



Figure S1 Genetic lengths of linkage groups and numbers of genic markers.

Gene *E523*

Plant ID	X or Y	Population	Sites of SNPs or Indels														
			101	2	2	3	3	3	4	4	5	6	6	6	7	7	
			4	—	1	3	0	3	4	2	9	2	1	5	6	1	7
			3	149	1	0	8	3	5	9	4	9	1	4	6	2	8
1	X	Sweden	G	absent	G	G	A	C	C	A	G	G	T	C	T	C	A
	Y		C	Present	A	A	T	T	G	G	C	T	T	T	G	C	T
2	X	Greece	G	absent	G	G	A	C	C	A	C	—	T	C	T	C	A
	Y		C	Present	A	A	T	T	G	G	C	T	T	C	G	C	T
3	X	Denmark	G	absent	G	G	A	C	C	A	C	G	T	C	T	C	A
	Y		C	Present	A	A	T	T	G	G	C	T	T	T	G	C	T
4	X	Austria	G	absent	G	G	A	C	C	A	C	G	T	C	T	C	A
	Y		C	Present	A	A	T	T	G	G	C	T	T	T	G	C	T
5	X	Norway	G	absent	G	G	A	C	C	A	G	G	T	C	T	C	A
	Y		C	Present	A	A	T	T	G	G	C	T	T	T	G	C	T
6	X	Greece, Evrou	G	absent	G	G	A	C	C	A	C	—	T	C	T	C	A
	Y		C	Present	A	A	T	T	G	G	C	T	T	C	G	C	T
7	X	Italy	G	absent	G	G	A	C	C	A	C	G	T	C	T	C	A
	Y		C	Present	A	A	T	T	G	G	C	T	T	C	G	C	T
8	X	Italy	G	absent	G	G	A	C	C	A	C	—	T	C	T	C	A
	Y		C	Present	A	A	T	T	G	G	C	T	T	T	G	C	T
9	X	Estonia	G	absent	G	G	A	C	C	A	C	—	T	C	T	C	A
	Y		C	Present	A	A	T	T	G	G	C	T	T	C	G	C	T
10	X	Portugal	G	absent	G	G	A	C	C	A	C	—	T	C	T	C	A
	Y		C	Present	A	A	T	T	G	G	C	T	T	C	G	C	T
11	X	Netherlands	G	absent	G	G	A	C	C	A	G	G	T	C	T	C	A
	Y		C	Present	A	A	T	T	G	G	C	T	T	T	G	C	T
12	X	France	G	absent	G	G	A	C	G	A	C	G	C	C	T	A	A
	Y		C	Present	A	A	T	T	G	G	C	T	T	C	G	C	T
13	X	UK	G	absent	G	G	A	C	C	A	C	—	T	C	T	C	A
	Y		C	Present	A	A	T	T	G	G	C	T	T	C	G	C	T
14	X	Spain	G	absent	G	G	A	C	C	A	C	—	T	C	T	C	A
	Y		C	Present	A	A	T	T	G	G	C	T	T	C	G	C	T
15	X	Spain	G	absent	G	G	A	C	C	A	C	—	T	C	T	C	A
	Y		C	Present	A	A	T	T	G	G	C	T	T	C	G	C	T
16	X	Germany	G	Present	G	G	A	C	G	A	C	G	C	C	T	A	A
	Y		C	Present	A	A	T	T	G	G	C	T	T	T	G	C	T

↑

The Y state is found in one X

↑

The Y state is found in 2 Xs

↑

Polymorphism exclusive to the Y

Figure S2 Variants in the Y- and X-linked haplotypes of the *E559* (part A of the figure) and *E523* (part B of the figure) genes.

Table S1 The mapping family and three other families used to score genotypes of autosomal genes, putative PAR genes and sex-linked genes, and to estimate recombination fractions. One *S. vulgaris* family was used for comparative mapping.

