

Table S6. Gene ID and FPKM of anthocyanin synthesis-related genes.

Gene name	Gene ID	FPKM			
		G	W	T	R
4CL1	FvRG_4g0035410	93.12	85.54	48.48	55.13
	FxaYL_411g0795840	34.06	17.15	15.62	11.76
	FxaYL_412g0823010	33.81	17.62	15.93	12.17
	FxaYL_431g0631160	9.10	3.77	7.94	4.68
	FxaYL_432g0538320	9.40	3.85	8.18	4.73
	FxaYL_441g0233260	7.34	7.04	8.79	4.64
	FxaYL_442g0248810	7.96	6.83	8.79	4.50
AHA10	FvRG_6g0046960	259.90	408.96	303.90	100.01
	FxaYL_611g0109090	75.00	95.38	47.04	26.43
	FxaYL_612g0106390	75.01	96.54	49.69	28.33
	FxaYL_621g0061970	43.24	60.49	39.27	22.52
	FxaYL_622g0060450	48.56	67.67	41.93	24.31
	FxaYL_631g0014690	66.92	98.14	48.66	23.97
	FxaYL_632g0014610	76.93	114.46	58.29	29.62
	FxaYL_641g0157560	52.44	81.52	39.77	25.07
	FxaYL_642g0153130	44.86	67.11	31.71	19.99
ANR	FvRG_3g0046050	830.13	185.92	56.78	6.63
	FxaYL_311g0343340	3.05	0.75	0.71	0.64
	FxaYL_312g0332280	3.07	0.76	0.71	0.64
	FxaYL_321g0305370	2.08	0.96	1.28	1.17
	FxaYL_322g0296120	1.40	0.79	1.07	1.10
	FxaYL_342g0184350	4.54	1.90	1.24	1.25
	FxaYL_341g0262740	3.57	1.56	0.98	1.10
ANS	FvRG_5g0001400	561.00	210.74	842.08	434.05
	FxaYL_511g0695310	68.14	251.60	904.84	823.23
	FxaYL_512g0645780	63.93	238.96	884.19	803.59
	FxaYL_521g0758970	0.22	0.85	10.35	7.61
	FxaYL_522g0613100	0.26	3.66	40.77	33.75
	FxaYL_531g0590000	1.18	50.33	584.72	519.55
	FxaYL_532g0366230	1.07	44.59	522.55	463.72
	FxaYL_541g0621860	0.07	0.78	4.45	4.13
bHLH3	FvRG_2g0022160	15.08	14.96	12.27	4.95
	FxaYL_211g0418840	2.47	5.82	3.05	3.74
	FxaYL_212g0583330	2.43	5.53	2.70	3.57
	FxaYL_221g0466850	2.15	4.44	2.21	2.44
	FxaYL_222g0417520	1.24	2.45	1.53	1.65
	FxaYL_231g0394060	3.08	5.34	3.88	3.78
	FxaYL_232g0493140	3.24	5.56	4.00	3.90

Table S6. (continued)

Gene name	Gene ID	FPKM			
		G	W	T	R
bHLH33	FxaYL_241g0506090	1.39	3.43	2.30	1.74
	FxaYL_241g0506090	1.39	3.43	2.30	1.74
	FvRG_7g0023380	4.93	3.79	2.65	1.07
	FxaYL_711g0952270	0.55	0.62	0.51	0.37
	FxaYL_712g0938370	0.62	0.85	0.56	0.45
	FxaYL_721g0984030	1.29	1.02	0.48	0.62
	FxaYL_722g0908690	1.27	1.00	0.46	0.60
	FxaYL_731g0861820	0.39	0.58	0.53	0.27
	FxaYL_732g0845640	0.36	0.53	0.46	0.23
	FxaYL_741g0924310	0.67	0.92	0.67	0.70
C4H	FxaYL_742g0967210	0.66	0.81	0.74	0.65
	FvRG_3g0035630	141.35	116.35	62.70	23.34
	FxaYL_311g0372770	3.36	2.01	4.16	3.80
	FxaYL_312g0360760	3.47	2.18	6.57	6.73
	FxaYL_321g0336840	2.40	2.21	8.86	10.12
	FxaYL_322g0325780	2.26	2.18	9.72	10.93
	FxaYL_331g0220950	3.51	1.76	11.38	12.69
	FxaYL_332g0289360	3.36	1.37	7.58	8.47
	FxaYL_341g0297780	3.86	3.08	29.88	25.14
	FxaYL_342g0218380	3.93	3.17	30.19	25.35
CHI	FvRG_7g0016190	433.28	277.19	276.72	132.44
	FxaYL_711g0946610	4.76	41.88	223.08	163.48
	FxaYL_712g0932910	4.92	43.09	228.42	167.67
	FxaYL_721g0978030	36.53	87.01	394.21	305.43
	FxaYL_722g0902760	36.50	76.94	319.98	249.66
	FxaYL_731g0856630	0.64	1.44	5.37	4.19
	FxaYL_732g0840260	0.59	1.30	5.15	3.84
	FxaYL_741g0918870	3.19	23.33	140.29	97.40
	FxaYL_742g0961860	0.90	11.04	72.07	51.07
CHS	FvRG_7g0039670	1002.42	471.06	831.87	531.91
	FxaYL_711g0964790	2.39	44.90	356.16	286.21
	FxaYL_711g0964800	3.29	119.13	937.89	740.72
	FxaYL_712g0950050	2.46	44.46	350.98	281.49
	FxaYL_712g0950060	3.17	115.33	906.54	713.49
	FxaYL_721g0997530	0.91	40.64	325.53	253.21
	FxaYL_721g0997540	0.46	10.21	152.69	115.23
	FxaYL_722g0921660	0.90	37.34	300.35	233.70
	FxaYL_722g0921670	0.45	9.70	145.92	109.44

