

1 **Supplementary information**

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3 **Citrate accumulation-related gene expression and/or enzyme activity analysis combined with**
4 **metabolomics provide a novel insight for an orange mutant**

5 Authors:

6 Ling-Xia Guo#, Cai-Yun Shi#, Xiao Liu, Dong-Yuan Ning, Long-Fei Jing, Huan Yang, Yong-Zhong

7 Liu*

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9 Addresses:

10 Key Laboratory of Horticultural Plant Biology (Huazhong Agricultural University), Ministry of

11 Education, Wuhan 430070, P.R.China

12 College of Horticulture & Forestry Sciences, Huazhong Agricultural University, Wuhan 430070,

13 P.R.China

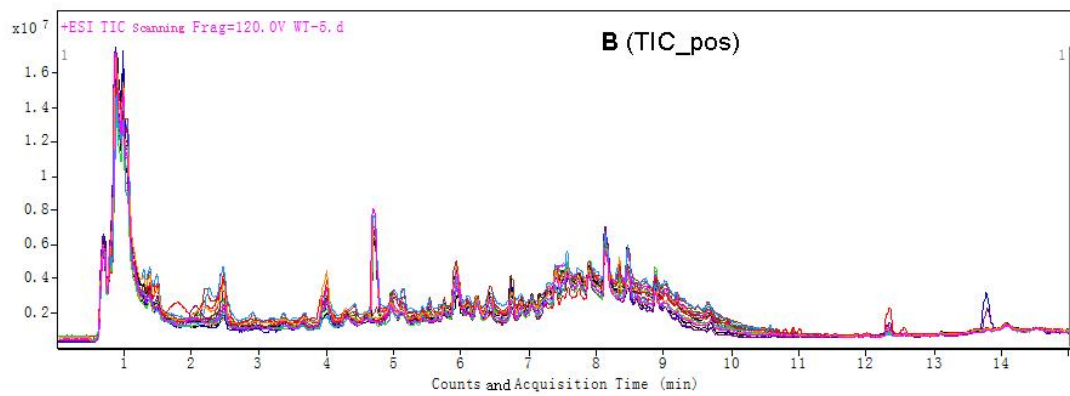
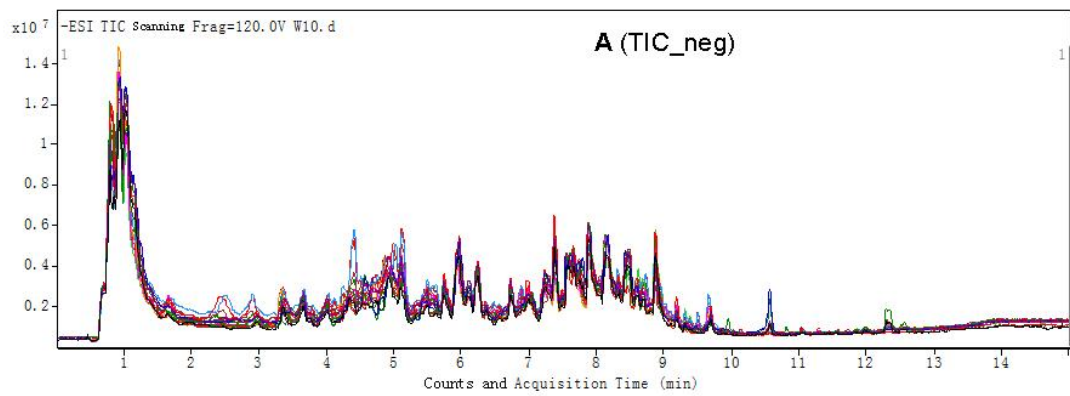
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15 # LX Guo and CY Shi contribute equally to the paper.

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17 Corresponding author: Yong-Zhong Liu

18 Tel: +86-27-87281897; Fax: +86-2787282010; e-mail address: liuyongzhong@mail.hzau.edu.cn

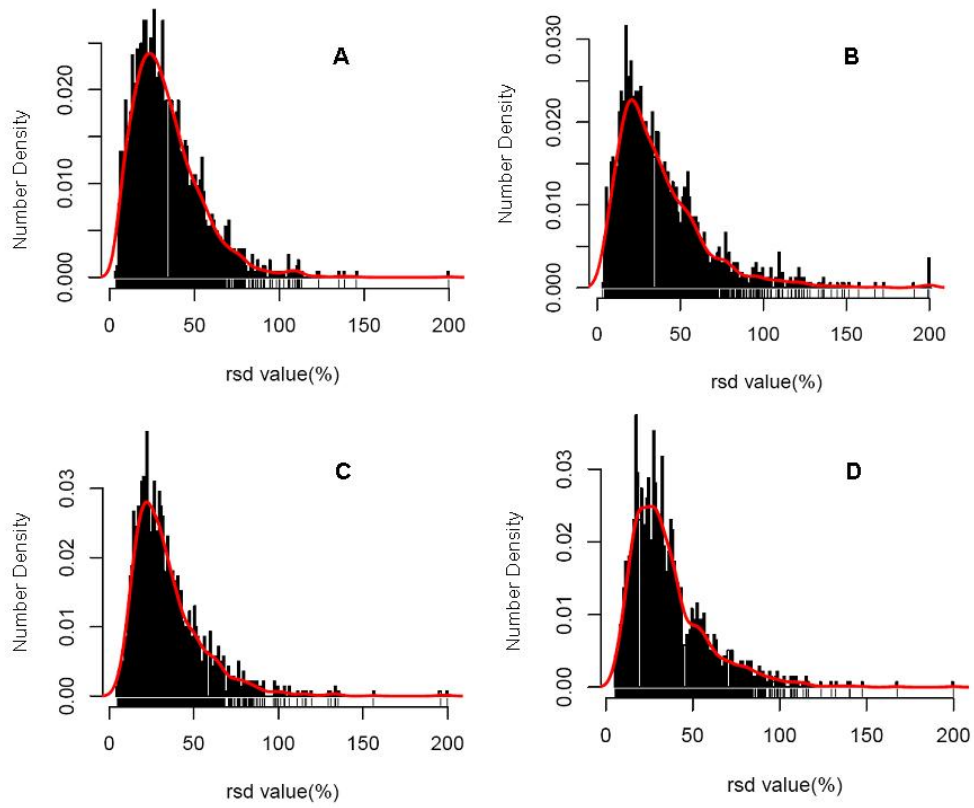


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20 **Fig. s1** Overlap of the total iron current (TIC) chromatographs of all samples under negative

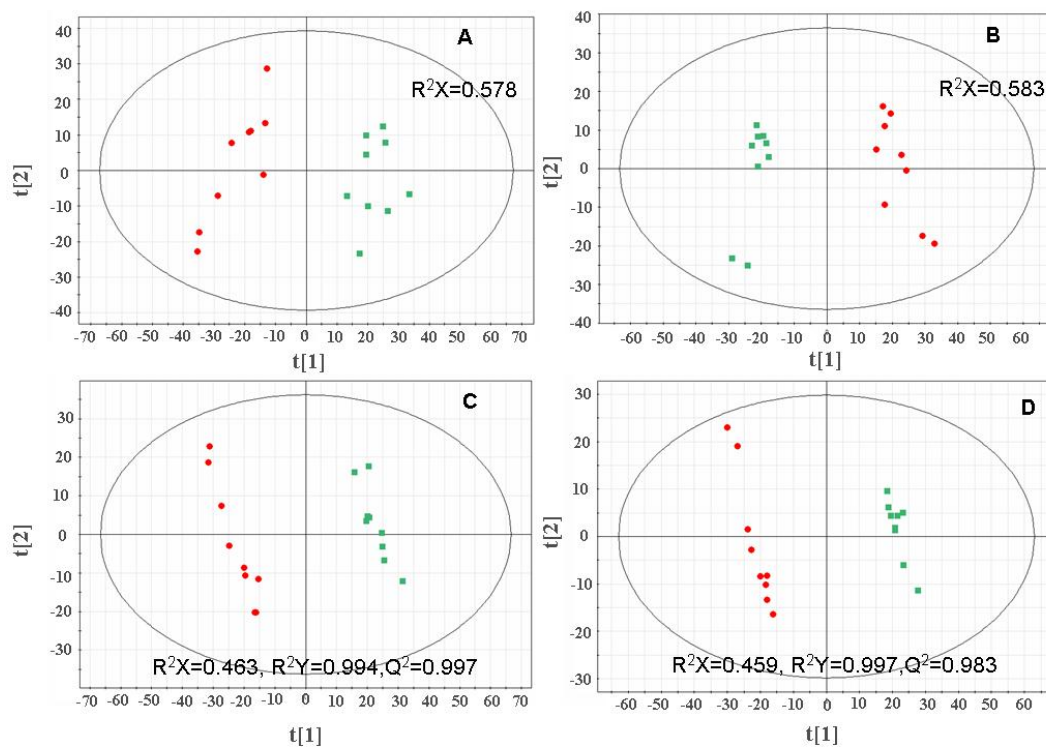
21 **mode (A) and positive mode (B)**

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22

23 **Fig. s2 RSD (relative standard deviation) frequency distribution.** A refers to the RSD of group
 24 'HAL' under positive mode. B refers to the RSD of group 'AL' under positive mode. C refers to the
 25 RSD of group 'HAL' under negative mode. D refers to the RSD of group 'AL' under negative mode



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30 **Fig. s3 The unsupervised principal component analysis (PCA) and partial least squares**

31 **discriminant analysis (PLS-DA). A and C refer to the PCA and PLA-DA for positive mode,**

