Additional file 3:Table S3 64 genes expression patterns of GA, auxin, ABA, and CK MST pathway in seed, berry skin, pericarp and flesh from a global transcriptomic atlas.

	Gene	Sample_geo_accession	Green	Stone hardening	Veraison	Ripe	Seed-V	Seed-MR	Seed-FS	Seed-PFS	BerrySkin-PFS	BerrySkin-V	BerrySkin-MR	BerrySkin-R	BerryPericarp-FS	BerryPericarp-PFS	BerryPericarp-V	BerryPericarp-R	BerryFlesh-PFS	BerryFlesh-V	BerryFlesh-MR	BerryFlesh-R
GA MST pathway	*VvbHLH137*	VitusP00103529	189.21934 1177	29.7569 5085	361.178 2431	400.601 5399	1312.08	1288.31	68.25	94.11	1026.00	3380.60	3145.91	3118.07	494.89	1769.39	4434.33	3534.21	389.27	3808.84	3646.64	2325.44
	VvGA20o	VitusP00174271	525.36589	41.0303	3.76603	7.59939	324.03	1605.30	204.49	251.47	107.04	431.86	653.07	222.19	206.96	56.30	183.77	520.46	120.74	1042.22	1838.29	1581.22

x1-1		2296	6542	8631	4578														
VvGA2ox 1-1	VitusP00129463	763.20543 1952	29.0585 0977	1.61392 5255	3.51972 7327	523.78	165.11	51.48	76.56	216.03	102.28	114.09	164.43	187.31	304.63	135.36	316.82	307.69	91.95	97.46	103.08
VvGA2ox 1-2	VitusP00046942	293.86873 9696	28.6284 4883	18.0636 9508	15.2638 3901	130.88	83.73	323.02	169.25	635.86	559.83	219.76	251.99	825.86	850.38	676.84	337.82	1012.07	555.72	389.72	367.94
VvGA2ox 1-3	VitusP00129475	106.76829 8622	26.7744 505	1.21009 7634	3.82512 5756	323.06	136.21	256.96	197.76	1213.50	217.76	132.65	145.95	397.18	987.31	442.59	320.66	987.95	369.19	148.26	126.87
VvGA2ox 2-1	VitusP00207863	82.455811 147	15.9466 9832	2.47497 4189	8.43461 1756	605.73	304.02	976.32	1257.87	138.49	64.81	111.72	108.64	278.26	131.58	52.53	81.23	360.45	81.41	61.12	54.44
VvGA2ox 8-4	VitusP00212106	156.45033 7315	10.5423 1741	1.11210 3651	0.02020 3254	49.71	57.11	332.86	121.48	109.02	49.44	74.45	89.34	281.09	260.49	30.71	58.47	99.97	16.92	22.32	100.33
VvGA3ox 3	VitusP00262362	4.2330749 83	6.27928 8634	0.02245 7454	0.02366 2715	10.56	14.48	46.72	7.21	36.60	15.47	8.09	31.36	23.51	190.04	22.65	28.45	112.36	12.29	11.21	12.78
VvGA3ox 4-1	VitusP00191379	1227.2567 99916	97.3942 3202	11.1665 5863	5.28718 6911	1014.32	766.12	3370.71	3535.21	104.24	406.80	1164.50	1278.12	1488.10	486.49	370.04	745.16	240.92	666.94	1382.71	1292.48
VvGA3ox 4-2	VitusP00185882	527.48002 1539	11.0294 0966	11.9081 0753	0.02603 1534	80.26	52.22	2764.37	1944.25	587.93	92.28	43.85	31.93	1447.56	318.29	100.27	106.59	482.29	71.81	34.35	98.96
VvGAI1-4	VitusP00067488	2614.1255 79844	139.455 769	155.552 3614	178.898 3693	2303.61	1380.39	2245.53	1822.22	1052.26	1309.66	1379.92	1118.60	1547.75	1450.27	1910.54	1090.97	1059.65	1570.76	1350.97	997.63
VvGAI1-5	VitusP00145100	640.58593 5994	6.59649 0292	3.35734 6961	2.74463 6262	1350.83	1263.71	431.64	460.81	359.08	181.19	196.42	263.99	412.84	169.73	179.55	219.59	195.53	165.16	229.23	186.87
VvGAMYB1	VitusP00051049	151.16501 4089	3.40801 0061	1.55077 8274	1.61478 2818	983.23	1074.65	127.72	282.03	37.48	99.28	102.93	80.06	84.01	108.59	161.54	189.55	79.74	189.69	202.61	165.82
VvGAMYB2	VitusP00221654	73.999293 655	2.12139 163	1.16420 7458	0.27537 9136	135.06	150.27	86.00	75.84	49.93	32.09	45.67	49.72	43.38	58.65	39.92	47.13	46.86	34.88	39.78	40.47

