60	1887 (1628+259)			61	238	61	266		tgaggtacaataTCATGTGAtatttttcgaggc	intron1?	
Drosophila_pseudoobscura	Dpse\GA15015	92	3069	21	117	67	1628	70	259	67	235	65	266		tgcaatcgcgtaTCATGTGAtctgctgtcgtt	intron1?	
Drosophila_persimilis	Dper\GL23189			21	117	67	1628	70	259	67	235	65	266		tgcaatcgcgtaTCATGTGAtctgctgtcgtt	intron1?	
Drosophila_miranda	Dmir\Vha100-2																
Drosophila_willistoni	Dwil\GK11490				117	68	1634	73	259	64	226	61	266		tttatgcaaccgTCATGTGAtcttttgctggg	intron1?	
Drosophila_albomicans	Dalb\Vha100-2																
Drosophila_mojavensis	Dmoj\GI24258	122	5377	21	117	60	1631	58	262	67	232	62	266		gcaatctccataTCATGTGAcctgcacttttc	intron1?	
Drosophila_virilis	Dvir\GJ10832	161	5187	21	117	69	1631	64	262	65	235	60	266		caatccccataTCATGTGAcctgcacttttc	intron1?	
Drosophila_grimshawi	Dgri\GH19224	65		27	117	85	1631	70	262	74	235	67	269		gcaactcgcacaTCATGTGAtctgctcttctt	intron1?	

Vha100-1 (CG1709) gene structure comparison in Drosophila species:

Key: UTR region, CDS region, alternatively spliced exons

Species	Vha100-1 Atp6v0a orthologs	5'exon	intron	exon	exon	intron	exon	intron	exon	intron	exon	intron	exon	intron	exon	intron	exon	intron	exon	intron	exon	intron	exon	intron	exon	intron	exon3'	exon3'
Drosophila_melanogaster	Dmel\Vha100-1	129	414	23	117	300	177	73	129	833 (767)	92 (158)	431	101	595	42	450	127	86	1156	64	218	376	211	65	172	60	103	294
Drosophila_simulans	Dsim\GD21418	88	413	23	117	304	177	73	129	819 (753)	92 (158)	436	101	591	42	443	127	86	1156	63	218	377	124 | 64 | 88		172		103	294
Drosophila_sechellia	Dsec\GM12768*				117	305	177	73	129	833 (767)	92 (158)	446	101	591	42	427	127	86	1156	63	218	375	211	64	172	60	103	

