

Appendix A Genotypes and phenotypes of rice materials used in this study.

Rice materials	Genotype	Phenotype		
			Panicle	Grain
Nipponbare	<i>qPE9-1</i>	<i>GS9</i>	Drooping panicle	Round grain
N138 line	<i>qPE9-1</i>	<i>gs9</i>	Drooping panicle	Longer and narrower grain
2661	<i>qpe9-1</i>	<i>GS9</i>	Erect panicle	Round grain
NIL in 2661	<i>qpe9-1</i>	<i>gs9</i>	Erect panicle	Longer and narrower grain
NIL in 2661	<i>qPE9-1</i>	<i>GS9</i>	Drooping panicle	Round grain
NIL in 2661	<i>qPE9-1</i>	<i>gs9</i>	Drooping panicle	Longer and narrower grain
WYJ27	<i>qpe9-1</i>	<i>GS9</i>	Erect panicle	Round grain
IL in WYJ27	<i>qpe9-1</i>	<i>GS9</i>	Erect panicle	Round grain
IL in WYJ27	<i>qpe9-1</i>	<i>gs9</i>	Erect panicle	Longer and narrower grain
IL in WYJ27	<i>qPE9-1</i>	<i>GS9</i>	Drooping panicle	Round grain
IL in WYJ27	<i>qPE9-1</i>	<i>gs9</i>	Drooping panicle	Longer and narrower grain

Appendix B Primers used for genotype identification in this study.

Primer	Sequence	Physical position
IN0919	CGTTTAGGCTGGCTGC	16,748,418-16,748,610
	CAGTTGGTGGTTTCGTAGAG	
IN0911	GGCTGACACTCTGGAAGTGA	16,774,528-16,774,641
	GCCTGGGCAGAGGGTGAG	
IN0901	GTGCTTTGGAACCACTCT	16,413,327-16,413,472
	ATAGCAAATGGCAAATGG	
IN0902	GGCCCACTGGTCCAACAA	16,413,701-16,413,823
	ATCGGTGAAACAAATCTCAGGAC	

Appendix C Primers used for gene function analysis in this study.

Primer	Sequence	Function
RTGS9	GACGCAAGCAGCGACCAGCA GCCTGGCAGTTGGAGGATGAGC	Expression analysis
RTqPE9	GCTCAGCCCGTTTCTCGTT GAGCACGAGCAGTTCGGTTT	
RTGS3	CCGCGAGATCGGATTCC CGTGGATCCCTTCGATTGA	
RTGGC2	GTGCAACTGCTTGTTATGCC GCTCGGTCTACAGCACGAT	
RTRGA1	TGAGGCTGAAACAACCAAA GCTCCTAAGTTCTGCCTCAT	
RGRGB1	GCTGCCTTGGTCTTTCTTCT GGCCCAAATCTTCAAATTCT	
RTRGG1	GCTTGATAAAACGGATAAGGTGTC GCGGACCTTCAAACCATCTGT	
RTRGG2	GCGGAATCATCTGCGGGACG TGGATGCCACCATTTGTTACTGC	
BDGS9	CATATGATGCAGAGCAGCAGCAAGCGGC GTCGACCATCGTCTTCGTCTTCGTCGTC	Vector construction
ADOF8	GAATTCCCAGTGGCATTGTCCATGTCG GGATCCGGCGTCGCGTTGAAACTTGG	
ADqPE9	GAATTCGGCGATTTATACCCACCACG GGATCCCGAACCTTAATCAAAGGCCTAACAATA	
ADGS3	CATATGTCTCCATTATCGGAACTTCGGAGTGA GAGCTCCCAATCAGTGCAGCTTCGCTCAATC	

Appendix D Comparison of transcript abundance for genes involved in the G protein pathway in young panicles between NPB-gs9 (*gs9*) and ‘Nipponbare’ (*GS9*).

