

**Table S1** List of structural genes involved in the anthocyanin biosynthesis pathway except the UDP-glycosyltransferase (UGT) family in *Rosa chinensis* genome.

<b>Gene</b>	<b>Genome id</b>	<b>Description</b>
<i>RcCHSa</i>	RchiOBHmChr1g0316451	Chalcone synthase
<i>RcCHSb</i>	RchiOBHmChr1g0316461	Chalcone synthase
<i>RcCHSc</i>	RchiOBHmChr4g0399981	Chalcone synthase
<i>RcCHI</i>	RchiOBHmChr1g0365111	Chalcone isomerase
<i>RcCHIL</i>	RchiOBHmChr2g0123661	Chalcone isomerase-like
<i>RcF3H</i>	RchiOBHmChr2g0099421	Flavanone 3-hydroxylase
<i>RcF3'H</i>	RchiOBHmChr7g0182961	Flavonoid 3'-monooxygenase
<i>RcDFR</i>	RchiOBHmChr6g0301421	Dihydroflavonol 4-reductase
<i>RcANS</i>	RchiOBHmChr7g0199941	Leucoanthocyanidin dioxygenase
<i>RcFNSII-1</i>	RchiOBHmChr3g0480431	Flavone synthase
<i>RcFNSII-2</i>	RchiOBHmChr5g0062571	Flavone synthase
<i>RcFLS</i>	RchiOBHmChr6g0295121	Flavonol synthase
<i>RcLAR</i>	RchiOBHmChr4g0435881	Leucoanthocyanidin reductase
<i>RcANR1</i>	RchiOBHmChr5g0004611	Anthocyanidin reductase
<i>RcANR2</i>	RchiOBHmChr7g0195231	Anthocyanidin reductase
<i>RcANR3</i>	RchiOBHmChr7g0195261	Anthocyanidin reductase