

## Supplementary Information

**Table S1.** Phenotypic characteristics of 178 Australian CKCS dogs, including echocardiographic heart measurements.

(USCF)	Sex	Age (years)	Bodyweight (kg)	ACVI M	LA/Ao	LVIDdn	LA/Ao age adjusted	LVIDdn age adjusted
2970	M	8	12	B2	1.66	1.75	1.69	1.76
2971	F	10	9	B1	1.59	1.58	1.55	1.51
2972	M	9	9	B2	2.00	2.41	1.98	2.38
2973	F	10	6.3	C	1.85	2.08	1.80	2.01
2974	M	14	8	B2	1.89	2.25	1.74	2.08
2975	M	14	8.3	B1	1.13	1.66	0.99	1.50
2976	M	9	9.5	C	2.11	2.38	2.09	2.34
2977	F	9	7	D	3.00	2.92	2.99	2.89
2978	F	8	8.2	B1	1.44	2.15	1.45	2.14
2979	F	9	9.4	C	3.63	3.07	3.62	3.04
2980	F	11	10	C	2.29	2.29	2.23	2.21
2981	F	10	8	B1	1.57	1.84	1.52	1.77
2982	F	10	8	B1	1.33	1.84	1.30	1.79
2983	M	14	7	B1	1.89	1.66	1.74	1.49
2984	F	13	6	B1	1.24	1.73	1.10	1.57
2985	F	12	8	C	2.31	2.61	2.20	2.48
2986	F	11	7.5	B1	1.25	1.65	1.18	1.56
2987	M	8	10.8	D	3.04	2.41	3.06	2.41
2988	F	12	11.3	B1	1.79	1.57	1.70	1.46
2989	M	8	8.8	B1	1.51	1.55	1.53	1.55
2990	M	9	11.8	B1	1.87	1.63	1.87	1.61
2991	M	13	9	B1	1.17	1.64	1.04	1.49
2992	F	10	8.4	C	2.22	2.09	2.19	2.04
2993	F	10	8.5	B1	1.41	1.51	1.37	1.45
2994	M	16	8.8	B1	1.09	1.46	0.86	1.21
2995	M	10	7.8	C	2.38	2.43	2.34	2.37
2996	F	6	10.9	C	2.90	2.48	2.97	2.53
2997	M	8	11.2	B2	2.39	2.31	2.41	2.31
2998	M	10	9.3	D	3.56	2.92	3.51	2.85
3246	F	12	7.7	B1	1.43	1.88	1.34	1.77
3247	M	12	8.97	C	2.30	2.32	2.19	2.19
3248	F	10	9.2	B2	1.61	1.83	1.58	1.78
3249	F	8	6.9	B2	1.98	2.08	2.01	2.09
3250	F	8	4.8	B1	1.08	1.35	1.11	1.36
3251	F	9	7.1	B1	1.49	1.80	1.47	1.76
3252	M	9	7.8	B1	1.23	1.48	1.23	1.46
3253	F	10	8.5	B1	1.21	1.60	1.16	1.53
3254	F	7	9.1	B1	1.43	1.20	1.47	1.22
3255	F	15	7.4	B2	1.80	1.94	1.62	1.74

3256	F	9	7.35	B2	1.67	1.87	1.65	1.83
3257	M	9	8.35	B1	1.37	1.57	1.35	1.53
3258	M	9	8.6	C	2.31	2.32	2.31	2.30
3259	M	8	8.93	B1	1.29	1.31	1.31	1.31
3260	F	8	7.8	B1	1.21	1.68	1.23	1.68
3261	M	11	8.52	B1	1.67	1.51	1.61	1.43
3262	M	11	7.56	B2	2.16	2.26	2.10	2.18
3265	F	7	7.9	C	2.29	2.56	2.33	2.58
3266	M	7	10.6	B1	1.21	1.76	1.25	1.78
3267	M	15	9.5	B1	1.53	2.04	1.33	1.82
3268	M	12	9.06	B1	1.53	2.06	1.42	1.93
3269	M	10	9.3	B1	1.41	1.87	1.36	1.80
3270	F	13	11	B2	2.54	2.19	2.42	2.05
3271	F	12	8	B2	1.93	2.33	1.84	2.22
3272	M	9	8.2	B2	2.16	2.42	2.14	2.38
3273	M	11	9.37	B2	2.06	2.23	2.00	2.15
3274	M	9	9.23	B1	1.55	1.91	1.53	1.87
3275	M	12	8.5	B1	1.52	1.87	1.43	1.76
3276	M	8	11.6	B2	1.80	2.03	1.81	2.02
3277	F	13	8.2	B1	1.20	1.67	1.09	1.54
3278	M	11	11.5	C	2.41	2.52	2.33	2.42
3280	F	9	7.4	C	2.40	2.35	2.38	2.31
3281	M	11	8	C	2.61	2.30	2.54	2.21
3282	M	10	9	B1	1.47	2.13	1.42	2.06
3283	F	10	7.7	B2	1.73	1.70	1.68	1.63
3284	F	12	7.9	B1	1.24	1.63	1.14	1.51
3285	F	10	8.8	B1	1.40	1.92	1.35	1.85
3286	M	9	8.1	C	3.59	2.81	3.59	2.79
3287	M	8	15.2	C	1.98	2.02	1.99	2.01
3288	M	9	9.9	D	3.58	2.75	3.57	2.72
3289	M	11	11.1	C	2.95	2.11	2.88	2.02
3290	F	13	9	B1	1.43	1.03	1.29	0.87
3291	F	9	8.7	C	3.47	2.21	3.47	2.19
3292	F	8	11.6	C	2.51	2.21	2.52	2.20
3293	F	11	9.8	C	2.12	2.47	2.06	2.39
3294	F	11	8.5	B2	2.08	1.76	2.00	1.66
3295	M	8	11.6	A	1.13	1.56	1.15	1.56
3296	F	9	10	C	3.00	2.77	2.73	2.73
3297	M	10	14	B1	1.11	1.06	1.07	1.00
3298	M	10	8	B2	2.17	2.28	2.14	2.23
3299	F	11	8.3	B1	1.00	1.78	0.92	1.68
3300	F	9	10.2	B2	1.94	1.88	1.92	1.84
3301	M	9	7.7	B2	2.87	2.64	2.85	2.60
3302	M	8	9.2	B1	1.23	1.62	1.24	1.61
3303	F	13	7.1	B1	1.39	1.11	1.27	0.97

3304	M	10	6.2	B1	1.25	1.54	1.21	1.48
3305	M	11	8.7	C	2.80	2.74	2.73	2.65
3306	F	12	10	B1	1.06	1.63	0.96	1.51
3308	M	9	9.2	B2	1.76	1.73	1.75	1.70
3309	F	9	5	B1	1.39	1.87	1.38	1.84
3310	F	8	8	B1	1.41	1.73	1.42	1.72
3311	F	14	8	B2	1.63	2.17	1.49	2.01
3312	F	8	9.3	B1	1.40	1.32	1.43	1.33
3313	M	14	9.8	B1	1.35	1.60	1.19	1.42
3314	M	8	8.9	C	2.50	2.60	2.53	2.61
3315	M	11	10.1	C	1.80	1.92	1.82	1.80
3316	F	12	7.6	B2	1.89	2.26	1.81	2.16
3317	F	8	8	B1	1.42	1.48	1.44	1.48
3319	M	12	9.5	B2	1.74	1.85	1.65	1.74
3320	F	14	7	B2	2.44	2.39	2.27	2.20
3321	F	12	9	B2	1.84	2.09	1.74	1.97
3322	M	10	7.5	B1	1.41	1.57	1.36	1.50
3323	M	10	8	B1	1.27	1.67	1.24	1.62
3324	F	9	7.2	B1	1.13	1.43	1.12	1.40
3325	F	9	8.5	B1	1.52	2.15	1.51	2.12
3326	M	10	9	B1	1.44	1.74	1.41	1.69
3327	M	7	9	B1	1.48	1.72	1.52	1.74
3328	M	11	11	B2	1.78	2.35	1.70	2.25
3329	M	13	8.5	B2	1.94	2.00	1.81	1.85
3330	F	10	7	B2	1.78	2.08	1.73	2.01
3331	F	11	9	B1	1.55	1.89	1.49	1.81
3332	F	10	7	B1	1.31	1.74	1.26	1.67
3333	F	8	9	B1	1.21	1.57	1.24	1.58
3334	F	10	9.5	B1	1.51	1.78	1.48	1.73
3335	F	11	8	B1	1.50	1.86	1.42	1.76
3336	F	10	8.3	C	2.34	2.37	2.30	2.31
3337	M	7	7	C	2.97	4.12	3.01	4.14
3338	M	9	14	B2	1.77	1.74	1.77	1.72
3341	F	10	7.1	C	3.11	2.79	3.07	2.73
3371	M	8	9.2	C	3.48	2.67	3.50	2.67
3372	M	12	14.0	B1	1.01	1.05	0.94	0.90
3373	M	11	16.3	B1	1.49	1.86	1.41	1.76
3405	M	12	8	B2	1.83	2.17	1.72	2.04
3406	M	16	11.7	B1	1.31	1.39	1.11	1.17
3407	F	11	6.13	B1	1.26	1.55	1.20	1.47
3408	F	14	7.5	B1	1.49	1.97	1.35	1.81
3409	F	13	9	B1	1.60	1.68	1.47	1.53
3410	F	9	7.9	B1	1.30	1.74	1.29	1.71
3411	F	15	9	B1	1.40	1.54	1.21	1.33
3412	F	12	7.7	B1	1.38	1.40	1.29	1.29