Species	Ortholog																									
Drosophila_yakuba	Dyak\GE23836			117	299	177	68	129	831 (765)	92 (158)	472	101	640	42	436	127	85	1156	59	218	375	211	62	172	60	103
Drosophila_erecta	Dere\GG11646			117	329	177	73	129	819 (753)	92 (158)	419	101	650	42	454	127	100	1156	64	218	372	211	62	172	59	103
Drosophila_biarmipes	Dbia\Vha100-1			117	322	177	67	129	966 (900)	92 (158)	417	101	707	42	400	127	391	1156	58	218	375	211	64	172	59	103
Drosophila_suzukii	Dsuz\Vha100-1			117	326	177	98	129	886 (820)	92 (158)	419	101	655	42	384	127	363	1156	55	218	399	211	60	172	66	103
Drosophila_takahashii	Dtak\Vha100-1			117	289	177	157	129	989 (923)	92 (158)	411	101	547	42	406	127	135	1156	59	218	335	211	63	172	66	103
Drosophila_eugracilis	Deug\Vha100-1			117	332	177	111	129	911 (845)	92 (158)	397	101	549	42	432	127	122	1156	58	218	445	211	62	172	67	103
Drosophila_elegans	Dele\Vha100-1			117	390	177	173	129	885 (819)	92 (158)	431	101	734	42	437	127	325	1156	53	218	412	211	62	172	58	103
Drosophila_rhopaloa	Drho\Vha100-1			117	310	177	119	129	972 (906)	92 (158)	401	101	708	42	412	127	311	1156	59	218	397	211	67	172	66	103
Drosophila_ficusphila	Dfic\Vha100-1			117	421	177	99	129	809 (743)	92 (158)	419	101	595	42	434	127	246	1156	63	218	383	211	63	172	65	103
Drosophila_kikkawai	Dkik\Vha100-1			117	161	177	96	129	1294 (1225)	92 (161)	411	101	1086	42	437	127	59	1156	60	218	576	211	68	172	61	106
Drosophila_bipectinata	Dbip\Vha100-1			117	64	177	71	129	859 (793)	92 (158)	394	101	450	42	427	127	59	1156	61	218	406	214	61	172	58	106
Drosophila_ananassae	Dana\GF23290			117	55	177	57	129	792 (726)	92 (158)	405	101*	458	42	401	127	58	1156	62	218	435	214	62	172	62	106
Drosophila_pseudoobscura	Dpse\GA14320*			117	62	177	69	129*	892 (826)	92 (158)	871	101	471	42	502	127	63	1156	59	218	305	211	60	172	63	103
Drosophila_persimilis	Dper\GL23912			117	62	177	69	129	887 (821)	92 (158)	949	101	475	42	490	127	63	1156	58	218	305	211	59	172	63	103
Drosophila_willistoni	Dwil\GK11891			117	96	177	81	129	775 (712)	92 (155)	1052	101	425	42	440	127	67	1159	70	218	360	217	59	172	68	109
Drosophila_mojavensis	Dmoj\GI22777			117	65	177	70	129	856 (790)	92 (158)	628	101	439	42	343	127	63	1159	62	218	361	211	70	172	56	106
Drosophila_virilis	Dvir\GJ22780			117*	56	177	61	129	799 (736)	92 (155)	626	101	456	42	289	127	62	1159	54	218	344	199	57	172	56	109
Drosophila_grimshawi	Dgri\GH17453			117	66	177	329	129	827 (752)	92 (167)	676	101	423	42	317	127	75	1159	73	215	364	196	62	172	58	109

Vha100-3 (CG30329) gene structure comparison in Drosophila species:

Key: UTR region, CDS region

Species	Vha100-3 Atp6v0a orthologs	5'exon	intron	exon3'
Drosophila_melanogaster	Dmel\Vha100-3		2715	
Drosophila_sechellia	Dsec\GM19860		2715	
Drosophila_yakuba	Dyak\GE13869		2736	
Drosophila_erecta	Dere\GG20932		2688	
Drosophila_biarmipes	Dbia\Vha100-3			

Species	Vha100-3 orthologs		exon	intron	exon	
Drosophila_suzukii	Dsuz\Vha100-3		2760			
Drosophila_takahashii	Dtak\Vha100-3		(exon)		(exon)	
Drosophila_eugracilis	Deug\Vha100-3		(exon)		(exon)	
Drosophila_elegans	Dele\Vha100-3		(exon)		(exon)	
Drosophila_rhopaloa	Drho\Vha100-3		(exon)		(exon)	
Drosophila_ficusphila	Dfic\Vha100-3		(exon)		(exon)	
Drosophila_kikkawai	Dkik\Vha100-3		(exon)		(exon)	
Drosophila_bipectinata	Dbip\Vha100-3		(exon)			
Drosophila_ananassae	Dana\GF13738		980	64	1897?	
Drosophila_pseudoobscura	Dpse\GA15764		2706			
Drosophila_persimilis	Dper\GL10577		2706			
Drosophila_willistoni	Dwil\GK20688		2622			
Drosophila_mojavensis	Dmoj\GI20149		2613			
Drosophila_virilis	Dvir\GJ22427		2613			
Drosophila_grimshawi	Dgri\GH19727		2610			

Vha100-4 (CG7678) gene structure comparison:

