

# Métodos para identificar asociaciones entre genotipos y múltiples fenotipos

## Proyecto

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## 1 Anexos

### 1.1 Tabla de SNPs

A continuación se muestran las tablas de SNPs que corresponden con la investigación realizada por [?]; en este caso para cada tabla la columna prioridad denota la importancia de cada SNP en el presente estudio de acuerdo con el p-valor más bajo.

### 1.1.1 Peonidin

	SNP	Prioridad	Position.x	chr	OT_Pval	p_OT_adjust
12	ST4.03ch10pos52004868.1	1	15169924.0	10	0.0000000	0.0000018
13	ST4.03ch10pos52004940.1	8	55363311.0	10	0.0000000	0.0000018
14	ST4.03ch10pos52261553.1	4	44648218.0	11	0.0000000	0.0000018
15	ST4.03ch10pos52261573.1	3	55440583.0	10	0.0000000	0.0000018
5	ST4.03ch02pos41058534.1	24	24472491.0	11	0.0000001	0.0000020
6	ST4.03ch02pos41058575.1	25	41098800.0	10	0.0000001	0.0000020
17	ST4.03ch10pos54778485.1	50	36607827.0	11	0.0000002	0.0000033
4	ST4.03ch02pos41058521.1	67	29455991.0	12	0.0000003	0.0000034
10	ST4.03ch04pos1900346.1	60	67131557.0	9	0.0000002	0.0000034
21	ST4.03ch10pos55585530.1	82	44282344.0	11	0.0000003	0.0000038
19	ST4.03ch10pos55086272.1	91	12690304.0	10	0.0000004	0.0000043
1	ST4.03ch01pos65949446.1	93	326654.1	11	0.0000005	0.0000044
7	ST4.03ch03pos35358169.1	100	58503003.0	9	0.0000005	0.0000045
8	ST4.03ch03pos52420845.1	102	64500889.0	9	0.0000005	0.0000045
9	ST4.03ch03pos52420887.1	103	11979763.0	11	0.0000005	0.0000045
11	ST4.03ch07pos29604479.1	112	55502824.0	10	0.0000006	0.0000045
3	ST4.03ch01pos72453001.1	113	45635497.0	11	0.0000006	0.0000045
18	ST4.03ch10pos54838788.1	114	54062055.0	10	0.0000006	0.0000046
20	ST4.03ch10pos55325863.1	152	49021726.0	10	0.0000010	0.0000056
2	ST4.03ch01pos71231124.1	160	16264276.0	10	0.0000010	0.0000058
16	ST4.03ch10pos54746624.1	222	67131538.0	9	0.0000019	0.0000077