Transcripts	BaseMean_GS9	BaseMean_gs9	FoldChange	p val	Gene product
LOC_Os03g43480.1/RGG1	0.000	0.000			AGG2, putative, expressed
LOC_Os02g04520.1/RGG2	663.006	817.305	1.233	0.208	AGG2, putative, expressed
LOC_Os02g04520.2/RGG2	219.691	174.687	0.795	0.238	
LOC_Os06g09930.1	972.191	936.463	0.963	0.669	G protein coupled receptor, putative, expressed
LOC_Os07g30300.1	1075.516	1203.555	1.119	0.276	small G protein family protein, putative, expressed
LOC_Os02g37570.1	0.000	0.697			keratin-associated protein 5-3, putative, expressed
LOC_Os09g26999.1/qPE9-1	1879.106	2158.374	1.149	0.064	keratin-associated protein 5-4, putative, expressed
LOC_Os09g26999.2/qPE9-1	1615.991	2002.509	1.239	0.029	
LOC_Os09g26999.3/qPE9-1	341.187	382.628	1.121	0.807	
LOC_Os05g26890.1/RGA1	1545.919	1512.090	0.978	0.782	G-protein alpha subunit, putative, expressed
LOC_Os06g02130.1	3719.099	3668.063	0.986	0.892	G-protein alpha subunit, putative, expressed
LOC_Os06g02130.2	24.318	88.280	3.630	0.010	
LOC_Os10g02814.1	2245.380	2266.974	1.010	0.797	G-protein alpha subunit, putative, expressed
LOC_Os10g02814.2	95.730	97.733	1.021	0.825	
LOC_Os11g10050.1	2386.410	2363.497	0.990	0.952	G-protein alpha subunit, putative, expressed
LOC_Os12g40190.1	4404.149	4395.461	0.998	0.991	G-protein alpha subunit, putative, expressed
LOC_Os01g43330.1	6294.474	6051.122	0.961	0.553	extra-large G-protein-related, putative, expressed
LOC_Os02g15820.1	3546.885	3388.222	0.955	0.741	extra-large G-protein-related, putative, expressed
LOC_Os02g15820.2	22.542	1.758	0.078	0.004	
LOC_Os05g50910.1	1344.486	1187.278	0.883	0.176	extra-large G-protein-related, putative, expressed
LOC_Os05g50910.2	22.391	13.804	0.616	0.707	
LOC_Os06g33320.1	3845.982	3630.182	0.944	0.368	extra-large G-protein-related, putative, expressed
LOC_Os01g03510.1	4487.954	4191.982	0.934	0.292	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os01g04870.1	278.865	308.606	1.107	0.544	WD domain, G-beta repeat domain containing protein, expressed

LOC_Os01g08770.1	1392.699	1240.546	0.891	0.208	WD domain, G-beta repeat domain containing protein, expressed	
LOC_Os01g09020.1	1475.188	1306.736	0.886	0.203	WD domain, G-beta repeat domain containing protein, expressed	
LOC_Os01g09252.1	1370.301	1489.839	1.087	0.373	WD domain, G-beta repeat domain containing protein, expressed	
LOC_Os01g10790.1	1215.493	1300.626	1.070	0.489	WD domain, G-beta repeat domain containing protein, expressed	
LOC_Os01g13140.1	669.870	518.328	0.774	0.042	WD domain, G-beta repeat domain containing protein, expressed	
LOC_Os01g13730.1	3329.093	3181.272	0.956	0.562	WD domain, G-beta repeat domain containing protein, expressed	
LOC_Os01g21940.1	2477.819	2507.474	1.012	0.996	WD domain, G-beta repeat domain containing protein, expressed	
LOC_Os01g28680.1	67.616	12.010	0.178	0.011	WD domain, G-beta repeat domain containing protein, expressed	
LOC_Os01g28680.2	12.846	13.537	1.054	1.000		
LOC_Os01g28680.3	16.398	31.634	1.929	0.529		
LOC_Os01g28680.4	9.706	49.702	5.121	0.006		
LOC_Os01g28680.5	2.276	0.562	0.247	0.748		
LOC_Os01g28680.7	40.886	23.684	0.579	0.330		
LOC_Os01g28680.8	155.640	155.051	0.996	0.942		
LOC_Os01g28680.9	20.259	29.844	1.473	0.556		
LOC_Os01g28680.10	21.090	9.672	0.459	0.371		
LOC_Os01g28680.12	48.602	56.293	1.158	0.730		
LOC_Os01g28680.13	6.631	0.562	0.085	0.390		
LOC_Os01g37120.1	1466.003	1392.124	0.950	0.636		WD domain, G-beta repeat domain containing protein, expressed
LOC_Os01g43250.1	2660.009	2623.272	0.986	0.786		WD domain, G-beta repeat domain containing protein, expressed
LOC_Os01g50690.1	1030.041	1007.890	0.978	0.847	WD domain, G-beta repeat domain containing protein, expressed	
LOC_Os01g51300.1	9755.584	9912.402	1.016	0.908	WD domain, G-beta repeat domain containing protein, expressed	
LOC_Os01g51300.2	10517.015	10011.762	0.952	0.364		
LOC_Os01g56860.1	963.637	1060.932	1.101	0.301	WD domain, G-beta repeat domain containing protein, expressed	
LOC_Os01g63900.1	1436.281	1524.985	1.062	0.462	WD domain, G-beta repeat domain containing protein, expressed	
LOC_Os01g69970.1	2519.794	2314.061	0.918	0.276	WD domain, G-beta repeat domain containing protein, expressed	