3414	F	11	7.5	B2	1.86	2.16	1.78	2.06
3416	F	9	17.3	B1	1.04	1.30	1.02	1.26
3417	F	10	8.5	B1	1.40	1.55	1.36	1.49
3418	M	13	8	B1	1.32	1.69	1.20	1.55
3419	F	11	10	B1	1.24	1.72	1.19	1.65
3420	F	10	11.5	B1	1.28	1.42	1.24	1.36
80259	F	10	10	B1	1.48	1.75	1.44	1.69
80260	M	11	9	B1	1.04	2.05	0.98	1.97
80261	F	11	9	B2	1.95	2.43	1.90	2.36
80262	M	9	8.4	B2	1.98	2.27	1.97	2.24
80263	F	10	8.5	B1	1.71	1.68	1.66	1.61
80265	M	9	12.8	C	2.59	2.52	2.58	2.49
80266	M	14	8.0	C	2.43	1.90	2.28	1.73
80267	F	14	6.5	B1	1.54	1.67	1.39	1.50
80268	F	9	6.7	B2	2.20	2.46	2.20	2.44
80269	F	10	7.8	B2	1.71	1.87	1.68	1.82
80270	F	8	9.0	B2	1.61	1.79	1.62	1.78
80271	M	13	8.0	B1	1.19	1.77	1.06	1.62
80272	F	11	7.5	B1	1.11	1.41	1.03	1.31
80273	F	9	7.0	B1	1.24	2.24	1.24	2.22
80274	M	8	10.6	C	2.60	2.28	2.64	2.30
80275	F	9	11.0	B1	1.40	1.69	1.40	1.67
80276	F	10	7.0	B1	1.38	1.22	1.34	1.16
80277	M	8	7.8	C	3.70	2.90	3.72	2.90
80278	M	9	10.6	C	2.94	2.15	2.93	2.12
80279	M	11	10.8	B1	1.36	1.76	1.28	1.66
80280	F	11	9.0	B1	1.42	1.78	1.35	1.69
80281	M	8	8.0	B1	1.35	1.74	1.36	1.73
80282	M	9	8.0	B2	1.94	2.42	1.92	2.38
80283	F	9	10.0	B1	1.15	1.81	1.16	1.80
80284	F	8	7.5	B1	1.36	1.86	1.37	1.85
80285	F	12	10.0	B1	1.09	1.65	1.00	1.54
80286	F	10	6.7	C	1.76	2.09	1.73	2.04
80287	M	8	10.0	B1	1.44	1.62	1.45	1.61
80288	F	8	10.0	B1	1.21	1.69	1.22	1.68
80289	F	11	7.5	B1	1.16	1.41	1.09	1.32
80290	F	9	7.1	B1	1.43	1.58	1.41	1.54
80291	F	14	9.6	B1	1.34	1.50	1.17	1.31
80292	M	8	8.5	B1	1.47	1.93	1.49	1.93
80293	F	10	8.0	B2	1.65	2.01	1.62	1.96
80294	F	9	7.5	A	1.35	1.38	1.35	1.36
80295	M	9	8.5	B2	1.87	1.79	1.85	1.75
80296	F	9	10.4	B1	1.59	2.19	1.58	2.17
80297	F	15	6	C	1.99	2.38	1.79	2.16
80298	F	9	8	B1	1.54	1.73	1.52	1.69

80299	M	10	11	B1	1.49	1.59	1.45	1.52
80300	M	9	12	B2	1.74	1.99	1.73	1.97
80301	F	9	10	A	1.30	1.36	1.29	1.33
80302	M	10	13.7	C	1.82	2.15	1.79	2.10

**Table S2.** PLINK -freq data for for MMVD candidate variant gene regions SNPs from 180 Australian CKCS.

CHR	SNP	A1	A2	MAF	NCHROBS
2	2.11654206	0	T	0	360
2	2.11662236	0	A	0	360
2	2.1167411	0	A	0	360
2	2.11689791	0	T	0	360
2	2.11695641	0	A	0	360
2	2.11707593	0	T	0	360
2	2.11717132	T	C	0.01944	360
2	2.11730035	C	T	0.01944	360
2	2.11739358	0	T	0	360
2	2.11751842	0	C	0	360
2	2.11764533	A	G	0.01944	360
2	2.11774349	A	G	0.01944	360
2	2.11787735	G	C	0.03611	360
2	2.11793471	G	A	0.03611	360
2	2.11799338	G	A	0.03611	360
2	2.118124	0	G	0	360
2	2.1182298	A	G	0.01667	360
2	2.11832538	G	A	0.01667	360
2	2.11843668	0	A	0	360
2	2.11855019	0	C	0	360
2	2.11871891	A	G	0.01744	344
2	2.11878409	A	G	0.03611	360
2	2.11900062	0	G	0	360
2	2.11901965	0	T	0	360
2	2.11914478	0	C	0	360
2	2.11924282	A	C	0.03611	360
2	2.11937039	0	A	0	360
2	2.11946899	0	G	0	360
2	2.11962479	T	G	0.01667	360
2	2.11979724	G	A	0.01667	360
2	2.11989819	T	C	0.01667	360
2	2.12002367	C	A	0.01667	360
2	2.12012688	T	C	0.05	360
2	2.12019966	C	T	0.03056	360
2	2.12030635	C	T	0.03056	360
2	2.12039245	0	A	0	360
2	2.12053055	0	T	0	360

2	2.12063981	C	T	0.04722	360
2	2.12078166	0	C	0	360
2	2.12085928	A	G	0.04722	360
2	2.12102288	0	C	0	360
2	2.12108037	C	T	0.04722	360
2	2.12122303	A	G	0.04722	360
2	2.12126839	T	A	0.01667	360
2	2.12131129	0	C	0	360
2	2.12141216	0	G	0	360
2	2.1214462	0	A	0	360
2	2.12153524	A	G	0.01667	360
2	2.12162327	0	C	0	352
2	2.12174951	C	A	0.04722	360
2	2.12184406	A	G	0.03056	360
2	2.12192987	G	A	0.04722	360
2	2.1220313	T	G	0.01944	360
2	2.1221131	C	A	0.01944	360
2	2.12230658	T	C	0.01944	360
2	2.12234249	A	T	0.002778	360
2	2.12245988	C	T	0.002778	360
2	2.1225981	T	C	0.01667	360
2	2.12269676	C	A	0.002778	360
2	2.12283473	A	G	0.01944	360
2	2.12306926	A	G	0.01944	360
2	2.12318063	G	A	0.01944	360
2	2.12326789	T	C	0.01944	360
2	2.12347206	G	A	0.01944	360
2	2.12349813	T	C	0.01667	360
2	2.12361062	C	A	0.01667	360
2	2.12376723	G	T	0.002778	360
2	2.12386738	A	G	0.002778	360
2	2.12396395	T	A	0.002778	360
2	2.12413114	T	G	0.002778	360
2	2.12418462	T	G	0.002778	360
2	2.12434761	0	A	0	360
2	2.12442689	0	G	0	360
2	2.12453483	T	C	0.002809	356
2	2.12469577	C	T	0.002778	360
2	2.12478569	A	G	0.002778	360
2	2.12495431	C	T	0.002778	360
2	2.1250943	0	A	0	360
2	2.12512843	T	C	0.005587	358
2	2.12526445	C	T	0.002809	356
2	2.12533482	C	T	0.008333	360
2	2.12544856	T	C	0.008333	360

