Table S1 QTLs correlated with plant height in five environments identified using SNP genotypes detected in a CSSL population

Trait	Marker	Chr.	environment	LOD	PVE(%)	Add
PH	S1_38368329	1	E2	108.90	15.70	37.20
			E3	104.78	63.70	33.60
			E1	48.57	37.40	33.74
	S12_15246390	12	E2	24.69	1.16	19.93
			E3	15.18	2.87	14.03
	S10_6448469	10	E2	126.85	23.92	53.51
	S10_5828161		E2	121.05	20.90	-57.83
	S7_19772499	7	E2	98.13	12.09	-48.39
	S7_19095701		E2	81.98	8.04	41.76
	S10_7017746	10	E2	81.85	8.02	-44.46
	S7_26699527	7	E3	31.89	7.32	17.86
	S7_27950146		E3	31.39	7.17	-16.70
	S1_42583446	1	E2	29.46	1.47	-20.49
	S1_38979683		E5	17.29	11.43	15.37
	S4_6939123	4	E2	16.34	0.70	-13.11
	S6_10028703	6	E1	14.61	7.48	-29.70
	S2_27088483	2	E5	14.29	9.13	-15.86
	S6_9371599	6	E1	14.14	7.20	-21.94
	S12_12076045	12	E5	10.68	6.55	11.20
	S1_37273045	1	E3	10.58	1.90	8.17
	S10_11058596	10	E3	10.56	1.89	-9.08
	S1_37452576	1	E1	10.09	4.91	14.70
	S3_21316138	3	E5	9.91	6.03	11.39
	S3_363175		E1	9.59	4.64	-23.40
	S1_5418151	1	E3	9.20	13.96	2.25
	S2_31593267	2	E1	9.04	4.35	20.72
	S7_26271266	7	E3	8.96	1.58	-7.83
	S3_34897707	3	E3	8.24	1.44	-7.11
	S5_20393095	5	E5	8.15	4.86	-9.48
	S3_9586178	3	E5	7.61	4.51	12.27
	S3_35397952		E2	6.79	0.26	-5.77
	S3_3668954		E2	6.73	0.26	-8.59
	S6_17497655	6	E1	6.69	3.13	17.59
	S1_4183937	1	E4	6.60	5.05	0.74

PVE, the percentage of phenotypic variation explained; Add, the additive effect of the QTL.

Table S2 Gene prediction analysis in delimitation region of qCL1.2

RAPDB Locus	MSU Locus	Location(bp)	Annotation	gene symbol
Os01g0883200	LOC_Os01g66050	38329179 - 38332595	wound-responsive family protein	
	LOC_Os01g66060	38337612 - 38336217	expressed protein	
Os01g0883400	LOC_Os01g66070	38344410 - 38344937	PHD-finger domain containing protein	
	LOC_Os01g66080	38346711 - 38349796	retrotransposon protein	
	LOC_Os01g66090	38358147 - 38352142	retrotransposon protein	
Os01g0883800	LOC_Os01g66100	38382382 - 38385504	gibberellin 20 oxidase 2	*sd1; OsGA20ox2; qSD1-2*
	LOC_Os01g66110	38391780 - 38386267	methyltransferase	
Os01g0884300	LOC_Os01g66120	38401533 - 38398517	No apical meristem protein	*OsNAC6; SNAC2*
Os01g0884400	LOC_Os01g66130	38409201 - 38413065	armadillo/beta-catenin repeat family protein	
Os01g0884500	LOC_Os01g66140	38424621 - 38413166	plus-3 domain containing protein	
Os01g0884700	LOC_Os01g66150	38433670 - 38431286	expressed protein	
Os01g0884800	LOC_Os01g66160	38435460 - 38437074	pentatricopeptide	
	LOC_Os01g66160	38440460 - 38436842	SNARE associated Golgi protein	
Os01g0884850	LOC_Os01g66170	38440460 - 38436842	SNARE associated Golgi protein	
Os01g0885000	LOC_Os01g66180	38443627 - 38446431	cytochrome c	
Os01g0885200	LOC_Os01g66190	38450486 - 38447688	expressed protein	
Os01g0885300	LOC_Os01g66200	38460564 - 38454786	expressed protein	
	LOC_Os01g66210	38465598 - 38464169	retrotransposon protein	