LOC_Os01g71780.1	382.646	448.504	1.172	0.199	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os01g72220.1	2983.284	2955.201	0.991	0.976	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os02g03990.1	12.370	14.617	1.182	0.888	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os02g04320.1	2586.744	2435.578	0.942	0.449	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os02g04320.2	189.655	143.823	0.758	0.228	
LOC_Os02g11060.1	804.431	851.999	1.059	0.589	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os02g14790.1	454.502	433.600	0.954	0.771	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os02g18820.1	2457.827	2349.845	0.956	0.608	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os02g18820.2	1236.232	1087.747	0.880	0.296	
LOC_Os02g20430.1	574.456	565.350	0.984	0.979	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os02g21490.1	501.888	526.316	1.049	0.621	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os02g32430.1	1721.957	1804.926	1.048	0.556	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os02g32430.2	369.514	347.997	0.942	0.714	
LOC_Os02g33630.1	0.000	0.986			WD domain, G-beta repeat domain containing protein, expressed
LOC_Os02g33860.1	1368.616	1418.966	1.037	0.750	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os02g45810.1	390.917	367.536	0.940	0.731	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os02g45810.2	0.000	2.120			
LOC_Os02g49090.1	5381.318	5016.205	0.932	0.450	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os02g49090.2	33.108	12.637	0.382	0.332	
LOC_Os02g50740.1	19.407	30.057	1.549	0.439	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os02g57220.1	2126.853	2018.562	0.949	0.551	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os03g02110.1	1963.534	1873.639	0.954	0.551	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os03g02110.2	330.713	292.773	0.885	0.454	
LOC_Os03g05210.1	23.413	15.730	0.672	0.518	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os03g05720.1	2760.239	2646.663	0.959	0.546	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os03g08830.1	1361.554	1407.564	1.034	0.690	WD domain, G-beta repeat domain containing protein, expressed

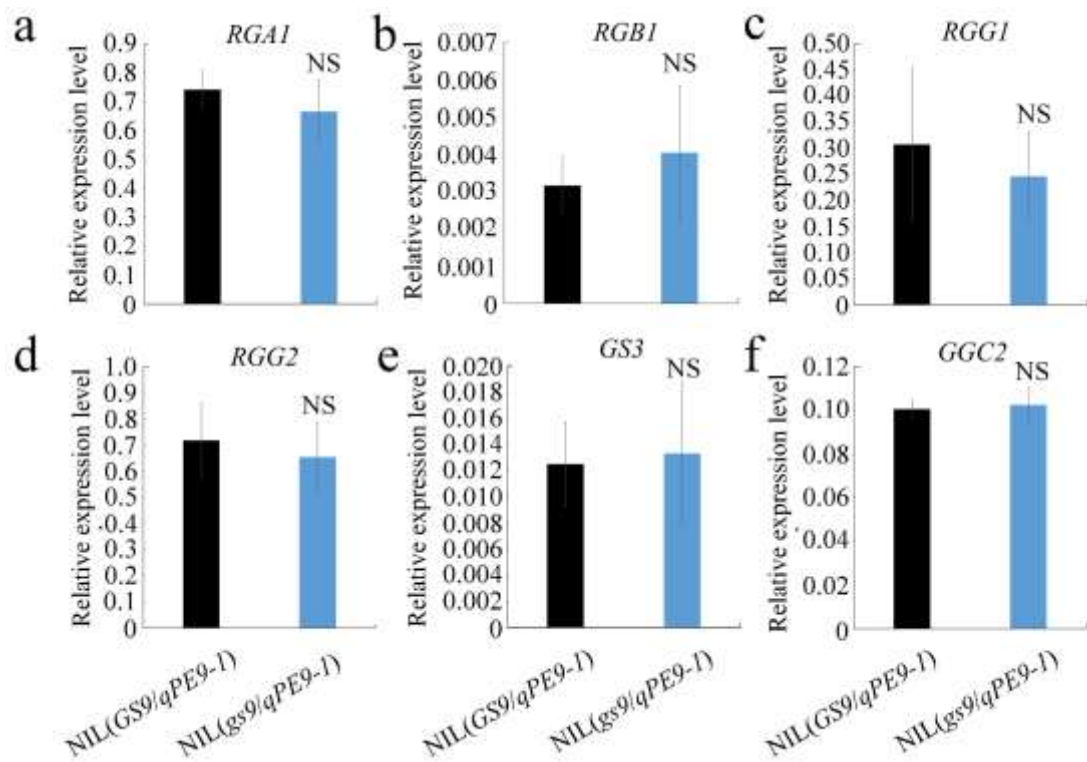
LOC_Os03g17780.1	665.584	614.794	0.924	0.515	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os03g19340.1	3458.963	3438.757	0.994	0.967	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os03g21990.1	4764.410	4762.243	1.000	0.920	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os03g23935.1	2526.630	2585.833	1.023	0.736	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os03g27970.1	993.045	1020.741	1.028	0.751	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os03g43890.1	4866.069	4581.812	0.942	0.348	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os03g46650.1/RGB1	5247.108	4929.878	0.940	0.339	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os03g48090.1	892.097	908.247	1.018	0.921	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os03g49200.1	446.953	476.123	1.065	0.670	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os03g49200.2	0.865	8.648	9.998	0.162	
LOC_Os03g52470.1	3787.327	3682.278	0.972	0.627	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os03g53510.2	721.130	713.224	0.989	0.941	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os03g53530.1	2484.886	2527.406	1.017	0.873	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os03g54770.1	679.035	689.413	1.015	0.921	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os03g54770.2	0.000	0.000			
LOC_Os03g54770.3	6.227	7.416	1.191	0.940	
LOC_Os03g58570.1	230.064	206.383	0.897	0.603	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os03g61630.1	2374.962	2123.543	0.894	0.142	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os03g61630.2	52.802	49.474	0.937	0.907	
LOC_Os03g64110.1	2971.544	2781.080	0.936	0.382	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os04g11880.1	4665.262	4413.351	0.946	0.421	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os04g11880.2	321.422	203.403	0.633	0.342	
LOC_Os04g11880.3	165.870	170.454	1.028	0.867	
LOC_Os04g40560.1	157.746	148.234	0.940	0.798	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os04g42880.1	471.740	486.904	1.032	0.896	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os04g46892.1	3350.224	3175.254	0.948	0.582	WD domain, G-beta repeat domain containing protein, expressed