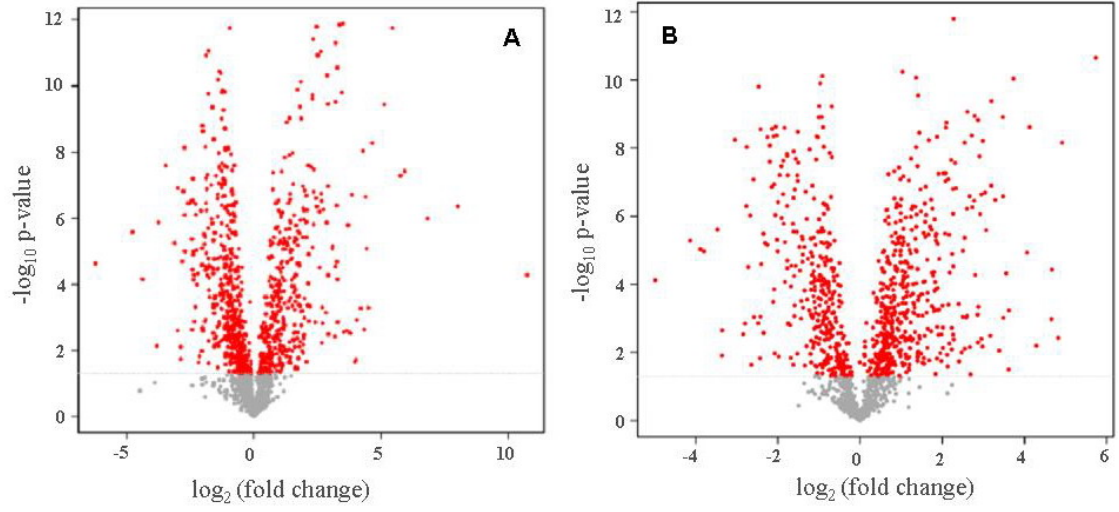
32 **respectively. B and D refer to PCA and PCA-DA for negative mode, respectively. The red dots refer to**

33 **the 'HAL' samples. The green squares refer to the 'AL' samples. R^2X refers to the sum of squares of**

34 **all the X's explained by the extracted components. R^2Y refers to the PLS sum of squares of the entire**

35 **Y's explained by the extracted components. $Q^2(\text{Cum})$ refers to the cumulative cross validated R^2 .**

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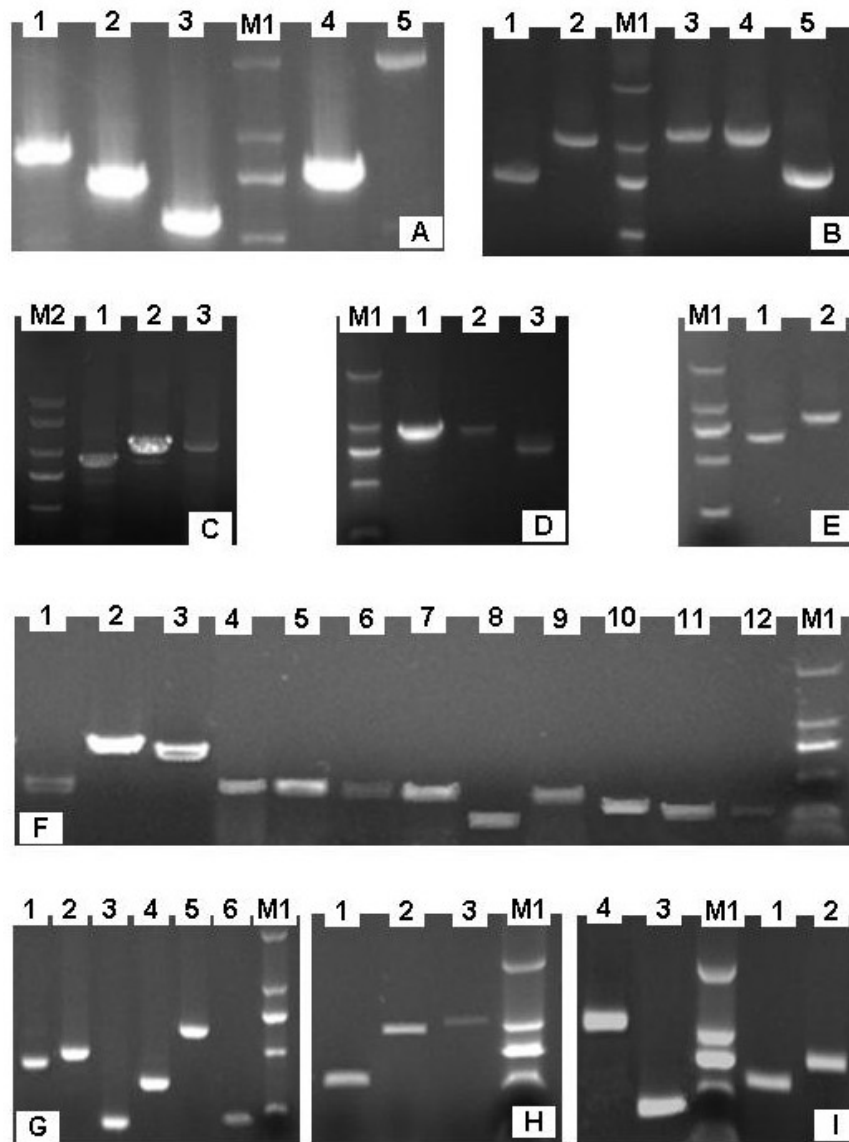


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38 **Fig. s4** Volcano plot for positive mode (A) and negative mode (B). Variables in red are significant

39 at p-value < 0.05.

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42 **Fig. s5 PCR amplification of genes involved in citrate synthesis, transport, or utilization.** A1,
 43 A2, A3, A4 and A5 refer to *PECP1*, *PEPC2*, *PECP3*, *PEPCK1* and *PEPCK2*, respectively. B1, B2,
 44 B3, B4, and B5 refer to *CS1*, *CS2*, *GS1*, *GS2*, and *GS3*, respectively. C1, C2, and C3 refer to
 45 *NAD-IDH1*, *NAD-IDH2*, and *NAD-IDH3*, respectively. D1, D2, and D3 refer to *NADP-IDH1*,
 46 *NADP-IDH2*, and *NADP-IDH3*, respectively. E1 and E2 refer to *FBPase1* and *FBPase2*, respectively.
 47 F1 to F12 refer to *VHA-af*, *VHA-A*, *VHA-B*, *VHA-C*, *VHA-D*, *VHA-E1*, *VHA-E2*, *VHA-F1*, *VHA-F2*,
 48 *VHA-G*, *VHA-H1*, and *VHA-H2*, respectively. G1 to G6 refer to *VHA-c1* to *VHA-c4*, *VHA-d* and *VHA-e*,
 49 respectively. H1 to H3 refer to *VHA-a1*, *VHA-a2*, and *VHA-c''*, respectively. I1 to I4 refer to *VHP1* to
 50 *VHP4*, respectively. M1 and M2 refer to the DL 2000 marker and DL2000 ZM404 (ZOMANBIO,
 51 Beijing, China), respectively.

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54 **Fig. s6 'Hong Anliu' and 'Anliu' grafted together on the same rootstock.** The base and middle
55 rootstocks are trifoliate orange and Satsuma mandarin, respectively. The left cut fruit is 'Hong Anliu'
56 and the right cut fruit is 'Anliu'.

Table s1 Significant difference in M/Z between 'HAL' (M) and 'AL' (W) under positive or negative mode