2	2.12565297	C	T	0.008333	360
2	2.1256776	C	T	0.008333	360
2	2.12585933	T	C	0.002778	360
2	2.12597489	T	C	0.008333	360
2	2.12611546	G	A	0.008333	360
2	2.12613634	C	T	0.008333	360
2	2.12624913	0	A	0	360
2	2.1264288	0	T	0	360
2	2.12643962	C	G	0.008333	360
6	6.6510114	A	G	0.1639	360
6	6.65112557	T	C	0.1056	360
6	6.65126636	G	A	0.075	360
6	6.65136211	G	A	0.07542	358
6	6.6515326	0	C	0	360
6	6.65160298	0	C	0	360
6	6.65174782	A	G	0.01389	360
6	6.65180856	T	C	0.08333	360
6	6.65195796	0	A	0	360
6	6.65209291	G	A	0.005556	360
6	6.65221796	G	A	0.1	360
6	6.6523303	C	A	0.2028	360
6	6.65246451	C	T	0.1778	360
6	6.65260015	T	C	0.4806	360
6	6.65270131	T	C	0.4444	360
6	6.65270332	A	G	0.4444	360
6	6.65276297	T	A	0.4528	360
6	6.65287462	G	T	0.4528	360
6	6.65298372	A	G	0.3583	360
6	6.65310259	G	A	0.09444	360
6	6.65319953	G	A	0.4278	360
6	6.65322941	G	A	0.01389	360
6	6.65332532	T	C	0.4583	360
6	6.65344346	C	T	0.4528	360
6	6.65348597	A	G	0.3583	360
6	6.65362922	A	G	0.3583	360
6	6.65386534	A	G	0.4417	360
6	6.65389473	A	G	0.3667	360
6	6.65406362	C	T	0.008333	360
6	6.65418337	T	G	0.3167	360
6	6.65423779	A	G	0.008523	352
6	6.65435312	C	T	0.3222	360
6	6.65447904	T	C	0.3139	360
6	6.65449088	C	T	0.3194	360
6	6.65463236	T	G	0.3278	360
6	6.65470988	T	C	0.008333	360

6	6.65480518	0	G	0	360
6	6.65496597	T	C	0.008333	360
6	6.65508132	0	A	0	360
6	6.65523436	G	A	0.175	360
6	6.65525864	A	C	0.1	360
6	6.65540825	0	A	0	360
6	6.65549874	C	T	0.1889	360
6	6.65567826	0	C	0	360
6	6.65578336	A	G	0.03313	332
6	6.65587233	C	T	0.1889	360
6	6.65595431	0	G	0	360
6	6.65596861	C	T	0.225	360
6	6.65598045	0	C	0	358
6	6.65607149	A	G	0.1361	360
6	6.65618215	T	C	0.08889	360
6	6.65633801	A	C	0.3	360
6	6.65645598	0	A	0	354
6	6.65656909	T	C	0.1139	360
6	6.65674786	A	G	0.005556	360
6	6.65675778	C	A	0.2949	356
6	6.65686888	T	C	0.1028	360
6	6.65705271	C	A	0.1083	360
6	6.65720395	C	A	0.1194	360
6	6.65723007	G	A	0.005556	360
6	6.65737294	T	C	0.2583	360
6	6.65746902	G	A	0.1083	360
6	6.65755813	0	G	0	360
6	6.65767474	G	A	0.2083	360
6	6.65781207	A	G	0.2778	360
6	6.65791139	0	C	0	360
6	6.65804588	G	A	0.4833	360
6	6.65822393	A	G	0.005988	334
6	6.65823535	G	A	0.4833	360
6	6.65823601	G	A	0.4833	360
6	6.65827291	0	G	0	360
6	6.65842149	0	G	0	360
6	6.65849064	G	T	0.3904	356
6	6.6586633	G	A	0.3904	356
6	6.65870908	G	T	0.4639	360
6	6.65882687	A	G	0.3444	360
6	6.65904868	0	G	0	360
6	6.6591498	A	G	0.3972	360
6	6.65917393	T	C	0.3972	360
6	6.65928843	A	G	0.3389	360
6	6.65928931	C	T	0.3389	360



6	6.65946566	0	A	0	360
6	6.65951982	0	T	0	360
6	6.65954545	C	T	0.06944	360
6	6.6596638	0	C	0	360
6	6.65975858	A	C	0.3944	360
6	6.65994724	G	A	0.4889	360
6	6.65998281	G	A	0.4167	360
6	6.66013403	A	G	0.4056	360
6	6.66024215	C	T	0.4556	360
6	6.66035679	G	A	0.06389	360
6	6.66048377	T	C	0.006061	330
6	6.66055784	A	G	0.005556	360
6	6.66070005	0	C	0	360
6	6.66088204	0	G	0	360
6	6.66098802	0	G	0	360
6	6.66106577	C	T	0.04444	360
7	7.40767427	G	T	0.07184	348
7	7.40778971	C	T	0.2	10
7	7.40801645	G	A	0.2	10
7	7.40812558	T	C	0.05966	352
7	7.40815795	0	C	0	360
7	7.40819079	C	G	0.08947	190
7	7.40823701	T	A	0.07222	360
7	7.40824538	G	A	0.002778	360
7	7.40827852	0	A	0	360
7	7.40835289	0	C	0	10
7	7.40845344	T	G	0.075	360
7	7.40848832	0	G	0	10
7	7.40853058	0	C	0	360
7	7.40858078	0	G	0	360
7	7.40889114	T	C	0.075	360
7	7.40909684	G	T	0.2	10
7	7.40926671	A	G	0.07263	358
7	7.40948251	G	A	0.075	360
7	7.40955088	0	A	0	10
7	7.40967027	0	G	0	360
7	7.40967336	0	A	0	360
7	7.40980516	A	G	0.002778	360
7	7.40985236	A	G	0.002778	360
7	7.40991392	C	T	0.04913	346
7	7.40991553	T	G	0.2213	348
7	7.40999602	G	A	0.04444	360
7	7.41014521	0	C	0	360
7	7.41021155	G	A	0.02778	360
7	7.41035462	A	C	0.02778	360

7	7.41046022	C	T	0.06944	360
7	7.41054208	G	A	0.02778	360
7	7.41075865	A	G	0.02778	360
7	7.41090182	G	A	0.07222	360
7	7.41093748	A	G	0.07483	294
7	7.41095494	T	G	0.04167	360
7	7.41097786	0	C	0	360
7	7.41102835	C	T	0.04167	360
7	7.41103269	C	T	0.07184	348
7	7.41110854	D	I	0.02286	350
7	7.41112601	C	G	0.03056	360
7	7.4111816	0	G	0	358
7	7.41118697	T	C	0.2771	350
7	7.41120696	0	T	0	360
7	7.41124711	G	A	0.07222	360
7	7.41135596	C	T	0.02778	360
7	7.4114705	T	C	0.02778	360
7	7.41152766	C	T	0.03056	360
7	7.41161765	T	G	0.02778	360
7	7.41164827	0	C	0	10
7	7.41171565	0	G	0	360
7	7.4117208	0	G	0	360
7	7.4117318	C	T	0.03056	360
7	7.41176104	G	A	0.03056	360
7	7.41176429	0	G	0	360
7	7.41181105	G	A	0.03056	360
7	7.41188487	0	A	0	326
7	7.41189309	0	T	0	360
7	7.41195678	0	G	0	312
7	7.41198173	0	T	0	360
7	7.41209005	T	G	0.02778	360
7	7.41214831	T	G	0.03056	360
7	7.41225703	C	T	0.03056	360
7	7.41240336	0	G	0	360
7	7.41248384	G	T	0.02778	360
7	7.41249883	0	C	0	358
7	7.41250473	A	G	0.02778	360
7	7.41251476	0	C	0	308
7	7.41251497	G	C	0.02778	360
7	7.41251782	0	A	0	360
7	7.41251956	G	A	0.02778	360
7	7.4125531	G	A	0.03073	358
7	7.41258858	0	A	0	360
7	7.41262962	T	C	0.02778	360
7	7.41265408	C	A	0.02778	360