### 1.1.2 Pelargonidin

	SNP	Prioridad	Position.x	chr	OT_Pval	p_OT_adjust
23	ST4.03ch10pos52004868.1	1	15169924.0	10	0.0000000	0.0000018
24	ST4.03ch10pos52004940.1	8	55363311.0	10	0.0000000	0.0000018
25	ST4.03ch10pos52261553.1	4	44648218.0	11	0.0000000	0.0000018
26	ST4.03ch10pos52261573.1	3	55440583.0	10	0.0000000	0.0000018
8	ST4.03ch02pos41058534.1	24	24472491.0	11	0.0000001	0.0000020
9	ST4.03ch02pos41058575.1	25	41098800.0	10	0.0000001	0.0000020
22	ST4.03ch10pos51318001.1	32	431152.1	11	0.0000001	0.0000027
2	ST4.03ch01pos6589444.1	38	56718308.0	12	0.0000001	0.0000030
39	ST4.03ch10pos58750187.1	40	44905981.0	11	0.0000001	0.0000030
34	ST4.03ch10pos57331136.1	41	50508083.0	12	0.0000001	0.0000031
31	ST4.03ch10pos54778485.1	50	36607827.0	11	0.0000002	0.0000033
35	ST4.03ch10pos57331157.1	42	56759530.0	12	0.0000002	0.0000033
4	ST4.03ch01pos80750504.1	57	63988229.0	9	0.0000002	0.0000034
7	ST4.03ch02pos41058521.1	67	29455991.0	12	0.0000003	0.0000034
13	ST4.03ch04pos1900346.1	60	67131557.0	9	0.0000002	0.0000034
20	ST4.03ch09pos52672220.1	70	20500500.0	12	0.0000003	0.0000034
27	ST4.03ch10pos54207412.1	58	43513219.0	11	0.0000002	0.0000034
28	ST4.03ch10pos54331241.1	72	59889217.0	10	0.0000003	0.0000034
14	ST4.03ch04pos63358558.1	88	51983697.0	12	0.0000004	0.0000040
11	ST4.03ch03pos57597957.1	90	44797644.0	11	0.0000004	0.0000042
10	ST4.03ch03pos57597865.1	95	20513568.0	11	0.0000005	0.0000044
36	ST4.03ch10pos58400594.1	97	30997211.0	10	0.0000005	0.0000044
37	ST4.03ch10pos58748991.1	101	38029508.0	11	0.0000005	0.0000045
12	ST4.03ch03pos57598037.1	111	38881424.0	10	0.0000006	0.0000045
15	ST4.03ch06pos55057388.1	110	50920971.0	10	0.0000006	0.0000045
21	ST4.03ch09pos52672228.1	105	43677898.0	11	0.0000005	0.0000045
29	ST4.03ch10pos54331266.1	109	40773908.0	12	0.0000006	0.0000045
38	ST4.03ch10pos58750162.1	104	43547421.0	12	0.0000005	0.0000045
32	ST4.03ch10pos54838788.1	114	54062055.0	10	0.0000006	0.0000046
5	ST4.03ch01pos81271286.1	120	35143652.0	12	0.0000006	0.0000047
16	ST4.03ch06pos56822189.1	124	48669444.0	12	0.0000007	0.0000047
17	ST4.03ch06pos56822224.1	125	38724668.0	11	0.0000007	0.0000047
18	ST4.03ch06pos56822225.1	126	63225471.0	9	0.0000007	0.0000049
19	ST4.03ch06pos56822258.1	127	22203396.0	12	0.0000007	0.0000050
3	ST4.03ch01pos67522138.1	140	44431126.0	11	0.0000008	0.0000053
6	ST4.03ch01pos81698537.1	138	63334971.0	9	0.0000008	0.0000053
1	ST4.03ch01pos4060700.1	146	40773887.0	12	0.0000009	0.0000054
33	ST4.03ch10pos55202878.1	145	46367189.0	11	0.0000009	0.0000054
30	ST4.03ch10pos54746624.1	222	67131538.0	9	0.0000019	0.0000077

### 1.1.3 Delphinidin

	SNP	Prioridad	Position.x	chr	OT_Pval	p_OT_adjust
15	ST4.03ch10pos52004868.1	1	15169924.0	10	0.0000000	0.0000018
16	ST4.03ch10pos52004940.1	8	55363311.0	10	0.0000000	0.0000018
17	ST4.03ch10pos52261553.1	4	44648218.0	11	0.0000000	0.0000018
18	ST4.03ch10pos52261573.1	3	55440583.0	10	0.0000000	0.0000018
7	ST4.03ch02pos41058534.1	24	24472491.0	11	0.0000001	0.0000020
2	ST4.03ch01pos24135132.1	27	52323238.0	10	0.0000001	0.0000020
8	ST4.03ch02pos41058575.1	25	41098800.0	10	0.0000001	0.0000020
21	ST4.03ch10pos54778485.1	50	36607827.0	11	0.0000002	0.0000033
6	ST4.03ch02pos41058521.1	67	29455991.0	12	0.0000003	0.0000034
3	ST4.03ch01pos34616221.1	87	60166401.0	9	0.0000004	0.0000040
9	ST4.03ch04pos1759501.1	89	25805987.0	12	0.0000004	0.0000040
22	ST4.03ch10pos55086272.1	91	12690304.0	10	0.0000004	0.0000043
5	ST4.03ch01pos72157331.1	108	45401866.0	11	0.0000006	0.0000045
14	ST4.03ch10pos51906575.1	107	43536186.0	11	0.0000006	0.0000045
19	ST4.03ch10pos54331266.1	109	40773908.0	12	0.0000006	0.0000045
4	ST4.03ch01pos37666203.1	115	42212122.0	11	0.0000006	0.0000046
10	ST4.03ch08pos42854758.1	116	34382987.0	10	0.0000006	0.0000046
1	ST4.03ch01pos24135105.1	117	44111015.0	10	0.0000006	0.0000046
12	ST4.03ch08pos51824077.1	122	66515441.0	9	0.0000007	0.0000047
13	ST4.03ch08pos51824105.1	123	50940044.0	10	0.0000007	0.0000047
11	ST4.03ch08pos51824048.1	141	58099220.0	9	0.0000008	0.0000053
20	ST4.03ch10pos54746624.1	222	67131538.0	9	0.0000019	0.0000077

