

**Table S2.** A subset of the SNP loci found to be associated with metabolites by nested associ

SNP No.	Trait	Chr	SNP Physical Position (AGPv1)	RMIP (%)	Gene
173	Chla	3	213,848,077	48	carbonic anhydrase
174	Chla	3	213,848,298	10	carbonic anhydrase
175	Chla	3	213,894,582	24	carbonic anhydrase
208	Chla	9	23,215,157	16	starch synthase
360	Fructose	5	204,526,436	41	endoglucanase 1 (Cellulase)
397	Fumarate	1	195,285,519	22	pyruvate dehydrogenase E1
481	Glucose	2	175895506	12	endoglucanase 1 (Cellulase)
537	Glucose	5	212,261,524	29	trehalose-6-phosphate synthase
549	Glucose	7	27,327,128	15	nitrate transporter
626	Glutamate	3	213,890,769	6	carbonic anhydrase
710	Malate	3	213,856,232	29	carbonic anhydrase
711	Malate	3	214,330,739	23	malate transporter
771	Nitrate	1	202,621,762	5	malate dehydrogenase (NADP+)
794	Nitrate	2	181,079,834	39	chla,b binding protein
810	Nitrate	3	213,848,077	7	carbonic anhydrase
824	Nitrate	4	166,175,217	5	glutamine synthetase
839	Nitrate	5	185,687,667	8	PEPC kinase
897	Protein	3	213,854,238	11	carbonic anhydrase
900	Protein	4	227,245,511	44	xyloglucan:xyloglucosyl transferase
902	Protein	5	88,557,383	74	fasciclin-like arabinogalactan
928	Protein	8	117,977,083	51	ribosomal protein
936	Protein	9	98,709,960	8	xylan 1,4-beta-xylosidase
968	Starch	2	22,808,083	76	invertase
1019	Starch	5	168,868,583	67	invertase

Chla, chlorophyll a

ation mapping

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Gene Physical Position  
(AGPv1)

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213,847,057-213,859,958

213,847,057-213,859,958

213,888,899-213,896,251

23,213,761-23,217,689

204,527,678-204,531,175

195,281,414-195,283,531

175,894,386- 175,895,850

212,257,755-212,261,697

27,325,702-27,328,277

213,888,899-213,896,251

213,847,057-213,859,958

214,325,927-214,328,710

202,617,705-202,621,864

181,076,994-181,079,397

213,847,057-213,859,958

166,172,187-166,175,518

185,687,505-185,688,981

213,847,057-213,859,958

227,245,034- 227,246,459

88,556,567- 88,557,537

117,979,473-117,983,191

98,708,757- 98,711,520

22,804,880-22,809,451

168,865,756-168,868,879

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