7	7.41265609	0	C	0	360
7	7.41277655	G	T	0.05921	152
7	7.4127953	0	G	0	360
7	7.4128596	C	T	0.02778	360
7	7.41302561	A	G	0.02778	360
7	7.41304503	0	C	0	360
7	7.41306059	G	A	0.02778	360
7	7.41306901	C	T	0.1429	140
7	7.41307276	0	C	0	356
7	7.41310403	0	C	0	360
7	7.4131366	0	T	0	360
7	7.4131406	0	C	0	360
7	7.41317863	0	C	0	360
7	7.41319015	0	A	0	360
7	7.41320768	0	G	0	360
7	7.41321483	T	C	0.025	360
7	7.41323723	T	C	0.00578	346
7	7.41330248	0	G	0	360
7	7.41343215	0	T	0	172
7	7.41344259	0	C	0	360
7	7.41361705	0	G	0	360
7	7.41363583	0	T	0	360
7	7.41366102	0	G	0	360
7	7.41366744	0	T	0	360
7	7.4136692	0	T	0	360
7	7.41367037	0	G	0	360
7	7.41368577	0	C	0	360
7	7.41379561	0	A	0	360
7	7.41384516	0	G	0	360
7	7.41392649	C	T	0.02778	360
7	7.41403776	0	G	0	360
7	7.41411493	0	A	0	360
7	7.4141428	0	T	0	360
7	7.41418428	0	C	0	360
7	7.41420074	0	G	0	360
7	7.41421112	0	G	0	360
7	7.41425658	0	C	0	360
7	7.41442148	0	G	0	360
7	7.41454473	A	C	0.025	360
7	7.41464143	0	C	0	360
7	7.41470182	A	G	0.005556	360
7	7.41489189	0	G	0	360
7	7.41499159	0	G	0	360
7	7.41505809	A	G	0.025	360
7	7.4152533	T	C	0.025	360

7	7.41530954	C	T	0.03103	290
7	7.4153188	0	G	0	360
7	7.41540046	A	G	0.025	360
7	7.41540372	0	T	0	360
7	7.41549728	C	A	0.025	360
7	7.41550546	T	G	0.025	360
7	7.41562335	C	T	0.025	360
7	7.41580972	0	T	0	360
7	7.41583346	0	G	0	360
7	7.41587669	T	C	0.25	360
7	7.41588265	0	G	0	288
7	7.4158876	0	A	0	360
7	7.41590937	0	A	0	360
7	7.41591732	0	G	0	360
7	7.41596546	0	C	0	360
7	7.41611133	A	G	0.01944	360
7	7.41621033	0	C	0	352
7	7.41625532	T	C	0.01944	360
7	7.41649554	0	A	0	360
7	7.41656942	0	C	0	360
7	7.41666086	0	A	0	360
7	7.4167213	T	G	0.01944	360
7	7.41672282	0	T	0	360
7	7.41683917	T	C	0.01944	360
7	7.41686101	G	A	0.01944	360
7	7.41695247	0	C	0	360
7	7.41696738	0	C	0	352
7	7.41701119	G	T	0.2822	326
7	7.41701199	0	C	0	352
7	7.41709709	C	T	0.01977	354
7	7.41720401	0	C	0	360
7	7.41724558	A	G	0.01944	360
7	7.41734998	0	C	0	360
7	7.41745515	C	T	0.01944	360
16	16.44535072	0	C	0	360
16	16.44535081	C	T	0.09167	360
16	16.44541212	A	C	0.09167	360
16	16.44542416	T	A	0.09167	360
16	16.4455034	T	C	0.1408	348
16	16.44550723	0	A	0	360
16	16.44558521	T	C	0.4333	360
16	16.44581953	T	C	0.1389	360
16	16.44600931	C	T	0.002778	360
16	16.44607921	0	C	0	360
16	16.44619573	A	G	0.04444	360

16	16.44623632	G	C	0.2978	356
16	16.4463316	G	A	0.1389	360
16	16.44635973	0	G	0	360
16	16.44654844	G	A	0.2	10
16	16.44676258	T	C	0.04444	360
16	16.44693928	A	G	0.09444	360
16	16.44695743	0	G	0	360
16	16.44717054	C	T	0.1389	360
16	16.44736539	0	G	0	352
16	16.44737429	0	T	0	238
16	16.44750429	T	C	0.09167	360
16	16.44756995	C	T	0.1389	360
16	16.44770499	T	C	0.04722	360
16	16.44776914	G	A	0.1389	360
16	16.44786801	C	T	0.4361	360
16	16.44799382	0	A	0	360
16	16.44819755	0	C	0	360
16	16.44823064	0	G	0	360
16	16.44842577	G	T	0.3583	360
16	16.44848948	0	A	0	356
16	16.44865847	0	T	0	360
16	16.44867315	0	T	0	360
16	16.44882037	0	G	0	360
16	16.44882132	0	C	0	360
16	16.44900924	C	T	0.09722	360
16	16.44907944	0	A	0	360
16	16.44911965	A	G	0.4083	360
16	16.4491343	0	G	0	360
16	16.44932875	0	G	0	360
16	16.44937074	A	C	0.15	360
16	16.44948203	A	G	0.09722	360
16	16.44964409	0	G	0	360
16	16.4497233	C	T	0.4611	360
16	16.44991317	A	G	0.1	360
16	16.45001419	A	G	0.1	360
16	16.450107	C	T	0.425	360
16	16.45019743	0	G	0	354
16	16.4503596	C	A	0.1333	360
16	16.4504433	T	C	0.03611	360
16	16.45050214	G	A	0.3296	358
16	16.45053963	G	A	0.3306	360
16	16.45070026	0	G	0	348
16	16.45079294	T	G	0.3333	360
16	16.45087134	0	A	0	360
16	16.45100335	0	T	0	360

16	16.45110676	A	G	0.4667	360
16	16.45128266	0	G	0	360
16	16.45137226	0	G	0	360
16	16.4513998	0	G	0	360
16	16.45141053	0	G	0	360
16	16.45141927	0	G	0	360
16	16.45142427	T	C	0.4361	360
16	16.45142732	0	T	0	360
16	16.45143676	0	G	0	10
16	16.45143989	0	C	0	360
16	16.45147217	0	G	0	360
16	16.45160849	0	T	0	360
16	16.45174227	A	C	0.4361	360
16	16.45176755	0	G	0	360
16	16.45179953	C	T	0.4709	344
16	16.45188677	A	G	0.4361	360
16	16.45193017	T	G	0.4151	318
16	16.45203306	0	G	0	360
16	16.45205272	G	A	0.4722	360
16	16.45215021	G	C	0.03611	360
16	16.45227982	A	T	0.4361	360
16	16.45229718	A	G	0.03611	360
16	16.45231104	A	C	0.4722	360
16	16.45231819	T	G	0.03611	360
16	16.45232298	T	D	0.05263	190
16	16.45232299	0	D	0	170
16	16.45243467	A	G	0.4722	360
16	16.45243474	T	C	0.4722	360
16	16.45249298	C	T	0.4722	360
16	16.45261922	C	T	0.4722	360
16	16.45266736	C	A	0.4722	360
16	16.45267887	C	T	0.002778	360
16	16.45268418	A	G	0.3694	360
16	16.45269656	A	G	0.4722	360
16	16.45269752	A	G	0.3694	360
16	16.4528075	G	A	0.002778	360
16	16.45288581	G	T	0.002778	360
16	16.45297406	0	C	0	360
16	16.45316527	0	C	0	360
16	16.45317878	A	G	0.03611	360
16	16.45336365	T	C	0.025	360
16	16.45336814	C	T	0.03073	358
16	16.45336937	0	C	0	360
16	16.45339816	G	A	0.09167	360
16	16.45354917	G	T	0.09167	360