Family	Parental plants			
	Identity of ♀ parent	Population of origin	Identity of pollen donor	Population of origin
H2005-1 (F2 family) (the “mapping family”) ¹	H2005-1/9 ²	F1	H2005-1/4	F1
G2008-3	K2005-12/2	Germany	K2005-4/2	Heiligenstadt, Austria
D2009-2			G2005-5/1	Loanninon, Greece
G2008-9	K2005-4/3	Heiligenstadt, Austria	K2005-5B/1	Oland, Grasingard Sweden
J2010-1 (F2 family)	Family F2009-1 female plant	F1 ³	Family F2009-1 male plant	F1 (as for female parent)
<i>S. vulgaris</i> SV2	E2000-5/9 (female)	Dijon, France	99K-10/4 (hermaphrodite)	Sussex, England

¹ The mapping family is an F2 generated by crossing sibling plants descended from an F1 cross (family H2005-1) made by pollinating plant E2004-11/1 from Canche (Northern France) with E2004-17/1 (from River Waal, Netherlands). The other families from this study were obtained by crossing adult plants obtained from field-collected seeds.

² Identity of plants within families are indicated by the family name followed by the individual number (e.g. H2005-1/9 is individual 9 from family H2005-1).

³ Female from the mapping family H2005-1 x male 11/5 from Madrid.

Table S2 List of genes mapped to the 10 *S. latifolia* autosomes (denoted by LG1 to LG11) and sex chromosomes (LG12 and LG13). GenBank accession numbers are listed for sequences from Sanger sequencing of *S. latifolia* cDNA clones, and those for sequences from 454 sequencing and RNA-Seq are in the Transcriptome Shotgun Assembly (TSA) Database at DDBJ/EMBL/GenBank under the accession number GAKC00000000. The version described in this paper is the first version, GAKC01000000. Individual gene sequences are visible under this accession number. Three sequences of less than 200 bp are not in database (see below); primers and these sequences are available from the authors on request.

Contig name	Source	Accession numbers of putative <i>A. thaliana</i> orthologues	<i>S. latifolia</i> linkage group	<i>S. latifolia</i> GenBank accession numbers
Autosomal genes				
<i>E72</i>	cDNA clone	AT1G02150	LG1	KF034810
<i>E246</i>	454 sequencing	AT5G19485	LG1	
<i>E269</i>	454 sequencing	AT1G36980	LG1	
<i>E271</i>	454 sequencing	AT2G30410	LG1	
<i>E310</i>	454 sequencing	AT3G11945	LG1	
<i>E312</i>	454 sequencing	AT3G51130	LG1	
<i>E522</i>	454 sequencing	AT4G17600	LG1	
<i>E546</i>	454 sequencing	AT3G51240	LG1	
<i>E561</i>	454 sequencing	AT4G08150	LG1	
<i>E568</i>	454 sequencing	AT2G35920	LG1	
<i>E599</i>	454 sequencing	AT4G10140	LG1	
<i>RB9</i>	cDNA clone	AT1G36980	LG1	KF034808
<i>2A10</i>	cDNA clone	AT1G03900	LG2	KF034809
<i>E98</i>	cDNA clone	AT4G10930	LG2	KF034811

<i>E154</i>	454 sequencing	AT2G33040	LG2	
<i>E221</i>	454 sequencing	AT4G17050	LG2	
<i>E253</i>	454 sequencing	AT4G02030	LG2	
<i>E277</i>	454 sequencing	AT3G27180	LG2	
<i>E380</i>	454 sequencing	AT4G02220	LG2	
<i>E515</i>	454 sequencing	AT4G17830	LG2	
<i>E565</i>	454 sequencing	AT4G01100	LG2	
<i>E585</i>	454 sequencing	AT1G80920	LG2	
<i>E603</i>	454 sequencing	AT1G71270	LG2	
<i>1H12</i>	cDNA clone	AT4G37930	LG3	KF034813
<i>E39</i>	cDNA clone	AT5G56090	LG3	KF034812
<i>E166</i>	454 sequencing	AT2G39080	LG3	
<i>E261</i>	454 sequencing	AT4G14570	LG3	
<i>E285</i>	454 sequencing	AT5G14140	LG3	
<i>E304</i>	454 sequencing	AT5G13420	LG3	
<i>E363</i>	454 sequencing	AT3G52040	LG3	
<i>E503</i>	454 sequencing	AT1G67060	LG3	
<i>E569</i>	454 sequencing	AT5G14420	LG3	
<i>E574</i>	454 sequencing	AT3G04240	LG3	
<i>E278</i>	454 sequencing	AT1G04080	LG4	
<i>E517</i>	454 sequencing	AT2G40730	LG4	