Key: UTR region, CDS region

Species	Vha100-4 Atp6v0a orthologs	5'UTR	exon	intron	exon	intron	exon	intron	exon	intron	exon3'	3'UTR
Drosophila_melanogaster	Dmel\Vha100-4	85	153	119		1872		62	244	56	266	114
Drosophila_simulans	Dsim\GD20171		153	127		1872		62	244	56	266	
Drosophila_sechellia	Dsec\Vha100-4		153	127		1872*		62	244	56	266	
Drosophila_yakuba	Dyak\GE25200		144	111		1872		58	244	56	266	
Drosophila_erecta	Dere\GG16473*		ND	ND		>1713		57	244	56	266	
Drosophila_biarmipes	Dbia\Vha100-4		153	121		1872		63	244	56	266	
Drosophila_suzukii	Dsuz\Vha100-4		153	117		1872		59	244	55	266	
Drosophila_takahashii	Dtak\Vha100-4		144	1461		1872		403	244	56	266	
Drosophila_eugracilis	Deug\Vha100-4		153	132		1872		60	244	54	266	
Drosophila_elegans	Dele\Vha100-4		153	97		1872		62	244	56	266	
Drosophila_rhopaloa	Drho\Vha100-4		153	396		1872		66	244	56	>206	
Drosophila_ficusphila	Dfic\Vha100-4		153	101		1872		53	244	56	266	
Drosophila_kikkawai	Dkik\Vha100-4		153	79		1872		65	235	59	266	
Drosophila_bipectinata	Dbip\Vha100-4		153	66		1872		50	244	55	266	
Drosophila_ananassae	Dana\GF18113		153	66		1872		50	244	62	266	
Drosophila_pseudoobscura	Dpse\GA20518		153	62		1872		67	238	59	266	
Drosophila_persimilis	Dper\GL24346		153	62		1872		67	238	59	266	
Drosophila_miranda	Dmir\Vha100-4		153	62		1872		67	238	59	266	

Species	ortholog									
Drosophila_willistoni	Dwil\GK11491	174	70	1872			66	241	59	266
Drosophila_mojavensis	Dmoj\GI24259	159	62	417	62	1455	55	247	56	266
Drosophila_virilis	Dvir\GJ10833	159	56	417	64	1455	51	259	56	266
Drosophila_grimshawi	Dgri\GH19225	159	63	417	59	1455	54	247	316	269

Vha100-5 (CG12602) gene structure comparison in Drosophila species:

Key: UTR region, CDS region

Species	Vha100-5 Atp6v0a orthologs	5' exon	intron	exon	intron	exon	intron	exon3'
Drosophila_melanogaster	Dmel\Vha100-5	85 21	2493	2179	104	172	62	94
Drosophila_simulans	Dsim\GD23787*			2179	105	172	63	94
Drosophila_sechellia	Dsec\GM19181			2179	96	172	63	94
Drosophila_yakuba	Dyak\GE18538			2179	97	172	61	94
Drosophila_erecta	Dere\GG23732			2179	115	172	61	94
Drosophila_biarmipes	Dbia\Vha100-5			2179	357	172	58	94
Drosophila_suzukii	Dsuz\Vha100-5			ND	ND	172	62	94
Drosophila_takahashii	Dtak\Vha100-5			2179	389	172	64	94
Drosophila_eugracilis	Deug\Vha100-5							
Drosophila_elegans	Dele\Vha100-5			2179	819	172	67	94
Drosophila_rhopaloa	Drho\Vha100-5			2179	1201	172	63	94
Drosophila_ficusphila	Dfic\Vha100-5			2188	576	172	795	94
Drosophila_kikkawai	Dkik\Vha100-5			2182	73	172	64	94
Drosophila_bipectinata	Dbip\Vha100-5			2167	302	172	58	94
Drosophila_ananassae	Dana\GF14569			2167	311	172	59	94
Drosophila_pseudoobscura	Dpse\GA11714			2206	64	172	63	94
Drosophila_persimilis	Dper\GL19314			2194	64	172	63	94
Drosophila_miranda	Dmir\Vha100-5			2191	71	172	68	94
Drosophila_willistoni	Dwil\GK24362*			2197*	65	172	67	91
Drosophila_mojavensis	Dmoj\GI18075			2191	355	172	68	94
Drosophila_virilis	Dvir\GJ16665			2191	70	172	67	94
Drosophila_grimshawi	Dgri\GH11370			2185	63	172	71	94