16	16.45362976	C	A	0.1503	326
16	16.45379507	C	T	0.4611	360
16	16.45389972	T	C	0.3722	360
16	16.45398215	C	A	0.4422	346
16	16.4539824	G	T	0.06429	280
16	16.45402199	C	T	0.4405	336
16	16.45406378	O	T	0	360
16	16.45410001	T	C	0.244	336
16	16.45416207	A	G	0.03889	360
16	16.45420236	G	A	0.03889	360
16	16.45433435	G	A	0.03889	360
16	16.45444656	A	G	0.03889	360
16	16.45450451	G	A	0.03889	360
16	16.45454773	O	A	0	360
16	16.45455325	T	G	0.03911	358
16	16.45457123	G	A	0.04094	342
16	16.45457191	T	C	0.002793	358
16	16.45469165	A	G	0.002778	360
16	16.45478436	O	A	0	360
16	16.45489321	C	T	0.03056	360
16	16.45492102	T	C	0.03056	360
16	16.45505642	A	G	0.03659	328
16	16.45521945	O	C	0	360
16	16.45522182	G	A	0.4694	360
16	16.45525987	G	A	0.002778	360
31	31.541	O	T	0	10
31	31.542	O	T	0	10
31	31.543	O	C	0	10
31	31.544	O	T	0	10
31	31.545	O	T	0	10
31	31.546	O	G	0	10
31	31.547	O	T	0	10
31	31.548	O	G	0	10
31	31.549	O	T	0	10
31	31.55	O	A	0	10
31	31.551	O	C	0	10
31	31.552	O	A	0	10
31	31.553	O	A	0	10
31	31.554	O	C	0	10
31	31.555	O	G	0	10
31	31.556	O	C	0	10
31	31.557	O	C	0	10
31	31.558	O	T	0	10
31	31.559	O	A	0	10
31	31.56	O	G	0	10

31	31.561	0	G	0	10
31	31.562	0	A	0	10
31	31.563	0	C	0	10
31	31.564	0	T	0	10
31	31.565	0	G	0	10
31	31.566	0	G	0	10
31	31.567	0	C	0	10
31	31.568	0	A	0	10
31	31.569	0	T	0	10
31	31.57	0	T	0	10
31	31.571	0	T	0	10
31	31.572	0	T	0	10
31	31.573	0	A	0	10
31	31.574	0	C	0	10
31	31.575	0	0	NA	0
31	31.576	0	C	0	10
31	31.577	0	G	0	10
31	31.578	0	G	0	10
31	31.579	0	G	0	10
31	31.58	0	T	0	10
31	31.581	0	T	0	10
31	31.582	0	0	NA	0
31	31.583	0	A	0	10
31	31.584	0	0	NA	0
31	31.9567	G	T	0.3222	360
31	31.48557	0	A	0	10
31	31.58052	0	G	0	360
31	31.65848	0	G	0	180
31	31.76431	G	A	0.01667	360
31	31.91801	C	T	0.02059	340
31	31.97289	T	C	0.2556	360
31	31.103502	0	A	0	360
31	31.10383	0	G	0	338
31	31.115298	C	A	0.01667	360
31	31.121299	A	C	0.01667	360
31	31.140407	0	A	0	360
31	31.176956	0	T	0	360
31	31.188664	0	T	0	232
31	31.204002	0	A	0	354
31	31.211442	0	G	0	360
31	31.230277	T	C	0.1917	360
31	31.242073	T	C	0.1917	360
31	31.244564	C	T	0.1917	360
31	31.273549	T	C	0.2709	358
31	31.273627	0	T	0	360



31	31.277211	G	C	0.1917	360
31	31.279374	G	A	0.1917	360
31	31.291186	0	A	0	360
31	31.306904	C	T	0.1917	360
31	31.314339	0	A	0	360
31	31.328034	G	C	0.2162	296
31	31.346846	T	C	0.1917	360
31	31.363505	C	T	0.1889	360
31	31.371302	0	A	0	318
31	31.381926	G	C	0.1917	360
31	31.400443	T	G	0.175	360
31	31.413762	0	C	0	360
31	31.426622	A	G	0.175	360
31	31.429557	G	A	0.1917	360
31	31.43871	C	T	0.1917	360
31	31.456608	0	C	0	360
31	31.470558	A	G	0.08056	360
31	31.481055	0	G	0	360
31	31.486259	C	T	0.175	360
31	31.491452	C	T	0.1917	360
31	31.497989	A	C	0.1917	360
31	31.508163	T	C	0.175	360
31	31.530468	0	C	0	360
31	31.540869	A	G	0.1917	360
31	31.544525	C	A	0.178	354
31	31.561264	0	A	0	352
31	31.577077	T	G	0.176	358
31	31.580882	C	T	0.1765	340
31	31.591784	C	T	0.1917	360
31	31.615158	C	T	0.1917	360
31	31.626586	C	T	0.1917	360
31	31.640075	C	G	0.175	360
31	31.652205	C	T	0.2078	332
31	31.660801	A	G	0.1917	360
31	31.664758	G	A	0.1917	360
31	31.675918	G	A	0.1917	360
31	31.689322	C	A	0.1917	360
31	31.695696	T	C	0.1935	336
31	31.713515	0	G	0	360
31	31.715995	G	T	0.1899	358
31	31.728247	A	G	0.175	360
31	31.739994	T	C	0.175	360
31	31.760993	T	C	0.1917	360
31	31.765196	G	T	0.175	360

**Table S3.** PLINK -freqx data for for MMVD candidate variant gene regions SNPs from 180 Australian CKCS.

CHR	SNP	A1	A2	C(HOM A1)	C(HET)	C(HOM A2)	C(MISSING)
2	2.11654206	0	T	0	0	180	0
2	2.11662236	0	A	0	0	180	0
2	2.1167411	0	A	0	0	180	0
2	2.11689791	0	T	0	0	180	0
2	2.11695641	0	A	0	0	180	0
2	2.11707593	0	T	0	0	180	0
2	2.11717132	T	C	0	7	173	0
2	2.11730035	C	T	0	7	173	0
2	2.11739358	0	T	0	0	180	0
2	2.11751842	0	C	0	0	180	0
2	2.11764533	A	G	0	7	173	0
2	2.11774349	A	G	0	7	173	0
2	2.11787735	G	C	1	11	168	0
2	2.11793471	G	A	1	11	168	0
2	2.11799338	G	A	1	11	168	0
2	2.118124	0	G	0	0	180	0
2	2.1182298	A	G	0	6	174	0
2	2.11832538	G	A	0	6	174	0
2	2.11843668	0	A	0	0	180	0
2	2.11855019	0	C	0	0	180	0
2	2.11871891	A	G	0	6	166	8
2	2.11878409	A	G	1	11	168	0
2	2.11900062	0	G	0	0	180	0
2	2.11901965	0	T	0	0	180	0
2	2.11914478	0	C	0	0	180	0
2	2.11924282	A	C	1	11	168	0
2	2.11937039	0	A	0	0	180	0
2	2.11946899	0	G	0	0	180	0
2	2.11962479	T	G	0	6	174	0
2	2.11979724	G	A	0	6	174	0
2	2.11989819	T	C	0	6	174	0
2	2.12002367	C	A	0	6	174	0
2	2.12012688	T	C	0	18	162	0
2	2.12019966	C	T	0	11	169	0
2	2.12030635	C	T	0	11	169	0
2	2.12039245	0	A	0	0	180	0
2	2.12053055	0	T	0	0	180	0
2	2.12063981	C	T	0	17	163	0
2	2.12078166	0	C	0	0	180	0
2	2.12085928	A	G	0	17	163	0
2	2.12102288	0	C	0	0	180	0

2	2.12108037	C	T	0	17	163	0
2	2.12122303	A	G	0	17	163	0
2	2.12126839	T	A	0	6	174	0
2	2.12131129	0	C	0	0	180	0
2	2.12141216	0	G	0	0	180	0
2	2.1214462	0	A	0	0	180	0
2	2.12153524	A	G	0	6	174	0
2	2.12162327	0	C	0	0	176	4
2	2.12174951	C	A	0	17	163	0
2	2.12184406	A	G	0	11	169	0
2	2.12192987	G	A	0	17	163	0
2	2.1220313	T	G	0	7	173	0
2	2.1221131	C	A	0	7	173	0
2	2.12230658	T	C	0	7	173	0
2	2.12234249	A	T	0	1	179	0
2	2.12245988	C	T	0	1	179	0
2	2.1225981	T	C	0	6	174	0
2	2.12269676	C	A	0	1	179	0
2	2.12283473	A	G	0	7	173	0
2	2.12306926	A	G	0	7	173	0
2	2.12318063	G	A	0	7	173	0
2	2.12326789	T	C	0	7	173	0
2	2.12347206	G	A	0	7	173	0
2	2.12349813	T	C	0	6	174	0
2	2.12361062	C	A	0	6	174	0
2	2.12376723	G	T	0	1	179	0
2	2.12386738	A	G	0	1	179	0
2	2.12396395	T	A	0	1	179	0
2	2.12413114	T	G	0	1	179	0
2	2.12418462	T	G	0	1	179	0
2	2.12434761	0	A	0	0	180	0
2	2.12442689	0	G	0	0	180	0
2	2.12453483	T	C	0	1	177	2
2	2.12469577	C	T	0	1	179	0
2	2.12478569	A	G	0	1	179	0
2	2.12495431	C	T	0	1	179	0
2	2.1250943	0	A	0	0	180	0
2	2.12512843	T	C	0	2	177	1
2	2.12526445	C	T	0	1	177	2
2	2.12533482	C	T	0	3	177	0
2	2.12544856	T	C	0	3	177	0
2	2.12565297	C	T	0	3	177	0
2	2.1256776	C	T	0	3	177	0
2	2.12585933	T	C	0	1	179	0
2	2.12597489	T	C	0	3	177	0

