

**Supplementary Table S2** Information of genes related to the flavonoid synthesis pathway.

Gene-id	KO	Pathway
augustus-ctg000020_np1212-processed-gene-29.11-mRNA-1	K00660,CHS,chalcone synthase	ko00941,Flavonoid biosynthesis;ko04712,Circadian rhythm - plant;ko01008,Polyketide biosynthesis proteins
augustus-ctg000020_np1212-processed-gene-29.11-mRNA-1	K00660,CHS,chalcone synthase	ko00941,Flavonoid biosynthesis;ko04712,Circadian rhythm - plant;ko01008,Polyketide biosynthesis proteins
augustus-ctg000140_np1212-processed-gene-116.7-mRNA-1	K10757,E2.4.1.91,flavonol 3-O-glucosyltransferase	ko00944,Flavone and flavonol biosynthesis;ko01003,Glycosyltransferases
augustus-ctg000140_np1212-processed-gene-116.7-mRNA-1	K15787,UGT78D1,flavonol-3-O-rhamnosyltransferase	ko00944,Flavone and flavonol biosynthesis
augustus-ctg000150_np1212-processed-gene-149.1-mRNA-1	K22440,NOMT,naringenin 7-O-methyltransferase	ko00941,Flavonoid biosynthesis
augustus-ctg000150_np1212-processed-gene-149.2-mRNA-1	K22440,NOMT,naringenin 7-O-methyltransferase	ko00941,Flavonoid biosynthesis
augustus-ctg000150_np1212-processed-gene-149.3-mRNA-1	K22440,NOMT,naringenin 7-O-methyltransferase	ko00941,Flavonoid biosynthesis
augustus-ctg000150_np1212-processed-gene-6.5-mRNA-1	K08243,PKR,polyketide reductase	ko00941,Flavonoid biosynthesis
augustus-ctg000150_np1212-processed-gene-6.8-mRNA-1	K08243,PKR,polyketide reductase	ko00941,Flavonoid biosynthesis
augustus-ctg000150_np1212-processed-gene-7.10-mRNA-1	K08243,PKR,polyketide reductase	ko00941,Flavonoid biosynthesis
augustus-ctg000150_np1212-processed-gene-7.6-mRNA-1	K08243,PKR,polyketide reductase	ko00941,Flavonoid biosynthesis
augustus-ctg000150_np1212-processed-gene-8.4-mRNA-1	K08243,PKR,polyketide reductase	ko00941,Flavonoid biosynthesis
augustus-ctg000150_np1212-processed-gene-8.5-mRNA-1	K08243,PKR,polyketide reductase	ko00941,Flavonoid biosynthesis
augustus-ctg000330_np1212-processed-gene-53.1-mRNA-1	K13259,HI4OMT,2,7,4'-trihydroxyisoflavanone 4'-O-methyltransferase / isoflavone 4'-O-methyltransferase	ko00943,Isoflavonoid biosynthesis
augustus-ctg000330_np1212-processed-gene-53.1-mRNA-1	K13262,7-IOMT,isoflavone-7-O-methyltransferase	ko00943,Isoflavonoid biosynthesis
augustus-ctg000350_np1212-processed-gene-18.4-mRNA-1	K13259,HI4OMT,2,7,4'-trihydroxyisoflavanone 4'-O-methyltransferase / isoflavone 4'-O-methyltransferase	ko00943,Isoflavonoid biosynthesis
augustus-ctg000350_np1212-processed-gene-18.4-mRNA-1	K13262,7-IOMT,isoflavone-7-O-methyltransferase	ko00943,Isoflavonoid biosynthesis
augustus-ctg000540_np1212-processed-gene-21.4-mRNA-1	K13082,DFR,bifunctional dihydroflavonol 4-reductase/flavanone 4-reductase	ko00941,Flavonoid biosynthesis
augustus-ctg000540_np1212-processed-gene-51.14-mRNA-1	K00660,CHS,chalcone synthase	ko00941,Flavonoid biosynthesis;ko04712,Circadian rhythm - plant;ko01008,Polyketide biosynthesis proteins
augustus-ctg000540_np1212-processed-gene-61.15-mRNA-1	K00660,CHS,chalcone synthase	ko00941,Flavonoid biosynthesis;ko04712,Circadian rhythm - plant;ko01008,Polyketide biosynthesis proteins