Table S3 SSR and InDel markers used in this study

Locus name	Chr	Physical location (Mb)	Forward primer	Reverse primer
FIndel1-3	1	19.64	gggaaatttgggaggaagac	cgagcaagctacccgaatta
RM1201	1	26.51	gctacgtacgagccctagttaccg	taccgcgccacatatacacaacc
RM5496	1	29.91	gtagccatagcctttcccaaagc	tctcctgcagctgatttcttgg
RM576	1	30.15	gcagtaatatgtggaggtttcg	gtaggtcaaagccttctatcagc
RM449	1	56.01	ccttctcccttaattaacccttcc	gattcatcacgagagcacaaagg
RM329	1	57.99	cattcggctgctgctattc	gcttgtcacatcttgcacag
Indel1-9	1	74.28	tcccctctccacttgtcaac	tttttagtggcatagatcctcttc
Indel1-10	1	83.79	gttcaggcaattccatcgtt	ctaattcgcgaaacgaatct
RM488	1	91.88	aacaaccagcgtatgcgttctcg	cccacggctttgtaggaagaagc
Indel1-12	1	102.34	ccacaagctcaagcttcaaa	tcgaattactcgcattgatcc
RM128	1	113.85	tgatttcttggaagcgaagagtgagg	cctccttgtgctcagccatgc
Indel1-16	1	139.66	ttcatatccgcaggcaattt	gcctttctgttcatggcagt
RM472	1	140.33	ttaggcgatcgatctcatctctcc	cagcttcccgtgagtagcaacg
RM14	1	153.20	cattgacgtggcactttgttcc	agagagcacgcaatggagtatgc
RM109	2	0.68	agccaagatcgtcttcatctctcg	tcgtctccttcttccttcttcttcc
RM236	2	7.80	gtgaagcacatgtggctagttgc	ttccctcaagaatctgtgtcttcc
Indel2-3	2	20.29	atagggtgggtgtgctgaac	gcacaaaactgcaggtctcc
Indel2-4	2	29.58	agtgtcccaagcgagaaaac	atgcacgagtgagtgtgagc
RM452	2	35.42	gtggacttggcgagatgctacg	gttaagggcagccaccagatcg
Indel2-5	2	38.75	gggaacttctctcccacaca	cacgtacacgttttccgaac
RM324	2	42.18	gattccacgtcaggatcttctgg	gctcaccagttgagattgaaagg
RM300	2	48.86	gggcttaaggacttctgcgaacc	agcgatccacatcatcaaatcg
Indel2-8	2	66.99	ccatcagcatcagcaatagg	gaatatgttgtggagaccaatatatga
RM341	2	71.64	caagaaacctcaatccgagc	ctcctcccgatcccaatc
RM475	2	75.57	cctcacgattttcctccaac	acggtgggattagactgtgc
Indel2-10	2	85.37	ggctggctgttgctcatc	aaaaatcccaaccctgctg
RM6318	2	90.47	aagtgcctcgaattacacatctcc	gctgcttctgtccagtgagacc
RM263	2	95.82	aatctatggacctgggaggaacc	tgacgagagtgctacgtttgagc
Indel2-12	2	102.50	aagaaagagaatgccgcaca	gcgactagctctcagccatc
RM450	2	106.05	cagtagtacgccggatcaacagg	ccacttgttccatccacatctcc
Indel2-14	2	122.49	agtgaaatttgagcccaacg	taaaagcaaaggccgaaaaa
RM523	3	4.89	tgaattcttgcacatggtcagc	tgggaggtttgctagggtaatcc
Indel3-3	3	6.42	tggtttatattggaacggagga	gttacatgccctttcgcagt
Indel3-4	3	6.43	gcttaccacacctctcctcct	tccatatgcttccttcttcca
Indel3-6	3	10.69	gtttacgaatgaaccagt	ctcattgaggcaaaggac
Indel3-8	3	14.41	taatttcggctcatccaagc	gaagctccgcaggttcag
Indel3-11	3	20.94	ggaatccctcccttcttgtc	ggtcggtaaagacggtgaaa

