

Table S1 Characteristics of identified *RcWRKY* gene family

Gene	ID	Length	MW	pI	Instability Index	Aliphatic Index	GRAVY	Predicted Subcellular Location
RcWRKY57	PRQ28007	156	17862.44	5.11	45.44	44.23	-1.151	Nucleus
RcWRKY20	PRQ52554	476	52132.97	6.82	41.69	66.68	-0.893	Nucleus
RcWRKY16	PRQ49066	246	27951.42	9.08	52.77	63.78	-0.729	Nucleus
RcWRKY30	PRQ43243	292	32952.66	5.19	59.72	61.1	-0.801	Nucleus
RcWRKY32	PRQ45028	434	47596.44	6.3	46.61	70	-0.539	Nucleus
RcWRKY22	PRQ53481	534	58158.94	8.96	60.89	60.11	-0.761	Nucleus
RcWRKY4	PRQ58297	226	25453.83	9	37.17	68.58	-0.735	Peroxisomal
RcWRKY59	PRQ16657	897	101063.64	5.88	52.1	78.39	-0.547	Nucleus
RcWRKY48	PRQ34683	623	68204.85	7.28	51.71	43.71	-1.026	Nucleus
RcWRKY24	PRQ54294	201	22400.7	8.94	32.8	46.57	-0.942	Nucleus
RcWRKY5	PRQ58416	350	38922.46	5.9	45.02	62.94	-0.628	Nucleus
RcWRKY62	PRQ17584	223	25538.09	9.29	68.93	62.51	-0.764	Nucleus
RcWRKY49	PRQ34920	716	77262.71	5.63	52.27	50.15	-0.791	Nucleus
RcWRKY15	PRQ49015	120	13629.17	9.35	43.2	48.67	-1.026	Cytoplasm
RcWRKY14	PRQ48045	314	34188.83	9.56	49.83	66.5	-0.478	Nucleus
RcWRKY44	PRQ29826	496	53634.93	5.95	50.89	51.77	-0.768	Nucleus
RcWRKY42	PRQ29222	277	30212.29	5.34	62	50.32	-0.784	Nucleus
RcWRKY11	PRQ60203	426	45830.47	5.28	55.13	55.66	-0.669	Nucleus
RcWRKY35	PRQ37090	305	33158.47	9.85	51.11	57.87	-0.655	Nucleus
RcWRKY29	PRQ42789	506	55933.05	7.67	60.23	45.32	-0.964	Nucleus

RcWRK Y25	PRQ415 34	729	80160.02	5.81	54.43	63.81	-0.688	Nucleus
RcWRK Y9	PRQ596 50	166	19261.46	9.57	53.99	39.94	-1.207	Nucleus
RcWRK Y2	PRQ575 91	756	85116.83	7.89	43.57	59.68	-0.808	Nucleus
RcWRK Y37	PRQ398 62	191	21680.23	9.43	43.1	48.48	-0.859	Nucleus
RcWRK Y3	PRQ582 89	329	36121	7.7	53.66	48.33	-0.82	Nucleus
RcWRK Y61	PRQ174 55	359	40745.15	5.39	54.5	58.16	-0.782	Nucleus
RcWRK Y21	PRQ527 47	604	65496.99	5.28	45.45	58.38	-0.789	Nucleus
RcWRK Y50	PRQ354 68	1574	178605.88	5.66	47.38	92.12	-0.21	Cytoplasm
RcWRK Y64	PRQ199 98	457	50410.72	8.9	45.48	56.65	-0.839	Nucleus
RcWRK Y34	PRQ451 63	320	35696.02	7.04	54.2	51.84	-0.788	Nucleus
RcWRK Y23	PRQ536 64	490	53123.25	7.97	55.59	64.55	-0.619	Nucleus
RcWRK Y17	PRQ502 30	246	27179.2	4.97	53.33	58.21	-0.685	Nucleus
RcWRK Y63	PRQ181 43	292	32730.16	9.41	56.89	68.39	-0.658	Nucleus
RcWRK Y58	PRQ161 20	643	69796.83	6.69	50.59	57.12	-0.816	Nucleus
RcWRK Y56	PRQ277 39	322	34939.65	9.51	56.41	61.52	-0.469	Nucleus
RcWRK Y55	PRQ274 18	339	36616.51	9.53	51.17	60.21	-0.524	Nucleus
RcWRK Y52	PRQ259 53	350	39325.4	9.66	56.75	66.06	-0.819	Nucleus
RcWRK Y39	PRQ407 11	516	56371.85	6.84	57.61	47.07	-0.975	Nucleus
RcWRK Y38	PRQ406 78	322	35165.59	6.49	65.91	48.7	-0.878	Nucleus
RcWRK Y40	PRQ408 36	555	60358.93	7.68	46.65	60.88	-0.647	Nucleus
RcWRK Y10	PRQ599 63	1349	153304.2	6.55	48.25	90.25	-0.291	Cytoplasm
RcWRK Y6	PRQ596 41	348	38669.85	6.18	49.16	58.05	-0.751	Nucleus