Positive mode					Negative mode				
M/Z	RT	VIP	p-value	Fold change(M/W)	M/Z	RT	VIP	P-value	Fold change(M/W)
595.1648859	5.94294814	1.66967	1.78879E-12	-0.942361935	100.0415049	1.40777129	1.47124	6.52951E-07	0.66072928
585.2158393	8.98078093	1.66888	1.63338E-12	2.471264291	104.0365584	0.77409569	1.21531	0.000484801	0.603294804
265.1533369	4.71429206	1.6659	1.78511E-12	5.44388615	111.0091768	1.02886032	1.56774	1.23296E-09	-0.930769689
567.2050195	9.67054751	1.66555	1.42837E-12	3.369511474	115.0044136	0.92323607	1.15438	0.001273197	0.427008508
583.1785637	9.67247525	1.6653	1.32392E-12	3.50439548	117.0202874	1.08010082	1.03167	0.006975775	2.674859042
580.2596543	8.97170087	1.6648	3.91902E-12	2.343730984	117.0205069	1.4037916	1.29385	0.000168266	1.144104968
562.2496763	9.67312481	1.65964	5.10792E-12	3.236585539	118.0520887	0.78598986	1.17764	0.000940175	0.533464725
236.07788	0.7609576	1.65598	1.61194E-10	3.453994289	120.9969982	5.3542159	1.33914	4.30245E-05	0.59573233
545.2230025	8.97771538	1.65561	9.45269E-12	2.633312337	128.0363262	1.04459364	1.48361	3.35384E-07	3.290869336
492.1771765	7.38934663	1.65535	8.92435E-12	-1.773703826	128.0363675	1.21993038	1.42509	3.50871E-06	2.171688562
149.0595194	4.72094502	1.65456	1.18858E-11	2.517268929	129.0204204	1.04457929	1.25736	0.000243697	0.561873087
967.3766417	7.39001093	1.65327	1.20404E-11	-1.875512348	129.0205202	1.2690318	1.06644	0.00387133	0.637160233
1000.993109	9.67611082	1.65054	2.90174E-11	3.291749951	133.0149573	0.92493701	1.2407	0.000337948	0.405497992
1084.325955	9.67611082	1.64868	4.89628E-11	2.88642522	135.031583	0.80972715	1.27956	0.000147382	0.81017202
455.1918352	7.39235476	1.6474	4.24647E-11	-1.290431167	142.0522528	1.41040584	1.46937	6.67733E-07	0.641980624
207.1378091	7.39240283	1.64735	3.7313E-11	-1.3489589	147.0311802	1.41012412	1.06108	0.004132983	0.312527245
163.1102763	7.38973291	1.64436	6.53656E-11	-1.409302621	153.0927456	7.39018894	1.47549	4.81201E-07	-0.802612083
177.0544209	4.7144162	1.6419	7.6079E-11	1.845638578	153.0928068	9.02706801	1.08002	0.003130287	0.562551906
729.2582685	9.19021863	1.64093	3.77465E-10	5.128292282	154.0633584	0.75223705	1.19654	0.000689124	1.049542459
427.2011419	4.60659331	1.64072	1.29156E-10	1.721970118	155.0000978	0.98130641	1.55792	3.34494E-09	-1.507665266
438.8957587	7.4965594	1.6394	2.45239E-10	2.309111018	155.0358456	2.44095831	1.29157	0.000117999	1.126791066
123.0802332	7.3924509	1.63877	1.55019E-10	-1.143811663	158.0473669	0.82092357	1.05812	0.004752403	0.582138703
149.0957624	7.39341346	1.63706	1.3668E-10	-1.218382807	158.97921	0.67567542	1.27234	0.000179381	0.329328935
173.0998195	7.7719487	1.6364	1.78625E-10	-1.784916725	163.0161227	8.83216441	1.56052	2.37699E-09	-2.046378848
495.1841116	7.39107239	1.63493	1.59185E-10	-1.252332243	172.0987858	6.12529966	1.3778	1.58033E-05	0.666315825
559.14477	8.34626948	1.63449	1.97277E-10	2.312333755	174.0783085	1.33695718	1.32584	5.85748E-05	1.155753975
565.1558847	7.21514362	1.62997	4.50231E-10	-1.628360375	174.9569376	0.66819347	1.08451	0.003856532	-0.416893591
483.1839565	7.31749063	1.62986	3.06902E-10	3.233952629	175.0255939	0.93330432	1.43234	4.39079E-06	0.923949239
393.1031647	9.67423282	1.62933	3.6195E-10	2.920705018	175.0621408	4.69766727	1.3082	8.64235E-05	1.828175117
473.2026993	7.39070612	1.62668	5.30577E-10	-1.189054206	183.1038027	7.98393418	1.26877	0.000212138	0.829065656
711.2552269	7.96620194	1.62658	9.84177E-10	1.866916884	186.0425165	1.41141832	1.48017	4.32855E-07	0.903881883
266.1021029	6.65537203	1.62643	4.31474E-10	1.813821316	187.0270105	1.40687875	1.41526	6.20289E-06	0.962259708
543.1320318	0.91340999	1.62369	1.27951E-09	1.299566306	187.0987954	8.33957251	1.36432	2.1483E-05	1.11386618
248.1120105	4.7247773	1.6209	9.59998E-10	1.401971362	190.0555094	3.72986689	1.09478	0.002995976	0.731520517
692.2189566	7.52355511	1.6188	2.3419E-09	-2.00024577	191.0213534	1.02860441	1.55251	4.80444E-09	-1.022598924

511.1574119	7.39240283	1.61876	9.90357E-10	-1.251194699	192.0833815	1.02781278	1.5602	2.55463E-09	-1.831680069
191.1060921	7.77744386	1.61592	1.68228E-09	-2.019386459	194.0830089	11.5863511	1.04319	0.004756682	0.123080158
256.0783608	7.39260358	1.61109	1.98056E-09	-1.129616217	196.0749057	6.09155082	1.40526	6.94816E-06	1.038732798
311.0762351	6.13136664	1.6081	1.27449E-08	1.394852368	203.0217284	0.94549425	1.21152	0.000507425	1.792134156
506.202716	6.35994941	1.60503	5.39292E-09	4.659098301	205.0367045	4.90160668	1.31351	7.2421E-05	1.051537824
221.1895053	9.69548463	1.60303	7.5662E-09	-2.723065018	205.0370727	1.75303813	1.19589	0.000721798	0.775125958
781.213979	4.95527096	1.60243	4.18274E-09	-1.573046108	211.0989768	6.09169406	1.42109	4.01882E-06	0.978729125
437.1828543	7.39187938	1.60113	7.58964E-09	-0.990539139	215.0348045	0.79993486	1.17209	0.001398276	0.610848454
159.0947315	6.1166256	1.60095	7.72973E-09	-1.113579432	218.1049902	2.99356153	1.34728	3.39847E-05	0.53502387
656.7300125	7.94956329	1.59991	1.07441E-08	1.530096888	218.1050188	2.67308091	1.39074	1.02312E-05	0.864842904
752.3333735	8.97589555	1.59838	7.23769E-09	-1.913344775	221.0683087	8.59790578	1.23506	0.000335788	-0.824751537
488.1914512	6.36053452	1.59755	9.38548E-09	4.289056035	221.1555411	12.591477	1.15739	0.001355531	0.157621358
113.0596215	7.3923233	1.59612	7.75618E-09	-1.086636421	223.1349087	7.39439249	1.17288	0.000956336	-0.587504707
249.0606992	7.38973291	1.59514	7.51656E-09	-1.019237812	226.0380701	2.87917682	1.23408	0.000359133	0.526020368
569.1707721	6.07642866	1.59428	8.17985E-09	-0.992602466	226.9211277	0.70942888	1.1963	0.000652728	-0.637101119
265.1433966	7.74625351	1.59306	8.66868E-09	-1.111239698	230.1049499	3.58851077	1.11179	0.002534724	0.797211019
483.2225222	8.78639035	1.59143	1.08032E-08	-1.378075944	232.8996702	0.73630889	1.52136	4.79224E-08	0.834074946
189.1269437	7.39399315	1.59116	1.19078E-08	-0.881856602	233.1197893	6.32914261	1.07409	0.00421614	0.859462889
657.2814808	5.96234999	1.5905	1.51904E-08	1.226892868	236.1059426	11.0537946	1.23147	0.000451241	0.61050018
595.9501703	5.939979	1.58816	2.92955E-08	-1.052162362	237.0093634	1.06026667	1.50063	1.62256E-07	1.473334307
161.0930421	6.73797564	1.58044	2.60059E-08	-0.762515003	237.009447	1.57126168	1.20952	0.000557129	0.677559068
298.1497383	3.20911904	1.58021	4.20882E-08	0.774945281	237.0637802	0.79266373	1.48899	3.03278E-07	0.839176533
229.122197	7.75074966	1.57996	2.18512E-08	-1.23493319	237.1514505	8.61489751	1.34711	3.66604E-05	0.86835607
448.2124747	8.3954139	1.57793	2.63276E-08	-3.471017836	239.1320666	8.61100126	1.25681	0.000242337	0.727650999
831.3245594	6.73732496	1.57779	3.05737E-08	-1.357304389	239.1669953	8.06222283	1.18714	0.000894323	0.63436144
843.2550655	8.21837063	1.57711	2.61777E-08	2.153721931	241.0116984	0.7260886	1.21447	0.000583437	-1.23237084
422.2022734	6.73712124	1.57699	3.57092E-08	-0.830185536	241.1096136	6.73803411	1.27641	0.000166339	-0.623052075
187.1110524	7.75160859	1.57673	2.72711E-08	-1.140688267	241.1466577	8.06248028	1.1023	0.00335398	1.22691591
247.1327592	7.75067581	1.57629	2.76956E-08	-1.345224262	242.177662	9.7445568	1.14048	0.001623137	0.611795882
346.1317568	5.24138314	1.57548	2.90997E-08	2.251986066	243.0643235	1.22161786	1.47065	6.03132E-07	2.60387246
601.240851	8.94338431	1.57527	3.89115E-08	1.103652244	246.9934337	3.57659337	1.24747	0.000378937	2.400953138
307.1766811	5.69424998	1.57402	3.84006E-08	5.926623996	246.993449	3.76748186	1.08846	0.004143868	2.28067661
225.1120078	5.24126955	1.57315	3.36741E-08	2.368299106	247.1202345	6.10010564	1.49962	1.50371E-07	2.337918234
352.1754396	7.76003611	1.5729	7.62711E-08	-1.143858253	248.9031357	0.72903806	1.35162	2.96269E-05	0.863883593
626.2337211	6.73389012	1.57192	5.28124E-08	-1.495844191	249.081218	5.76460041	1.33757	4.47904E-05	2.182901382
385.1505428	6.1082672	1.57177	3.70699E-08	-1.249328929	249.0998727	2.89815818	1.018	0.006654487	2.97781848
475.2189811	7.26400473	1.56802	4.91722E-08	-1.822572002	251.0795763	0.99522583	1.08496	0.003706474	4.821317535
463.1237329	7.79413571	1.56618	6.51359E-08	-1.193605483	251.1666497	9.69462228	1.4006	8.04923E-06	-1.468327127