Table S6. (continued)

Gene name	Gene ID	FPKM			
		G	W	T	R
DFR	FxaYL_731g0874340	0.54	20.96	168.52	126.30
	FxaYL_731g0874350	2.26	80.99	613.15	480.08
	FxaYL_732g0858500	0.48	20.79	167.62	127.18
	FxaYL_732g0858510	1.89	67.40	508.10	395.20
	FxaYL_741g0935280	2.10	100.10	608.63	503.94
	FxaYL_741g0935290	0.16	9.80	91.92	78.16
	FxaYL_742g0977670	1.96	96.68	585.48	484.83
	FxaYL_742g0977680	0.47	19.19	173.40	144.08
	FvRG_2g0002200	142.26	39.80	113.35	62.33
	FxaYL_211g0446170	335.07	601.45	515.31	400.68
	FxaYL_212g0610140	443.93	799.26	684.02	538.96
	FxaYL_221g0449840	0.47	0.18	0.41	0.37
	FxaYL_222g0401090	0.15	0.29	0.53	0.16
	FxaYL_231g0378820	0.17	0.48	0.32	0.37
	FxaYL_232g0478220	25.98	42.84	33.51	24.66
	FxaYL_222g0400920	0.57	34.61	238.38	140.13
	FxaYL_221g0449850	0.55	31.79	218.05	127.00
	FxaYL_231g0378830	13.56	45.56	143.14	110.98
	FxaYL_232g0478230	4.88	27.28	157.81	119.37
	FxaYL_241g0490660	33.46	119.82	433.18	292.22
EGL3	FxaYL_242g0441320	1.06	47.19	374.63	253.54
	FxaYL_212g0610130	73.69	167.04	162.36	108.24
	FxaYL_242g0441310	11.94	25.16	18.79	12.03
	FvRG_7g0023380	4.93	3.79	2.65	1.07
	FxaYL_711g0952270	0.55	0.62	0.51	0.37
	FxaYL_712g0938370	0.62	0.85	0.56	0.45
	FxaYL_721g0984030	1.29	1.02	0.48	0.62
	FxaYL_722g0908690	1.27	1.00	0.46	0.60
	FxaYL_731g0861820	0.39	0.58	0.53	0.27
	FxaYL_732g0845640	0.36	0.53	0.46	0.23
F3H	FxaYL_741g0924310	0.67	0.92	0.67	0.70
	FxaYL_742g0967210	0.66	0.81	0.74	0.65
	FvRG_1g0014200	524.51	285.01	828.65	487.19
	FxaYL_111g0834990	1.92	33.60	272.81	291.35
	FxaYL_112g0691680	1.95	33.84	275.01	293.92
	FxaYL_121g0717030	4.58	33.67	203.54	202.02
	FxaYL_122g0781040	3.92	28.81	173.54	173.68
	FxaYL_131g0778910	3.85	62.72	467.64	438.38

Table S6. (continued)