#### 1.1.4 Cyanidin

	SNP	Prioridad	Position.x	chr	OT_Pval	p_OT_adjust
9	ST4.03ch06pos8156658.1	16	45041717.0	11	0.0000000	0.0000018
12	ST4.03ch06pos8156693.1	19	25089338.0	12	0.0000000	0.0000018
22	ST4.03ch10pos52004429.1	14	40364202.0	11	0.0000000	0.0000018
24	ST4.03ch10pos52004868.1	1	15169924.0	10	0.0000000	0.0000018
25	ST4.03ch10pos52004940.1	8	55363311.0	10	0.0000000	0.0000018
26	ST4.03ch10pos52261553.1	4	44648218.0	11	0.0000000	0.0000018
21	ST4.03ch10pos52004393.1	34	44324168.0	11	0.0000001	0.0000027
29	ST4.03ch11pos39802173.1	33	59327487.0	10	0.0000001	0.0000027
4	ST4.03ch01pos62416352.1	39	54413534.0	9	0.0000001	0.0000030
10	ST4.03ch06pos8156659.1	45	46660920.0	11	0.0000002	0.0000033
11	ST4.03ch06pos8156687.1	46	42733249.0	11	0.0000002	0.0000033
13	ST4.03ch06pos8156696.1	48	51477462.0	9	0.0000002	0.0000033
28	ST4.03ch10pos54778485.1	50	36607827.0	11	0.0000002	0.0000033
2	ST4.03ch01pos59492484.1	75	54499741.0	10	0.0000003	0.0000034
14	ST4.03ch08pos19870006.1	78	11145377.0	12	0.0000003	0.0000034
19	ST4.03ch09pos59749919.1	79	46622022.0	11	0.0000003	0.0000034
3	ST4.03ch01pos59492506.1	81	45635449.0	11	0.0000003	0.0000038
20	ST4.03ch09pos59749949.1	80	41098763.0	10	0.0000003	0.0000038
31	ST4.03ch12pos59205719.1	83	55749031.0	10	0.0000003	0.0000038
18	ST4.03ch08pos6515498.1	92	53051444.0	12	0.0000004	0.0000043
5	ST4.03ch02pos26928841.1	94	55751429.0	10	0.0000005	0.0000044
8	ST4.03ch05pos6829151.1	96	59486502.0	9	0.0000005	0.0000044
6	ST4.03ch03pos52420845.1	102	64500889.0	9	0.0000005	0.0000045
7	ST4.03ch03pos52420887.1	103	11979763.0	11	0.0000005	0.0000045
16	ST4.03ch08pos51824077.1	122	66515441.0	9	0.0000007	0.0000047
17	ST4.03ch08pos51824105.1	123	50940044.0	10	0.0000007	0.0000047
15	ST4.03ch08pos51824048.1	141	58099220.0	9	0.0000008	0.0000053
32	ST4.03ch12pos59564741.1	147	56559623.0	12	0.0000009	0.0000055
33	ST4.03ch12pos59564742.1	148	30073909.0	10	0.0000009	0.0000055
30	ST4.03ch12pos5646646.1	151	18675401.0	10	0.0000010	0.0000056
23	ST4.03ch10pos52004438.1	221	41723427.0	11	0.0000019	0.0000076
27	ST4.03ch10pos54746624.1	222	67131538.0	9	0.0000019	0.0000077
1	ST4.03ch01pos59492465.1	265	41723453.0	11	0.0000028	0.0000094

