

Overexpression of *SIGRAS7* affects multiple behaviors leading to confer abiotic stresses tolerance and impacts gibberellin and auxin signaling in Tomato

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Table S1. Primers used for qRT-PCR

Gene Name	Primers for qRT-PCR	
	Forward (5'-3')	Reverse (5'-3')
<i>SIGRAS7</i> (Solyc07g065270.1.1)	ATGAGGCCTTCTCAGAACCCT GAGG	TTTAGTTGCTTCTTGTGCAT GGAAA
<i>SIIAA3</i> (Solyc09g065850)	CTCAGGAATGTATTAAAAAGT TAG	TCCTTCTCTTCTGAATACA CT
<i>SIIAA4</i> (Solyc06g053840)	AACAAGAGGGCTTTGCTGAG	GTGTCTTGGCAACAGGTGG A
<i>SIIAA7</i> (Solyc06g053830)	ACTCAACCTCCATCATAATGA TAATATTCC	ACCCACCACCTTGAGCCTT A
<i>SIIAA9</i> (Solyc04g076850)	CCCCTTGCACCCTTCCA	AGCGTCTGAAAATCCTCGT TTG
<i>SIARF5</i> (Solyc04g081240)	ATTAGTTCTGAGTTGTGGC	GGTATCTGTGAAGTTGCTG
<i>SIARF6</i> (Solyc07g043460)	GGTTCAACGGGTTCTCAAC	TTCAGGGAAGTGGATGCTC
<i>SIARF7</i> (Solyc07g042260)	CCAAGTTATCCTAATCTTCCTT CC	GTAAAGCCTCCTGGTCATA TTTG
<i>SIARF8</i> (Solyc02g037530)	CTGCTCAAACCCAAATGCTGT C	GGTAAGTGTGTTGGTGAGC CTG
<i>SIPIN1</i> (Solyc03g118740)	GCTGCAGGCTGGTCTAGATT	AACAATGGCAACAAAGCAC A
<i>SIPIN3</i> (Solyc04g007690)	TTCAAAATCAATTTAGCGTGT CA	CTCAAAATCCCTCTTGTTC G
<i>SIPIN5</i> (Solyc01g068410)	ACATTGAGCTGGCATTTTGG	TCCACTACCAGCCTTTGACA
<i>SIPIN6</i> (Solyc06g059730)	AGATGGCAGCAATAGGGATG	GCGAAGACAAATGGAACGA T
<i>SIGA2ox1</i> (Solyc03g006880)	CTCATTCTAATGCTCATCGT	TGCAGATGATTCTTCTTAG CG
<i>SIGA2ox2</i> (Solyc06g035530)	TTTCCATATTCTACCCTACAA G	TCATCGCATTACAATACTCT T
<i>SIGA2ox4</i> (Solyc01g093980)	GATGATAAATGGCACTCTATT C	TGACTTCCTTGTTCTTCTAC AG
<i>SIGA3ox1</i>	GGCATTAGTAGTTAATATAGG TGA	AAATAAGCTACAGAAAGTC GATA