Gene name	Gene ID	FPKM			
		G	W	T	R
F3'H	FxaYL_132g0751760	3.83	61.50	459.18	430.16
	FxaYL_141g0895900	6.48	144.44	999.88	928.06
	FxaYL_142g0870920	6.46	141.93	984.41	912.92
	FvRG_5g0016930	202.36	125.82	64.15	12.03
	FxaYL_511g0683720	0.81	0.33	0.22	0.19
	FxaYL_512g0657140	0.78	0.32	0.22	0.18
	FxaYL_521g0748720	0.28	0.28	0.22	0.30
	FxaYL_522g0623220	0.26	0.01	0.05	0.16
	FxaYL_531g0579180	0.05	0.01	0.00	0.02
	FxaYL_532g0376870	0.06	0.02	0.01	0.02
FLS	FxaYL_541g0611960	0.59	0.12	0.08	0.09
	FxaYL_542g0721270	0.55	0.12	0.08	0.08
	FvRG_2g0016920	3.94	53.02	3.05	0.09
	FxaYL_211g0414570	0.05	0.13	0.23	0.46
	FxaYL_212g0579180	0.00	0.00	0.00	0.00
	FxaYL_221g0462380	0.29	0.40	0.07	0.00
	FxaYL_222g0413150	0.25	0.38	0.04	0.00
	FxaYL_231g0388410	0.04	0.06	0.02	0.00
	FxaYL_232g0487810	0.06	0.08	0.02	0.00
	FxaYL_241g0501630	0.49	0.35	0.11	0.00
LAR	FxaYL_242g0452300	0.17	0.30	0.64	0.44
	FvRG_4g0010500	179.81	55.17	12.35	0.30
	FxaYL_411g0810410	14.61	8.48	4.75	1.97
	FxaYL_412g0808700	15.73	8.79	4.72	2.19
	FxaYL_421g0549980	7.22	8.45	16.82	14.83
	FxaYL_422g0554580	8.68	10.27	20.63	18.02
	FxaYL_431g0649230	0.43	0.02	0.05	0.04
	FxaYL_432g0520610	0.43	0.02	0.06	0.03
	FxaYL_441g0252160	0.74	0.88	1.80	1.65
	FxaYL_442g0230490	0.11	0.00	0.05	0.00
LWD1	FvRG_6g0069260	86.87	89.01	84.37	71.86
	FxaYL_612g0090410	12.35	19.14	14.00	9.36
	FxaYL_622g0046440	9.38	15.54	14.52	8.66
	FxaYL_632g0000090	17.24	32.98	29.21	24.01
MYB1	FvRG_5g0020740	4.43	1.18	1.46	0.90
	FxaYL_511g0680550	0.00	0.00	0.00	0.00
	FxaYL_512g0660380	0.00	0.00	0.00	0.00
	FxaYL_521g0745930	0.00	0.00	0.19	0.91

Table S6. (continued)

Gene name	Gene ID	FPKM			
		G	W	T	R
MYB10	FxaYL_522g0625950	0.00	0.00	0.18	0.90
	FxaYL_531g0576120	0.25	0.16	0.58	1.16
	FxaYL_532g0379550	0.38	1.09	1.73	2.90
	FxaYL_541g0609420	6.98	11.55	27.24	43.27
	FxaYL_542g0723920	10.85	17.67	41.56	69.28
	FvRG_1g0027070	4.87	62.62	233.73	94.19
	FxaYL_111g0826310	0.06	0.01	0.08	0.20
	FxaYL_112g0700260	0.06	0.00	0.06	0.33
	FxaYL_121g0707540	0.40	11.29	75.79	92.89
	FxaYL_122g0790550	1.28	34.65	232.32	284.92
	FxaYL_131g0769020	0.00	0.30	0.94	1.09
	FxaYL_132g0761430	0.00	0.22	0.80	0.36
	FxaYL_141g0885740	0.00	0.05	0.34	3.31
MYB11	FxaYL_142g0880670	0.00	0.07	0.33	3.79
	FvRG_6g0045000	53.35	24.01	7.70	1.28
	FxaYL_611g0110580	0.07	0.06	0.08	0.02
	FxaYL_612g0107740	0.04	0.05	0.06	0.01
	FxaYL_621g0063270	0.16	0.01	0.00	0.06
	FxaYL_622g0061870	0.18	0.01	0.00	0.06
	FxaYL_631g0015970	0.03	0.00	0.00	0.00
	FxaYL_632g0015990	0.03	0.00	0.00	0.00
	FxaYL_641g0158780	0.04	0.00	0.00	0.00
	FxaYL_642g0154170	0.02	0.00	0.00	0.00
MYB9	FvRG_2g0011710	27.35	7.15	1.01	0.07
	FxaYL_211g0438190	0.12	0.05	0.07	0.10
	FxaYL_212g0602170	0.14	0.05	0.12	0.09
	FxaYL_221g0458010	0.00	0.00	0.00	0.00
	FxaYL_222g0409060	0.00	0.00	0.00	0.00
	FxaYL_231g0386360	0.03	0.06	0.00	0.05
	FxaYL_232g0485850	0.02	0.06	0.00	0.06
	FxaYL_241g0497730	0.06	0.00	0.10	0.00
	FxaYL_242g0448420	0.00	0.00	0.00	0.00
	FvRG_7g0018100	43.59	13.52	9.94	58.27
PAL1	FxaYL_711g0948070	8.26	57.55	237.28	246.36
	FxaYL_712g0934180	7.65	51.19	221.43	229.04
	FxaYL_721g0979450	5.40	2.17	13.91	16.16
	FxaYL_722g0904220	5.50	2.27	13.61	15.90
	FxaYL_731g0857910	5.34	4.51	19.00	28.58