2	2.12611546	G	A	0	3	177	0
2	2.12613634	C	T	0	3	177	0
2	2.12624913	0	A	0	0	180	0
2	2.1264288	0	T	0	0	180	0
2	2.12643962	C	G	0	3	177	0
6	6.6510114	A	G	2	55	123	0
6	6.65112557	T	C	3	32	145	0
6	6.65126636	G	A	1	25	154	0
6	6.65136211	G	A	1	25	153	1
6	6.6515326	0	C	0	0	180	0
6	6.65160298	0	C	0	0	180	0
6	6.65174782	A	G	0	5	175	0
6	6.65180856	T	C	1	28	151	0
6	6.65195796	0	A	0	0	180	0
6	6.65209291	G	A	0	2	178	0
6	6.65221796	G	A	2	32	146	0
6	6.6523303	C	A	7	59	114	0
6	6.65246451	C	T	3	58	119	0
6	6.65260015	T	C	47	79	54	0
6	6.65270131	T	C	42	76	62	0
6	6.65270332	A	G	42	76	62	0
6	6.65276297	T	A	43	77	60	0
6	6.65287462	G	T	43	77	60	0
6	6.65298372	A	G	31	67	82	0
6	6.65310259	G	A	2	30	148	0
6	6.65319953	G	A	41	72	67	0
6	6.65322941	G	A	0	5	175	0
6	6.65332532	T	C	44	77	59	0
6	6.65344346	C	T	43	77	60	0
6	6.65348597	A	G	31	67	82	0
6	6.65362922	A	G	31	67	82	0
6	6.65386534	A	G	42	75	63	0
6	6.65389473	A	G	31	70	79	0
6	6.65406362	C	T	0	3	177	0
6	6.65418337	T	G	26	62	92	0
6	6.65423779	A	G	0	3	173	4
6	6.65435312	C	T	27	62	91	0
6	6.65447904	T	C	25	63	92	0
6	6.65449088	C	T	26	63	91	0
6	6.65463236	T	G	26	66	88	0
6	6.65470988	T	C	0	3	177	0
6	6.65480518	0	G	0	0	180	0
6	6.65496597	T	C	0	3	177	0
6	6.65508132	0	A	0	0	180	0
6	6.65523436	G	A	4	55	121	0

6	6.65525864	A	C	2	32	146	0
6	6.65540825	0	A	0	0	180	0
6	6.65549874	C	T	5	58	117	0
6	6.65567826	0	C	0	0	180	0
6	6.65578336	A	G	1	9	156	14
6	6.65587233	C	T	5	58	117	0
6	6.65595431	0	G	0	0	180	0
6	6.65596861	C	T	10	61	109	0
6	6.65598045	0	C	0	0	179	1
6	6.65607149	A	G	6	37	137	0
6	6.65618215	T	C	1	30	149	0
6	6.65633801	A	C	18	72	90	0
6	6.65645598	0	A	0	0	177	3
6	6.65656909	T	C	3	35	142	0
6	6.65674786	A	G	0	2	178	0
6	6.65675778	C	A	18	69	91	2
6	6.65686888	T	C	2	33	145	0
6	6.65705271	C	A	2	35	143	0
6	6.65720395	C	A	3	37	140	0
6	6.65723007	G	A	0	2	178	0
6	6.65737294	T	C	10	73	97	0
6	6.65746902	G	A	1	37	142	0
6	6.65755813	0	G	0	0	180	0
6	6.65767474	G	A	11	53	116	0
6	6.65781207	A	G	15	70	95	0
6	6.65791139	0	C	0	0	180	0
6	6.65804588	G	A	45	84	51	0
6	6.65822393	A	G	0	2	165	13
6	6.65823535	G	A	45	84	51	0
6	6.65823601	G	A	45	84	51	0
6	6.65827291	0	G	0	0	180	0
6	6.65842149	0	G	0	0	180	0
6	6.65849064	G	T	31	77	70	2
6	6.6586633	G	A	31	77	70	2
6	6.65870908	G	T	42	83	55	0
6	6.65882687	A	G	27	70	83	0
6	6.65904868	0	G	0	0	180	0
6	6.6591498	A	G	34	75	71	0
6	6.65917393	T	C	34	75	71	0
6	6.65928843	A	G	27	68	85	0
6	6.65928931	C	T	27	68	85	0
6	6.65946566	0	A	0	0	180	0
6	6.65951982	0	T	0	0	180	0
6	6.65954545	C	T	0	25	155	0
6	6.6596638	0	C	0	0	180	0

6	6.65975858	A	C	33	76	71	0
6	6.65994724	G	A	43	90	47	0
6	6.65998281	G	A	31	88	61	0
6	6.66013403	A	G	30	86	64	0
6	6.66024215	C	T	41	82	57	0
6	6.66035679	G	A	2	19	159	0
6	6.66048377	T	C	0	2	163	15
6	6.66055784	A	G	0	2	178	0
6	6.66070005	0	C	0	0	180	0
6	6.66088204	0	G	0	0	180	0
6	6.66098802	0	G	0	0	180	0
6	6.66106577	C	T	2	12	166	0
7	7.40767427	G	T	7	11	156	6
7	7.40778971	C	T	0	2	3	175
7	7.40801645	G	A	0	2	3	175
7	7.40812558	T	C	0	21	155	4
7	7.40815795	0	C	0	0	180	0
7	7.40819079	C	G	6	5	84	85
7	7.40823701	T	A	2	22	156	0
7	7.40824538	G	A	0	1	179	0
7	7.40827852	0	A	0	0	180	0
7	7.40835289	0	C	0	0	5	175
7	7.40845344	T	G	2	23	155	0
7	7.40848832	0	G	0	0	5	175
7	7.40853058	0	C	0	0	180	0
7	7.40858078	0	G	0	0	180	0
7	7.40889114	T	C	2	23	155	0
7	7.40909684	G	T	0	2	3	175
7	7.40926671	A	G	2	22	155	1
7	7.40948251	G	A	2	23	155	0
7	7.40955088	0	A	0	0	5	175
7	7.40967027	0	G	0	0	180	0
7	7.40967336	0	A	0	0	180	0
7	7.40980516	A	G	0	1	179	0
7	7.40985236	A	G	0	1	179	0
7	7.40991392	C	T	0	17	156	7
7	7.40991553	T	G	0	77	97	6
7	7.40999602	G	A	0	16	164	0
7	7.41014521	0	C	0	0	180	0
7	7.41021155	G	A	1	8	171	0
7	7.41035462	A	C	1	8	171	0
7	7.41046022	C	T	2	21	157	0
7	7.41054208	G	A	1	8	171	0
7	7.41075865	A	G	1	8	171	0
7	7.41090182	G	A	2	22	156	0