(Solyc06g066820)		
<i>SIGA3ox2</i>	GATCATAAATTTGTCATGGAT	TGTTTCCATATGGTTAAGTA
(Solyc03g119910)	AC	ATC
<i>SIGA2ox1</i>	GGCATGTAAGATATTAGAATT	TTAATCCGTAGTAGAGAAT
(Solyc05g053340)	GA	CAGA
<i>SIGA2ox2</i>	ATTAAGATCCAATAACACTTC	TCTTGATTTCACACTATTTG
(Solyc07g056670)	G	C
<i>SIGA2ox4</i>	ATGGAAGGAAAAGACAGTTT	CTTTTCTCAAATAGGACCA
(Solyc07g061720)	A	AC
<i>SIDELLA</i>	TGATGCGACTATACTTGATAT	GGGTTAATCTGTTTAATAG
(Solyc11g011260)	AAG	AGTTC
<i>SIUBI</i> (Solyc07g064130)	GCCGACTACAACATCCAGAA	TGCAACACAGCGAGCTTAA
	GG	CC
<i>SICAT</i>	AAGTCCTGTGGTCAGAAGGTC	GAAGTACAGTTTATAGCAC
(Solyc12g094620)	G	AACGCG
<i>SISOD</i>	TGAATTGGGGTTGAACCATT	GCAGGCACTGTAATCTGCA
(Solyc01g067740)		A
<i>SIPOD</i>	CTTGCCCTAATGCTCTCACC	GCATCACAACCCTGAACAA
(Solyc11g018800)		A
<i>SIGST</i> (Solyc09g011590)	GCAAGCCCATTTGTGAGTCT	TGCTGACCCCTTATCATCG
<i>SILOX</i>	TCATTTTCCCCTGGCAAGTA	TGGTGCATTTGGATCTTCCT
(Solyc01g006560)		
<i>SIAPX</i>	ACGATGATATTGTGACACTCT	AAGCGATGAAACCACAAAA
(Solyc06g005160)	TCCA	ACA
<i>SIP5CS</i>	TGCTGTAGGTGTTGGTCGTCA	TGCCATCAAGCTCAGTTTGT
(Solyc08g043170)		G
<i>SIERF1</i>	TTTTAGTATCGGATGGACG	GGCGGAGAAACAGAAGTA
(Solyc03g093610)		
<i>SIHsp90-1</i>	GCACTTCTCTGTTGAAGGTCA	ATGAACACACGGCGAACAT
(Solyc12g015880)	G	A
<i>SIGEM2</i>	CCATCACATTCCAGGACCAGA	CGTAATCCTCAACCCATCCT
(Solyc09g082990)		TC
<i>SIER5</i> (Solyc01g095140)	TATTGGTAAAGATTGGGACAT	TGTCCTTCTGTTTGTACCG
	TGA	TTC

Table S2. Phenotypes of WT and *SIGRAS7*-OE plants

Parameters	WT	L1	L2	L3
One month Plant height (cm)	16.4±0.36	5.6±1.5**	6.1±1.4**	6.25±1.9**
Two months Plant height (cm)	28.4±2.3	11.2±2.2**	12.4±2.1**	11.6±1.7**
Three months Plant height (cm)	31.2±1.8	18.9±2.1**	19.3±2.5**	19.7±2.6**
One month Primary Root length (cm)	29.2 ± 2.9	14.2 ± 2.2**	13.5 ± 1.9**	15.1 ± 2.3**
Two months Primary Root length (cm)	43.5 ± 3.7	26.3 ± 2.3**	26.9 ± 2.2**	25.3 ± 2.5**
Two months Stem length of sixth internode (cm)	2.4±0.3	0.9±0.2**	1.1±0.2**	1.2±0.3**
Two months Stem diameter of sixth internode (cm)	0.8±0.03	0.5±0.04*	0.5±0.05*	0.4±0.04*
Two months Leave length of sixth node (cm)	5.6±0.05	3.8±0.2*	3.5±0.3*	3.7±0.7*
Two months Leave width of sixth node (cm)	2.3±0.1	1.8±0.3*	1.7±0.2*	1.6±0.1*
Days to first visible flower bud	32.6±2.2	45±2.7**	45.6±2.5**	48±2.7**
Days to anthesis of first flower	47.5±4.0	61.5±2.8**	62.1±2.8**	63.8±2.6**

Note: Values are means of at least more than 30 plants, ± SE. The statistical significance of mean differences was analysed using a *t*-test: *P < 0.05, **P < 0.01.