augustus-ctg000540_np1212-processed-gene-61.7-mRNA-1	K00660,CHS,chalcone synthase	ko00941,Flavonoid biosynthesis;ko04712,Circadian rhythm - plant;ko01008,Polyketide biosynthesis proteins
augustus-ctg000540_np1212-processed-gene-8.5-mRNA-1	K01904,4CL,4-coumarate--CoA ligase	ko00130,Ubiquinone and other terpenoid-quinone

augustus-ctg000650_np1212-processed-gene-13.4-mRNA-1	K00475,F3H,naringenin 3-dioxygenase	biosynthesis;ko00940,Phenylpropanoid biosynthesis ko00941,Flavonoid biosynthesis
augustus-ctg000720_np1212-processed-gene-5.4-mRNA-1	K13080,C12RT1,flavanone 7-O-glucoside 2"-O-beta-L-rhamnosyltransferase	ko00941,Flavonoid biosynthesis;ko00944,Flavone and flavonol biosynthesis
augustus-ctg000950_np1212-processed-gene-1.1-mRNA-1	K13259,HI4OMT,2,7,4'-trihydroxyisoflavanone 4'-O-methyltransferase / isoflavone 4'-O-methyltransferase	ko00943,Isoflavonoid biosynthesis
augustus-ctg000950_np1212-processed-gene-1.1-mRNA-1	K13262,7-IOMT,isoflavone-7-O-methyltransferase	ko00943,Isoflavonoid biosynthesis
augustus-ctg001150_np1212-processed-gene-94.6-mRNA-1	K00660,CHS,chalcone synthase	ko00941,Flavonoid biosynthesis;ko04712,Circadian rhythm - plant;ko01008,Polyketide biosynthesis proteins
augustus-ctg001160_np1212-processed-gene-172.11-mRNA-1	K01904,4CL,4-coumarate--CoA ligase	ko00130,Ubiquinone and other terpenoid-quinone biosynthesis;ko00940,Phenylpropanoid biosynthesis
augustus-ctg001160_np1212-processed-gene-28.0-mRNA-1	K13264,IF7MAT,isoflavone 7-O-glucoside-6"-O-malonyltransferase	ko00944,Flavone and flavonol biosynthesis;ko00943,Isoflavonoid biosynthesis
augustus-ctg001290_np1212-processed-gene-88.2-mRNA-1	K01859,E5.5.1.6,chalcone isomerase	ko00941,Flavonoid biosynthesis
augustus-ctg001460_np1212-processed-gene-14.12-mRNA-1	K13083,CYP75A,flavonoid 3',5'-hydroxylase	ko00941,Flavonoid biosynthesis;ko00944,Flavone and flavonol biosynthesis;ko00199,Cytochrome P450
augustus-ctg001460_np1212-processed-gene-54.2-mRNA-1	K00660,CHS,chalcone synthase	ko00941,Flavonoid biosynthesis;ko04712,Circadian rhythm - plant;ko01008,Polyketide biosynthesis proteins
augustus-ctg001820_np1212-processed-gene-24.0-mRNA-1	K00660,CHS,chalcone synthase	ko00941,Flavonoid biosynthesis;ko04712,Circadian rhythm - plant;ko01008,Polyketide biosynthesis proteins
augustus-ctg001820_np1212-processed-gene-25.0-mRNA-1	K00660,CHS,chalcone synthase	ko00941,Flavonoid biosynthesis;ko04712,Circadian rhythm - plant;ko01008,Polyketide biosynthesis proteins
augustus-ctg001820_np1212-processed-gene-27.0-mRNA-1	K00660,CHS,chalcone synthase	ko00941,Flavonoid biosynthesis;ko04712,Circadian rhythm - plant;ko01008,Polyketide biosynthesis proteins
maker-ctg000030_np1212-augustus-gene-135.33-mRNA-1	K08243,PKR,polyketide reductase	ko00941,Flavonoid biosynthesis
maker-ctg000030_np1212-augustus-gene-46.46-mRNA-1	K01904,4CL,4-coumarate--CoA ligase	ko00130,Ubiquinone and other terpenoid-quinone biosynthesis;ko00940,Phenylpropanoid biosynthesis
maker-ctg000030_np1212-augustus-gene-60.63-mRNA-1	K13081,LAR,leucoanthocyanidin reductase	ko00941,Flavonoid biosynthesis