LOC_Os04g48375.1	395.851	459.368	1.160	0.286	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os04g50660.1	2450.328	2322.804	0.948	0.438	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os05g05210.1	702.260	784.050	1.116	0.297	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os05g05210.2	21.192	14.531	0.686	0.705	
LOC_Os05g16660.1	3171.068	2932.892	0.925	0.285	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os05g16660.2	29.785	15.757	0.529	0.344	
LOC_Os05g16660.3	45.266	43.708	0.966	0.992	
LOC_Os05g23430.2	1694.809	1601.262	0.945	0.460	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os05g30010.1	6584.113	5751.771	0.874	0.091	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os05g33710.1	673.374	658.246	0.978	0.807	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os05g44320.1	1891.450	1774.158	0.938	0.491	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os05g44320.2	0.288	4.013	13.919	0.379	
LOC_Os05g44320.3	330.988	400.034	1.209	0.400	
LOC_Os05g46570.1	915.824	901.835	0.985	0.816	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os05g47890.1	8861.511	8400.897	0.948	0.441	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os06g04040.1	511.102	494.325	0.967	0.723	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os06g04040.2	24.499	47.909	1.956	0.125	
LOC_Os06g04040.3	99.957	202.434	2.025	0.006	
LOC_Os06g13140.1	37.065	46.986	1.268	0.612	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os06g19660.1	2561.702	2767.151	1.080	0.415	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os06g19660.2	2790.124	2426.674	0.870	0.092	
LOC_Os06g30680.1	17.850	12.534	0.702	0.650	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os06g39760.1	6132.689	6436.287	1.050	0.420	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os06g44030.1	27.939	19.001	0.680	0.575	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os06g44030.2	3912.352	3846.810	0.983	0.708	
LOC_Os06g44370.1	2053.206	2040.763	0.994	0.842	WD domain, G-beta repeat domain containing protein, expressed