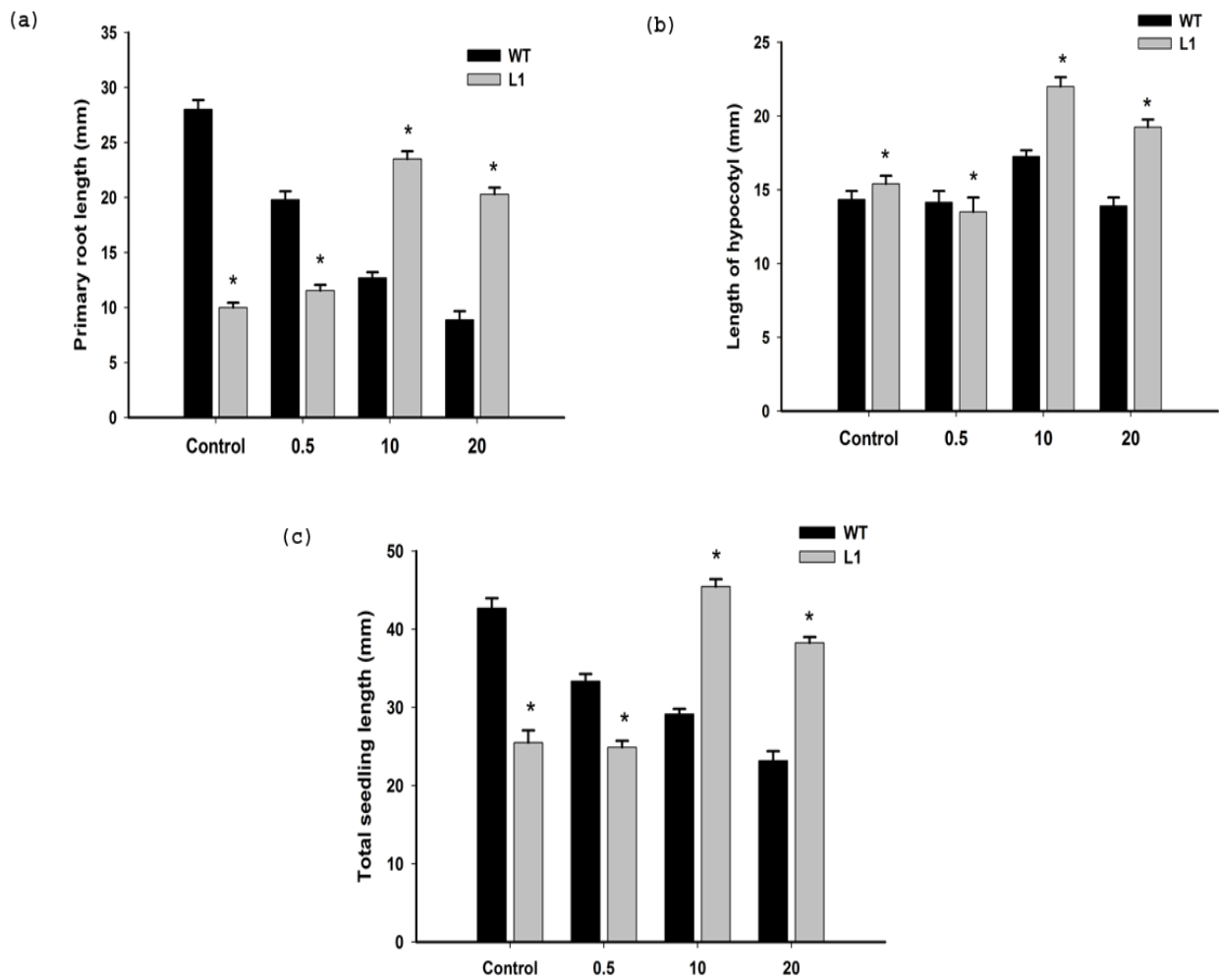


Figure S1. 15 days of WT and *SIGRAS7*-OE L2 seedlings grown on MS/2 medium containing (0μM, 0.5 μM, 10 μM, 20 μM GA₃) (a) Primary root length of WT and *SIGRAS7*-OE (L1) seedlings (b) Hypocotyl length of WT and *SIGRAS7*-OE (L1) seedlings (c) Plant height of WT and *SIGRAS7*-OE seedlings (L1). Asterisks show the significant differences using Student's *t*-test (* $P < 0.05$, ** $P < 0.01$).