427.2076005	3.35930056	1.56575	5.26048E-08	5.765641665	253.095136	1.20890514	1.06149	0.004002558	2.953110815
215.0158283	1.16277723	1.5632	6.3427E-08	-1.881544506	253.1095304	5.15348158	1.22853	0.000433964	0.523563644
438.9802723	1.15899155	1.56279	6.52012E-08	-2.393493196	254.0818808	2.99445512	1.36559	2.51465E-05	0.728353947
201.1294354	7.75067581	1.56116	6.86381E-08	-1.185497134	259.0242974	0.72979056	1.15603	0.001349218	0.516445145
424.1501773	6.73712673	1.56067	9.5689E-08	-1.265899032	260.0285214	1.39251324	1.21969	0.00049113	0.689969913
775.9236041	7.9547228	1.56051	9.36597E-08	1.557671514	261.075352	0.95781037	1.30228	9.79881E-05	1.295424333
692.4157734	7.2812864	1.55938	1.11152E-07	1.941929728	261.0897907	5.37674434	1.24776	0.000281512	0.423286081
510.1581573	5.98826065	1.55647	8.95808E-08	-1.380750141	262.0594031	0.82642088	1.09835	0.003071696	0.56651202
207.1013706	6.73707099	1.55606	1.39204E-07	-0.844190418	262.9270674	0.67598851	1.1211	0.001861023	0.318123486
165.0906616	5.79951497	1.55588	9.35164E-08	-1.146192506	263.1306367	9.02690587	1.04076	0.004884692	0.548413335
340.1606853	5.8467817	1.55581	1.25765E-07	-2.988696066	263.1306765	7.74594565	1.55269	4.53119E-09	-1.045972273
270.0950686	8.34772233	1.55556	9.94402E-08	-1.660088928	263.1306967	8.33642345	1.34674	3.40654E-05	-0.630602151
225.1120036	6.73733642	1.5536	1.52816E-07	-0.833777105	263.1422354	4.71989106	1.60078	2.24739E-11	5.736548559
496.2024761	7.63046316	1.55265	1.09309E-07	2.926969381	264.0894566	6.65531873	1.55312	4.65965E-09	1.876669962
880.0623947	8.75986411	1.55265	1.86573E-07	1.424561881	265.0953908	1.65345865	1.05865	0.004258641	0.898954793
119.0853999	7.39001093	1.55086	1.21753E-07	-1.248862209	267.1253957	8.82564443	1.21579	0.000585482	3.625934345
243.1225702	6.73841859	1.54925	1.56485E-07	-0.826711188	269.1046082	7.30406667	1.12918	0.002123336	0.795017274
213.1119454	5.15227338	1.54899	1.37448E-07	0.762310797	272.9607469	0.6758165	1.28275	0.000151057	0.508743644
727.2081823	5.3173441	1.54889	1.92986E-07	-1.425937472	274.0954869	1.44499006	1.58034	2.87122E-10	1.415117921
807.2365231	5.98699216	1.54884	1.34397E-07	-1.85558755	277.0945287	1.76260659	1.1023	0.002585263	0.663714827
352.1606589	6.10359716	1.54713	1.47473E-07	2.008866466	277.1310715	5.84412009	1.47495	5.05498E-07	-2.759965821
311.076357	4.54329409	1.54665	3.52955E-07	1.363398414	279.1106403	3.20578796	1.51247	8.24174E-08	0.986785518
222.0652619	6.73808155	1.54611	1.57366E-07	-0.843256456	279.1106811	2.83048486	1.45691	1.0596E-06	1.238042722
223.132564	6.57049306	1.54582	1.57043E-07	-0.862041832	281.136557	4.3152403	1.14487	0.00161758	-0.691693867
481.0905911	0.9615988	1.5457	1.62127E-07	2.359530357	281.1417998	8.61349015	1.30524	9.35078E-05	0.808106415
523.2125504	8.76786911	1.54569	1.57069E-07	-2.764945516	282.1219217	0.79008691	1.34295	3.66517E-05	0.879451367
165.0907552	6.73864971	1.54469	1.95402E-07	-0.816872545	283.1573842	8.06231298	1.1989	0.000738459	0.657835446
225.1119911	5.43316177	1.54316	1.82866E-07	2.644821234	284.1014928	0.77582653	1.19359	0.000696923	0.633595267
263.1278056	7.31805337	1.5418	1.96733E-07	3.851112894	287.0426258	4.30777358	1.2665	0.00018919	1.29025242
544.2051995	8.40502823	1.54077	2.298E-07	4.406631306	287.0428688	4.54580593	1.36834	2.22948E-05	0.661737118
440.2122254	8.47051296	1.54066	4.43048E-07	8.034100547	288.9891875	1.14383621	1.17467	0.000884465	-0.865390904
357.1156399	6.10398192	1.54052	2.11275E-07	2.071424733	289.1312807	6.10021233	1.49841	1.58844E-07	2.265430459
605.1851366	5.80200787	1.5404	2.15813E-07	-1.151000127	291.074308	4.04653925	1.15453	0.001911814	-0.652840296
203.1791366	9.70361114	1.53871	3.06408E-07	-2.435987765	291.0743371	4.32732125	1.01424	0.006555693	-1.29719118
535.178908	8.33905814	1.53839	2.25575E-07	-1.20329659	293.1258953	5.01272818	1.51676	5.86162E-08	0.694114069
594.235441	6.96748148	1.53788	5.1546E-07	1.949909344	293.1263877	4.40240536	1.11213	0.002366791	1.732257778
469.2430876	9.70268095	1.53782	3.54377E-07	-2.505805146	293.1264835	4.79406801	1.26706	0.000221785	0.648187505
655.1931736	8.04720335	1.53767	2.77139E-07	1.429996089	293.1778948	11.0536763	1.22256	0.000558233	0.616142606

346.1319777	5.43340829	1.53653	2.53327E-07	2.455766598	294.8954784	0.70056199	1.26405	0.000211046	-0.498567923
248.0810029	8.59983027	1.53602	2.5919E-07	-1.431734581	295.0697801	0.88204455	1.06592	0.003667581	0.847299536
451.2326191	9.70362068	1.53551	3.58615E-07	-2.608946768	295.0963241	1.47040702	1.09773	0.002518381	1.339792268
334.1648632	7.75433512	1.53461	4.08946E-07	-1.246151343	298.1171662	0.78852308	1.22989	0.000387584	0.544420722
375.0926	2.95876653	1.53357	2.9967E-07	-2.404539553	301.0737916	8.15901938	1.25116	0.000251721	0.404422834
773.2143732	5.16058067	1.53286	2.99908E-07	0.960617888	304.9157055	0.66805541	1.20229	0.000698911	-0.838717967
179.105779	6.73839305	1.53279	3.36636E-07	-0.699302958	308.9089538	0.66823455	1.20839	0.000581655	-0.772241178
498.2187552	8.4638415	1.53208	3.05143E-07	2.663225623	309.0494359	0.9357686	1.47442	1.06529E-06	0.695090363
137.0957858	6.73797564	1.5318	3.77626E-07	-0.793867997	309.1728152	11.2503729	1.00935	0.006821145	0.125105274
443.1881944	5.64417951	1.52908	3.58702E-07	0.862294911	311.1158686	7.30448409	1.11149	0.002766579	0.777951964
212.0079465	1.14970366	1.52907	3.52842E-07	-1.890286992	312.0980459	1.28945039	1.27121	0.000216016	1.230802761
523.2146911	8.37804551	1.52894	3.71185E-07	-2.300160688	315.0960319	0.80951509	1.23488	0.000336589	0.759695822
645.2756846	8.34878157	1.52796	4.75352E-07	-1.098901263	315.1831312	7.63653876	1.16947	0.00101149	-1.427535292
443.1317058	6.73733642	1.5278	4.2595E-07	-0.782583338	316.104082	5.15991488	1.30207	9.76991E-05	0.566308653
465.1523879	7.75518279	1.52597	4.13889E-07	-1.026679528	317.1988442	7.04424065	1.31148	7.57059E-05	-0.999121377
247.1327278	8.33824032	1.52585	4.08197E-07	-0.888449987	317.1989159	5.5502031	1.3406	3.95072E-05	-1.456538417
410.2020378	6.89262506	1.5254	4.14352E-07	3.267621754	319.0693987	2.75752122	1.16566	0.001118821	0.914214548
306.1610577	5.8592358	1.52484	9.24401E-07	1.075886925	321.1576672	7.7899249	1.18577	0.001008808	0.925744507
509.2358128	9.70446504	1.52403	6.05242E-07	-2.070069333	321.9067337	0.6508229	1.31402	8.04874E-05	-1.096794658
651.1091431	0.97615859	1.52393	4.47966E-07	2.48260922	323.1371276	3.79605241	1.31107	9.28011E-05	0.507520005
477.1761896	8.34217207	1.5205	5.2843E-07	-1.120995618	325.095296	5.13871446	1.16788	0.000989232	1.128430361
893.3035575	7.61597161	1.52	5.9377E-07	0.971166739	325.1371521	0.77414525	1.00425	0.007279171	0.684796607
871.248569	5.86925709	1.51971	8.97278E-07	-0.748107506	327.0743142	6.13281958	1.55818	3.55901E-09	1.446887453
589.2260635	5.79886307	1.51965	6.36551E-07	-1.029597851	327.0745752	4.55796383	1.41524	5.76001E-06	0.798001362
679.1843724	6.9182896	1.51913	5.74528E-07	2.09025125	328.0910651	1.65345865	1.05877	0.004499245	1.101843465
298.1496244	2.85132612	1.51847	1.21855E-06	1.42216782	329.0898539	2.95267872	1.52996	2.51772E-08	-2.191365049
410.2014669	6.49938697	1.5183	5.60143E-07	2.744093184	329.1546524	11.0537295	1.11327	0.002755591	0.52308241
587.0939394	1.14726765	1.51811	5.84777E-07	-1.860005964	331.1784719	7.95449321	1.40587	6.48053E-06	1.890533759
398.2007241	1.05024531	1.51748	5.96451E-07	1.980014118	334.1680899	8.56872403	1.05351	0.005521167	-0.561505827
529.3019521	4.71553416	1.51563	1.05704E-06	6.838106258	335.1369686	6.09097092	1.54968	5.88075E-09	1.675720204
133.0834795	4.68342669	1.51552	6.39136E-07	2.58209125	337.0806497	0.90816323	1.3004	0.000100828	0.992462333
541.1905809	6.40059079	1.51519	6.96807E-07	1.136913685	341.0918497	4.18930052	1.34444	3.53714E-05	0.911026091
344.090842	1.238777	1.51361	1.84527E-06	0.922908837	342.1073236	3.20272623	1.52446	3.73715E-08	0.947778033
587.2864429	8.25891518	1.51295	7.33028E-07	-0.794585933	342.1078147	2.82961766	1.30228	9.42337E-05	1.370711712
965.4588961	8.03612979	1.51258	8.19926E-07	1.593075649	347.0839168	3.99466612	1.28789	0.000125045	1.055229173
584.2551958	5.79972443	1.51203	7.75184E-07	-0.93289996	350.1634517	7.75055056	1.3827	1.51839E-05	-1.150711036
888.3479201	7.61173137	1.51196	7.36956E-07	1.064572483	351.0601288	0.93298785	1.3599	3.56578E-05	1.400181212
193.0326615	1.03187462	1.51089	7.94872E-07	-2.286046457	351.1321366	4.10623711	1.12372	0.001907566	2.233850969

