

Khadiza Khatun, Arif Hasan Khan Robin, Jong-In Park, Ujjal Kumar Nath, Chang Kil Kim, Ki-Byung Lim, Ill Sup Nou and Mi-Young Chung

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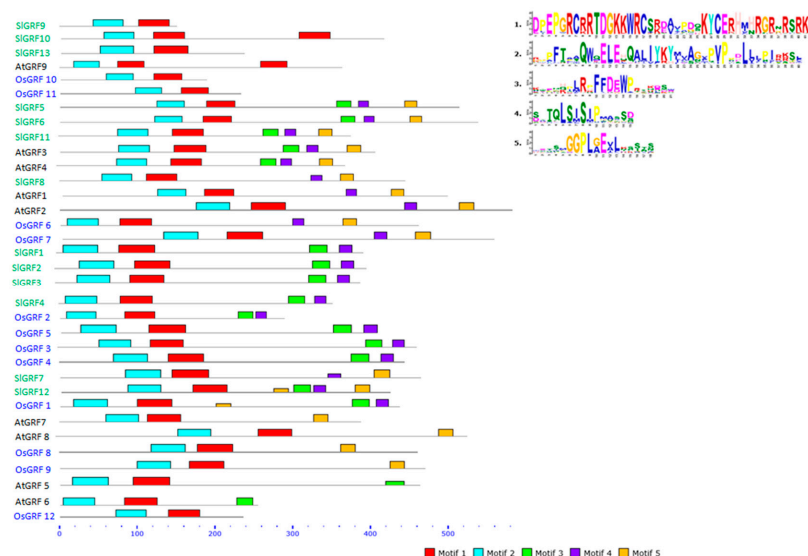


Figure S1. Conserved motif distribution in tomato, *Arabidopsis* and rice GRF proteins. The name of each member is shown on the left and different colors represent different motifs. The logos represent the predicted conserved motif sequences on the GRF protein sequences.

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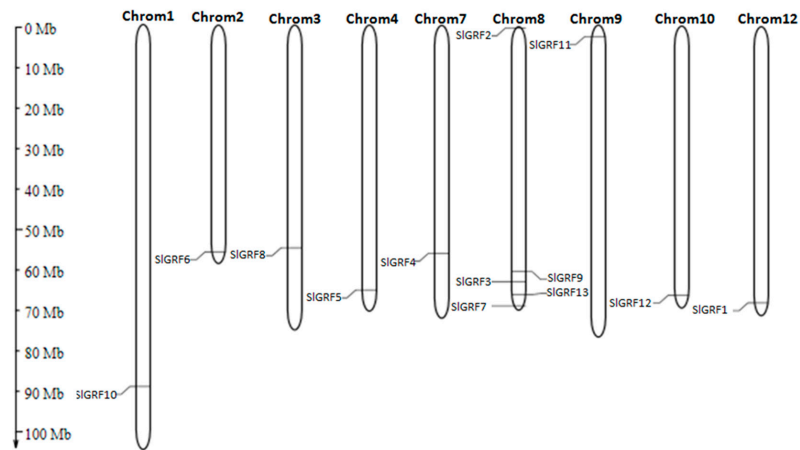


Figure S2. Distribution of *SIGRF* genes on tomato chromosomes. The chromosome ([Chrom](#)) number is indicated at the top of each chromosome representation.

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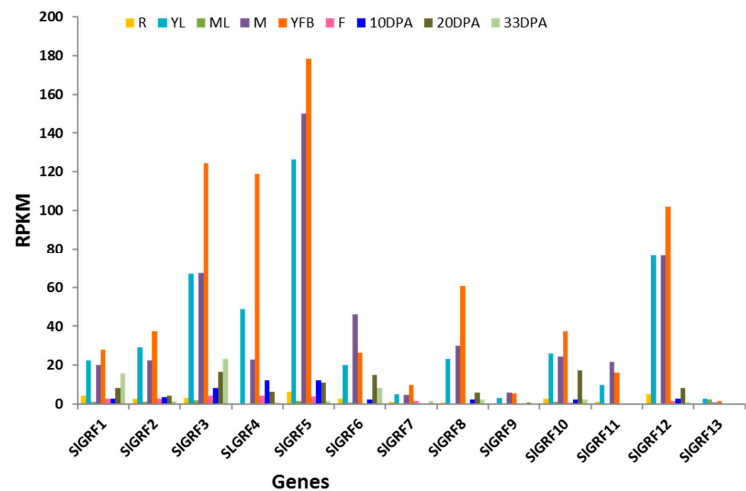


Figure S3. Putative expression profile of 13 *SIGRF* genes based on online RNA sequencing data downloaded from Solgenomics database (<https://solgenomics.net/>).

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Table S1. Primer sequences used for qRT-PCR analysis of *SIGRF* genes.

Table S2. Ct values of *EF1a* and [twelve-12](#) *SIGRF* genes at five different concentrations (ng/μl) of cDNA representing the amplification efficiencies of primers used in qRT-PCR. Each data point represents an average of three qPCR observations.

cDNA concentration	<i>EF1a</i>	<i>SIGRF1</i>	<i>SIGRF2</i>	<i>SIGRF3</i>	<i>SIGRF4</i>	<i>SIGRF5</i>	<i>SIGRF6</i>	<i>SIGRF7</i>	<i>SIGRF8</i>	<i>SIGRF10</i>	<i>SIGRF11</i>	<i>SIGRF12</i>	<i>SIGRF13</i>
1	16.77	25.9	24.96	25.5	26.09	25.2	27.9	25.4	25.9	25.8	27.9	26.7	27.3
0.1	20.07	29.1	28.3	29.1	31	28.5	31.3	28.7	29.5	29.1	30.9	30.5	30.9
0.01	23.37	32.4	31.2	32.4	34.3	31.8	34.6	32.1	32.8	32.4	34.7	33.8	34.9
0.001	26.67	35.9	34.5	35.7	37.6	35.1	37.9	35.4	36.1	35.7	38.5	37.1	38.2
0.0001	30.3	39.4	38.5	39.2	40.9	38.7	41.2	38.7	40.1	39.2	40.9	40.4	40.6
Primer efficiency values (%)	98	98	100	97	89	99	100	100	93	99	98	97	97

Table S3. Sequence identity among the 13 GRF proteins of tomato.