RcWRK Y65	PRQ208 69	1415	159802.68	6.24	51.02	85.2	-0.295	Cytoplasm
RcWRK Y7	PRQ596 42	350	38755.93	6.02	44.27	54.83	-0.788	Nucleus
RcWRK Y8	PRQ596 47	1355	153169.09	5.93	44.14	88.55	-0.244	Cytoplasm
RcWRK Y41	PRQ283 92	583	62969.52	6.81	51.29	57.8	-0.773	Nucleus
RcWRK Y60	PRQ169 50	166	18921.29	9.4	43.94	59.22	-0.849	Nucleus
RcWRK Y18	PRQ504 21	324	35931.14	8.84	46.47	62.01	-0.856	Nucleus
RcWRK Y33	PRQ450 30	447	49490.84	6.44	45.08	68.64	-0.526	Nucleus
RcWRK Y54	PRQ268 93	391	43192.43	6.23	50.49	70.82	-0.612	Nucleus
RcWRK Y13	PRQ461 24	532	58532.74	5.56	62.37	61.41	-0.875	Nucleus
RcWRK Y53	PRQ268 92	305	33770.49	9.18	56.94	56.95	-0.837	Nucleus
RcWRK Y45	PRQ319 27	542	59233.07	6.3	43.55	67.01	-0.586	Nucleus
RcWRK Y26	PRQ417 92	314	34928.9	10	59.98	72.93	-0.653	Cytoplasm
RcWRK Y19	PRQ520 85	370	41584.86	6.83	53.14	55.65	-0.961	Nucleus
RcWRK Y43	PRQ293 67	353	38873.76	6.83	58.9	46.4	-0.897	Nucleus
RcWRK Y67	PRQ216 02	276	31621.61	4.87	66.77	51.16	-1.19	Nucleus
RcWRK Y31	PRQ434 14	478	52056.88	8.93	48.76	57.07	-0.842	Nucleus
RcWRK Y28	PRQ426 88	328	37628.5	5.49	50.48	60.03	-0.805	Nucleus
RcWRK Y27	PRQ426 87	373	42194.98	5.86	54.97	64.8	-0.647	Nucleus
RcWRK Y36	PRQ394 91	388	42399.34	6.23	57.39	47.81	-0.934	Nucleus
RcWRK Y66	PRQ210 05	78	9037.28	5.26	50.8	83.59	-0.465	Nucleus
RcWRK Y12	PRQ603 42	366	40135.86	6.55	51.26	66.39	-0.576	Nucleus
RcWRK Y68	PRQ216 04	142	16327.84	6.22	41.16	32.96	-1.613	Nucleus

RcWRK Y47	PRQ320 99	126	13962.85	7.84	58.84	76.43	-0.407	Cytoplasm
RcWRK Y46	PRQ320 97	581	63335.89	6.5	56.75	52.65	-0.854	Nucleus
RcWRK Y1	PRQ574 18	297	34069.93	9.31	42.75	60.3	-0.821	Nucleus
RcWRK Y51	PRQ358 00	140	15720.7	5.16	38.06	38.29	-1.329	Nucleus

Figure S1. Chromosomal localization of *RcWRKY* gene family members in Chinese rose.