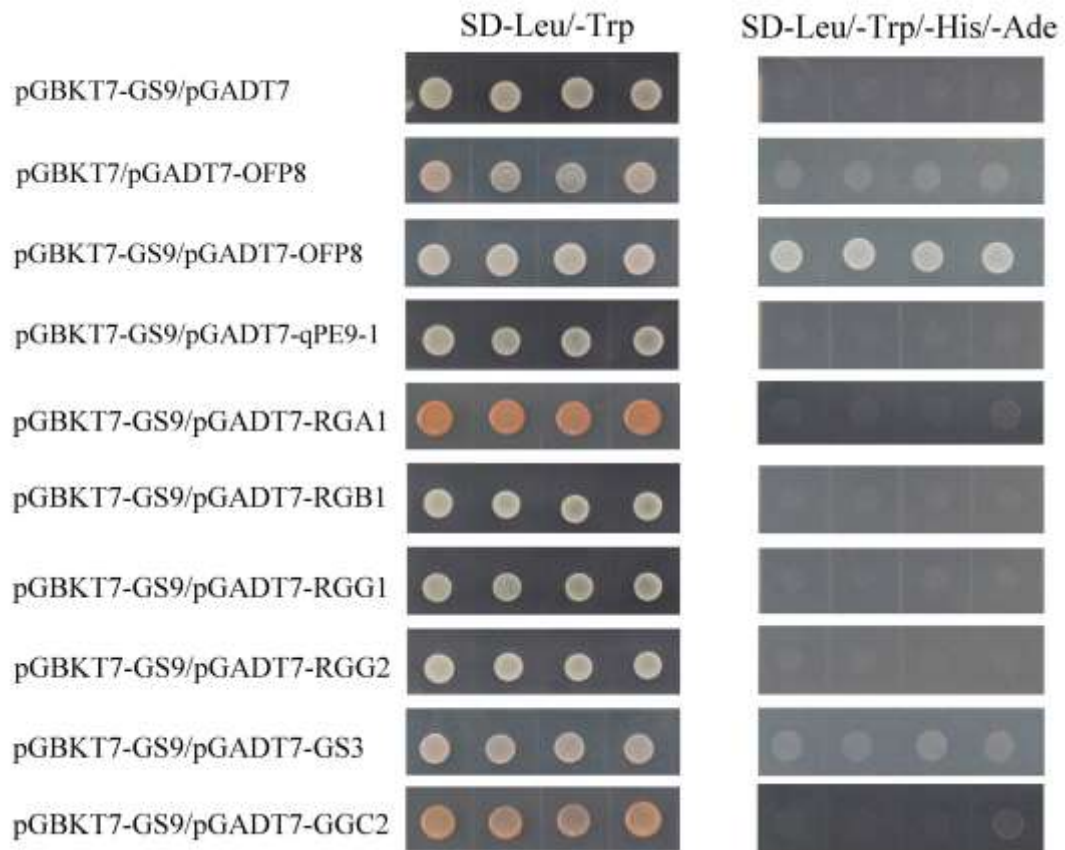
LOC_Os06g46475.1	355.744	296.639	0.834	0.219	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os06g50880.1	451.690	433.483	0.960	0.774	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os07g03160.1	3672.633	3391.831	0.924	0.193	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os07g09000.1	5138.943	5355.489	1.042	0.704	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os07g12320.1	1282.196	1306.968	1.019	0.762	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os07g14280.1	2698.727	2315.193	0.858	0.056	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os07g14830.1	1391.617	1477.937	1.062	0.540	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os07g22534.1	92.781	80.488	0.868	0.647	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os07g22534.2	1552.206	1531.447	0.987	0.792	
LOC_Os07g22534.3	188.205	160.931	0.855	0.442	
LOC_Os07g22534.4	106.287	121.030	1.139	0.731	
LOC_Os07g25440.1	2888.611	2637.412	0.913	0.217	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os07g25440.2	66.777	65.230	0.977	0.959	
LOC_Os07g32350.1	777.533	786.574	1.012	0.988	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os07g32350.2	388.625	390.519	1.005	0.897	
LOC_Os07g38430.1	690.130	643.767	0.933	0.539	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os07g40030.1	2198.435	2172.524	0.988	0.921	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os07g40030.2	14.128	1.691	0.120	0.371	
LOC_Os07g40030.3	38.210	45.741	1.197	0.919	
LOC_Os07g41190.1	1294.720	1181.052	0.912	0.322	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os07g46370.1	14579.861	13665.929	0.937	0.332	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os08g01680.1	1165.609	1115.100	0.957	0.569	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os08g04270.1	2316.554	2130.170	0.920	0.374	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os08g04270.2	1674.897	1896.884	1.133	0.155	
LOC_Os08g04270.3	108.648	120.355	1.108	0.792	
LOC_Os08g04290.1	0.000	0.000			WD domain, G-beta repeat domain containing protein, expressed

LOC_Os08g18150.1	614.348	649.404	1.057	0.610	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os08g18880.1	63.670	62.135	0.976	0.949	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os08g21660.1	3685.038	3622.102	0.983	0.794	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os08g21660.2	69.324	41.958	0.605	0.294	
LOC_Os08g38570.1	1194.621	1064.900	0.891	0.174	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os08g44010.1	30.200	17.312	0.573	0.254	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os08g44010.2	523.440	481.747	0.920	0.562	
LOC_Os08g44010.3	1585.622	1519.612	0.958	0.615	
LOC_Os08g44010.4	233.930	240.324	1.027	0.753	
LOC_Os08g44010.5	222.255	245.825	1.106	0.677	
LOC_Os09g06560.1	2904.439	2770.050	0.954	0.564	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os09g06680.1	74.799	80.276	1.073	0.858	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os09g09470.1	1842.006	1723.945	0.936	0.500	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os09g09470.2	120.861	100.146	0.829	0.610	
LOC_Os09g12550.1	1554.002	1547.375	0.996	0.953	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os09g12710.1	1404.836	1426.045	1.015	0.996	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os09g19900.1	1451.700	1620.815	1.116	0.208	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os09g24260.1	4575.907	4096.145	0.895	0.234	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os09g30090.1	0.650	1.820	2.800	0.762	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os09g36900.1	1833.282	1789.105	0.976	0.695	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os09g39420.1	2863.087	2855.322	0.997	0.977	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os10g32710.1	2366.506	2310.134	0.976	0.731	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os10g32710.2	788.562	822.867	1.044	0.616	
LOC_Os10g32710.3	322.387	363.227	1.127	0.506	
LOC_Os10g32880.1	7805.769	7316.789	0.937	0.262	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os10g39760.1	1911.326	2068.393	1.082	0.305	WD domain, G-beta repeat domain containing protein, expressed