407.0329537	1.15129103	1.50959	8.06355E-07	-2.712978242	354.1769241	7.05212495	1.35422	2.77149E-05	-0.840409989
322.5682942	7.21465941	1.50693	1.08143E-06	-1.651119167	355.0698703	3.77308399	1.36883	2.0571E-05	0.682731768
485.2384255	8.89320189	1.50679	9.05093E-07	-1.427132425	356.12167	4.40240536	1.0866	0.003216387	1.445056429
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573.0980193	1.22394419	1.4986	1.24567E-06	-0.789656291	358.1336293	4.2904203	1.17481	0.00100179	-0.845736732
223.1288295	6.13085143	1.49793	1.27801E-06	-0.846452971	362.1477066	5.97348763	1.42811	3.10917E-06	1.552539615
321.1644255	6.07696052	1.49789	1.38367E-06	2.866657083	362.8482044	0.71658857	1.18769	0.000759406	-1.19012199
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147.1160671	8.39430518	1.49754	1.37014E-06	-3.739533241	365.1477936	4.70201203	1.18796	0.000749402	0.610665222
723.9307677	8.24363244	1.4955	2.1237E-06	1.407612942	366.122426	6.53405972	1.45106	1.34102E-06	0.614517509
270.0944513	7.98364288	1.49456	1.44754E-06	-1.25252986	368.1008375	2.81832316	1.03166	0.006720385	0.842417408
235.1689811	7.98009504	1.49437	1.45664E-06	-1.635444403	368.8306096	0.72859599	1.45107	1.35087E-06	0.991615693
478.2286178	7.31836551	1.49293	1.63207E-06	3.711697954	369.1581507	7.78322595	1.41669	5.1884E-06	-4.125115434
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444.2227344	7.74758603	1.49057	1.70711E-06	-1.056460908	371.1734108	8.26084026	1.11502	0.002017431	1.651463235
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483.1478602	6.09347931	1.48584	2.08955E-06	0.87951692	373.1894216	8.64394331	1.0226	0.007367956	2.021714315
807.4238036	7.2812864	1.48433	2.54951E-06	1.743746194	375.1328337	5.16676941	1.19348	0.000701751	-1.073685894
916.019559	7.80928071	1.48424	2.23119E-06	1.274744684	375.1685174	6.41954723	1.28862	0.000139425	0.550924535
197.1161696	6.73890491	1.48202	2.72475E-06	-0.721180673	376.0913131	3.49277136	1.12207	0.00183637	0.57582308
153.0901805	6.56628924	1.48201	2.28537E-06	-0.956762098	377.1842561	8.20388618	1.06395	0.00391222	1.454300908
449.1769782	7.75027146	1.48084	3.17009E-06	-0.712725257	379.1295749	5.79528992	1.47705	5.28291E-07	1.351478858
302.0398563	1.15146033	1.47979	2.84233E-06	-1.531887302	379.1634031	6.49777717	1.31295	8.32635E-05	1.574734356
527.2596215	3.97361237	1.4784	4.51495E-06	1.677322458	380.1586781	3.27657961	1.30699	0.000104421	0.74874859
393.0367333	0.96203515	1.47814	2.64247E-06	-4.760110789	381.0708549	0.91916323	1.30543	0.000120505	0.64697336
286.0922604	1.4660402	1.4781	2.92984E-06	1.792361101	381.0851866	6.6565532	1.43896	2.36432E-06	1.058853586
515.1193943	7.6816516	1.47742	2.68672E-06	1.014325703	381.1344289	6.87651164	1.04253	0.005152389	0.418396168
911.219135	5.9397854	1.4758	2.83302E-06	-0.848618791	382.1029038	3.22346997	1.07483	0.003831252	1.198269451
749.3386557	9.09272778	1.47425	3.81122E-06	1.928128928	383.1733606	7.1837815	1.3202	6.33734E-05	0.821547489
579.1712284	7.61769701	1.47321	3.36444E-06	-1.03139319	384.118484	5.84592166	1.4596	9.63751E-07	-2.663388784
131.0490022	7.15724287	1.47264	3.14463E-06	-1.950588587	385.0790389	4.50041121	1.18056	0.001228214	0.41531336
780.8626811	9.24743786	1.4712	5.92916E-06	1.15631981	385.079234	4.24655119	1.41062	6.88505E-06	1.169506589
226.5650991	4.97222791	1.47075	4.1734E-06	-0.96875264	385.1889244	8.39020136	1.39411	9.28571E-06	-3.879859908
504.2803511	9.70624958	1.4707	4.37195E-06	-2.426061722	386.941194	0.66775553	1.27012	0.000227107	1.12695419

501.2336101	7.97417866	1.46968	3.47858E-06	-1.282826083	387.1314498	4.5642155	1.35783	2.57601E-05	-2.399302605
147.0268383	1.02473661	1.46944	3.70467E-06	-1.92198911	389.0158895	0.92977636	1.21638	0.000713145	0.981026621
525.1209329	1.04508637	1.4678	3.96408E-06	1.639655978	389.1691713	6.15795211	1.27827	0.000195392	1.524152646
467.0846809	0.99942256	1.46672	3.84796E-06	2.072651265	389.183901	6.68108103	1.20015	0.000714698	1.326578614
449.7162389	8.40589531	1.46668	6.57947E-06	1.736042509	390.1536123	7.05245895	1.28667	0.000127548	-0.770376719
478.1915675	6.08794687	1.46659	3.86286E-06	0.796383855	391.1636017	6.88014934	1.51719	5.73044E-08	1.912902669
239.1276724	5.11212242	1.46645	3.955E-06	0.802972847	391.1636751	6.49434422	1.49242	2.3164E-07	2.951493613
979.2771918	7.99754755	1.46632	3.98708E-06	1.391051871	392.1739138	8.19446412	1.41042	5.64204E-06	1.064821749
918.9970196	7.71908157	1.46536	4.17293E-06	1.201728126	392.8964499	0.6800157	1.15604	0.001289778	0.518123795
702.7136164	7.36055957	1.46475	5.66088E-06	1.311754419	393.1428148	5.02605558	1.03471	0.006331364	4.288435233
574.1994899	3.96214176	1.46098	5.17962E-06	1.614913398	393.178543	5.61617574	1.1524	0.001300513	1.004869727
918.0785941	8.02215042	1.4607	4.8926E-06	1.041472611	393.178814	4.64925901	1.29027	0.000136958	1.85383083
342.2137987	4.58117116	1.46	4.75862E-06	-1.589425802	393.1791967	7.82738283	1.43253	3.26238E-06	2.071081742
969.87326	7.8074674	1.45982	5.03844E-06	1.226494219	394.9414251	0.72531892	1.17308	0.000958393	0.646231076
234.18109	0.72016141	1.45925	4.88513E-06	0.647804647	396.1169917	6.09604063	1.53127	2.25662E-08	2.220134365
576.2078286	8.3808468	1.45733	8.39323E-06	4.451482075	398.1687962	2.99361584	1.1845	0.000871838	0.758546531
605.2413904	5.63514747	1.45723	5.20015E-06	1.014029774	399.0955755	5.56889557	1.34607	4.04547E-05	1.031704628
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189.1593227	0.74139628	1.45544	6.13711E-06	0.964675465	399.1680815	6.74923241	1.59067	8.62442E-11	1.366104305
332.1239123	0.97444051	1.45528	5.73578E-06	0.75993284	399.1682614	5.11421593	1.46997	6.14084E-07	1.25884094
577.1921419	8.88928436	1.45412	5.73339E-06	-3.118871052	403.1626583	6.73790883	1.40823	6.77053E-06	-0.731467657
622.2341153	7.32739717	1.45308	6.56882E-06	1.320116959	403.1636775	5.80035629	1.53764	1.49597E-08	-1.770842835
399.2368763	8.52294245	1.45172	6.14692E-06	-1.941024966	405.0311979	1.19120134	1.30878	8.13488E-05	-0.848071058
727.2069741	5.74735855	1.45049	8.61054E-06	-0.842001696	405.1361174	7.77811326	1.49306	2.27071E-07	-1.867209025
267.1699298	3.85060208	1.44979	8.42104E-06	3.089646653	407.1135007	4.9709379	1.29725	0.000107725	-0.765862805
382.1709105	3.28837438	1.44924	6.63457E-06	0.651935674	407.1585455	6.05985118	1.1103	0.002815388	0.570206472
137.0829379	5.81473948	1.44845	7.20195E-06	-1.179923593	407.1589452	6.46928166	1.23117	0.000459862	2.882226821
658.2553378	6.91571541	1.44752	7.01546E-06	3.102317597	408.1536526	6.87310531	1.31571	7.39073E-05	0.756486167
571.2449389	5.06610523	1.44534	8.87606E-06	1.435316514	411.2052483	8.60256138	1.32378	5.75278E-05	-0.978108364
129.01566	1.02577294	1.44469	8.23674E-06	-2.030918501	413.1480244	7.74557517	1.50797	9.4728E-08	2.081838817
663.2226631	6.92384192	1.44454	7.78229E-06	2.31339271	414.1276372	4.09459607	1.12573	0.001862979	2.021363219
513.1964499	8.33731707	1.44324	8.54506E-06	-0.587595362	414.2230872	8.66023678	1.34944	3.12235E-05	-2.715253177
609.1816329	8.71943823	1.44133	8.7551E-06	1.24011648	415.1633232	6.09140757	1.38065	1.37423E-05	0.823071807
1030.427828	7.80790061	1.44098	8.78412E-06	1.160298787	415.1639564	7.77998568	1.5526	5.78583E-09	-3.037952755
479.1887706	8.59983491	1.43927	8.94933E-06	-0.94076531	416.1679304	7.76642944	1.47634	5.4852E-07	2.733157992
675.8457728	7.47233711	1.43913	1.02502E-05	-2.706683259	417.0853014	8.89953177	1.0573	0.004252415	1.150177743
533.8780915	4.95557629	1.43912	3.57034E-05	1.008928008	417.0853132	9.19434891	1.05051	0.004519361	1.257708857
724.3835494	8.03725979	1.43852	1.05024E-05	1.439973519	417.1430901	4.96970812	1.33957	4.19083E-05	-0.646927416