### 1.1.5 Petunidin

	SNP	Prioridad	Position.x	chr	OT_Pval	p_OT_adjust
7	ST4.03ch01pos72364545.1	21	64796847.0	9	0.0000000	0.0000018
17	ST4.03ch06pos8156658.1	16	45041717.0	11	0.0000000	0.0000018
20	ST4.03ch06pos8156693.1	19	25089338.0	12	0.0000000	0.0000018
25	ST4.03ch10pos52004868.1	1	15169924.0	10	0.0000000	0.0000018
26	ST4.03ch10pos52004940.1	8	55363311.0	10	0.0000000	0.0000018
2	ST4.03ch01pos24135132.1	27	52323238.0	10	0.0000001	0.0000020
27	ST4.03ch11pos3129502.1	31	34548063.0	12	0.0000001	0.0000027
5	ST4.03ch01pos53094258.1	36	54295240.0	10	0.0000001	0.0000029
6	ST4.03ch01pos53094259.1	37	44342669.0	11	0.0000001	0.0000030
3	ST4.03ch01pos28299633.1	49	44484478.0	11	0.0000002	0.0000033
13	ST4.03ch04pos34994900.1	51	29671070.0	12	0.0000002	0.0000033
14	ST4.03ch04pos34994901.1	52	26290481.0	10	0.0000002	0.0000033
18	ST4.03ch06pos8156659.1	45	46660920.0	11	0.0000002	0.0000033
19	ST4.03ch06pos8156687.1	46	42733249.0	11	0.0000002	0.0000033
21	ST4.03ch06pos8156696.1	48	51477462.0	9	0.0000002	0.0000033
33	ST4.03ch12pos24259182.1	43	15351869.0	10	0.0000002	0.0000033
15	ST4.03ch04pos34994967.1	53	56616369.0	12	0.0000002	0.0000034
4	ST4.03ch01pos41189272.1	59	22203376.0	12	0.0000002	0.0000034
8	ST4.03ch02pos48517142.1	65	54295245.0	10	0.0000003	0.0000034
10	ST4.03ch02pos48517205.1	66	45060384.0	10	0.0000003	0.0000034
28	ST4.03ch11pos33265607.1	76	25089314.0	12	0.0000003	0.0000034
29	ST4.03ch11pos40000556.1	73	431126.1	11	0.0000003	0.0000034
30	ST4.03ch11pos40000591.1	85	50508087.0	12	0.0000004	0.0000040
32	ST4.03ch11pos9222771.1	98	57788618.0	10	0.0000005	0.0000045
9	ST4.03ch02pos48517152.1	106	43513210.0	11	0.0000006	0.0000045
1	ST4.03ch01pos24135105.1	117	44111015.0	10	0.0000006	0.0000046
23	ST4.03ch08pos51824077.1	122	66515441.0	9	0.0000007	0.0000047
24	ST4.03ch08pos51824105.1	123	50940044.0	10	0.0000007	0.0000047
16	ST4.03ch06pos34132353.1	139	56559559.0	12	0.0000008	0.0000053
22	ST4.03ch08pos51824048.1	141	58099220.0	9	0.0000008	0.0000053
31	ST4.03ch11pos8968223.1	144	41098771.0	10	0.0000009	0.0000054
12	ST4.03ch03pos47396847.1	150	63461516.0	9	0.0000009	0.0000055
11	ST4.03ch03pos47396782.1	809	20513613.0	11	0.0001061	0.0001177

## 1.2 Tablas SNPs Simulaciones

### 1.2.1 Simulación 1

SNP	ET_Pval	OT_Pval	AT_Pval_min
7	0.007692	2.61E-13	4.43E-12
4	0.008638	4.64E-11	7.91E-12
5	0.009506	4.3E-11	1.28E-11
6	0.010021	5.91E-11	1.66E-11
8	0.012596	1.04E-10	5.22E-11
9	0.014671	4.22E-10	1.12E-10
10	0.015217	3.77E-10	1.34E-10
11	0.016062	7.87E-10	1.76E-10
12	0.016865	6.37E-10	2.24E-10
13	0.018846	9.68E-10	3.91E-10
3	0.022003	3.47E-08	8.49E-10
2	0.022498	4.37E-08	9.48E-10
1	0.02416	8.44E-08	1.35E-09

### 1.2.2 Simulación 2

SNP	ET_Pval	OT_Pval	AT_Pval_min
7	0.007183	4.71E-11	3.15E-12
6	0.007484	7.76E-11	3.86E-12
9	0.007913	9.01E-11	5.1E-12
10	0.008533	9.32E-11	7.44E-12
14	0.011008	3.42E-10	2.66E-11
12	0.011199	9.99E-10	2.9E-11
11	0.011525	8.78E-10	3.35E-11
8	0.011537	2.06E-09	3.36E-11
13	0.012045	9.44E-10	4.17E-11
16	0.012388	1.21E-09	4.8E-11
17	0.013904	1.96E-09	8.55E-11
15	0.014333	3.17E-09	9.95E-11
19	0.014492	2.91E-09	1.05E-10
18	0.014548	2.07E-09	1.07E-10
20	0.015324	2.42E-09	1.39E-10
2	0.017019	3.01E-08	2.35E-10
1	0.017089	2.99E-08	2.4E-10
5	0.01732	3.45E-08	2.56E-10
3	0.01758	4.01E-08	2.76E-10
4	0.017682	3.9E-08	2.84E-10