Protein	A	B	C	D	E	F	G	H	I	J	K	L	M
SIGRF1_(A)	100												
SIGRF2_(B)	73	100											
SIGRF3_(C)	76	76	100										
SIGRF4_(D)	38	39	39	100									
SIGRF5_(E)	31	35	32	35	100								
SIGRF6_(F)	33	33	50	56	41	100							
SIGRF7_(G)	47	47	45	46	48	42	100						
SIGRF8_(H)	53	58	56	47	43	46	50	100					
SIGRF9_(I)	48	50	50	47	40	42	44	86	100				
SIGRF10_(J)	53	52	55	49	43	37	42	48	46	100			
SIGRF11_(K)	52	54	48	58	44	50	44	50	47	53	100		
SIGRF12_(L)	41	45	49	40	42	52	29	43	37	49	57	100	
SIGRF13_(M)	54	44	43	44	38	48	39	41	42	46	49	45	100

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Table S4. Putative *cis*-elements of more than 5 bp identified in 13 GRF genes from *Solanum lycopersicum* using PlantCARE database (URL).

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Table S5. Putative functions and cellular localizations of tomato GRF proteins.

Gene name	GO: Molecular function	GO: Biological process	GO: Cellular component
<i>SIGRF1</i>	ATP binding; adenylyl ribonucleotide binding, purine ribonucleoside binding, purine ribonucleotide binding, ribonucleotide binding, carbohydrate derivative binding, nucleoside phosphate binding, nucleoside binding, ion and anion binding	Regulation of transcription DNA templated	Nucleus
<i>SIGRF2</i>	ATP binding; adenylyl ribonucleotide binding, purine ribonucleoside binding, purine ribonucleotide binding, ribonucleotide binding, phosphate binding, nucleoside binding, ion and anion binding	Regulation of transcription	Nucleus
<i>SIGRF3</i>	ATP binding; adenylyl ribonucleotide binding, purine ribonucleoside binding, purine ribonucleotide binding, ribonucleotide binding, carbohydrate derivative binding, nucleoside phosphate binding, nucleoside binding, ion and anion binding	Regulation of transcription	Nucleus
<i>SIGRF4</i>	ATP binding; adenylyl ribonucleotide binding, purine ribonucleoside binding, purine ribonucleotide binding, ribonucleotide binding, carbohydrate derivative binding, nucleoside phosphate binding, nucleoside binding, ion and anion binding	Regulation of transcription	Nucleus
<i>SIGRF5</i>	ATP binding; adenylyl ribonucleotide binding, purine ribonucleoside binding, purine ribonucleotide binding, ribonucleotide binding, carbohydrate derivative binding, nucleoside phosphate binding, nucleoside binding, ion and anion binding	Regulation of transcription	Nucleus
<i>SIGRF6</i>	ATP binding; adenylyl ribonucleotide binding, purine ribonucleoside binding, purine ribonucleotide binding, ribonucleotide binding, carbohydrate derivative binding, nucleoside phosphate binding, nucleoside binding, ion and anion binding	Regulation of transcription	Nucleus
<i>SIGRF7</i>	ATP binding; adenylyl ribonucleotide binding, purine ribonucleoside binding, purine ribonucleotide binding, ribonucleotide binding, carbohydrate derivative binding, nucleoside phosphate binding, nucleoside binding, ion and anion binding	Regulation of transcription	Nucleus
<i>SIGRF8</i>	ATP binding; adenylyl ribonucleotide binding, purine ribonucleoside binding, purine ribonucleotide binding, ribonucleotide binding,	Regulation of transcription	Nucleus

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	carbohydrate derivative binding, nucleoside phosphate binding, nucleoside binding, ion and anion binding		
<i>SIGRF9</i>	ATP binding; adenylyl ribonucleotide binding, purine ribonucleoside binding, purine ribonucleotide binding, ribonucleotide binding, carbohydrate derivative binding, nucleoside phosphate binding, nucleoside binding, ion and anion binding	Regulation of transcription	Nucleus
<i>SIGRF10</i>	ATP binding; adenylyl ribonucleotide binding, purine ribonucleoside binding, purine ribonucleotide binding, ribonucleotide binding, carbohydrate derivative binding, nucleoside phosphate binding, nucleoside binding, ion and anion binding	Regulation of transcription	Nucleus
<i>SIGRF11</i>	ATP binding; adenylyl ribonucleotide binding, purine ribonucleoside binding, purine ribonucleotide binding, ribonucleotide binding, carbohydrate derivative binding, nucleoside phosphate binding, nucleoside binding, ion and anion binding	Regulation of transcription	Nucleus
<i>SIGRF12</i>	ATP binding; adenylyl ribonucleotide binding, purine ribonucleoside binding, purine ribonucleotide binding, ribonucleotide binding, carbohydrate derivative binding, nucleoside phosphate binding, nucleoside binding, ion and anion binding	Regulation of transcription	Nucleus
<i>SIGRF13</i>	ATP binding; adenylyl ribonucleotide binding, purine ribonucleoside binding, purine ribonucleotide binding, ribonucleotide binding, carbohydrate derivative binding, nucleoside phosphate binding, nucleoside binding, ion and anion binding	Regulation of transcription	Nucleus

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