RM517	3	22.84	cagctccttcctatccgtctcc	tcagatctagccgagaaatcaagg
Indel3-13	3	29.64	gccattgatcttctgcaggt	tttgttgtcaatgccctgtt
Indel3-16	3	52.00	cgacgctgttgatcctgtta	gaaattaagcagcggaagca
Indel3-17	3	59.43	gcatccatggttgagattcc	tgcgctgctaaatgaaaaga
RM411	3	79.37	gtaggaaattcttcgccagatgc	ccgagacttggaacaatcttaggc
Indel3-25	3	99.56	gttaggcctgcacttttgga	gacatcaatcttggggagga
Indel3-26	3	101.38	gtgatggtgaggggatctca	atccctcctcccttgctg
RM426	3	102.21	catcgccgaaatccatcttcc	aaggcccatttcattgtagagtgc
Indel3-27	3	105.08	tgggctattattgggctttg	cgtgggataaaaccaccaag
Indel3-28	3	107.22	tgcgcgtgaaaaataagaaa	ccatgcttagccgctacact
RM55	3	107.60	ccgtcgccgtagtagagaag	tcccggttattttaaggcg
RM468	3	121.04	aaagatccgtgtcctcaatcagc	cctaaagcccttccttgttgtgg
Indel3-30	3	122.26	gccatcttgccatttgttct	ctctgcttttgctgcctctt
RM571	3	122.81	ggaggtgaaagcgaatcatg	cctgctgctctttcatcagc
RM514	3	130.70	cttctcagattgatctcccattcc	gggagagaggaagaagacaagg
RM442	3	132.55	cttaagccgatgcatgaagg	atcctatcgacgaatgcacc
RM335	4	2.55	gtacacacccacatcgagaagc	tccatggatatacgaggagatgc
RM518	4	7.54	aagacacaagcaaacagctcaacc	aagcttgcttggttcaagagagg
Indel4-3	4	20.85	ggtcgctggttcttgaatgt	aatggtttgacttcgaccaaa
Indel4-4	4	30.53	ctcacagtttctaggcggaaa	agccgagtagggctgaataa
RM471	4	70.36	agaaatggatcggactgaacatgc	agacactcggacgcacaagc
RM273	4	89.07	gaagccgtcgtgaagttacc	gtttcctacctgatcgcgac
RM252	4	93.94	ttcgctgacgtgataggttg	atgacttgatcccgagaacg
Indel4-11	4	95.14	tgaacacatcccaattgctt	tagacgagaggggttggaga
Indel4-12	4	104.40	cgtggcaatatggttccttt	tcggatacgtaaaacggaaaa
RM303	4	106.52	gcatggccaaatattaaagg	ggttggaaatagaagttcggt
RM348	4	121.74	catgaagctgtgttgctgttgc	cgctactaatagcagagagaccatcg
Indel4-14	4	122.74	ggatggtgaggtgaggtgtt	cgtgttttctcccccaatc
RM127	4	128.57	cgaagctttcggtgggatagc	accttgagcgagtccttgaacg
RM280	4	130.28	gtgctctccatgtcggattatgc	caaggcaacaagattggttagtgg
Indel5-1	5	2.00	ccttgatcgattgctctggt	actttctccgtgttgcttgc
RM17818	5	5.98	ttgcctcatgtttgcttcatcc	agctgacaacgacgacactgc
RM17954	5	13.52	atttcagtacaaggcacccatgc	gtagacgagggagtaccaacttgc
Indel5-3	5	20.54	gctcccctcaacttttcctc	tcggttgcctgaataccttt
RM169	5	27.77	cacctcctccaagatccttatgc	ctctctgtctcgctgtctgttgc
Indel5-7	5	58.35	aaatttaggccaggcagctt	tctctcacacgcttattcatcttt
RM598	5	62.27	tttccggacagctggattatagc	gattgaggcagagagacctaattcc
Indel5-8	5	67.59	cgtgccgatgacaaacttc	gaggatccatgtccaccatt
Indel5-10	5	85.99	tcgcattgagatttgtgcat	tcgtaaccacactgcaactg
RM534	5	89.15	ttcgaactggagcttcttcttgg	aacgcaactgacacagactgacc
RM274	5	99.67	cctcgcttatgagagcttcg	cttctccatcactcccatgg
RM190	6	6.54	ctttgtctatctcaagacac	ttgcagatgttcttcctgatg
RM510	6	10.49	gtttgacgcgataaaccgacagc	atgaggacgacgagcagattcc
RM585	6	11.74	cagtcttgctccgtttgttg	ctgtgactgacttggtcatagg