### 1.2.3 Simulación 3

SNP	ET_Pval	OT_Pval	AT_Pval_min
10	0.010652	6.8E-10	2.26E-11
11	0.011633	1.34E-09	3.5E-11
8	0.011802	2.09E-09	3.77E-11
17	0.012573	1.48E-09	5.17E-11
14	0.012736	1.85E-09	5.51E-11
9	0.012812	2.96E-09	5.68E-11
18	0.013723	3.24E-09	8.01E-11
15	0.01415	5.2E-09	9.33E-11
19	0.014206	3.23E-09	9.52E-11
12	0.014808	7.93E-09	1.17E-10
22	0.015749	7.28E-09	1.59E-10
20	0.015878	8.04E-09	1.66E-10
2	0.016611	2.25E-08	2.08E-10
13	0.016738	1.74E-08	2.16E-10
23	0.017682	1.53E-08	2.84E-10
16	0.018347	2.71E-08	3.42E-10
21	0.018684	2.42E-08	3.75E-10
24	0.018695	1.57E-08	3.76E-10
25	0.018832	1.77E-08	3.9E-10
26	0.018912	1.84E-08	3.98E-10
27	0.019825	2.29E-08	5.04E-10
1	0.019885	6.76E-08	5.12E-10
7	0.020658	8.22E-08	6.19E-10
3	0.021323	7.86E-08	7.25E-10
4	0.021932	1.11E-07	8.35E-10
6	0.022333	1.33E-07	9.14E-10
5	0.022584	1.32E-07	9.67E-10



#### 1.2.4 Simulación 4

SNP	ET_Pval	OT_Pval	AT_Pval_min
15	0.01097	2.99E-10	2.61E-11
11	0.01561	4.92E-09	1.52E-10
10	0.016939	7.79E-09	2.29E-10
14	0.017148	8.3E-09	2.44E-10
12	0.025607	1.47E-07	1.81E-09
20	0.026723	1.52E-07	2.24E-09
16	0.027568	1.91E-07	2.62E-09
18	0.028726	2.3E-07	3.22E-09
17	0.028932	2.82E-07	3.34E-09
30	0.02935	2.06E-07	3.59E-09
19	0.02974	3.1E-07	3.83E-09
33	0.030238	2.17E-07	4.16E-09
24	0.030373	3.06E-07	4.26E-09
25	0.03067	3.51E-07	4.47E-09
13	0.030996	4.66E-07	4.71E-09
29	0.031144	3.09E-07	4.82E-09
27	0.031356	3.54E-07	4.99E-09

SNP	ET_Pval	OT_Pval	AT_Pval_min
28	0.03157	3.66E-07	5.16E-09
32	0.031898	3.42E-07	5.44E-09
6	0.031931	5.9E-07	5.46E-09
31	0.031952	3.39E-07	5.48E-09
34	0.03219	3.34E-07	5.69E-09
21	0.032505	5.28E-07	5.97E-09
3	0.032506	6.81E-07	5.97E-09
26	0.032843	4.88E-07	6.29E-09
22	0.0334	6.17E-07	6.84E-09
8	0.033948	8.72E-07	7.42E-09
23	0.035369	8.92E-07	9.11E-09
4	0.035702	1.17E-06	9.55E-09
9	0.039442	1.83E-06	1.57E-08
7	0.039645	2.22E-06	1.61E-08
1	0.040371	2.5E-06	1.77E-08
2	0.048175	7.59E-06	4.28E-08
5	0.048259	8.08E-06	4.31E-08

### 1.2.5 Simulación 5

SNP	ET_Pval	OT_Pval	AT_Pval_min	SNP	ET_Pval	OT_Pval	AT_Pval_min
20	0.00063	1.72E-15	1.62635E-17	50	0.327274	0.277419	0.000671311
21	0.000696	7.91E-16	2.69142E-17	39	0.331086	0.292123	0.000712781
22	0.007738	5.08E-10	4.56439E-12	25	0.333322	0.30144	0.000738065
19	0.022245	5.82E-08	8.96278E-10	38	0.334091	0.302082	0.000746923
17	0.03502	1.05E-06	8.67191E-09	13	0.336746	0.314093	0.000778208
26	0.045186	7.76E-06	3.10322E-08	36	0.349803	0.356551	0.000948173
15	0.051923	1.19E-05	6.22033E-08	44	0.358346	0.385229	0.001075097
28	0.069603	6.76E-05	2.69695E-07	35	0.359106	0.389621	0.001087027
27	0.079906	0.000157	5.38439E-07	51	0.359605	0.388465	0.001094927
40	0.100962	0.000604	1.73884E-06	10	0.36659	0.420522	0.001210545
24	0.10502	0.000797	2.11889E-06	49	0.36753	0.417789	0.001226858
52	0.12509	0.002049	5.09775E-06	46	0.375145	0.446151	0.001365729
33	0.156163	0.007638	1.55607E-05	30	0.40219	0.549798	0.00196881
47	0.160731	0.008681	1.79936E-05	41	0.405754	0.560861	0.002062626
43	0.191957	0.023091	4.40853E-05	11	0.411717	0.586158	0.002227952
23	0.238282	0.070818	0.00013196	37	0.418352	0.607284	0.002424761
34	0.257389	0.101209	0.000195502	3	0.433765	0.663358	0.002938666
48	0.269974	0.124289	0.000249504	31	0.442103	0.689683	0.003252791
45	0.291423	0.17443	0.000369183	32	0.44338	0.693978	0.003303299
29	0.293779	0.182472	0.000384767	6	0.499288	0.848904	0.006270473
4	0.298817	0.197165	0.000419913	1	0.504042	0.859079	0.006603586
5	0.306497	0.218978	0.0004785	9	0.508055	0.867659	0.006896493
16	0.310947	0.232088	0.000515396	18	0.508232	0.867953	0.006909687
53	0.313017	0.232226	0.000533335	14	0.528055	0.904074	0.008528365
54	0.313156	0.232607	0.000534556	2	0.530859	0.908566	0.008781803
42	0.314062	0.237924	0.000542579	7	0.570017	0.956338	0.013067812
8	0.322675	0.267982	0.000623936	12	0.596651	0.97592	0.016939282