7	7.41093748	A	G	0	22	125	33
7	7.41095494	T	G	0	15	165	0
7	7.41097786	0	C	0	0	180	0
7	7.41102835	C	T	0	15	165	0
7	7.41103269	C	T	2	21	151	6
7	7.41110854	D	I	1	6	168	5
7	7.41112601	C	G	1	9	170	0
7	7.4111816	0	G	0	0	179	1
7	7.41118697	T	C	0	97	78	5
7	7.41120696	0	T	0	0	180	0
7	7.41124711	G	A	2	22	156	0
7	7.41135596	C	T	1	8	171	0
7	7.4114705	T	C	1	8	171	0
7	7.41152766	C	T	1	9	170	0
7	7.41161765	T	G	1	8	171	0
7	7.41164827	0	C	0	0	5	175
7	7.41171565	0	G	0	0	180	0
7	7.4117208	0	G	0	0	180	0
7	7.4117318	C	T	1	9	170	0
7	7.41176104	G	A	1	9	170	0
7	7.41176429	0	G	0	0	180	0
7	7.41181105	G	A	1	9	170	0
7	7.41188487	0	A	0	0	163	17
7	7.41189309	0	T	0	0	180	0
7	7.41195678	0	G	0	0	156	24
7	7.41198173	0	T	0	0	180	0
7	7.41209005	T	G	5	0	175	0
7	7.41214831	T	G	1	9	170	0
7	7.41225703	C	T	1	9	170	0
7	7.41240336	0	G	0	0	180	0
7	7.41248384	G	T	1	8	171	0
7	7.41249883	0	C	0	0	179	1
7	7.41250473	A	G	1	8	171	0
7	7.41251476	0	C	0	0	154	26
7	7.41251497	G	C	1	8	171	0
7	7.41251782	0	A	0	0	180	0
7	7.41251956	G	A	1	8	171	0
7	7.4125531	G	A	1	9	169	1
7	7.41258858	0	A	0	0	180	0
7	7.41262962	T	C	1	8	171	0
7	7.41265408	C	A	1	8	171	0
7	7.41265609	0	C	0	0	180	0
7	7.41277655	G	T	1	7	68	104
7	7.4127953	0	G	0	0	180	0
7	7.4128596	C	T	1	8	171	0

7	7.41302561	A	G	1	8	171	0
7	7.41304503	0	C	0	0	180	0
7	7.41306059	G	A	1	8	171	0
7	7.41306901	C	T	0	20	50	110
7	7.41307276	0	C	0	0	178	2
7	7.41310403	0	C	0	0	180	0
7	7.4131366	0	T	0	0	180	0
7	7.4131406	0	C	0	0	180	0
7	7.41317863	0	C	0	0	180	0
7	7.41319015	0	A	0	0	180	0
7	7.41320768	0	G	0	0	180	0
7	7.41321483	T	C	1	7	172	0
7	7.41323723	T	C	0	2	171	7
7	7.41330248	0	G	0	0	180	0
7	7.41343215	0	T	0	0	86	94
7	7.41344259	0	C	0	0	180	0
7	7.41361705	0	G	0	0	180	0
7	7.41363583	0	T	0	0	180	0
7	7.41366102	0	G	0	0	180	0
7	7.41366744	0	T	0	0	180	0
7	7.4136692	0	T	0	0	180	0
7	7.41367037	0	G	0	0	180	0
7	7.41368577	0	C	0	0	180	0
7	7.41379561	0	A	0	0	180	0
7	7.41384516	0	G	0	0	180	0
7	7.41392649	C	T	1	8	171	0
7	7.41403776	0	G	0	0	180	0
7	7.41411493	0	A	0	0	180	0
7	7.4141428	0	T	0	0	180	0
7	7.41418428	0	C	0	0	180	0
7	7.41420074	0	G	0	0	180	0
7	7.41421112	0	G	0	0	180	0
7	7.41425658	0	C	0	0	180	0
7	7.41442148	0	G	0	0	180	0
7	7.41454473	A	C	1	7	172	0
7	7.41464143	0	C	0	0	180	0
7	7.41470182	A	G	0	2	178	0
7	7.41489189	0	G	0	0	180	0
7	7.41499159	0	G	0	0	180	0
7	7.41505809	A	G	1	7	172	0
7	7.4152533	T	C	1	7	172	0
7	7.41530954	C	T	1	7	137	35
7	7.4153188	0	G	0	0	180	0
7	7.41540046	A	G	1	7	172	0
7	7.41540372	0	T	0	0	180	0



7	7.41549728	C	A	1	7	172	0
7	7.41550546	T	G	1	7	172	0
7	7.41562335	C	T	1	7	172	0
7	7.41580972	0	T	0	0	180	0
7	7.41583346	0	G	0	0	180	0
7	7.41587669	T	C	0	90	90	0
7	7.41588265	0	G	0	0	144	36
7	7.4158876	0	A	0	0	180	0
7	7.41590937	0	A	0	0	180	0
7	7.41591732	0	G	0	0	180	0
7	7.41596546	0	C	0	0	180	0
7	7.41611133	A	G	1	5	174	0
7	7.41621033	0	C	0	0	176	4
7	7.41625532	T	C	1	5	174	0
7	7.41649554	0	A	0	0	180	0
7	7.41656942	0	C	0	0	180	0
7	7.41666086	0	A	0	0	180	0
7	7.4167213	T	G	1	5	174	0
7	7.41672282	0	T	0	0	180	0
7	7.41683917	T	C	1	5	174	0
7	7.41686101	G	A	1	5	174	0
7	7.41695247	0	C	0	0	180	0
7	7.41696738	0	C	0	0	176	4
7	7.41701119	G	T	0	92	71	17
7	7.41701199	0	C	0	0	176	4
7	7.41709709	C	T	1	5	171	3
7	7.41720401	0	C	0	0	180	0
7	7.41724558	A	G	1	5	174	0
7	7.41734998	0	C	0	0	180	0
7	7.41745515	C	T	1	5	174	0
16	16.44535072	0	C	0	0	180	0
16	16.44535081	C	T	2	29	149	0
16	16.44541212	A	C	2	29	149	0
16	16.44542416	T	A	2	29	149	0
16	16.4455034	T	C	3	43	128	6
16	16.44550723	0	A	0	0	180	0
16	16.44558521	T	C	33	90	57	0
16	16.44581953	T	C	3	44	133	0
16	16.44600931	C	T	0	1	179	0
16	16.44607921	0	C	0	0	180	0
16	16.44619573	A	G	0	16	164	0
16	16.44623632	G	C	14	78	86	2
16	16.4463316	G	A	3	44	133	0
16	16.44635973	0	G	0	0	180	0
16	16.44654844	G	A	0	2	3	175

16	16.44676258	T	C	0	16	164	0
16	16.44693928	A	G	2	30	148	0
16	16.44695743	0	G	0	0	180	0
16	16.44717054	C	T	3	44	133	0
16	16.44736539	0	G	0	0	176	4
16	16.44737429	0	T	0	0	119	61
16	16.44750429	T	C	2	29	149	0
16	16.44756995	C	T	3	44	133	0
16	16.44770499	T	C	0	17	163	0
16	16.44776914	G	A	3	44	133	0
16	16.44786801	C	T	34	89	57	0
16	16.44799382	0	A	0	0	180	0
16	16.44819755	0	C	0	0	180	0
16	16.44823064	0	G	0	0	180	0
16	16.44842577	G	T	20	89	71	0
16	16.44848948	0	A	0	0	178	2
16	16.44865847	0	T	0	0	180	0
16	16.44867315	0	T	0	0	180	0
16	16.44882037	0	G	0	0	180	0
16	16.44882132	0	C	0	0	180	0
16	16.44900924	C	T	3	29	148	0
16	16.44907944	0	A	0	0	180	0
16	16.44911965	A	G	30	87	63	0
16	16.4491343	0	G	0	0	180	0
16	16.44932875	0	G	0	0	180	0
16	16.44937074	A	C	5	44	131	0
16	16.44948203	A	G	3	29	148	0
16	16.44964409	0	G	0	0	180	0
16	16.4497233	C	T	35	96	49	0
16	16.44991317	A	G	3	30	147	0
16	16.45001419	A	G	3	30	147	0
16	16.450107	C	T	32	89	59	0
16	16.45019743	0	G	0	0	177	3
16	16.4503596	C	A	3	42	135	0
16	16.4504433	T	C	0	13	167	0
16	16.45050214	G	A	17	84	78	1
16	16.45053963	G	A	17	85	78	0
16	16.45070026	0	G	0	0	174	6
16	16.45079294	T	G	18	84	78	0
16	16.45087134	0	A	0	0	180	0
16	16.45100335	0	T	0	0	180	0
16	16.45110676	A	G	37	94	49	0
16	16.45128266	0	G	0	0	180	0
16	16.45137226	0	G	0	0	180	0
16	16.4513998	0	G	0	0	180	0