<i>E532</i>	454 sequencing	AT5G01990	LG4	
<i>E536</i>	454 sequencing	AT1G03250	LG4	
<i>E578</i>	454 sequencing	AT3G48425	LG4	
<i>E354</i>	454 sequencing	AT2G39990	LG4	
<i>2C10</i>	cDNA clone	AT3G55440	LG4	KF034815
<i>RB14</i>	cDNA clone	AT3G46430	LG4	KF034814
<i>E106</i>	cDNA clone	AT2G05170	LG5	KF034816
<i>E155</i>	454 sequencing	AT3G10300	LG5	
<i>E218</i>	454 sequencing	AT1G16210	LG5	
<i>E227</i>	454 sequencing	AT4G33210	LG5	
<i>E359</i>	454 sequencing	AT4G35250	LG5	
<i>E554</i>	454 sequencing	AT5G22830	LG5	
<i>E587</i>	454 sequencing	AT3G18940	LG5	
<i>E634</i>	454 sequencing	AT3G55440	LG5	
<i>E645</i>	454 sequencing	AT2G25737	LG5	
<i>E224</i>	454 sequencing	AT4G13430	LG6	
<i>E231</i>	454 sequencing	AT5G27560	LG6	
<i>E233</i>	454 sequencing	AT5G63620	LG6	
<i>E261b</i>	454 sequencing	AT4G14570	LG6	
<i>E341</i>	454 sequencing	AT5G22580	LG6	
<i>E388</i>	454 sequencing	AT2G48070	LG6	

<i>E391</i>	454 sequencing	AT5G54770	LG6	
<i>E514</i>	454 sequencing	AT3G15520	LG6	
<i>E528</i>	454 sequencing	AT1G08200	LG6	
<i>E547</i>	454 sequencing	AT1G63900	LG6	
<i>E579</i>	454 sequencing	AT1G08370	LG6	
<i>E584</i>	454 sequencing	ATG55640	LG6	
<i>E605</i>	454 sequencing	AT5G10920	LG6	
<i>E612</i>	454 sequencing	AT3G20390	LG6	
<i>E203</i>	454 sequencing	AT4G29830	LG7	
<i>E336</i>	454 sequencing	AT4G15180	LG7	
<i>E360</i>	454 sequencing	AT5G51150	LG7	
<i>E382</i>	454 sequencing	AT1G21065	LG7	
<i>E386</i>	454 sequencing	AT1G12230	LG7	
<i>E548</i>	454 sequencing	AT3G17210	LG7	
<i>E575</i>	454 sequencing	AT2G25730	LG7	
<i>E614</i>	454 sequencing	AT2G04550	LG7	
<i>RB7</i>	cDNA clone	AT3G26070	LG7	KF034817
<i>E272</i>	454 sequencing	AT4G27600	LG8	
<i>E393</i>	454 sequencing	AT4G12800	LG8	
<i>E502</i>	454 sequencing	AT2G33255	LG8	
<i>E519</i>	454 sequencing	AT1G08520	LG8	

<i>E572</i>	454 sequencing	AT1G66730	LG8	
<i>E577</i>	454 sequencing	AT3G27460	LG8	
<i>E611</i>	454 sequencing	AT2G45290	LG8	
<i>3C8</i>	cDNA clone	AT5G14030	LG9	KF034819
<i>NAP</i>	cDNA clone	AT2G35110	LG9	Short sequence not in database
<i>E157</i>	454 sequencing	AT1G1400	LG9	
<i>E165</i>	454 sequencing	AT2G25110	LG9	
<i>E167</i>	454 sequencing	AT4G34450	LG9	Short sequence not in database
<i>E215</i>	454 sequencing	AT1G24310	LG9	
<i>E229</i>	454 sequencing	AT1G80410	LG9	
<i>E344</i>	454 sequencing	AT4G33640	LG9	
<i>E242</i>	454 sequencing	AT3G47460	LG9	
<i>E252</i>	454 sequencing	AT1G27530	LG9	
<i>E279</i>	454 sequencing	AT5G11490	LG9	
<i>E281</i>	454 sequencing	AT5G24710	LG9	
<i>E344</i>	454 sequencing	AT4G33640	LG9	
<i>E351</i>	454 sequencing	AT3G10940	LG9	
<i>E373</i>	454 sequencing	AT2G03420	LG9	
<i>E513</i>	454 sequencing	AT3G58140	LG9	
<i>E526</i>	454 sequencing	AT1G30970	LG9	
<i>E534</i>	454 sequencing	AT2G21280	LG9	