### 1.2.6 Simulación 6

SNP	ET_Pval	OT_Pval	AT_Pval_min
13	0.010681	7.26E-10	2.28652E-11
26	0.015217	6.85E-09	1.34239E-10
34	0.015555	7.58E-09	1.49801E-10
23	0.016441	1.15E-08	1.97616E-10
14	0.017089	1.52E-08	2.39778E-10
19	0.017484	1.75E-08	2.68807E-10
54	0.017539	1.49E-08	2.73104E-10
22	0.017605	1.81E-08	2.78277E-10
49	0.017902	1.77E-08	3.02542E-10
46	0.017989	1.88E-08	3.09909E-10
32	0.0183	2.26E-08	3.37723E-10
18	0.018547	2.51E-08	3.61088E-10
28	0.018931	2.79E-08	4.0002E-10
55	0.019476	2.99E-08	4.61089E-10
44	0.019513	3.12E-08	4.65446E-10
27	0.01958	3.5E-08	4.7352E-10
37	0.019843	3.73E-08	5.06198E-10
39	0.020004	3.81E-08	5.27096E-10
58	0.020522	4.21E-08	5.98889E-10
57	0.020608	4.26E-08	6.11658E-10
33	0.020653	4.72E-08	6.18352E-10
15	0.020736	5.24E-08	6.30865E-10
11	0.020967	5.69E-08	6.66755E-10
31	0.021368	5.87E-08	7.33062E-10
48	0.021582	6.07E-08	7.70488E-10
21	0.021941	7.22E-08	8.36679E-10
35	0.022119	7.22E-08	8.71208E-10
47	0.022194	7.09E-08	8.86114E-10
17	0.022389	8.33E-08	9.25702E-10
29	0.022703	8.65E-08	9.92433E-10
52	0.022757	8.08E-08	1.00434E-09
12	0.02278	9.22E-08	1.00939E-09
40	0.023045	9.44E-08	1.06967E-09
36	0.023051	9.41E-08	1.07104E-09
43	0.023259	9.71E-08	1.12012E-09
42	0.023506	1.03E-07	1.1808E-09
59	0.023734	1.04E-07	1.23935E-09
38	0.023987	1.2E-07	1.30683E-09
69	0.02423	1.13E-07	1.37443E-09
24	0.024441	1.41E-07	1.43528E-09
16	0.02446	1.46E-07	1.44097E-09
41	0.024523	1.36E-07	1.45967E-09
64	0.024563	1.27E-07	1.47153E-09
45	0.024862	1.47E-07	1.56324E-09
75	0.024923	1.34E-07	1.58249E-09
20	0.024946	1.61E-07	1.58988E-09
60	0.025114	1.5E-07	1.64418E-09
30	0.025123	1.64E-07	1.647E-09
56	0.025361	1.59E-07	1.72664E-09
61	0.025484	1.63E-07	1.76896E-09