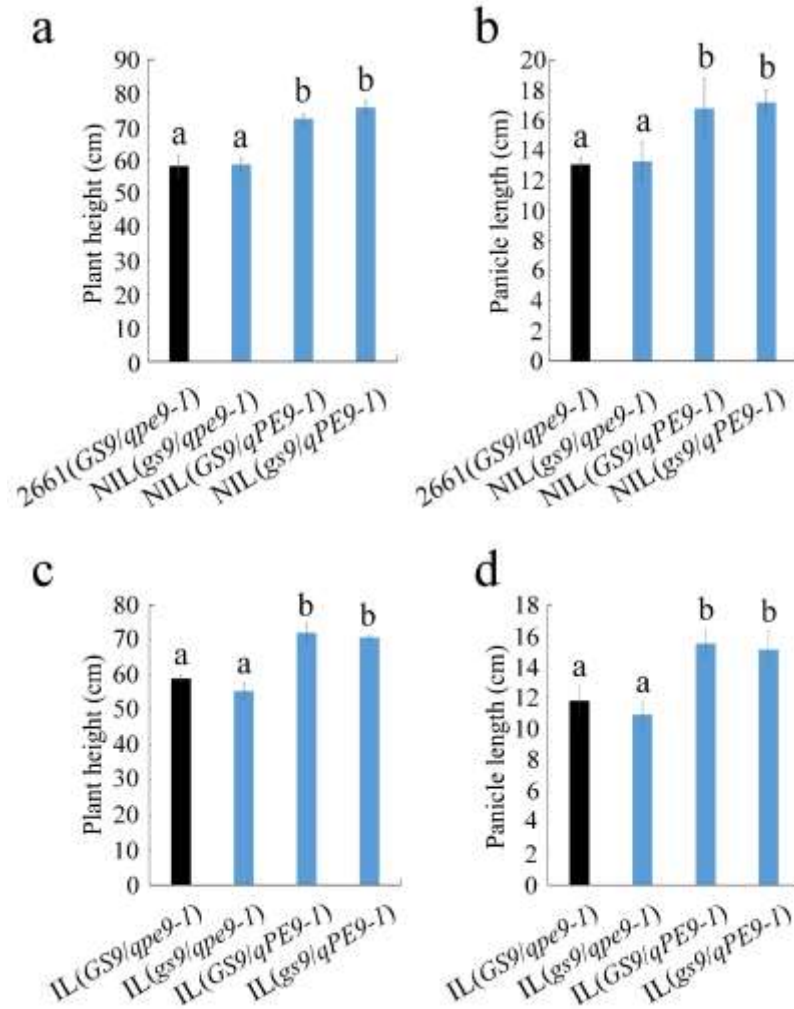
LOC_Os11g03794.1	2761.299	2540.903	0.920	0.222	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os11g03990.1	1668.785	1596.875	0.957	0.549	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os11g07480.1	78.408	72.813	0.929	0.761	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os11g39650.1	2351.575	2389.754	1.016	0.845	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os11g43890.1	1485.971	1585.939	1.067	0.469	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os12g03540.1	2556.432	2505.772	0.980	0.800	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os12g03822.1	1077.991	949.448	0.881	0.146	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os12g03822.2	10.816	26.802	2.478	0.416	
LOC_Os12g06810.1	4266.262	4073.663	0.955	0.464	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os12g06810.2	97.650	49.698	0.509	0.028	
LOC_Os12g06810.3	102.489	71.958	0.702	0.184	
LOC_Os12g06810.4	135.573	111.013	0.819	0.440	
LOC_Os12g07450.1	3870.123	3884.393	1.004	0.962	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os12g07450.2	389.197	311.992	0.802	0.176	
LOC_Os12g07450.3	91.817	72.235	0.787	0.340	
LOC_Os12g19590.1	1065.227	1052.476	0.988	0.861	WD domain, G-beta repeat domain containing protein, expressed
LOC_Os12g19590.2	133.086	112.451	0.845	0.482	
LOC_Os12g19590.3	38.180	46.276	1.212	0.545	
LOC_Os12g41620.1	3113.967	3035.171	0.975	0.700	WD domain, G-beta repeat domain containing protein, expressed