maker-ctg000070_np1212-augustus-gene-90.19-mRNA-1	K10775,PAL,phenylalanine ammonia-lyase	ko00360,Phenylalanine metabolism;ko00940,Phenylpropanoid biosynthesis
maker-ctg000070_np1212-augustus-gene-91.31-mRNA-1	K10775,PAL,phenylalanine ammonia-lyase	ko00360,Phenylalanine metabolism;ko00940,Phenylpropanoid biosynthesis
maker-ctg000140_np1212-snap-gene-115.30-mRNA-1	K01904,4CL,4-coumarate--CoA ligase	ko00130,Ubiquinone and other terpenoid-quinone biosynthesis;ko00940,Phenylpropanoid biosynthesis
maker-ctg000150_np1212-augustus-gene-200.38-mRNA-1	K05280,CYP75B1,flavonoid 3'-monooxygenase	ko00941,Flavonoid biosynthesis;ko00944,Flavone and flavonol

maker-ctg000150_np1212-augustus-gene-89.16-mRNA-1	K22440,NOMT,naringenin 7-O-methyltransferase	biosynthesis;ko00199,Cytochrome P450 ko00941,Flavonoid biosynthesis
maker-ctg000150_np1212-snap-gene-148.37-mRNA-1	K22440,NOMT,naringenin 7-O-methyltransferase	ko00941,Flavonoid biosynthesis
maker-ctg000330_np1212-augustus-gene-40.42-mRNA-1	K08695,ANR,anthocyanidin reductase	ko00941,Flavonoid biosynthesis
maker-ctg000330_np1212-snap-gene-102.46-mRNA-1	K01904,4CL,4-coumarate--CoA ligase	ko00130,Ubiquinone and other terpenoid-quinone biosynthesis;ko00940,Phenylpropanoid biosynthesis
maker-ctg000350_np1212-snap-gene-19.15-mRNA-1	K13259,HI4OMT,2,7,4'-trihydroxyisoflavanone 4'-O-methyltransferase / isoflavone 4'-O-methyltransferase	ko00943,Isoflavonoid biosynthesis
maker-ctg000350_np1212-snap-gene-19.15-mRNA-1	K13262,7-IOMT,isoflavone-7-O-methyltransferase	ko00943,Isoflavonoid biosynthesis
maker-ctg000540_np1212-augustus-gene-51.27-mRNA-1	K00660,CHS,chalcone synthase	ko00941,Flavonoid biosynthesis;ko04712,Circadian rhythm - plant;ko01008,Polyketide biosynthesis proteins
maker-ctg000540_np1212-augustus-gene-54.17-mRNA-1	K00660,CHS,chalcone synthase	ko00941,Flavonoid biosynthesis;ko04712,Circadian rhythm - plant;ko01008,Polyketide biosynthesis proteins
maker-ctg000540_np1212-augustus-gene-62.21-mRNA-1	K05278,FLS,flavonol synthase	ko00941,Flavonoid biosynthesis
maker-ctg000550_np1212-augustus-gene-31.21-mRNA-1	K01904,4CL,4-coumarate--CoA ligase	ko00130,Ubiquinone and other terpenoid-quinone biosynthesis;ko00940,Phenylpropanoid biosynthesis
maker-ctg000650_np1212-augustus-gene-13.39-mRNA-1	K01859,E5.5.1.6,chalcone isomerase	ko00941,Flavonoid biosynthesis
maker-ctg000710_np1212-augustus-gene-36.34-mRNA-1	K10775,PAL,phenylalanine ammonia-lyase	ko00360,Phenylalanine metabolism;ko00940,Phenylpropanoid biosynthesis
maker-ctg000710_np1212-augustus-gene-36.35-mRNA-1	K10775,PAL,phenylalanine ammonia-lyase	ko00360,Phenylalanine metabolism;ko00940,Phenylpropanoid biosynthesis
maker-ctg000710_np1212-augustus-gene-39.33-mRNA-1	K01904,4CL,4-coumarate--CoA ligase	ko00130,Ubiquinone and other terpenoid-quinone biosynthesis;ko00940,Phenylpropanoid biosynthesis
maker-ctg000710_np1212-snap-gene-40.55-mRNA-1	K01904,4CL,4-coumarate--CoA ligase	ko00130,Ubiquinone and other terpenoid-quinone biosynthesis;ko00940,Phenylpropanoid biosynthesis
maker-ctg000350_np1212-snap-gene-19.15-mRNA-1	K13259,HI4OMT,2,7,4'-trihydroxyisoflavanone 4'-O-methyltransferase / isoflavone 4'-O-methyltransferase	ko00943,Isoflavonoid biosynthesis