SNP	ET_Pval	OT_Pval	AT_Pval_min
65	0.025526	1.62E-07	1.78362E-09
51	0.026004	1.93E-07	1.95678E-09
25	0.026112	2.13E-07	1.99802E-09
78	0.026243	1.86E-07	2.04837E-09
84	0.026744	2E-07	2.25156E-09
86	0.026887	2.05E-07	2.31267E-09
53	0.027041	2.45E-07	2.3794E-09
50	0.027176	2.56E-07	2.43943E-09
88	0.027659	2.45E-07	2.66446E-09
62	0.027664	2.76E-07	2.66651E-09
95	0.027715	2.41E-07	2.69134E-09
70	0.028013	2.89E-07	2.83912E-09
74	0.028175	2.98E-07	2.92241E-09
99	0.028189	2.61E-07	2.92965E-09
83	0.028241	2.87E-07	2.95674E-09
96	0.028367	2.75E-07	3.02331E-09
91	0.028368	2.86E-07	3.02405E-09
67	0.028448	3.22E-07	3.06652E-09
71	0.028512	3.19E-07	3.10126E-09
76	0.028596	3.23E-07	3.14742E-09
63	0.028711	3.47E-07	3.21112E-09
85	0.028781	3.2E-07	3.25038E-09
81	0.028878	3.33E-07	3.30575E-09
82	0.028964	3.39E-07	3.35516E-09
98	0.029072	3.2E-07	3.41846E-09
94	0.029147	3.32E-07	3.46253E-09
89	0.029155	3.43E-07	3.46725E-09
90	0.029243	3.46E-07	3.51978E-09
72	0.029345	3.82E-07	3.58204E-09
80	0.029393	3.76E-07	3.61136E-09
77	0.029429	3.85E-07	3.63353E-09
93	0.029589	3.69E-07	3.73323E-09
97	0.029634	3.7E-07	3.76185E-09
100	0.029696	3.62E-07	3.80131E-09
92	0.029745	3.83E-07	3.83276E-09
79	0.029907	4.25E-07	3.9381E-09
87	0.030106	4.29E-07	4.07107E-09
73	0.030689	5.09E-07	4.48071E-09
68	0.030872	5.41E-07	4.61637E-09
1	0.030965	6.26E-07	4.68595E-09
66	0.031539	6.21E-07	5.1368E-09
10	0.033273	9.62E-07	6.71395E-09
9	0.035228	1.37E-06	8.93265E-09
7	0.035994	1.55E-06	9.94707E-09
4	0.036496	1.62E-06	1.06612E-08
5	0.038338	2.35E-06	1.36394E-08
3	0.038359	2.36E-06	1.36761E-08
8	0.038625	2.43E-06	1.41579E-08
6	0.040619	3.28E-06	1.82102E-08
2	0.042064	4.17E-06	2.16903E-08

