

Table S4 The candidate genes for the seed-related traits

Trait	QTL	Linkage Group ID	Gene ID	Swissprot annotation	Nr annotation
Seed coat color	<i>qscca*4</i>	LG04	SIN_1012044	E3 ubiquitin protein ligase RIN2 GN=F24A6.70 OS=Arabidopsis thaliana (Mouse-ear cress) PE=1 SV=1	PREDICTED: RING finger and transmembrane domain-containing protein 2-like [Solanum lycopersicum]
			SIN_1012049	Putative SWI/SNF-related matrix-associated actin-dependent regulator of chromatin subfamily A member 3-like 2 GN=At5g22750 OS=Arabidopsis thaliana (Mouse-ear cress) PE=2 SV=1	PREDICTED: E3 ubiquitin-protein ligase SHPRH-like [Vitis vinifera]
			SIN_1016759	Aureusidin synthase GN=AS1 OS=Antirrhinum majus (Garden snapdragon) PE=1 SV=1	polyphenol oxidase [Populus trichocarpa]
			SIN_1012034	Pentatricopeptide repeat-containing protein At1g02060, chloroplastic (Precursor) GN=At1g02060 OS=Arabidopsis thaliana (Mouse-ear cress) PE=2 SV=2	PREDICTED: pentatricopeptide repeat-containing protein At1g02060, chloroplastic-like [Solanum lycopersicum]
	<i>qsccY9</i>	LG09	SIN_1022635	Ammonium transporter 1 member 3 GN=AMT1-3 OS=Solanum lycopersicum (Tomato) PE=2 SV=1	PREDICTED: ammonium transporter 1 member 3 [Vitis vinifera]
			SIN_1022704	Probable linoleate 9S-lipoxygenase 5 GN=LOX1.5 OS=Solanum tuberosum (Potato) PE=2 SV=1	lipoxygenase [Olea europaea]
			SIN_1022679	Protein COBRA (Precursor) GN=COB OS=Arabidopsis thaliana (Mouse-ear cress) PE=2 SV=1	PREDICTED: protein COBRA [Vitis vinifera]
			SIN_1022680	COBRA-like protein 4 (Precursor) GN=COBL4 OS=Arabidopsis thaliana (Mouse-ear cress) PE=2 SV=2	Protein COBRA precursor, putative [Ricinus communis]
Seed size	<i>qsa11</i>	LG11	SIN_1003683	Mitogen-activated protein kinase YODA GN=YDA OS=Arabidopsis thaliana (Mouse-ear cress) PE=1 SV=1	protein kinase [Nicotiana benthamiana]
			SIN_1003684		PREDICTED: 50S ribosomal protein L25-like [Solanum lycopersicum]
	<i>qsw5</i>	LG05	SIN_1003687	Serine/threonine-protein kinase SAPK10 GN=OSJNBb0007E22.11 OS=Oryza sativa subsp. japonica (Rice) PE=2 SV=1	PREDICTED: serine/threonine-protein kinase SRK2I-like [Solanum lycopersicum]
			SIN_1013822		Mitochondrial transcription termination factor family protein [Theobroma cacao]
			SIN_1013833	DEAD-box ATP-dependent RNA helicase 5 GN=B1114D08.16-1 OS=Oryza sativa subsp. japonica (Rice) PE=2 SV=1	PREDICTED: DEAD-box ATP-dependent RNA helicase 5 [Vitis vinifera]
SIN_1013848	Auxin response factor 9 GN=ARF9 OS=Arabidopsis thaliana (Mouse-ear cress) PE=1 SV=1	Auxin response factor 9 isoform 2 [Theobroma cacao]			
Thousand seed weight	<i>qtsw9</i>	LG09	SIN_1022989	Trihelix transcription factor GT-3a GN=T1008.90 OS=Arabidopsis	Sequence-specific DNA binding transcription

SIN_1023052	thaliana (Mouse-ear cress) PE=1 SV=1 Serine/threonine-protein phosphatase PP2A-3 catalytic subunit GN=F14P22.90 OS=Arabidopsis thaliana (Mouse-ear cress) PE=2 SV=1	factors [Theobroma cacao] serine/threonine-protein phosphatase [Genlisea aurea]
SIN_1022987	WAT1-related protein At1g25270 GN=At1g25270 OS=Arabidopsis thaliana (Mouse-ear cress) PE=2 SV=1	Mtn21-like protein [Theobroma cacao]