Table S6. (continued)

Gene name	Gene ID	FPKM			
		G	W	T	R
PAL2	FxaYL_732g0841530	5.16	6.32	23.37	32.61
	FxaYL_741g0920260	4.41	3.34	15.85	16.66
	FxaYL_742g0963120	4.60	6.11	23.32	24.35
	FvRG_6g0019450	67.84	68.38	113.94	60.59
	FxaYL_612g0125130	2.01	4.81	32.87	36.99
	FxaYL_611g0128340	2.00	4.64	30.91	35.09
	FxaYL_642g0169390	2.40	8.40	47.23	54.20
	FxaYL_641g0174850	2.38	10.08	56.73	64.47
	FxaYL_622g0077200	0.54	7.06	41.55	45.17
RAV1	FxaYL_621g0078710	0.53	5.55	33.56	36.35
	FvRG_5g0024170	1.57	1.37	2.56	1.62
	FxaYL_511g0677900	0.00	0.05	0.09	0.14
	FxaYL_512g0663020	0.00	0.00	0.22	0.19
	FxaYL_521g0743280	0.00	0.00	0.00	0.00
	FxaYL_522g0628640	0.00	0.00	0.00	0.00
	FxaYL_531g0573590	0.03	0.07	0.04	0.01
	FxaYL_532g0382150	0.00	0.00	0.00	0.02
	FxaYL_522g0628630	0.00	0.00	0.00	0.00
TT12	FxaYL_521g0743290	0.00	0.00	0.00	0.00
	FvRG_2g0016900	108.92	33.97	24.82	6.28
	FxaYL_211g0414550	0.04	0.00	0.00	0.00
	FxaYL_212g0579160	0.04	0.03	0.00	0.00
	FxaYL_221g0462360	1.15	1.42	0.87	0.16
	FxaYL_222g0413130	1.14	1.41	0.87	0.18
	FxaYL_231g0388440	0.63	0.87	0.20	0.03
	FxaYL_232g0487830	0.51	0.81	0.24	0.03
	FxaYL_241g0501610	3.71	6.28	3.09	2.97
TT19	FxaYL_242g0452280	3.77	6.26	3.08	2.94
	FvRG_1g0034290	25.21	3.76	1830.12	713.37
	FxaYL_121g0701570	0.08	20.60	140.14	116.55
	FxaYL_122g0796260	0.10	20.45	135.74	112.96
	FxaYL_141g0880020	1.43	75.53	551.61	486.13
	FxaYL_142g0886330	1.66	87.17	643.97	567.13
	FxaYL_112g0709530	0.00	0.27	2.32	1.68
TTG1	FvRG_7g0001720	48.63	57.17	48.24	54.84
	FxaYL_711g0937360	29.88	17.02	10.59	8.79
	FxaYL_712g0924030	27.75	15.86	9.73	8.37
	FxaYL_721g0967160	53.78	20.15	15.74	11.48

Table S6. (continued)

Gene name	Gene ID	FPKM			
		G	W	T	R
UFGT	FxaYL_722g0891980	66.87	25.57	20.95	13.61
	FxaYL_731g0846620	18.41	16.85	12.37	11.37
	FxaYL_732g0830610	18.12	16.90	12.09	11.12
	FxaYL_741g0909130	12.36	13.08	16.31	11.61
	FxaYL_742g0952120	12.70	13.26	16.82	12.14
	FvRG_7g0000910	7.39	1.35	393.49	229.38
	FxaYL_711g0936800	0.00	0.00	0.00	0.00
	FxaYL_712g0923460	0.04	0.03	0.07	0.09
	FxaYL_721g0966400	2.58	66.55	302.34	385.51
	FxaYL_722g0891230	2.47	63.33	289.92	369.19
	FxaYL_731g0845940	0.58	11.79	53.78	55.98
	FxaYL_732g0829990	0.29	5.98	33.71	34.12
	FxaYL_741g0908490	0.24	19.84	120.16	138.99
	FxaYL_742g0951480	1.04	32.37	167.99	196.86

Naming Convention for RG Gene IDs:

The prefix “Fv” denotes *Fragaria vesca* and “RG” stands for Ruegen. In the “ng”, “n” ranges from 1 to 7, indicating the chromosome number.

Naming Convention for ‘Yanli’ Gene IDs:

The prefix “Fxa” denotes *Fragaria × ananassa*, while “YL” represents ‘Yanli’. The three-digit code in the gene ID follows this structure: The first digit (1–7) indicates the chromosome number. The second digit (1–4) corresponds to subgenomes A–D, respectively (where 1 indicates a gene derived from the *F. vesca* A-subgenome). The third digit (1 or 2) designates the haplotype (Hap1 or Hap2).