

Supplements: Diversity and activity of sugar transporters in nematode-induced root syncytia

Hofmann Julia, Hess Paul H., Szakasits Dagmar, Blöchl Andreas, Wieczorek Krzysztof, Daxböck-Horvath Sabine, Bohlmann Holger, van Bel Aart J.E., Grundler Florian M.W.

Table S1. Gene chip analysis of 5 and 15 day old syncytia in comparison with non-infected root pieces. The normalised-values show the transcript levels of the single genes in the specific tissues. Further, fold change (\log_2) of syncytia (syn) versus controls (con) and the two syncytia time points compared to each other are given. Asterisks indicate significances determined by a Benjamini-Hochberg multiple correction test (* = $q < 10\%$; ** = $q < 5\%$; *** = $q < 1\%$ see Methods section for details)

Locus	Raw values (\log_2)			Fold change (\log_2)				5 vs. 15dai (\log_2)		Family	TAIR Description	
	con	5dai	15dai	5dai	q	15dai	q	15dai	q			
At4g21480	6,72	8,71	8,99	2,22	**	2,51	**	0,29		STP12	ht	hexose transporter
At5g17520	7,13	8,81	8,84	1,68	***	1,71	***	0,03		MEX1	st	maltose transporter
At5g46110	6,88	8,04	8,47	1,14	**	1,57	**	0,43		APE2	vst	chloroplast Triose Phosphate Translocator
At2g48020	8,52	9,53	10,1	1,02	***	1,55	**	0,54		ERD5	erd	early-responsive to dehydration stress protein
At1g61800	4,79	4,98	6,35	0,19		1,54	**	1,34	*	GPT2	g6p	glucose-6-phosphate/phosphate translocator
At5g59740	7,23	8,6	8,65	1,38	***	1,40	**	0,02		ATUTR5	nst	UDP-galactose/UDP-glucose transporter-related
At5g41760	7,28	8,22	8,29	0,95	**	1,03	**	0,07			nst	nucleotide-sugar transporter
At4g19120	9,63	11,3	10,6	1,66	***	1,01	**	-0,65	*	ERD3	erd	early-responsive to dehydration stress protein
At1g43310	7,85	9,57	8,84	1,66	**	0,96		-0,70			vst	triose phosphate/phosphate translocator-related
At5g16150	9,78	10,3	10,6	0,57		0,80	**	0,24		pGlcT	pgt	putative plastidal Glc-transporter
At5g17630	7,24	8,34	7,99	1,05	**	0,69		-0,35			nst	glucose transporter
At5g54800	8,75	8,89	9,5	-0,04		0,66		0,70		GPT1	g6p	glucose6-Phosphate/phosphate transporter
At1g71880	7,46	7,27	8,09	-0,19		0,62	*	0,80	*	SUC1	suc	sucrose transporter
At1g09960	6,55	6,84	7,13	0,28		0,57		0,29		SUC4	suc	sucrose transporter
At3g03090	5,55	5,86	6,04	0,32		0,48		0,16		VGT1	vst	vacuolar glucose transporter
At2g02810	6,13	6,55	6,57	0,41		0,38		-0,02		UTR1	nst	UDP-galactose/UDP-glucose transporter,
At3g05400	6,95	7,74	7,35	0,80	**	0,38		-0,43		ERD12	erd	early-responsive to dehydration stress protein