209.1531835	8.58973064	1.43785	9.56679E-06	-1.151870242	417.1728838	7.05538835	1.11646	0.002024052	-1.111935482
450.2339237	6.71319308	1.43782	1.08463E-05	-0.892701966	418.1015405	7.30448409	1.14527	0.001728096	0.776419965
1037.344504	7.98526542	1.43741	9.44737E-06	1.530069796	418.8964703	0.66775553	1.05658	0.005479842	-0.531835605
700.2278714	5.74804241	1.43684	9.5525E-06	-2.261124982	419.1505399	7.18269255	1.36367	2.23047E-05	1.080136934
390.1760951	4.97149024	1.43564	1.03466E-05	-0.88751648	419.1583581	5.15651548	1.47253	5.50791E-07	0.887005174
536.8964606	4.95564021	1.43558	3.50352E-05	1.010727101	419.1948432	7.94988391	1.42222	3.84769E-06	1.843126325
211.5596052	4.56624199	1.43419	1.0432E-05	-2.371762034	421.0053975	1.14978377	1.43149	2.77989E-06	-0.957070382
525.2309687	8.55121924	1.42996	1.17414E-05	-1.87193816	421.1659241	5.99431514	1.27934	0.000166801	-0.740822712
233.0774368	7.74740682	1.42928	1.53765E-05	-1.073109656	421.1739477	7.4727524	1.30888	8.53713E-05	-1.822026546
536.2333713	6.40353431	1.42881	1.24559E-05	2.156606933	421.1742922	7.7994719	1.14475	0.001788597	1.881730175
588.2664292	7.39565692	1.42844	1.21219E-05	-0.835021363	422.9053791	0.67771749	1.31621	8.59688E-05	-0.761765568
314.1060747	5.75005013	1.42615	1.29262E-05	-2.381658308	423.1887416	5.73974361	1.43455	2.47988E-06	1.742076907
241.1518447	1.04518963	1.42613	1.54095E-05	0.557589339	424.8570469	0.7004518	1.3003	0.000117764	-0.773613531
898.42334	8.41125524	1.42586	1.36867E-05	0.705128454	425.1845038	7.74736291	1.58691	1.26707E-10	-0.965240328
421.1851136	8.59381843	1.42431	1.74309E-05	-1.552847106	427.1987864	7.38940686	1.57437	5.89515E-10	-0.987549738
387.199853	5.99570046	1.42414	1.371E-05	-1.051561772	427.1996556	6.90328926	1.52682	3.41434E-08	-1.910579614
193.0857655	4.97203751	1.42384	1.47999E-05	-0.713174314	427.9133203	7.39143602	1.50418	1.27737E-07	-1.154263348
767.2727277	4.96952892	1.42346	1.68214E-05	-1.786082077	429.2152355	7.9969548	1.32768	5.93775E-05	-0.634237288
407.1675876	7.18988441	1.42338	1.45688E-05	0.688199865	430.1836932	7.18256309	1.22754	0.000395238	2.153166977
325.1282024	8.48152011	1.42325	1.53766E-05	0.675258798	430.8149531	0.70748651	1.09323	0.002679248	-0.888349271
457.2073425	8.60463872	1.42276	1.44816E-05	-1.29078705	431.1008758	7.4573218	1.55474	4.49539E-09	-2.100283137
709.1993999	7.74252118	1.42269	2.40156E-05	-0.854952962	431.1235566	5.39578699	1.38725	1.14429E-05	0.563685845
392.1914748	5.15174883	1.42237	1.72083E-05	0.610000085	431.1945796	5.98638276	1.4321	2.7887E-06	-0.919701803
227.093828	7.26338944	1.42101	1.50619E-05	-1.100940821	432.1540569	7.77551093	1.45838	1.13636E-06	-1.904523957
191.142706	8.59983491	1.4207	1.5298E-05	-1.061912136	433.1742764	7.63551758	1.49028	2.61085E-07	3.478970117
220.1179724	2.68856518	1.42029	1.51665E-05	0.747911188	433.1744262	7.98939159	1.08714	0.003530591	1.000113407
427.1575386	6.73881047	1.42018	1.52595E-05	-0.67365181	434.873486	0.66786138	1.21865	0.000498264	-1.084382536
393.199093	7.63004865	1.4183	1.64758E-05	1.511607796	435.1458602	5.11874206	1.19676	0.000630049	0.844940716
603.072096	1.23748671	1.41779	1.67676E-05	-1.405960083	435.1899497	8.45521638	1.00167	0.007771213	2.549249782
265.1436301	4.33279259	1.41662	1.7388E-05	-0.902877067	435.960594	1.17601834	1.51021	8.35876E-08	-2.584691078
207.1378109	5.98910705	1.41649	1.72437E-05	-1.172506665	437.2203092	9.56193864	1.37825	1.7023E-05	-0.917538948
439.1974423	8.59983491	1.41555	1.74697E-05	-1.072119429	437.2204947	8.79102128	1.43195	2.77259E-06	-0.935750978
307.0759553	0.97444051	1.41344	1.81888E-05	1.452302145	438.0919126	0.93005633	1.48584	5.13839E-07	1.290007462
625.1768529	6.3926023	1.41144	3.65073E-05	-0.73573187	439.2358621	8.92371857	1.37125	1.77678E-05	-1.26401883
693.2009616	8.70791736	1.41103	2.11683E-05	3.269227991	440.8375112	0.70056199	1.32729	5.37467E-05	-1.163487021
819.4217773	7.36055957	1.41053	2.15525E-05	1.318534541	441.1788222	5.65529376	1.17723	0.000849623	1.08825109
1099.049079	7.80864655	1.41	2.08754E-05	1.117665438	441.2519026	9.70315528	1.43074	3.30102E-06	-2.345697767
420.2585963	5.66241864	1.40892	2.07763E-05	-2.807083552	442.1344132	6.46045338	1.0865	0.002995989	2.263809142

549.1582569	8.40305224	1.40826	2.35943E-05	1.724227941	443.1945639	6.57256351	1.47649	4.67218E-07	-0.842768579
569.3202185	7.86808709	1.40819	2.56117E-05	1.795526658	443.1946709	5.74253188	1.40576	6.90755E-06	-1.079718562
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286.0923792	1.89386522	1.40629	2.40259E-05	1.783606431	445.1590156	1.6796475	1.41933	4.26607E-06	1.051478486
867.8764665	7.8082616	1.40462	2.32254E-05	1.072409921	445.1740052	5.11141874	1.44522	1.68424E-06	0.703502066
557.1843779	4.46348503	1.40439	2.79093E-05	-1.09383844	445.2469226	8.60550597	1.35251	2.89602E-05	-1.007129702
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111.005354	1.02829932	1.40281	2.6522E-05	-2.033401877	446.8210644	0.7084668	1.14171	0.001614769	-0.824578525
139.0006109	1.0290774	1.40251	2.72551E-05	-1.752184925	447.0985904	6.67482622	1.37859	2.19269E-05	-0.847925996
279.170129	6.94275242	1.40229	3.54768E-05	-1.827994327	447.1895862	4.1795071	1.4125	5.24063E-06	-0.617751248
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163.1110901	5.99073765	1.40075	2.59072E-05	-1.114754553	448.1849143	5.99039986	1.29988	0.0001081	-0.930965759
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334.0451905	5.10179749	1.39966	2.90381E-05	-1.128790021	449.1974278	7.26396908	1.26198	0.000206422	-0.825336422
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161.1318567	7.39390481	1.39824	4.02054E-05	-0.620326145	451.1492444	5.88783194	1.10848	0.002690965	0.513134657
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619.1800353	7.91603955	1.39673	2.77524E-05	-0.913922002	453.2146534	7.80112383	1.35258	2.88552E-05	-1.562478211
475.1429574	6.47431894	1.39662	3.13022E-05	2.582860858	454.0196111	11.0525421	1.06081	0.005123485	0.965297641
523.2138833	9.69445452	1.39557	3.61167E-05	-1.438275668	454.158912	6.88227829	1.49547	2.02883E-07	3.042987694
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157.0106192	1.03151022	1.39533	3.13237E-05	-1.887415115	455.2310131	8.35178389	1.50281	1.40529E-07	-2.140336557
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870.671253	7.72143111	1.39277	3.14474E-05	0.939400736	458.2493072	8.56626109	1.13503	0.001580896	-1.692061456
367.1369088	6.14000668	1.39225	3.09142E-05	-0.4532551	459.2256009	7.26573983	1.26276	0.000203751	-0.659527976
427.2056116	1.07057986	1.39123	5.30577E-05	10.75179243	461.0999881	1.02717626	1.46234	8.50737E-07	2.265067872
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230.9856886	1.0119501	1.39017	3.46289E-05	-1.596519268	464.1799784	5.76462248	1.15435	0.001250737	-0.577565514
178.5980503	7.05128457	1.38935	3.31481E-05	-1.406679855	464.180454	4.17513596	1.43188	2.74482E-06	-0.880594075
701.9182445	6.87775762	1.38768	3.66458E-05	-2.406686135	465.1426611	7.18228894	1.29999	0.000100604	-0.875279419
210.0599546	1.15529504	1.3872	3.83869E-05	-1.917330851	465.2003242	6.87249164	1.00174	0.007445172	1.212507474
161.0594543	4.97231702	1.38711	3.6114E-05	-0.65635065	466.1592971	6.73942428	1.363	2.39376E-05	-0.495554316
467.1902469	4.34094854	1.38473	3.89006E-05	-0.903992267	467.1221078	8.06189344	1.1204	0.002770608	-0.728227745
283.1623799	1.04777881	1.38138	5.3525E-05	2.928720855	467.1221371	8.58419154	1.18699	0.000980887	-1.148839344

