

**Supplementary Table 4.** Haplotype analysis for ASD affection in SEMA5A gene using FBAT

Haplotype analysis			Additive			Dominant			Recessive		
Haplotypes	Allele	Frequency	N	Z	p	N	Z	p	N	Z	p
Block1 (rs218052+rs194085)											
Haplotype 1	TT	0.472	177	-0.546	0.585	128	-0.772	0.440	104	-0.025	0.980
Haplotype 2	GT	0.285	156	0.464	0.643	143	0.381	0.703	42	0.330	0.742
Haplotype 3	TC	0.212	119	-0.050	0.960	113	0.097	0.923	30	-0.304	0.761
Multi-allelic mode			$\chi^2=0.538$ , df=3, p=0.910			$\chi^2=0.619$ , df=3, p=0.892			$\chi^2=0.199$ , df=3, p=0.9778		
Block2 (rs194085+rs150630)											
Haplotype 1	TT	0.425	179	0.449	0.653	141	-0.338	0.735	89	1.197	0.231
Haplotype 2	TA	0.332	154	-0.580	0.562	128	-0.067	0.947	63	-0.981	0.327
Haplotype 3	CT	0.210	117	-0.210	0.834	111	-0.227	0.820	28	-0.048	0.962
Multi-allelic mode			$\chi^2=1.000$ , df=3, p=0.801			$\chi^2=0.314$ , df=3, p=0.957			$\chi^2=2.241$ , df=3, p=0.524		
Block3 (rs150630+rs390)											
Haplotype 1	TT	0.399	175	1.201	0.230	142	0.515	0.606	72	1.473	0.141
Haplotype 2	TC	0.237	136	-0.975	0.330	124	-0.896	0.370	43	-0.539	0.590
Haplotype 3	AC	0.230	143	-0.728	0.467	136	-0.998	0.318	28	0.267	0.789
Haplotype 4	AT	0.135	107	0.413	0.680	104	0.413	0.679	11	0.109	0.913
Multi-allelic mode			$\chi^2=1.918$ , df=3, p=0.590			$\chi^2=2.237$ , df=4, p=0.672			$\chi^2=2.500$ , df=4, p=0.645		
Block4 (rs218052+rs194085+rs150630)											
Haplotype 1	TTT	0.415	173	0.614	0.540	138	-0.376	0.707	77	1.604	0.109
Haplotype 2	GTA	0.277	144	0.689	0.491	131	0.597	0.550	35	0.456	0.649
Haplotype 3	TCT	0.210	115	-0.243	0.808	109	-0.169	0.866	29	-0.243	0.808
Haplotype 4	TTA	0.056	47	-2.185	0.029	47	-2.041	0.041	3	-1.078	0.281
Multi-allelic mode			$\chi^2=5.010$ , df=4, p=0.286			$\chi^2=5.267$ , df=4, p=0.261			$\chi^2=4.047$ , df=4, p=0.400		
Block5 (rs194085+rs150630+rs390)											
Haplotype 1	TTT	0.392	164	0.925	0.355	131	-0.037	0.970	64	1.782	0.075
Haplotype 2	CTC	0.203	115	-0.038	0.970	110	-0.121	0.904	23	0.162	0.872
Haplotype 3	TAC	0.195	132	-1.168	0.243	126	-1.161	0.246	22	-0.431	0.666
Haplotype 4	TAT	0.136	102	0.860	0.390	99	0.894	0.371	11	0.109	0.913
Multi-allelic mode			$\chi^2=2.793$ , df=4, p=0.593			$\chi^2=1.901$ , df=4, p=0.754			$\chi^2=3.415$ , df=4, p=0.491		
Block6 (rs218052+rs194085+rs150630+rs390)											
Haplotype 1	TTTT	0.392	162	0.891	0.373	130	-0.119	0.905	63	1.857	0.063
Haplotype 2	TCTC	0.203	114	-0.081	0.936	109	-0.106	0.916	24	0.020	0.984
Haplotype 3	GTAC	0.166	122	-0.485	0.628	120	-0.763	0.445	13	0.742	0.458
Haplotype 4	GTAT	0.109	89	1.704	0.088	86	1.749	0.080	7	0.200	0.841
Multi-allelic mode			$\chi^2=7.008$ , df=4, p=0.135			$\chi^2=3.286$ , df=4, p=0.511			$\chi^2=4.255$ , df=4, p=0.373		

ASD: autism spectrum disorder, FBAT: family based association test, N: number of family, Z: Z-statistic