RM314	6	17.56	ctagcaggaactcctttcagg	aacattccacacacacacgc
RM276	6	23.07	gtcctccatcgagcagtatcagc	ctagcaagacatggacctcaacg
Indel6-4	6	29.73	cagttaacaccaatccaatcca	ccaaatgggcagtagtttgaa
RM527	6	36.53	cggtttgtacgtaagtagcatcagg	tccaatgccaacagctatactcg
Indel6-6	6	48.77	cctcatccaggggtcatgta	cggtcaagtgtcatccaggt
Indel6-7	6	57.85	gcgattattgagagcgagga	gcctcttgtgggaagaacaa
Indel6-8	6	67.29	tcacctttatggtgccgaag	gaagctgcttttgcttccac
RM5427	6	79.70	tgctgttgacacttgacaggtagc	cacaattattgcggctcatcg
RM3628	6	87.92	gccctagacacacccgtacc	tgccagatcagaaatcatgc
RM20438	6	94.71	cacaacgaatgtggtgtgtcc	cgacatagatgaggccctattcc
RM30	6	100.94	ggttaggcatcgtcacgg	tcacctcaccacacgacacg
RM494	6	115.15	gggatcgagatagacatagacc	tctgtacagtgtcattccttcc
Indel7-1	7	2.42	tgactgttacccttacgtgcag	cgggatgaaacagattctgag
RM427	7	9.92	ttgagctgatgagagttggttgc	ctgtcactagctctgccctgacc
RM481	7	10.65	tagctagccgattgaatggc	ctccacctcctatgttgttg
RM125	7	20.30	atcagcagccatggcagcgacc	aggggatcatgtgccgaaggcc
RM7121	7	20.83	taccagctgcatgttacccgatacc	cggaatcaaattccagcaacagc
RM180	7	21.25	ccttctccttctttcagcttctgc	caacttgctctacttgtggtgagg
RM214	7	47.35	ctgatgatagaaacctcttctc	aagaacagctgacttcacaa
Indel7-6	7	49.32	ccccatgaggcctacactt	agcagcataatcagatgagacg
RM21463	7	53.72	gttgatctggagtcgatgagtgc	cccacgaaagatgctttaagacg
Indel7-7	7	58.76	atcggtgccgctcctagat	cactccacagacatgcaattt
RM533	7	64.86	aaaggccgtacctttgccttcc	agctagggatccatcctccaacc
RM6184	7	69.22	agtcgtacaggctgccgttctcc	acatgctcctccacgacaagagc
RM432	7	70.22	ctttctgtctcacgctggattgg	tgcgtacgtgatgaatggttagc
RM11	7	71.32	atcggtgcttggctggatagc	ccaccttcttctcctcctcttcc
RM505	7	90.84	agagttatgagccgggtgtg	gatttggcgatcttagcagc
RM234	7	94.35	ttcagccaagaacagaacagtgg	cttctcttcatcctcctccttgg
RM47	7	95.58	actccactccactccccac	gtcagcaggtcggacgtc
Indel7-11	7	96.04	gcccacctgtcattgagagta	gtttttgcgcttttgttgct
RM1335	7	104.81	gcgccattcttgtcatctaattgc	atcgaacaagaagagtggcttgg
Indel7-12	7	105.44	cgttcgtgtttttcgctgat	gatcggaggcttttgtttga
RM172	7	109.49	tgcagctgcgccacagccatag	caaccacgacaccgccgtgttg
Indel7-13	7	109.86	tggaggctttctcgctttc	gaggaagtcgaggatgagga
RM152	8	2.53	gaaaccaccacacctcaccg	ccgtagaccttcttgaagtag
RM547	8	20.71	ttgtcaagatcatcctcgtagc	gtcattctgcaacctgagatcc
Indel8-4	8	29.85	cgtgcggcttacaagagata	tgaggcactaatcatcttctctg
Indel8-7	8	57.77	tttttaccgtgtcggtactgc	ctccaaaacacgggaccat
RM339	8	66.46	gtaatcgatgctgtgggaag	gagtcatgtgatagccgatatg
Indel8-8	8	67.00	ccctccatgttgtgagttcc	tgattagatccagaaagggagaa
RM149	8	91.57	gctgaccaacgaacctaggccg	gttggaagcctttcctcgtaacacg
Indel8-12	8	104.15	tgaattgaacctccgtcctc	agaactgcaccacgaagctc
RM23662	9	1.60	gagaggacgatggcactattgg	cgaggaacttgattcgcatgg
RM444	9	21.95	tgcatctttcaccgtagtcctagc	cttgctggagctcgtagatgc