	VvGID1B	VitusP00226521	1056.0123 31597	163.751 9686	92.7787 1026	98.0426 9357	1744.44	1555.50	167.72	341.67	551.89	1906.84	2199.06	1270.95	268.25	545.13	1461.88	1932.51	426.46	2485.69	2321.99	1792.04
	VvGID2-1	VitusP00227712	495.76808 2887	34.8415 1885	21.6222 7993	2.55216 2413	128.53	55.63	672.41	583.50	108.39	54.02	50.19	181.50	397.95	168.87	90.10	191.44	86.84	42.78	66.71	140.16
	VvGID2-2	VitusP00116243	745.23533 3411	81.0671 0334	140.838 8632	161.588 3806	1365.97	1535.49	621.73	623.51	994.14	1649.31	1875.16	2040.80	882.13	1803.94	2166.34	2215.08	1559.08	2173.18	2214.20	2182.49
	VvSPY1	VitusP00252664	903.79502 6390	14.0625 6675	5.25743 5148	16.8502 026	871.49	993.93	1133.54	1059.87	711.84	695.47	669.26	452.29	1047.11	574.68	873.86	994.66	995.89	848.90	1178.67	541.59
	VvSPY2	VitusP00099600	265.32799 4734	8.26861 4575	2.92150 476	2.44864 6076	261.74	316.48	903.10	772.98	424.52	321.50	527.05	306.58	787.61	759.33	691.64	615.92	856.57	462.45	625.29	256.64
	VvSLR1	VitusP00015803	1511.6071 82440	217.968 3021	84.6379 5078	56.0334 2144	188.03	126.64	2145.82	1302.33	1729.30	1478.32	1789.95	827.94	2352.34	2346.39	1860.13	1190.18	1821.69	1158.96	1312.33	694.09
	CTK-HD2	VitusP00067090	2.1189988 98	3.63368 8214	0.66484 2474	4.53817 5018	25.70	28.36	66.51	359.91	60.56	46.24	24.23	145.17	30.21	65.43	37.86	186.57	30.58	45.80	33.38	101.37
CTK MST pathway	*VvLOG1-2*	VitusP00216208	667.01255 15	31.2149 461	74.3217 1798	42.5225 2572	177.29	252.32	117.93	213.32	206.26	480.47	755.24	723.05	858.04	272.62	406.04	839.25	318.58	539.17	925.86	930.80
	VvCKX5	VitusP00119750	2048.5960 09	145.288 1069	6.16544 9299	3.53739 0906	65.60	26.53	2560.07	1995.95	3690.63	180.28	52.66	52.12	3056.83	3420.11	1393.66	133.29	3494.92	133.55	51.87	93.18
	VvARR22-1	VitusP00184550	0.023	42.7089 4272	5.20885 5251	0.05717 091	84.29	20.47	7.66	1152.88	11.82	8.52	9.52	10.64	90.47	18.01	19.69	11.81	5.97	11.99	8.11	6.77
Auxin MST pathway	*TIR1-3*	VitusP00226201	1525.3490 22	22.4640 3532	5.42545 8545	4.19648 148	1025.17	1219.58	2154.11	6.94	1551.46	397.60	544.056 7122	232.04	2184.90	1947.69	615.45	359.86	1650.91	380.00	429.966 8094	32.65
	ARF6-3	VitusP00168670	2811.7966 64	20.6112 2829	2.37325 9107	1.80425 1071	426.07	429.23	2023.58	20.80	1253.23	292.48	252.260 114	272.73	1804.13	1163.21	419.71	247.16	931.54	208.04	151.872 9468	106.46
	VvARF18	VitusP00077384	1639.5120	7.60947	0.33793	0.21760	184.91	214.00	1063.23	5.24	753.20	27.81	50.8826	78.11	1822.22	842.86	160.92	91.64	1597.48	46.69	70.3844	57.53