The scale on the left is in megabytes blue to yellow in chromosome indicates gene density.

The chromosome number is displayed on the left side of the vertical bar; The right side of the vertical bar shows the gene location

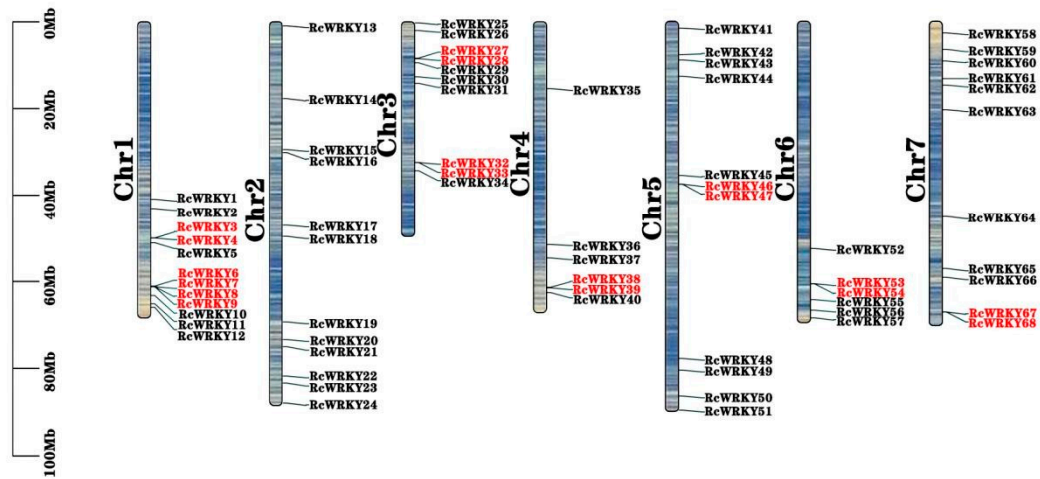


Table S2. Primers of *RcWRKY* gene needed for fluorescence quantification

Primer name	Sequence(5' -3' )	Annealing Temperature ( °C )
Ractin-qF	CCCCACTCAATCCCAAGGCAA	55.5
Ractin-qR	CGGAAGTCCAGCACAATACCA	
RcWRKY5-qF	GTAGAGCCAAGAAGCGATAG	52.1
RcWRKY5-qR	TACTGTGAATGTGAAGCCG	
RcWRKY14-qF	CTGCCCTTCACTGCTCC	53.3
RcWRKY14-qR	TAGTCCCCTCCATTCCG	
RcWRKY16-qF	AGCAGGGCTTGTTTGATA	51
RcWRKY16-qR	ATAGGCTTTGAGGGATTGT	
RcWRKY28-qF	G TTCACAAACACCCTTCGTATC	56.3
RcWRKY28-qR	CAGCATCATCAAGAGCATCC	
RcWRKY39-qF	AGTGAGGAAGTTGGAGATGC	53.1
RcWRKY39-qR	CACAGTCCGATGAGAAGAAG	
RcWRKY49-qF	AACCCACCAAAGTTCAAAATCA	58.3
RcWRKY49-qR	CTGCCACCAACAGTATCAAAAG	
RcWRKY56-qF	AGCAATCCCAATCCTCA	50.7
RcWRKY56-qR	CCGTCCCCAGACATAAA	
RcWRKY62-qF	CCAACCATTCCTATCGCCTC	60.5
RcWRKY62-qR	CGCCACGCCCACACATC	