<i>E30</i>	cDNA clone	AT2G45670	LG10	KF034821
<i>E83</i>	cDNA clone	AT4G01560	LG10	KF034822
<i>E160</i>	454 sequencing	AT5G67590	LG10	
<i>E239</i>	454 sequencing	AT5G58030	LG10	
<i>E249</i>	454 sequencing	AT4G01560	LG10	
<i>E288</i>	454 sequencing	AT3G23490	LG10	
<i>E314</i>	454 sequencing	AT1G34000	LG10	
<i>E323</i>	454 sequencing	AT5G61510	LG10	
<i>E504</i>	454 sequencing	AT1G64850	LG10	
<i>RB16</i>	cDNA clone	AT2G06520	LG10	KF034820
<i>E151</i>	454 sequencing	AT1G30580	LG11	
<i>E213</i>	454 sequencing	AT3G24530	LG11	
<i>E234</i>	454 sequencing	AT1G01860	LG11	
<i>E266</i>	454 sequencing	AT3G23620	LG11	
<i>E287</i>	454 sequencing	AT2G45990	LG11	
<i>E308</i>	454 sequencing	AT5G09650	LG11	
<i>E327</i>	454 sequencing	AT5G11980	LG11	
<i>E356</i>	454 sequencing	AT1G47640	LG11	
<i>E505</i>	454 sequencing	AT1G20810	LG11	
<i>E506</i>	454 sequencing	AT4G04930	LG11	
<i>E560</i>	454 sequencing	AT5G25760	LG11	

<i>RB15</i>	cDNA clone	AT5G20240	LG11	KF034823
Sex chromosomes, fully sex-linked				
<i>E247</i>	454 sequencing	AT2G01490	LG12	
<i>E316</i>	454 sequencing	AT3G63140	LG12	
<i>E330</i>	454 sequencing	AT3G32930	LG12	
<i>E521</i>	454 sequencing	AT4G27450	LG12	
<i>E523</i>	454 sequencing	AT5G55220	LG12	
<i>SlCypX</i>	cDNA clone	AT3G44600	LG12	DV768216
<i>SlCytX</i>	cDNA clone	AT1G26340	LG12	Short sequence not in database
<i>SIX3</i>	cDNA clone	AT5G66210	LG12	ACB86624
<i>SIX4</i>	cDNA clone	AT3G26780	LG12	ACB86605
<i>SIX6A</i>	cDNA clone	AT2G34570	LG12	DV768271
<i>SIX6B</i>	cDNA clone	AT2G34570	LG12	DV768271
<i>SIX7</i>	cDNA clone	AT5G48020	LG12	DV768352
<i>SIX9</i>	cDNA clone	AT1G08380	LG12	HM141608–HM141717
<i>E707X</i>	454 sequencing	AT3G27090	LG12	
<i>E711X</i>	454 sequencing	AT4G35770	LG12	
<i>E713X</i>	454 sequencing	AT5G42190	LG12	
<i>E378X</i>	454 sequencing	AT4G30600	LG12	
<i>E777X</i>	RNAseq	AT2G29690	LG12	
<i>E779X</i>	RNAseq	AT3G46980	LG12	

<i>E780X</i>	RNAseq	AT1G79620	LG12
<i>E799X</i>	RNAseq	AT3G49880	LG12
<i>E807X</i>	RNAseq	AT1G65950	LG12
<i>E559X</i>	454 sequencing	AT3G21865	LG12
<i>E162</i>	454 sequencing	AT1G78900	LG13
Partially sex-linked			
<i>E352</i>	454 sequencing	AT2G43640	LG12
<i>E200</i>	454 sequencing	AT5G06160	LG12
<i>E241</i>	454 sequencing	AT4G27700	LG12
<i>E284</i>	454 sequencing	AT5G52440	LG12
<i>E219</i>	454 sequencing	AT2G13360	LG12
<i>E592</i>	454 sequencing	AT3G22960	LG12