	-1		01	3559	6468	0201							5308								211	
	VvARF2-2	VitusP00153473	4829.733021	87.08666783	101.7922921	189.3105474	1010.35	945.62	1149.21	32.85	1125.37	1944.67	1770.831935	1332.73	1330.62	1400.40	1600.36	1746.15	1671.27	2427.96	1949.635378	1575.91
	VvAux	VitusP00114590	3416.437625	397.5722273	314.6251718	104.9379417	793.58	552.23	3503.70	26.13	2713.99	1998.98	1181.57396	1542.00	3270.04	3269.62	2306.34	1744.68	2850.84	1452.58	1148.764082	1472.10
	VvIAA27-1	VitusP00014711	2043.310686	301.5706236	208.8849516	156.049474	223.74	272.28	1181.84	99.30	2512.77	210.42	144.5886433	215.07	2345.95	1436.22	628.71	292.40	2173.85	503.47	393.9256788	636.41
	VvSAUR2	VitusP00238068	2514.761506	529.4212146	2239.514343	3605.38887	2520.01	2848.19	156.37	33.85	1048.42	2634.95	2585.639216	3215.93	549.84	1279.12	2133.10	3134.93	765.71	2866.38	3499.904056	3649.76
	VvACO4-2	VitusP00150768	307.6105798	29.561865	112.3633143	160.3006987	1174.84	742.18	214.20	413.99	595.84	850.25	1113.189451	815.65	390.54	401.69	649.76	824.75	307.27	815.98	817.3720094	793.59
	VvACO	VitusP00013510	12.68954789	2.568000394	284.8174147	68.0356701	57.00	160.60	51.77	98.46	74.59	50.29	60.50216468	90.98	50.92	46.26	158.51	310.28	22.36	540.26	309.1170757	406.43
	VvACS	VitusP00163114	609.931062	50.64264669	3.00109008	6.180574666	887.86	259.40	596.73	893.39	1707.67	389.78	166.5093588	94.77	2101.08	1829.39	1339.78	538.51	2891.23	731.93	510.3904558	239.73
	VvACO1-1	VitusP00204407	158.5644666	42.66787231	26.22052667	23.08323466	1273.92	1438.34	653.19	977.26	2292.30	1893.42	1867.379637	760.71	1586.84	2181.31	1630.41	1029.71	1911.94	1195.95	723.3005496	408.64
ET MST pathway	*VvACO5-1*	VitusP00174439	0.023	42.3424515	50.1685365	21.5237511	74.57	55.42	90.36	62.64	56.98	71.04	69.30869295	23.05	114.84	47.34	68.29	42.72	56.60	74.50	67.55966003	18.56
	VvERF11-8	VitusP00146995	401.6893315	23.41412124	6.879026539	5.114394333	1335.75	1514.06	1110.29	1253.40	1097.28	582.46	503.2963456	480.94	1029.14	739.28	798.69	779.12	1259.10	811.03	716.4501988	573.06
	VvERF22	VitusP00127826	485.1974367	37.365884842	1.977097095	0.543444833	15.14	14.83	50.38	15.54	1005.87	210.82	51.62681421	61.33	608.83	546.48	192.99	65.17	534.05	44.87	16.60513353	24.67
	VvETR2-1	VitusP00205040	1048.612879	109.4807079	29.39127299	39.74662796	1487.42	561.12	977.02	1401.78	1159.38	410.86	1382.812421	695.74	1013.80	1026.18	472.96	708.98	981.73	704.88	1102.867478	618.35

ABA MST pathway	*VvEIN3-3*	VitusP00044360	7813.826439	278.6106173	146.982 2717	167.098 2233	2395.71	2073.40	2161.29	1806.60	2608.59	2121.03	2459.593237	1157.98	2222.03	2560.50	2213.25	2349.67	2712.44	1719.563636	2006.567264	965.07
	NCED2-1	VitusP00004483	1789.615177	4.413785613	0.59951 7243	53.5675 2515	243.96	63.57	986.87	97.90	622.44	558.05	215.93	73.55	2110.25	630.55	1382.16	659.83	939.06	752.79	647.33	62.24
	PYL9	VitusP00076809	1893.20751	79.21871427	75.7318 7205	15.9078 0579	1426.65	1072.04	959.40	369.59	689.71	328.22	379.52	707.09	589.31	565.60	345.41	658.28	197.23	276.50	399.53	786.69
	WRI1-2	VitusP00044292	28.54551148	28.25189819	4.41977 6866	0.33002 2222	189.24	110.05	107.34	3063.82	179.12	96.93	75.43	116.32	96.40	174.68	131.89	344.15	42.68	72.77	45.66	93.81
	NCED1	VitusP00140314	5051.71659	17.54651529	4.10774 3528	8.19416 6006	436.73	150.06	374.15	38.56	464.04	242.66	219.10	112.03	1311.97	357.47	813.07	564.46	400.60	761.87	283.91	348.03
	VvABA2	VitusP00051690	424.9447532	54.63237409	133.175 0148	69.8058 215	438.85	401.30	868.99	680.49	730.49	814.70	546.36	745.90	583.18	867.36	950.01	703.87	660.23	1387.43	671.64	1053.90
	VvABI5 2-2	VitusP00187095	554.9637017	41.22665421	16.2707 9477	21.5719 5334	1031.97	795.72	1593.79	1763.31	1008.03	802.06	980.12	934.69	1457.53	986.40	822.79	887.14	1172.80	1012.37	1422.43	1213.02
	VvPP2C 39-1	VitusP00130612	591.9609634	127.9336405	78.2071 0374	43.9197 1861	1489.33	1549.05	821.26	1136.14	935.27	831.98	588.36	581.21	676.77	951.99	780.80	671.14	1013.05	835.93	828.80	602.01
	VvPP2C 73-2	VitusP00061301	1020.072135	56.48923293	23.9204 4799	25.8423 0739	173.88	235.80	314.47	132.07	1292.49	709.46	659.86	945.58	794.05	1121.58	918.59	752.16	884.66	711.12	664.78	797.51
	VvPP2C 24	VitusP00213417	1810.75647	22.77575702	52.1491 4976	138.332 173	986.81	1103.37	945.68	488.12	456.21	2004.74	1579.63	863.60	717.44	641.52	1962.93	1747.65	539.75	1891.010774	1430.82	876.24