RM296	9	39.94	cacatggcaccaacctcc	gccaagtcattcactactctgg
Indel9-6	9	48.34	gcatgtatcgtggacatgga	tccttgatcaacaccgtcaa
RM566	9	54.47	aatatggtggcgcgtacatcc	tgatcgagccaacaacaactgg
RM410	9	65.35	gctagattcacgggccttgc	gtgcgttcggatggaggtagg
RM553	9	71.57	tgtgtggccactttactcaacc	ggagaaggtggttgcagaagc
Indel10-1	10	1.95	aattcttatggacggatacgc	tcagcatctcgtaagcaaaaa
RM25561	10	65.65	tactaccttccacgcttccatcc	gcgatttcttcgggagttaggg
RM496	10	83.34	gacatgcgaacaacgacatcc	ctatagttgttgcacatgcgatcc
Indel10-10	10	85.57	catgctacagagagggaagc	acggcgtctttcggtgtc
RM590	10	85.61	catctccgctctccatgc	ggagttggggtcttgttcg
RM25968	11	1.30	cagatagctggtagtcattgtcc	caacttcctataccagtcaacacc
RM286	11	1.43	ctggcctctagctacaaccttgc	aaactctcgctggattcgatagg
Indel11-1	11	3.05	acaaagtctaaggcctgaaaaa	gatgtcttccgggtgagcta
Indel11-2	11	12.41	tgatgagctctcacttgttgaaa	cgtacattggcttatgtgatctg
RM552	11	17.94	cgcagttgtggatttcagtgc	tcatgctcaacgtttgactgtcc
RM26227	11	19.80	caccggagaccagagtagaacg	ctcaaactgatcgaggctgacc
Indel11-3	11	21.71	gtgaattcatgacgcgaaga	agcttgatggatgctcaggt
Indel11-4	11	31.04	tgagatgtggccattaagga	tggcaaaagatcttatatttacttcg
Indel11-5	11	40.50	tctcctcaaaatgggacacc	ataacgcgggacacagaatc
RM206	11	83.26	atcgatccgtatgggttctagc	gtccatgtagccaatcttatgtgg
RM27074	11	88.82	ggaggagatatcagcaataagagg	gaagaagaatcgtggataggc
Indel12-1	12	2.05	tctggagagctgcagaaaca	gcaatctctgcactttgatacc
RM27434	12	2.58	gtgctgatccacctgacttctcc	ttgggctcggtttctctcttagc
RM27686	12	17.38	atgggaacaaccttatcgtctgc	gagagttgggcttcttgttgagg
RM7119	12	24.80	ctgagaccatgacgggataaacacc	ggcctcagatcatcacaacttgg
Indel12-5	12	38.80	tgggcaactgaatctaacca	ggagatgatgatgcggtgat
Indel12-6	12	48.33	caactaaaaccaacacaaaatcca	tgtctagttgcatgtctgagtgtc
RM7102	12	48.93	gggcgttcggtttacttggttactcg	ggcggcataggagtgtttagagtgc
RM277	12	67.85	cggtcaaatcatcacctgac	caaggcttgcaagggaag
RM519	12	73.72	aatttccgcgaaatcagcatcc	tcatctggacagtcgaggtacgc
RM3331	12	87.02	acgagagggaggagagagaaacg	ggagagccacaggaacagatcg
RM28621	12	92.50	gtgtcaactgtcaacaaacacc	aaggtcagggttacatgatagg