137.0958431	8.59866534	1.38075	4.06486E-05	-0.954317949	467.1948512	8.33877842	1.39846	8.1278E-06	-0.786168971
123.48535	0.72109256	1.37862	4.30363E-05	-0.704889285	471.189955	7.3896366	1.5599	2.45295E-09	-0.896180232
837.7557407	7.42553066	1.37727	4.40323E-05	1.067171895	471.1902438	7.74661804	1.59046	7.71612E-11	-0.913305252
395.1313846	4.97193623	1.37703	6.08734E-05	-1.109135113	472.1608326	3.93149836	1.03024	0.006153083	0.350260137
173.4312201	0.70510175	1.37493	4.74918E-05	-1.599746482	473.1318399	7.87648274	1.516	9.23199E-08	-1.509672998
648.1115407	5.10179749	1.37464	4.80176E-05	-2.19239595	475.2211647	8.69040576	1.56543	1.50504E-09	2.871898583
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369.1522668	6.88464189	1.3712	5.92385E-05	0.658579574	476.2163848	7.26389167	1.19033	0.000707932	-0.679658441
699.8491718	6.10438982	1.37114	5.31486E-05	-1.837794384	477.1495572	0.81887995	1.04071	0.005693587	0.682260982
329.1593811	6.87169901	1.36992	6.73757E-05	0.808138825	477.1642068	7.6602657	1.39242	1.17331E-05	4.06534889
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131.0490117	4.56552619	1.36925	5.30514E-05	-2.351098195	480.1746614	7.94788727	1.46187	9.2076E-07	1.612854297
251.1278404	7.05671427	1.36827	5.72758E-05	-0.8952047	480.1760845	8.65215565	1.10336	0.00296612	1.982027802
337.053114	5.10179749	1.36741	6.49754E-05	-0.893422624	483.2253728	8.78507617	1.41311	5.82228E-06	-0.940346933
672.3218779	8.59844821	1.3669	5.57977E-05	-1.106586248	485.2052305	6.0505598	1.12952	0.00173238	-0.449153545
285.0876678	6.03758453	1.36568	5.83866E-05	-0.581557592	487.180003	0.80694232	1.07202	0.003662385	1.092764036
423.0898927	5.55990792	1.36543	6.71671E-05	0.743535154	488.1392105	6.73808453	1.16287	0.001314704	-0.737758031
227.1640523	5.92301415	1.36308	6.33426E-05	-1.750096488	488.1673539	0.82070102	1.28302	0.000152017	-1.344103584
683.215874	7.41125438	1.3628	6.11595E-05	1.595890419	488.1801131	7.74830532	1.48766	2.72525E-07	-0.706248947
744.7905801	7.42394068	1.36271	6.20627E-05	1.125088044	488.8951534	0.67728182	1.28488	0.000134217	0.686388536
552.2285204	4.46688917	1.3619	6.39361E-05	-1.052821377	489.2006756	4.32408685	1.37817	1.51032E-05	-0.964829196
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152.1055922	1.63395222	1.35932	9.78984E-05	-1.258011822	491.1711447	8.59242195	1.30988	7.85899E-05	-0.951685536
189.1269695	5.99437127	1.35851	6.89018E-05	-0.678891185	491.1810203	5.33700718	1.24066	0.00037592	1.313895614
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397.2217629	8.19123786	1.3581	7.06924E-05	-4.37960907	492.885287	0.71645005	1.02125	0.006655892	0.331221548
248.0737245	5.01630378	1.35796	8.15578E-05	0.594270508	493.158895	6.73607015	1.41314	6.22861E-06	-0.878362751
581.0612554	7.27812991	1.35746	0.000117117	1.600570569	494.0967413	7.4483303	1.50587	1.16595E-07	-2.087236531
817.2004674	1.05633145	1.35636	9.5012E-05	2.143450237	495.1742066	5.83821365	1.18732	0.000848911	2.604897932
350.090486	3.86423123	1.35625	7.24962E-05	0.835934254	497.1818051	6.37299429	1.33809	4.1199E-05	-1.124402943
599.1977095	7.59646343	1.3561	7.04266E-05	-1.28355481	498.1575215	6.8803947	1.12809	0.001759645	-1.031906759
253.179744	7.26756215	1.35603	7.2558E-05	-0.919580911	499.1333636	0.95475144	1.39594	1.04045E-05	2.505820029
350.0908314	4.22578575	1.35569	7.19905E-05	0.822507772	499.2179063	8.34973979	1.34916	3.40194E-05	-1.766844773
682.2353681	7.51150802	1.35538	7.38474E-05	1.496417044	499.2207496	9.67241361	1.56696	1.23638E-09	3.474053212
163.0749716	4.56681369	1.35436	7.36177E-05	-2.370362816	500.9197652	0.66797613	1.2165	0.000677391	1.62330608
415.2332646	7.2659095	1.35347	7.71273E-05	-0.973790615	501.1070025	7.68922278	1.51089	8.17026E-08	2.148583306
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123.0810114	5.98780179	1.34882	8.7585E-05	-0.87269715	504.1750432	6.69940382	1.25562	0.000488044	0.826130655
235.1690902	7.26896963	1.34858	8.56928E-05	-0.926233192	504.1898373	6.36090245	1.55114	7.00554E-09	4.917370314
397.2221056	7.26681254	1.34798	8.69707E-05	-0.905230587	505.1013025	6.98501042	1.37258	3.3704E-05	-0.689003074
337.5737354	5.94219477	1.3478	8.97542E-05	-0.470126779	506.1900948	4.60086209	1.09171	0.002697117	-0.45628478
804.2884647	7.42551706	1.3436	9.17869E-05	1.003744117	506.1902275	4.32425552	1.31714	6.90667E-05	-0.8830329
149.095722	5.99041331	1.34328	9.57808E-05	-1.037772684	506.8806486	0.68130559	1.25025	0.000256476	1.055281571
379.186145	7.56237281	1.34319	0.000122527	-0.634858168	508.1115804	9.95031098	1.36676	2.06652E-05	0.455444087
338.1784194	7.04953288	1.34237	9.38588E-05	-0.948962538	511.1841219	8.33591718	1.31162	7.89657E-05	-0.62637943
913.8187173	7.42414036	1.34082	9.70252E-05	0.98573568	513.1981745	7.75032256	1.19967	0.00064681	-0.890145047
136.9353828	0.72498771	1.34034	0.000114328	-0.805299976	513.2280032	8.65009151	1.07222	0.003648116	0.840198278
361.1750653	7.5625716	1.33997	0.000120833	-0.630010314	515.1282507	1.00765555	1.43455	2.47807E-06	-3.463652586
718.2292156	7.42553066	1.33858	0.000103031	1.050875623	515.1794504	6.19029161	1.2421	0.000398918	0.933661695
181.0494654	4.19566948	1.33849	0.000106209	0.915793618	516.1679818	4.1652815	1.13669	0.00206182	1.650912055
360.1639277	4.57025604	1.33785	0.000103802	-2.236750469	516.8989768	0.66775553	1.39016	1.04087E-05	0.591506916
667.1890691	7.23619859	1.33761	0.000106062	-1.217683385	517.2316003	8.97958836	1.5772	4.18219E-10	3.201808857
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203.1791296	8.95920723	1.33492	0.000109531	-1.305480248	519.1171967	8.35482969	1.04675	0.007571725	1.227916464
246.1812273	0.74403885	1.33323	0.000113055	0.673425545	519.1753098	6.81290839	1.04589	0.005568605	-0.999504553
699.193366	7.41229538	1.33228	0.000116168	1.488649939	519.2465536	7.86909006	1.01344	0.006726264	-1.133522565
455.114548	0.77764686	1.3322	0.000120316	0.755336768	519.2467826	8.06309074	1.32459	5.66155E-05	-1.598163045
171.993117	0.68936603	1.33101	0.000141795	-0.79443344	521.1109835	10.627237	1.03837	0.00510539	2.872765002
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530.217991	5.89912159	1.32749	0.000141767	-1.239026086	523.1149493	4.94747901	1.16754	0.001394652	0.975299928
321.0973208	7.30994345	1.32674	0.000174834	0.826645931	524.1101993	7.77448031	1.18828	0.000776019	-0.994802419
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963.2767345	8.21856113	1.32415	0.000148435	1.640558798	528.1597149	1.40687875	1.04748	0.00534792	0.779494838
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217.1566983	7.05977022	1.32093	0.000143758	-0.814229219	536.2007471	7.99084115	1.29567	0.00010991	-0.476012564
828.3835227	7.06688597	1.32018	0.000162351	-1.060607343	536.2049862	7.26545269	1.53242	2.36046E-08	-1.861306337
948.424814	7.05219966	1.31955	0.000153538	-1.756179927	537.1474286	3.7534711	1.45495	1.20277E-06	-1.292369937
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1034.602169	7.72661753	1.23035	0.000674463	0.949236124	655.2297886	8.67470249	1.21705	0.000466322	0.836025597
704.1912107	6.22800417	1.22986	0.000940697	-0.548232437	655.2972781	8.06013351	1.06736	0.00466993	0.822256894
458.8576458	0.67404216	1.22839	0.001000702	-0.998304434	656.1481708	7.0845968	1.49108	2.91478E-07	-1.614594387
275.0761512	3.69357648	1.22783	0.000931206	-0.852646578	659.2219824	7.40807932	1.21434	0.000567216	1.885665206
309.1327085	6.13673132	1.22701	0.000715004	-0.51567753	662.8334054	0.66786138	1.12873	0.002150112	-0.708616692
471.3858101	0.67361864	1.22384	0.001012418	-1.165460085	666.2263153	5.64120235	1.4847	3.20433E-07	1.004256736
169.1219803	6.39247323	1.22155	0.000766254	-0.728133989	667.2616609	7.80907856	1.09074	0.002941167	-2.836156502
669.2728014	8.82015264	1.22089	0.000813713	-1.033631788	669.2056916	8.54827007	1.24595	0.00027644	-0.944418921
211.0963427	3.39312307	1.21987	0.000846602	0.870141355	673.2406905	8.67695989	1.39187	9.91364E-06	1.35859747
394.9760874	0.7416549	1.21854	0.000826296	0.476152422	678.8111618	0.66791875	1.16162	0.001152066	-1.020850911
286.091631	1.69843159	1.21432	0.001080427	0.770725548	679.195795	0.92771745	1.3381	4.32257E-05	1.801023526
185.9623865	0.70077	1.21183	0.000930645	-0.767528131	681.278032	8.38776758	1.17207	0.000921229	-2.571918247
526.2343822	8.79945046	1.20851	0.001365132	-2.340600285	683.2931459	8.26720274	1.11107	0.002236763	-3.348743184
353.1711407	1.3839189	1.20571	0.001098977	-0.798032081	685.1272546	3.4510223	1.05942	0.003971785	-0.973825561
370.17091	4.11160356	1.20227	0.001066637	1.998846402	687.2885984	5.95315154	1.15644	0.001317751	1.235091702
167.0466753	4.40595552	1.20156	0.001072067	1.173105081	688.1746476	6.21719039	1.14033	0.002748131	-0.536927094
787.2296605	5.88129038	1.19902	0.001053838	0.683713196	689.2306902	6.45451674	1.39406	1.04138E-05	0.987129209
108.45167	0.70690896	1.19867	0.001093666	-1.077207815	691.1203379	5.94970506	1.03659	0.005372181	-0.269759129
278.0750794	6.18945968	1.19827	0.00106671	0.693049765	695.2717082	8.0550772	1.052	0.005246015	0.650487781
303.1916625	0.84553901	1.19411	0.001296267	-0.439622116	697.3668126	11.4342679	1.25307	0.000291858	1.414580603
426.1970746	8.30840141	1.19387	0.001201322	4.072023537	698.214665	5.74742794	1.40803	6.13794E-06	-2.304467207
467.2022534	5.03645876	1.19284	0.001175181	-1.9009591	699.1438278	4.91751912	1.06257	0.00602989	-0.505340884
403.2186485	4.87595949	1.19262	0.001726778	-0.808517613	705.2634699	9.19484019	1.59193	9.22312E-11	3.73407549
443.1483615	7.12812968	1.19259	0.001404208	-1.36468895	707.1848086	7.73987469	1.17398	0.001504691	-0.711331772
624.2691962	7.80094372	1.19151	0.001201534	-0.860427003	709.1640368	6.4441063	1.24248	0.000340153	-0.447365862
382.9307085	0.68033964	1.19105	0.001316429	1.191378986	709.2719976	8.61381165	1.38588	1.22768E-05	1.235125314