maker-ctg000350_np1212-snap-gene-19.15-mRNA-1	K13262,7-IOMT,isoflavone-7-O-methyltransferase	ko00943,Isoflavonoid biosynthesis
maker-ctg000540_np1212-augustus-gene-51.27-mRNA-1	K00660,CHS,chalcone synthase	ko00941,Flavonoid biosynthesis;ko04712,Circadian rhythm - plant;ko01008,Polyketide biosynthesis proteins
maker-ctg000540_np1212-augustus-gene-54.17-mRNA-1	K00660,CHS,chalcone synthase	ko00941,Flavonoid biosynthesis;ko04712,Circadian rhythm - plant;ko01008,Polyketide biosynthesis proteins
maker-ctg000540_np1212-augustus-gene-62.21-mRNA-1	K05278,FLS,flavonol synthase	ko00941,Flavonoid biosynthesis
maker-ctg000550_np1212-augustus-gene-31.21-mRNA-1	K01904,4CL,4-coumarate--CoA ligase	ko00130,Ubiquinone and other terpenoid-quinone biosynthesis;ko00940,Phenylpropanoid biosynthesis

maker-ctg000650_np1212-augustus-gene-13.39-mRNA-1	K01859,E5.5.1.6,chalcone isomerase	ko00941,Flavonoid biosynthesis
maker-ctg000710_np1212-augustus-gene-36.34-mRNA-1	K10775,PAL,phenylalanine ammonia-lyase	ko00360,Phenylalanine metabolism;ko00940,Phenylpropanoid biosynthesis
maker-ctg000710_np1212-augustus-gene-36.35-mRNA-1	K10775,PAL,phenylalanine ammonia-lyase	ko00360,Phenylalanine metabolism;ko00940,Phenylpropanoid biosynthesis
maker-ctg000710_np1212-augustus-gene-39.33-mRNA-1	K01904,4CL,4-coumarate--CoA ligase	ko00130,Ubiquinone and other terpenoid-quinone biosynthesis;ko00940,Phenylpropanoid biosynthesis
maker-ctg000710_np1212-snap-gene-40.55-mRNA-1	K01904,4CL,4-coumarate--CoA ligase	ko00130,Ubiquinone and other terpenoid-quinone biosynthesis;ko00940,Phenylpropanoid biosynthesis
maker-ctg000720_np1212-augustus-gene-5.37-mRNA-1	K13080,C12RT1,flavanone 7-O-glucoside 2"-O-beta-L-rhamnosyltransferase	maker-ctg000720_np1212-augustus-gene-5.37-mRNA-1
maker-ctg000720_np1212-snap-gene-10.33-mRNA-1	K13259,HI4OMT,2,7,4'-trihydroxyisoflavanone 4'-O-methyltransferase / isoflavone 4'-O-methyltransferase	maker-ctg000720_np1212-snap-gene-10.33-mRNA-1
maker-ctg000720_np1212-snap-gene-10.33-mRNA-1	K13262,7-IOMT,isoflavone-7-O-methyltransferase	maker-ctg000720_np1212-snap-gene-10.33-mRNA-1
maker-ctg000720_np1212-snap-gene-5.45-mRNA-1	K13080,C12RT1,flavanone 7-O-glucoside 2"-O-beta-L-rhamnosyltransferase	maker-ctg000720_np1212-snap-gene-5.45-mRNA-1
maker-ctg000910_np1212-snap-gene-46.62-mRNA-1	K05278,FLS,flavonol synthase	maker-ctg000910_np1212-snap-gene-46.62-mRNA-1
maker-ctg000950_np1212-snap-gene-1.15-mRNA-1	K13259,HI4OMT,2,7,4'-trihydroxyisoflavanone 4'-O-methyltransferase / isoflavone 4'-O-methyltransferase	maker-ctg000950_np1212-snap-gene-1.15-mRNA-1
maker-ctg000950_np1212-snap-gene-1.15-mRNA-1	K13262,7-IOMT,isoflavone-7-O-methyltransferase	maker-ctg000950_np1212-snap-gene-1.15-mRNA-1
maker-ctg000950_np1212-snap-gene-2.16-mRNA-1	K13259,HI4OMT,2,7,4'-trihydroxyisoflavanone 4'-O-methyltransferase / isoflavone 4'-O-methyltransferase	maker-ctg000950_np1212-snap-gene-2.16-mRNA-1
maker-ctg000950_np1212-snap-gene-2.16-mRNA-1	K13262,7-IOMT,isoflavone-7-O-methyltransferase	maker-ctg000950_np1212-snap-gene-2.16-mRNA-1