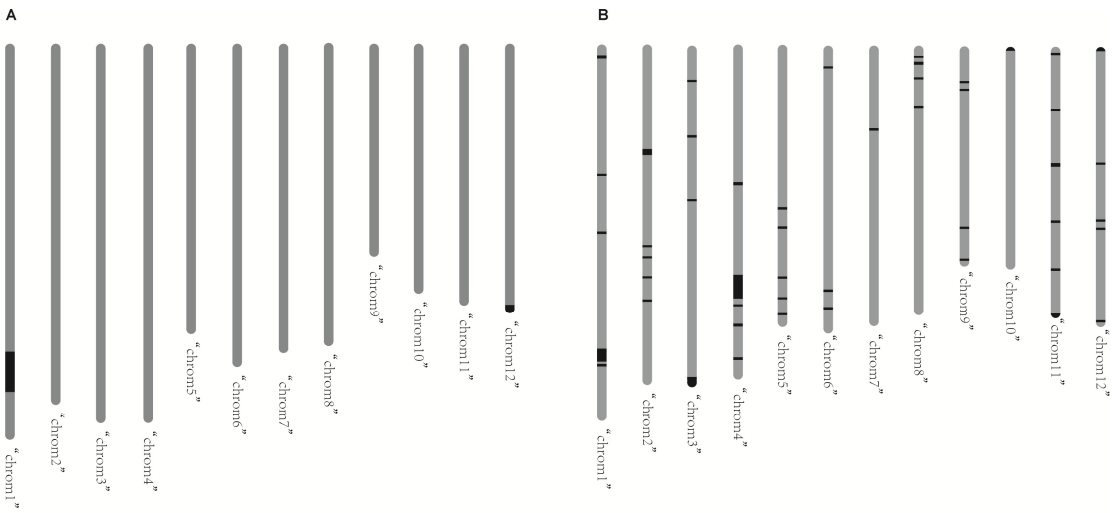

Fig. S1 Genotypes of CSSL28 detected using SSR/InDel (a) and SNP (b) markers. Black indicates introgression segments from wild rice; gray indicates the background genotype

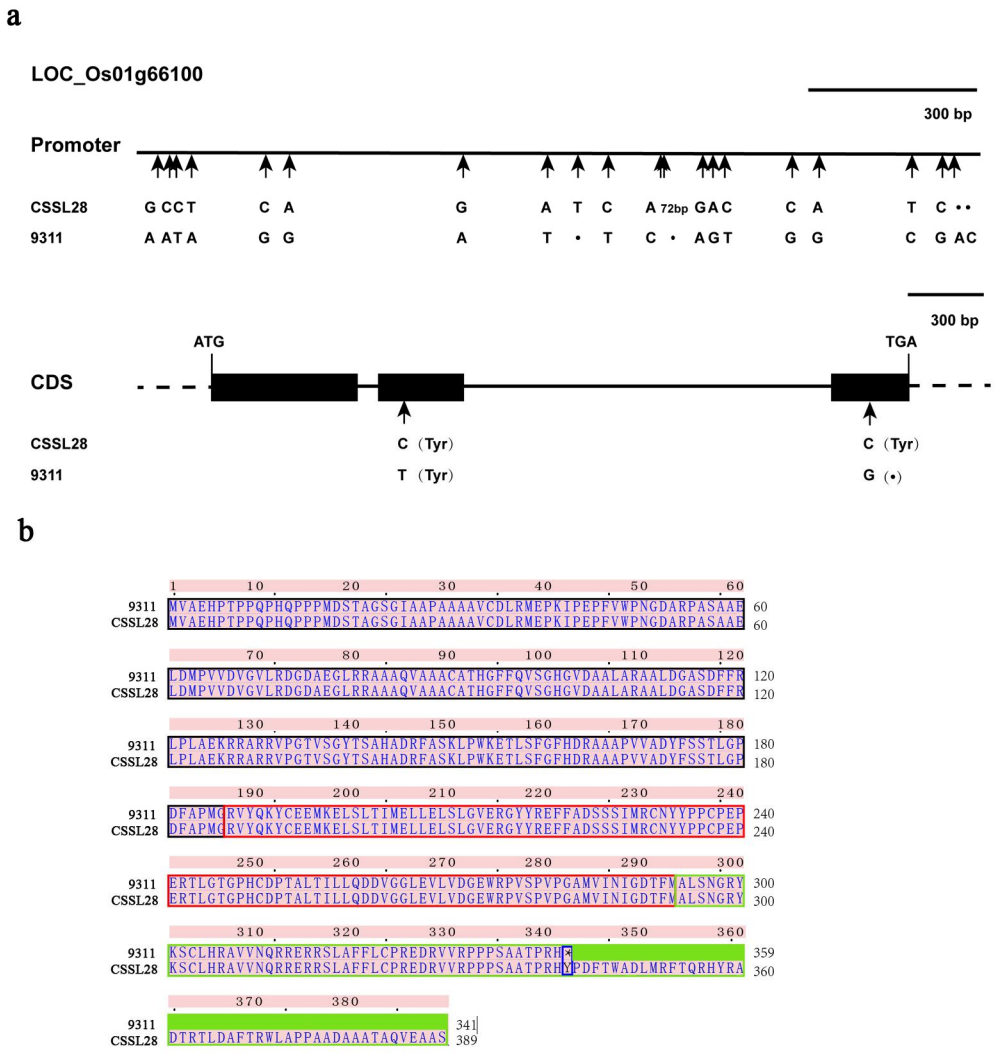

Fig. S2 Comparison of *SD1* between rice lines 9311 and CSSL28.

a SNPs found in the *SD1* promoter and coding regions. **b** Sequence alignment of the *SD1* gene