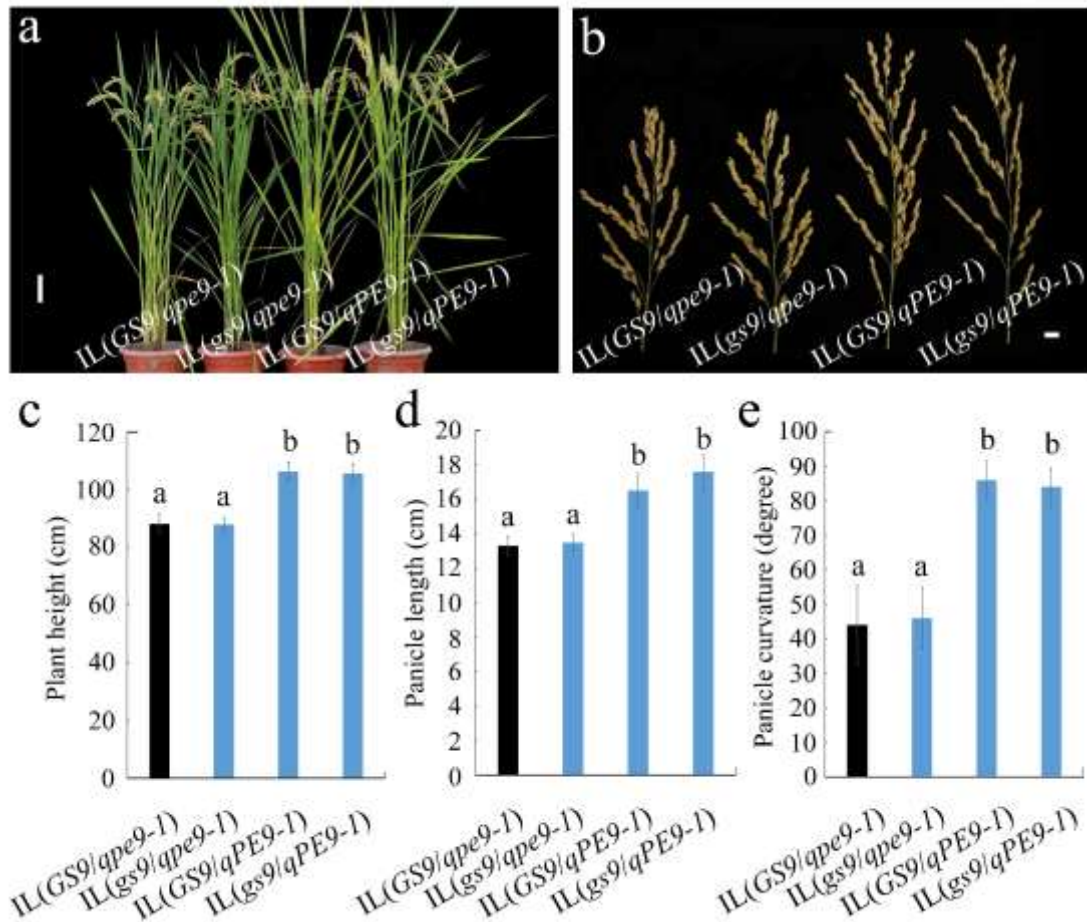
Appendix E Relative transcription of *RGA1* (a), *RGB1* (b), *RGG1* (c), *RGG2* (d), *GS3* (e), and *GGC2* (f) in inflorescence that differ with respect to the *GS9* alleles (wild-type or null *gs9*). Data are given as means \pm SD ($n=3$). NS indicates no significant difference ($P < 0.05$, t -test).



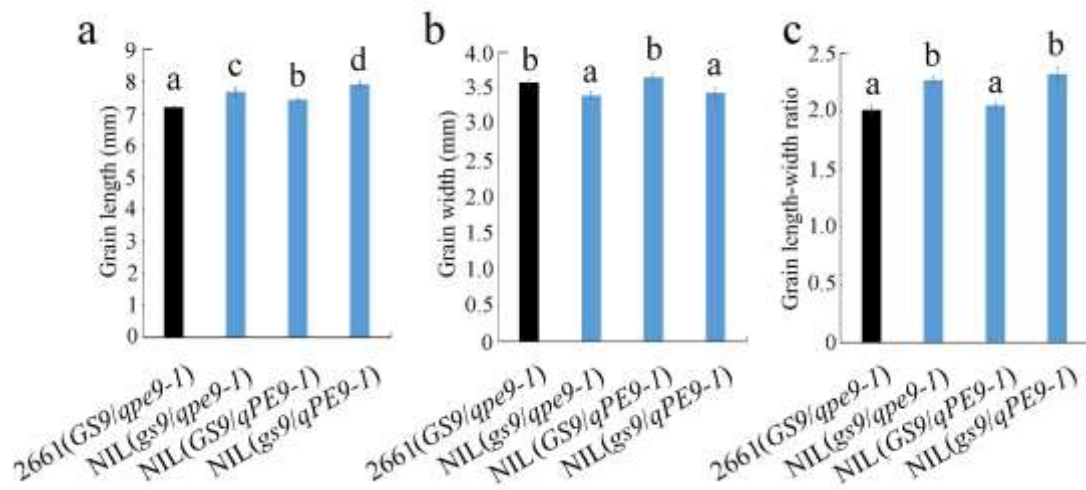
Appendix F Analyses of interaction between GS9 and G protein subunits in yeast two-hybrid assays. OsOFP8/LOC_Os01g64430 protein was selected as the positive control. The G protein subunit genes used were *qPE9-1/Os09g0441900*, *RGA1/Os05g0333200*, *RGB1/Os03g0669200*, *RGG1/Os03g0635100*, *RGG2/Os02g0137800*, *GS3/Os03g0407400*, and *GGC2/Os08g0456600*.