maker-ctg001830_np1212-snap-gene-12.9-mRNA-1	K13080,C12RT1,flavanone 7-O-glucoside 2"-O-beta-L-rhamnosyltransferase	ko00941,Flavonoid biosynthesis;ko00944,Flavone and flavonol biosynthesis
maker-ctg001150_np1212-snap-gene-98.20-mRNA-1	K13262,7-IOMT,isoflavone-7-O-methyltransferase	ko00943,Isoflavonoid biosynthesis
maker-ctg001160_np1212-snap-gene-25.32-mRNA-1	K08243,PKR,polyketide reductase	ko00941,Flavonoid biosynthesis
maker-ctg001160_np1212-snap-gene-27.7-mRNA-1	K13264,IF7MAT,isoflavone 7-O-glucoside-6"-O-malonyltransferase	ko00944,Flavone and flavonol biosynthesis;ko00943,Isoflavonoid biosynthesis
maker-ctg001290_np1212-augustus-gene-64.43-mRNA-1	K10775,PAL,phenylalanine ammonia-lyase	ko00360,Phenylalanine metabolism;ko00940,Phenylpropanoid biosynthesis
maker-ctg001290_np1212-snap-gene-11.27-mRNA-1	K05278,FLS,flavonol synthase	ko00941,Flavonoid biosynthesis
maker-ctg001300_np1212-augustus-gene-23.16-mRNA-1	K00660,CHS,chalcone synthase	ko00941,Flavonoid biosynthesis;ko04712,Circadian rhythm - plant;ko01008,Polyketide biosynthesis proteins
maker-ctg001300_np1212-snap-gene-22.48-mRNA-1	K00660,CHS,chalcone synthase	ko00941,Flavonoid biosynthesis;ko04712,Circadian rhythm - plant;ko01008,Polyketide biosynthesis proteins

maker-ctg001300_np1212-snap-gene-23.17-mRNA-1	K00660,CHS,chalcone synthase	ko00941,Flavonoid biosynthesis;ko04712,Circadian rhythm - plant;ko01008,Polyketide biosynthesis proteins
maker-ctg001360_np1212-snap-gene-1.38-mRNA-1	K13259,HI4OMT,2,7,4'-trihydroxyisoflavanone 4'-O-methyltransferase / isoflavone 4'-O-methyltransferase	ko00943,Isoflavonoid biosynthesis
maker-ctg001360_np1212-snap-gene-1.38-mRNA-1	K13262,7-IOMT,isoflavone-7-O-methyltransferase	ko00943,Isoflavonoid biosynthesis
maker-ctg001360_np1212-snap-gene-1.39-mRNA-1	K13259,HI4OMT,2,7,4'-trihydroxyisoflavanone 4'-O-methyltransferase / isoflavone 4'-O-methyltransferase	ko00943,Isoflavonoid biosynthesis
maker-ctg001430_np1212-snap-gene-20.42-mRNA-1	K01904,4CL,4-coumarate--CoA ligase	ko00130,Ubiquinone and other terpenoid-quinone biosynthesis;ko00940,Phenylpropanoid biosynthesis
maker-ctg001430_np1212-snap-gene-9.10-mRNA-1	K13259,HI4OMT,2,7,4'-trihydroxyisoflavanone 4'-O-methyltransferase / isoflavone 4'-O-methyltransferase	ko00943,Isoflavonoid biosynthesis
maker-ctg001430_np1212-snap-gene-9.10-mRNA-1	K13262,7-IOMT,isoflavone-7-O-methyltransferase	ko00943,Isoflavonoid biosynthesis
maker-ctg001660_np1212-snap-gene-35.25-mRNA-1	K13264,IF7MAT,isoflavone 7-O-glucoside-6"-O-malonyltransferase	ko00944,Flavone and flavonol biosynthesis;ko00943,Isoflavonoid biosynthesis
maker-ctg001830_np1212-snap-gene-12.10-mRNA-1	K13080,C12RT1,flavanone 7-O-glucoside 2"-O-beta-L-rhamnosyltransferase	ko00941,Flavonoid biosynthesis;ko00944,Flavone and flavonol biosynthesis
snap-ctg000710_np1212-processed-gene-40.16-mRNA-1	K01904,4CL,4-coumarate--CoA ligase	ko00130,Ubiquinone and other terpenoid-quinone biosynthesis;ko00940,Phenylpropanoid biosynthesis
snap-ctg001290_np1212-processed-gene-13.2-mRNA-1	K01904,4CL,4-coumarate--CoA ligase	ko00130,Ubiquinone and other terpenoid-quinone biosynthesis;ko00940,Phenylpropanoid biosynthesis