At3g59360	6,57	6,53	6,95	-0,06	0,35	0,41	UTR6	nst	UDP-Galactose transporter
At4g32270	6,68	6,72	6,99	0,06	0,33	0,28		st	UDP-sugar transporter-related
At1g11260	9,17	8,08	9,32	-0,96 *	0,30	1,26 **	STP1	ht	hexose transporter
At1g79820	8,84	9,08	9,1	0,27	0,29	0,02	SGB1	pgt	putative plastidal Glc-transporter
At4g16480	7,9	8,24	8,04	0,44	0,25	-0,19	INT4	int	inositol transporter
At2g18480	5,31	5,3	5,55	-0,02	0,24	0,26		man	mannitol transporter, putative
At5g59250	8,63	8,64	8,86	0,04	0,24	0,20		st	sugar transporter family protein
At5g65000	9,33	9,34	9,57	0,06	0,24	0,19		nst	nucleotide-sugar transporter family protein
At1g08900	6,74	6,87	6,97	0,13	0,23	0,10	ERD2	erd	early-responsive to dehydration stress protein
At3g46180	5,76	6,17	5,99	0,38	0,22	-0,16	UTR5	nst	UDP-galactose/UDP-glucose transporter-related
At1g08920	8,44	8,27	8,58	-0,19	0,20	0,38	ERD	erd	early-responsive to dehydration stress protein
At5g61520	7,05	7,33	7,22	0,26	0,19	-0,07	STP3	ht	hexose transporter
At1g07290	6,01	5,95	6,17	-0,03	0,18	0,20		nst	nucleotide-sugar transporter
At1g71890	5,37	5,85	5,55	0,48	0,17	-0,30	SUC5	suc	sucrose transporter
At2g43240	5,47	5,57	5,63	0,11	0,16	0,05		nst	nucleotide-sugar transporter/ sugar porter
At5g17010	8,63	8,58	8,7	0,00	0,08	0,08	VGT2	vst	vacuolar glucose transporter
At1g21870	5,77	5,62	5,85	-0,13	0,08	0,21		g6p	glucose-6-phosphate/phosphate translocator-related
At1g50310	5,46	5,44	5,48	0,02	0,06	0,04	STP8	ht	monosaccharide transporter
At5g26250	5,81	5,67	5,87	-0,14	0,05	0,19	STP9	ht	sugar transporter, putative
At4g35300	8,03	7,8	7,99	-0,28	-0,02	0,26	AtTMT2	vst	tonoplast monosaccharide transporter
At5g06170	6,82	6,66	6,79	-0,17	-0,03	0,13	SUC9	suc	sucrose transporter
At5g43610	4,99	4,99	4,94	0,00	-0,03	-0,04	SUC6	suc	sucrose transporter
At2g16120	5,53	5,49	5,48	-0,04	-0,06	-0,02		man	mannitol transporter,
At2g35740	4,84	4,83	4,74	-0,02	-0,10	-0,07	INT3	int	inositol transporter
At4g03950	5,16	5,17	5,06	0,01	-0,10	-0,10		g6p	glucose-6-phosphate/phosphate translocator, putative
At1g22710	7,06	6,48	6,78	-0,40	-0,10	0,30	SUC2	suc	sucrose transporter
At1g66570	4,31	4,23	4,18	-0,07	-0,13	-0,06	SUC7	suc	sucrose transporter, putative / sucrose-proton symporter, putative
At1g14360	7,81	7,96	7,68	0,15	-0,14	-0,29	UTR3	nst	UDP-galactose/UDP-glucose transporter,
At1g34580	6,86	6,82	6,73	-0,06	-0,14	-0,08	STP5	ht	monosaccharide transporter, putative
At5g26340	4,77	4,69	4,63	-0,08	-0,14	-0,06	STP13	ht	hexose transporter, putative
At3g51490	6,58	6,31	6,45	-0,28	-0,16	0,13	AtTMT3	vst	tonoplast monosaccharide transporter
At3g19940	6,02	5,97	5,85	-0,06	-0,17	-0,11	STP10	ht	sugar transporter, putative
At2g14670	5,74	5,54	5,55	-0,18	-0,17	0,00	SUC8	suc	sucrose transporter
At5g27360	5,9	5,57	5,71	-0,34	-0,18	0,15	SFP2	st	sugar-porter family protein
At4g04760	5,72	5,58	5,52	-0,14	-0,20	-0,06	ERD	erd	early-responsive to dehydration stress protein