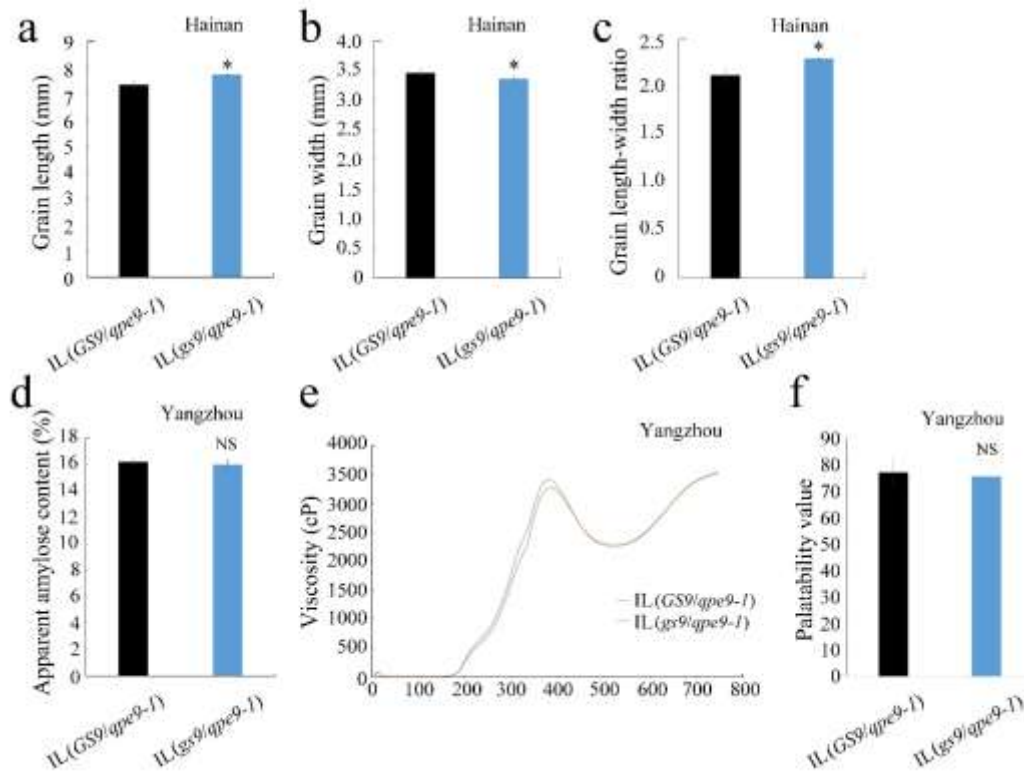
Appendix G Plant height and panicle length of plants grown in Hainan field. a, Plant height of 2661 and three NILs. b, Panicle length of 2661 and three NILs. 2661(*GS9/qpe9-1*), wild type 2661; NIL(*gs9/qpe9-1*), NIL carrying the *gs9* and *qpe9-1* alleles; NIL(*GS9/qPE9-1*), NIL carrying the *GS9* and *qPE9-1* alleles; NIL(*gs9/qPE9-1*), NIL carrying the *gs9* and *qPE9-1* alleles. c, Plant height of ILs in WYJ27 background. d, Panicle lengths of ILs in WYJ27 background. Four ILs in WYJ27 background were selected from the same segregating population. IL(*GS9/qpe9-1*), IL carrying the *GS9* and *qpe9-1* alleles; IL(*gs9/qpe9-1*), IL carrying the *gs9* and *qpe9-1* alleles; IL(*GS9/qPE9-1*), IL carrying the *GS9* and *qPE9-1* alleles; IL(*gs9/qPE9-1*), IL carrying the *gs9* and *qPE9-1* alleles. Data are given as means \pm SD (n=3). Different letters denote significant differences ($P < 0.05$, one-way ANOVA).



Appendix H Plant and panicle architecture of ILs in WYJ27 background grown in Yangzhou field. a, Comparison of plant architecture in the ILs carrying different combinations of alleles of *GS9* and *qPE9-1* genes. Scar bar = 10 cm. b, Comparison of panicle architecture in the ILs. Scar bar = 1 cm. c-e, Plant height, panicle length, and panicle curvature in the ILs. Data are given as means \pm SD (n=5). Different letters denote significant differences ($P < 0.05$, one-way ANOVA).



Appendix I Grain shape parameters in 2661 and three NILs grown in Hainan field. Grain length (a), grain width (b), and grain length-width ratio (c) of 2661 and three NILs carrying different combinations of *GS9* and *qPE9-1*. Data are given as means \pm SD (n=3). The different lowercase letters indicate significant differences between the means ($P < 0.05$, one-way ANOVA).



Appendix J Differences in grain shape and grain quality between ILs harboring the *GS9* and *gs9* alleles in WYJ27 background. The two ILs with erect panicles were homozygous for either *GS9* or *gs9* allele. Grain length (a), grain width (b), and the grain length-width ratio (c) in Hainan field. Additionally, apparent amylose content (d), viscosity (e), palatability value (f) in Yangzhou field. Data are given as means \pm SD ($n=3$). NS and * denote non-significant and significant differences between the means ($P < 0.05$, t -test), respectively.