

Supplemental Table S1. Known genes in the vicinity of significant SNP, di-SNP, and haplotype variants for six flowering traits in Arabidopsis.

No.	Trait	Chr	Position (bp)	P-Value	Comparative Genomics Analysis			Methods			
					Known gene ^{Ref.}	Position (bp)	Function	SNP	di-SNP	Haplotype	Rainbowr
1	DFLD	2	9588685	1.27E-08	SVP ^[1]	9579647-9583901	represses the floral transition	✓			
2	DFLD	2	9584747-9588685	5.48E-08					✓		✓
3	DFLD	2	9588685-9593797	1.75E-07					✓		✓
4	DFLD	2	9611587	2.60E-06	AGL1 ^[2]	9618207-9622163	promotes flowering through regulation of LFY and AP1	✓			
5	DFLD	2	13174436-13181453	4.90E-07						✓	
6	DFLD	2	13224689-13226944	3.93E-07						✓	✓
7	DFLD	3	15980134-15980679	1.13E-06						✓	✓
8	DFLD	3	15980634-15980679	2.83E-06					✓		
9	DFLD	4	429928	2.50E-06	JMJ27 ^[3]	426873-431862	negatively regulates CONSTANS (CO) and positively regulates FLOWERING LOCUS C (FLC)	✓			
10	DFLD	4	429577-429928	2.56E-06					✓		
11	DFLD	4	467333-467605	9.68E-07					✓		✓
12	DFLD	4	15851552-15855462	1.39E-06						✓	
13	DFLD	5	3188328	2.39E-06	FLC ^[4]	3173382-3179448	represses flowering in Arabidopsis	✓			
14	DFLD	5	13926035-13926164	8.89E-07	SAP ^[5]	13936086-13940867	regulates flower and ovule development		✓		
15	DFLD	5	13925610-13926164	8.84E-07						✓	✓
16	DFLD	5	13926035-13926313	8.81E-07						✓	✓
17	DFLD	5	18598041-18598318	2.33E-06					✓		
18	DFLD	5	18598041-18598502	2.33E-06						✓	
19	DFLD	5	25403785-25407568	1.58E-06	NF-YC4 ^[6]	25415600-25417199	is required for flowering and CONSTANS (CO)-mediated floral promotion			✓	✓
20	DFLD	5	25404804-25407568	1.60E-06						✓	✓
21	DFLD	5	25407115- 25407568	9.17E-08						✓	✓
22	DFLD	5	25407115-25407900	2.61E-07						✓	✓
23	DFLD	5	25407115-25408110	2.82E-06						✓	✓
24	DFLD	5	25407343-25407568	1.71E-06					✓		
25	LDV	2	18446546	5.49E-07				✓			
26	LDV	5	18592641-18593316	7.34E-07						✓	✓

27	LDV	5	18593316-18594934	1.62E-07						✓	✓
28	LDV	5	18596860-18598318	5.23E-07						✓	
29	LDV	5	18597614-18598318	1.55E-07						✓	✓
30	LDV	5	18598041-18598318	3.09E-08					✓		✓
31	LDV	5	18598041-18598502	3.09E-08						✓	✓
32	LDV	5	18598502-18599415	2.63E-07						✓	✓
33	LDV	5	18599929	1.39E-06				✓			
34	LDV	5	25288717-25290046	1.04E-07					✓		✓
35	LDV	5	25290046-25290159	4.97E-07					✓		✓
36	LDV	5	25290046	1.15E-06				✓			
37	SD	3	18928401-18929057	5.21E-07	<i>GATA18</i> ^[7]	18910947-18912608	regulates shoot apical meristem and flower development			✓	
38	SD	4	153402	3.30E-07				✓			
39	SD	4	153402-153459	3.80E-07					✓		✓
40	SD	4	153402-154217	9.32E-07						✓	✓
41	SD	4	8870274-8872026	1.39E-06						✓	✓
42	SD	4	15713231-15714051	2.95E-06	<i>LEUNIG</i> ^[8]	15707481-15713662	acts as a putative transcriptional corepressor regulating AGAMOUS expression during flower development			✓	
43	SD	5	18598041-18598318	2.04E-06					✓		
44	SD	5	18598041-18598502	2.04E-06						✓	
45	OW	4	429928	1.29E-06	<i>JMJ27</i> ^[3]	426873-431862	negatively regulates CONSTANS (CO) and positively regulates FLOWERING LOCUS C (FLC)	✓			
46	OW	4	428659-429928	2.24E-06						✓	
47	OW	4	429123-429928	1.54E-06						✓	
48	OW	4	429577-429928	1.44E-06						✓	
49	OW	4	429577-430938	3.04E-06						✓	
50	OW	4	1221048-1221378	3.07E-06					✓		
51	OW	4	1221048-1221391	3.07E-06						✓	
52	OW	4	1330405-1330749	1.49E-06						✓	
53	OW	4	1330405-1330863	1.49E-06						✓	✓
54	OW	4	1332441-1335627	2.11E-06						✓	
55	2W	1	3978063	2.12E-06				✓			
56	2W	1	3978063-3981816	2.36E-06						✓	✓

57	2W	2	13866464-13868411	1.55E-06	<i>LUH</i> ^[9]	13866772-13872157	has unique and overlapping functions with LUG and is required for proper embryo and flower development			✓	
58	2W	2	13869948-13874955	1.77E-07						✓	
59	2W	2	13912761-13912889	2.05E-07					✓		✓
60	2W	2	13912889-13912903	3.63E-07					✓		✓
61	2W	2	13912889	1.21E-07				✓			
62	2W	5	6651504-6653495	2.76E-06						✓	
63	2W	5	6652826-6653495	1.99E-06						✓	
64	4W	1	3978063	7.62E-07				✓			
65	4W	1	3977298-3978063	2.77E-06					✓		✓
66	4W	2	9584747-9588685	1.61E-07	<i>SVP</i> ^[1]	9579647-9583901	represses the floral transition		✓		✓
67	4W	2	9588685-9593797	5.49E-07					✓		✓
68	4W	2	9588685	1.03E-07				✓			
69	4W	2	13865768-13868411	6.95E-07	<i>LUH</i> ^[9]	13866772-13872157	has unique and overlapping functions with LUG and is required for proper embryo and flower development			✓	
70	4W	2	13866464-13868411	5.77E-07						✓	
71	4W	3	10855475	2.67E-06				✓			
72	4W	4	6103007-6107363	1.43E-06						✓	
73	4W	5	13924546-13926035	2.91E-07	<i>SAP</i> ^[5]	13936086-13940867	regulates flower and ovule development			✓	✓
74	4W	5	13924546-13926164	5.08E-07						✓	✓
75	4W	5	18593034-18594934	2.00E-06						✓	
76	4W	5	18593316-18595015	9.37E-07						✓	✓
77	4W	5	18597614-18598318	5.39E-07						✓	✓
78	4W	5	18598041-18598318	1.07E-07					✓		✓
79	4W	5	18598041-18598502	1.07E-07						✓	✓

Ref.: denoted as reference

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