At1g07340	5,2	4,83	5	-0,36		-0,20		0,16	STP2	ht	hexose transporter
At5g23270	4,59	4,49	4,38	-0,11		-0,21		-0,10	STP11	ht	sugar transporter, putative
At5g18840	5,57	5,24	5,34	-0,32		-0,23		0,09	ERD16	erd	early-responsive to dehydration stress protein
At1g30220	7,76	7,26	7,55	-0,52		-0,23		0,29	AtINT2	int	inositol transporter
At3g05960	5,5	5,19	5,2	-0,30		-0,28		0,03	STP6	ht	sugar transporter, putative
At1g77210	7,05	6,65	6,67	-0,40		-0,35		0,05	STP14	ht	hexose transporter
At3g01550	5,36	5,16	4,99	-0,22		-0,37		-0,15		st	sugar transporter family protein
At3g05150	5,29	4,86	4,88	-0,42		-0,40		0,02	ERD8	erd	early-responsive to dehydration stress protein
At2g20780	8,73	8,06	8,29	-0,66	**	-0,42		0,24		man	mannitol transporter, putative
At1g05030	8,9	8,29	8,38	-0,55		-0,47		0,09		pgt	putative plastidal Glc-transporter
At2g43330	7,51	6,96	6,96	-0,47		-0,47		0,00	AtINT1	int	inositol transporter
At2g41490	8,31	7,84	7,83	-0,46		-0,48		-0,01		st	UDP-GlcNAc
At4g04750	6,08	5,41	5,42	-0,64	**	-0,63	**	0,01	ERD	erd	early-responsive to dehydration stress protein
At1g67300	10,1	9,12	9,47	-0,98	***	-0,67		0,31		pgt	putative plastidal Glc-transporter
At2g02860	8,79	8,11	8,09	-0,66	**	-0,68	**	-0,02	SUC3	suc	sucrose transporter
At2g17840	10,6	8,91	9,81	-1,56	**	-0,71		0,85	ERD7	erd	early-responsive to dehydration stress protein
At1g20840	6,94	5,78	5,82	-1,07	**	-1,04	**	0,04	TMT1	vst	tonoplast monosaccharide transporter
At1g75220	9,13	7,53	7,82	-1,50	**	-1,19	*	0,31	ERD	erd	early-responsive to dehydration stress protein
At2g13650	9,09	7,64	7,85	-1,43	***	-1,20	**	0,23	GONST1	nst	GDP-mannose transporter
At1g30360	9,97	9,04	8,68	-1,01	**	-1,30	**	-0,29	ERD4	erd	early-responsive to dehydration stress protein
At1g76180	12,5	11,2	10,9	-0,79		-1,41		-0,61	ERD14	erd	early-responsive to dehydration stress protein
At4g23010	9,16	7,64	7,76	-1,54	***	-1,41	**	0,13	UTR2	nst	UDP-galactose transporter-related
At3g05165	8,76	7,14	7,32	-1,60	***	-1,43	***	0,17	ERD11	erd	early-responsive to dehydration stress protein
At3g18830	10,1	8,27	8,62	-1,83	***	-1,48	***	0,35	PLT5	st	polyol transporter
At3g19930	9,88	8,35	8,01	-1,23		-1,58	*	-0,34	STP4	ht	hexose transporter
At1g19450	10,5	8,61	8,63	-1,88	***	-1,82	***	0,06	ERD	erd	early-responsive to dehydration stress protein
At1g54730	7,66	5,78	5,72	-1,82	**	-1,89	***	-0,07	ERD	erd	early-responsive to dehydration stress protein
At4g02050	9,94	7,98	7,81	-1,84	**	-2,01	**	-0,17	STP7	ht	hexose transporter
At3g20460	6,8	4,58	4,58	-2,03	**	-2,04	**	-0,01	ERD13	erd	early-responsive to dehydration stress protein
At1g20450	13,5	11	11,2	-2,49	***	-2,28	***	0,21	ERD10	erd	early-responsive to dehydration stress protein
At4g36670	10,3	8	7,56	-2,10	**	-2,53	**	-0,43		man	mannitol transporter,
At5g27350	8,91	5,44	5,38	-3,41	***	-3,49	***	-0,08	SFP1	st	sugar-porter family protein
At1g08930	11,3	7,7	7,6	-3,58	***	-3,67	***	-0,10	ERD6	erd	early-responsive to dehydration stress protein

Table S2. Arabidopsis phloem-loading experiments with fluorescent labeled glucose. After eight hours the dye could be found in nematode-induced syncytia. Values are total number (of three replicated experiments) of dye-positive and –negative syncytia as well as the total number.

	3dai	5dai	7dai	9dai	11dai
Positive	38	41	73	81	86
Negative	0	6	1	0	1
Total	38	47	74	81	87

Table S3. Nematode infection assay with *stp12* and wildtype Arabidopsis: raw data of plants, root length, and nematodes per Petri dish (Fig. 2E).

WT col					<i>stp12</i>				
plants	root length (cm)	inoculation (J2)	development		plants	root length (cm)	inoculation (J2)	development	
			female	male				female	male
6	23	300	0	1	10	39	500	3	11
4	18	200	0	4	11	43	550	4	5
6	23	300	2	1	9	35	450	2	6
10	33	500	2	12	10	39	500	5	7
8	31	400	3	6	10	39	500	4	5
6	23	360	5	8	8	31	480	2	13
4	18	240	1	0	9	35	540	3	11
6	23	360	1	11	7	27	420	3	8
10	33	600	3	8	10	39	600	4	14
8	31	480	3	5	8	31	480	4	12
2	7	104	0	1	9	35	468	2	13
9	35	468	3	10	10	39	520	3	7
4	16	208	0	6	8	31	416	4	15
5	20	260	0	11	11	43	572	1	14
3	12	156	1	6	10	39	520	0	10