## 1.2.7 Simulación 7

SNP	ET_Pval	OT_Pval	AT_Pval_min	SNP	ET_Pval	OT_Pval	AT_Pval_min	SNP	ET_Pval	OT_Pval	AT_Pval_min
79	0.00585	6.29E-12	1.13E-12	100	0.207469	0.031515	6.53E-05	70	0.331136	0.270369	0.000713
37	0.017191	2.21E-08	2.47E-10	74	0.209307	0.033152	6.83E-05	135	0.333123	0.27492	0.000736
119	0.021673	9.73E-08	7.87E-10	51	0.209849	0.03372	6.92E-05	151	0.33357	0.275826	0.000741
91	0.021731	9.4E-08	7.97E-10	73	0.212365	0.035697	7.35E-05	134	0.334562	0.27953	0.000752
67	0.027745	3.61E-07	2.71E-09	48	0.214038	0.037302	7.65E-05	148	0.335678	0.28256	0.000766
45	0.030183	3.95E-07	4.12E-09	149	0.218339	0.04043	8.46E-05	46	0.338797	0.295125	0.000803
96	0.033762	7.29E-07	7.22E-09	117	0.226192	0.048734	0.000101	64	0.341711	0.304342	0.00084
97	0.036569	1.84E-06	1.08E-08	146	0.226637	0.048876	0.000102	10	0.34188	0.305912	0.000842
44	0.037123	1.4E-06	1.16E-08	144	0.227431	0.049775	0.000104	110	0.347831	0.323551	0.000921
40	0.038719	1.82E-06	1.43E-08	20	0.231976	0.056025	0.000115	137	0.348814	0.32592	0.000934
68	0.039776	2.08E-06	1.64E-08	138	0.239531	0.064403	0.000136	136	0.349043	0.326644	0.000938
94	0.040108	2.13E-06	1.71E-08	85	0.24022	0.066006	0.000138	147	0.354051	0.343326	0.00101
42	0.041348	2.7E-06	1.99E-08	84	0.241091	0.067213	0.00014	145	0.355126	0.347048	0.001026
50	0.050469	1.14E-05	5.4E-08	83	0.243786	0.070805	0.000148	133	0.355463	0.348635	0.001031
54	0.061657	3.69E-05	1.47E-07	80	0.250257	0.08043	0.000169	121	0.357885	0.35738	0.001068
82	0.06873	5.72E-05	2.53E-07	130	0.252843	0.083716	0.000179	143	0.357938	0.356775	0.001069
52	0.079775	0.000142	5.34E-07	34	0.253479	0.085885	0.000181	129	0.360128	0.36486	0.001103
26	0.081339	0.000161	5.89E-07	33	0.257882	0.093136	0.000197	154	0.361995	0.370483	0.001133
24	0.089921	0.000292	9.73E-07	2	0.258358	0.094128	0.000199	153	0.362734	0.373018	0.001146
98	0.094441	0.000377	1.24E-06	55	0.259383	0.095437	0.000203	132	0.368675	0.394808	0.001247
69	0.101404	0.000581	1.78E-06	53	0.261536	0.0992	0.000212	112	0.370049	0.400355	0.001271
93	0.103276	0.00064	1.95E-06	76	0.264316	0.103962	0.000224	7	0.370976	0.405865	0.001288
19	0.10462	0.000711	2.08E-06	124	0.266759	0.107681	0.000235	120	0.373522	0.412523	0.001335
118	0.108437	0.000843	2.49E-06	32	0.268128	0.111624	0.000241	139	0.381661	0.441235	0.001495
18	0.109677	0.000936	2.63E-06	28	0.269015	0.113321	0.000245	111	0.384826	0.45377	0.001561
140	0.122156	0.001661	4.52E-06	72	0.269386	0.11344	0.000247	125	0.388562	0.466892	0.001642
58	0.123548	0.001836	4.79E-06	95	0.27008	0.114372	0.00025	86	0.389471	0.471225	0.001662
60	0.125045	0.001966	5.09E-06	150	0.272591	0.118298	0.000262	102	0.390658	0.475317	0.001689
56	0.133075	0.002813	6.96E-06	29	0.273564	0.122096	0.000267	103	0.391663	0.478869	0.001712
81	0.133897	0.002886	7.18E-06	114	0.285456	0.146249	0.000332	108	0.392506	0.481882	0.001732
105	0.138033	0.003405	8.36E-06	115	0.287818	0.151613	0.000346	107	0.3937	0.486232	0.00176
78	0.141114	0.003895	9.34E-06	141	0.288642	0.15288	0.000351	65	0.393817	0.487777	0.001762
27	0.142912	0.004238	9.96E-06	113	0.290029	0.156784	0.00036	23	0.404372	0.526964	0.002026
126	0.152931	0.006021	1.4E-05	63	0.290581	0.158947	0.000364	92	0.408067	0.538776	0.002125
71	0.156123	0.006873	1.55E-05	62	0.293811	0.166621	0.000385	90	0.41337	0.558118	0.002276
43	0.162148	0.008525	1.88E-05	109	0.296108	0.1715	0.000401	1	0.414682	0.564204	0.002314
22	0.163105	0.008848	1.94E-05	21	0.297527	0.176451	0.000411	38	0.414712	0.564086	0.002315
66	0.173223	0.012159	2.62E-05	61	0.298528	0.178414	0.000418	13	0.435332	0.6371	0.002996
116	0.173915	0.01229	2.68E-05	152	0.307041	0.198407	0.000483	49	0.437314	0.643047	0.003069
88	0.174886	0.012757	2.75E-05	104	0.307849	0.201874	0.000489	57	0.462473	0.724285	0.004141
142	0.175232	0.012684	2.78E-05	17	0.311057	0.212252	0.000516	6	0.465923	0.73524	0.00431
89	0.176695	0.013483	2.9E-05	128	0.311615	0.211556	0.000521	47	0.483934	0.785895	0.005291
87	0.177219	0.013709	2.94E-05	77	0.313011	0.216614	0.000533	25	0.505269	0.838858	0.006692
41	0.177438	0.013955	2.96E-05	101	0.31374	0.218121	0.00054	11	0.50961	0.848491	0.007013
39	0.17999	0.015051	3.18E-05	99	0.315736	0.2238	0.000558	9	0.512945	0.855768	0.007268
16	0.182807	0.016446	3.44E-05	123	0.318287	0.230647	0.000581	4	0.544487	0.912417	0.010108
36	0.185432	0.017684	3.7E-05	75	0.320275	0.237435	0.0006	12	0.553658	0.925403	0.011096
59	0.186932	0.018371	3.86E-05	122	0.320396	0.236797	0.000602	14	0.564023	0.938475	0.012312
106	0.189794	0.019732	4.16E-05	31	0.322869	0.24595	0.000626	5	0.57855	0.953677	0.014213
35	0.192574	0.02158	4.48E-05	30	0.324545	0.250981	0.000643	8	0.581336	0.956276	0.014606
131	0.201252	0.026702	5.6E-05	155	0.326419	0.253511	0.000662	15	0.632392	0.98668	0.023721
127	0.207313	0.031179	6.51E-05	3	0.330254	0.268738	0.000704				