16	16.45141053	0	G	0	0	180	0
16	16.45141927	0	G	0	0	180	0
16	16.45142427	T	C	33	91	56	0
16	16.45142732	0	T	0	0	180	0
16	16.45143676	0	G	0	0	5	175
16	16.45143989	0	C	0	0	180	0
16	16.45147217	0	G	0	0	180	0
16	16.45160849	0	T	0	0	180	0
16	16.45174227	A	C	33	91	56	0
16	16.45176755	0	G	0	0	180	0
16	16.45179953	C	T	37	88	47	8
16	16.45188677	A	G	33	91	56	0
16	16.45193017	T	G	18	96	45	21
16	16.45203306	0	G	0	0	180	0
16	16.45205272	G	A	37	96	47	0
16	16.45215021	G	C	0	13	167	0
16	16.45227982	A	T	33	91	56	0
16	16.45229718	A	G	0	13	167	0
16	16.45231104	A	C	37	96	47	0
16	16.45231819	T	G	0	13	167	0
16	16.45232298	T	D	5	0	90	85
16	16.45232299	0	D	0	0	85	95
16	16.45243467	A	G	37	96	47	0
16	16.45243474	T	C	37	96	47	0
16	16.45249298	C	T	37	96	47	0
16	16.45261922	C	T	37	96	47	0
16	16.45266736	C	A	37	96	47	0
16	16.45267887	C	T	0	1	179	0
16	16.45268418	A	G	22	89	69	0
16	16.45269656	A	G	37	96	47	0
16	16.45269752	A	G	22	89	69	0
16	16.4528075	G	A	0	1	179	0
16	16.45288581	G	T	0	1	179	0
16	16.45297406	0	C	0	0	180	0
16	16.45316527	0	C	0	0	180	0
16	16.45317878	A	G	0	13	167	0
16	16.45336365	T	C	4	1	175	0
16	16.45336814	C	T	0	11	168	1
16	16.45336937	0	C	0	0	180	0
16	16.45339816	G	A	2	29	149	0
16	16.45354917	G	T	2	29	149	0
16	16.45362976	C	A	2	45	116	17
16	16.45379507	C	T	36	94	50	0
16	16.45389972	T	C	23	88	69	0
16	16.45398215	C	A	32	89	52	7

16	16.4539824	G	T	0	18	122	40
16	16.45402199	C	T	29	90	49	12
16	16.45406378	0	T	0	0	180	0
16	16.45410001	T	C	0	82	86	12
16	16.45416207	A	G	0	14	166	0
16	16.45420236	G	A	0	14	166	0
16	16.45433435	G	A	0	14	166	0
16	16.45444656	A	G	0	14	166	0
16	16.45450451	G	A	0	14	166	0
16	16.45454773	0	A	0	0	180	0
16	16.45455325	T	G	0	14	165	1
16	16.45457123	G	A	0	14	157	9
16	16.45457191	T	C	0	1	178	1
16	16.45469165	A	G	0	1	179	0
16	16.45478436	0	A	0	0	180	0
16	16.45489321	C	T	0	11	169	0
16	16.45492102	T	C	0	11	169	0
16	16.45505642	A	G	0	12	152	16
16	16.45521945	0	C	0	0	180	0
16	16.45522182	G	A	37	95	48	0
16	16.45525987	G	A	0	1	179	0
31	31.541	0	T	0	0	5	175
31	31.542	0	T	0	0	5	175
31	31.543	0	C	0	0	5	175
31	31.544	0	T	0	0	5	175
31	31.545	0	T	0	0	5	175
31	31.546	0	G	0	0	5	175
31	31.547	0	T	0	0	5	175
31	31.548	0	G	0	0	5	175
31	31.549	0	T	0	0	5	175
31	31.55	0	A	0	0	5	175
31	31.551	0	C	0	0	5	175
31	31.552	0	A	0	0	5	175
31	31.553	0	A	0	0	5	175
31	31.554	0	C	0	0	5	175
31	31.555	0	G	0	0	5	175
31	31.556	0	C	0	0	5	175
31	31.557	0	C	0	0	5	175
31	31.558	0	T	0	0	5	175
31	31.559	0	A	0	0	5	175
31	31.56	0	G	0	0	5	175
31	31.561	0	G	0	0	5	175
31	31.562	0	A	0	0	5	175
31	31.563	0	C	0	0	5	175
31	31.564	0	T	0	0	5	175

31	31.565	0	G	0	0	5	175
31	31.566	0	G	0	0	5	175
31	31.567	0	C	0	0	5	175
31	31.568	0	A	0	0	5	175
31	31.569	0	T	0	0	5	175
31	31.57	0	T	0	0	5	175
31	31.571	0	T	0	0	5	175
31	31.572	0	T	0	0	5	175
31	31.573	0	A	0	0	5	175
31	31.574	0	C	0	0	5	175
31	31.575	0	0	0	0	0	180
31	31.576	0	C	0	0	5	175
31	31.577	0	G	0	0	5	175
31	31.578	0	G	0	0	5	175
31	31.579	0	G	0	0	5	175
31	31.58	0	T	0	0	5	175
31	31.581	0	T	0	0	5	175
31	31.582	0	0	0	0	0	180
31	31.583	0	A	0	0	5	175
31	31.584	0	0	0	0	0	180
31	31.9567	G	T	19	78	83	0
31	31.48557	0	A	0	0	5	175
31	31.58052	0	G	0	0	180	0
31	31.65848	0	G	0	0	90	90
31	31.76431	G	A	0	6	174	0
31	31.91801	C	T	0	7	163	10
31	31.97289	T	C	9	74	97	0
31	31.103502	0	A	0	0	180	0
31	31.10383	0	G	0	0	169	11
31	31.115298	C	A	0	6	174	0
31	31.121299	A	C	0	6	174	0
31	31.140407	0	A	0	0	180	0
31	31.176956	0	T	0	0	180	0
31	31.188664	0	T	0	0	116	64
31	31.204002	0	A	0	0	177	3
31	31.211442	0	G	0	0	180	0
31	31.230277	T	C	7	55	118	0
31	31.242073	T	C	7	55	118	0
31	31.244564	C	T	7	55	118	0
31	31.273549	T	C	12	73	94	1
31	31.273627	0	T	0	0	180	0
31	31.277211	G	C	7	55	118	0
31	31.279374	G	A	7	55	118	0
31	31.291186	0	A	0	0	180	0
31	31.306904	C	T	7	55	118	0

31	31.314339	0	A	0	0	180	0
31	31.328034	G	C	13	38	97	32
31	31.346846	T	C	7	55	118	0
31	31.363505	C	T	7	54	119	0
31	31.371302	0	A	0	0	159	21
31	31.381926	G	C	7	55	118	0
31	31.400443	T	G	5	53	122	0
31	31.413762	0	C	0	0	180	0
31	31.426622	A	G	5	53	122	0
31	31.429557	G	A	7	55	118	0
31	31.43871	C	T	7	55	118	0
31	31.456608	0	C	0	0	180	0
31	31.470558	A	G	1	27	152	0
31	31.481055	0	G	0	0	180	0
31	31.486259	C	T	5	53	122	0
31	31.491452	C	T	7	55	118	0
31	31.497989	A	C	7	55	118	0
31	31.508163	T	C	5	53	122	0
31	31.530468	0	C	0	0	180	0
31	31.540869	A	G	7	55	118	0
31	31.544525	C	A	5	53	119	3
31	31.561264	0	A	0	0	176	4
31	31.577077	T	G	5	53	121	1
31	31.580882	C	T	7	46	117	10
31	31.591784	C	T	7	55	118	0
31	31.615158	C	T	7	55	118	0
31	31.626586	C	T	7	55	118	0
31	31.640075	C	G	5	53	122	0
31	31.652205	C	T	7	55	104	14
31	31.660801	A	G	7	55	118	0
31	31.664758	G	A	7	55	118	0
31	31.675918	G	A	7	55	118	0
31	31.689322	C	A	7	55	118	0
31	31.695696	T	C	5	55	108	12
31	31.713515	0	G	0	0	180	0
31	31.715995	G	T	7	54	118	1
31	31.728247	A	G	5	53	122	0
31	31.739994	T	C	5	53	122	0
31	31.760993	T	C	7	55	118	0
31	31.765196	G	T	5	53	122	0