297.0607991	5.10179749	1.19045	0.001444429	-0.742023598	709.3569489	7.04968687	1.36683	2.00987E-05	-1.763953585
335.1335809	4.11117794	1.19014	0.001315381	2.166624249	713.158942	4.88758623	1.39967	1.08241E-05	1.378417133
697.2843318	8.06352712	1.18979	0.001266125	0.841486738	713.2313627	5.11075665	1.19721	0.000631064	0.507288637
448.2542211	5.9967588	1.18911	0.001404254	-0.631262754	714.2627595	8.13367137	1.09596	0.002651003	-2.341164884
389.1433047	5.15871518	1.18806	0.00145282	-1.031928037	721.1243894	4.91613337	1.1227	0.002293819	-0.768241303
394.1644776	3.25723718	1.18767	0.001433865	2.425203159	721.3667479	11.3052646	1.26514	0.000227633	1.433592649
507.7775393	5.72658373	1.18711	0.001340987	-1.927486603	723.2731644	8.6251593	1.48238	3.50334E-07	2.777286013
187.1099675	6.12993064	1.18663	0.001265732	-0.541528022	723.3820807	11.7467947	1.36115	2.97445E-05	2.270243006
198.0526327	0.79266333	1.18579	0.001366866	-0.661687135	725.1955251	5.74337722	1.31819	9.41598E-05	-0.845883843
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377.0456585	0.93676569	1.18467	0.002123012	1.097635072	725.397551	12.2784408	1.43965	4.28784E-06	2.545419183
330.5842717	7.90716255	1.18419	0.002008444	-0.429001834	727.1771945	5.55994562	1.30278	9.96256E-05	1.167453676
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204.9039935	0.70617295	1.18225	0.001384074	-0.537527833	730.2575293	7.80250251	1.14857	0.001376886	-2.472845216
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512.8945646	0.67484165	1.18151	0.001360199	0.94356753	735.1401634	4.88232248	1.4613	8.96151E-07	1.377254669
431.1526284	8.47585868	1.18141	0.001426163	3.29960709	735.2213329	1.25298452	1.53278	2.04204E-08	1.24358996
392.1317138	5.38210215	1.18061	0.001638236	-1.342965397	737.2381453	0.95057026	1.00903	0.007005216	0.591924368
401.0867957	8.9279196	1.17977	0.001550254	1.17539226	737.2722859	8.4014559	1.17895	0.000864388	-1.591016054
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193.0856298	7.15839084	1.17803	0.001973349	0.667600035	739.2110653	7.05822442	1.35467	3.17213E-05	1.191810114
337.9689828	0.67404897	1.17756	0.001725361	1.222341348	741.2611816	6.84173442	1.23831	0.000328228	-2.106510169
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237.0870358	1.4196596	1.17605	0.001532791	-0.609750353	743.3134816	8.62339721	1.18011	0.00090886	2.501339409
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484.203072	7.80142807	1.17497	0.001726505	1.871132677	749.8576761	7.9455194	1.1223	0.001838625	-1.07597596
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267.6375128	4.10559547	1.16523	0.001699864	1.620125794	763.1873805	8.04010237	1.24999	0.000303117	-0.504257471
362.0937091	0.93175898	1.16232	0.002013735	-1.137430134	765.1924118	6.88076993	1.0347	0.00655452	0.888015283
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253.1795049	7.64191189	1.15831	0.001931483	-0.940184626	771.1646451	4.50148761	1.10434	0.003894566	0.636393841
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362.1973592	5.21755732	1.1457	0.002235243	-1.001239846	807.1768656	5.16789866	1.44748	1.5374E-06	0.873794142
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456.1714426	5.11891424	1.13682	0.003026437	3.798062465	835.3611401	7.94349157	1.33024	5.32221E-05	2.805838846
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686.3024847	7.81040095	1.13622	0.002516718	-2.995621226	843.3294999	5.9861966	1.14413	0.001437369	-0.904200932
578.3295454	5.52974682	1.13566	0.002804687	3.537583924	845.2787457	0.83910373	1.39288	9.80272E-06	1.21055407
312.1654749	4.40345192	1.13489	0.002916454	1.731226503	845.3334064	6.71962178	1.54153	1.09741E-08	-1.225899966
440.148476	6.53035676	1.13253	0.00356845	1.956470536	847.2518514	7.01025858	1.03173	0.00603784	0.729565827

211.0962939	3.18238379	1.13242	0.002556754	0.937816147	848.2106909	5.87904735	1.07558	0.003494047	0.595378148
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369.926017	0.67568619	1.12858	0.004465567	-0.596443671	860.231544	6.46006378	1.4344	2.52603E-06	1.26210663
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446.187282	0.84005566	1.12666	0.003344866	1.088332346	869.2364662	5.86782643	1.38293	2.00376E-05	-0.707319005
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289.0889641	1.66518102	1.12499	0.004260655	0.774069724	883.1844179	5.87089871	1.42887	3.10402E-06	0.868843912
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384.1151228	3.22989499	1.11869	0.003404465	0.916734897	905.2941623	4.97103046	1.42984	3.96317E-06	1.595587115
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374.1575814	7.76080807	1.11783	0.003592229	-0.597789935	919.252842	7.31354094	1.32786	5.2965E-05	-0.972001721
767.2038917	6.88421018	1.11744	0.003313341	1.056429685	927.2468461	1.23737451	1.51739	6.22825E-08	-1.952383493
329.1480576	5.61121733	1.1171	0.003497067	-0.301368778	927.2477073	1.0287884	1.19513	0.000654442	-0.814641644
370.0932508	4.92326519	1.11701	0.003551415	-0.690668004	931.2518189	7.31746832	1.42853	3.46966E-06	1.670155414
439.1443618	5.1151073	1.11695	0.003856623	3.200009813	931.2729062	5.05184732	1.48924	2.61197E-07	2.668809339
113.0344019	1.20658961	1.1165	0.003036792	0.500260066	932.3861266	8.40177164	1.33698	4.3485E-05	1.098964608
223.989149	0.68185646	1.11574	0.003077935	0.363674644	933.359697	7.0370892	1.1129	0.002371931	-0.802541214
249.0449	0.73257742	1.11343	0.003975814	0.19819778	937.3350488	8.11934301	1.02082	0.007641693	0.601876865
701.2262996	5.59220181	1.11318	0.00408223	0.341394938	943.3822993	7.38794069	1.55989	2.73295E-09	-2.132512729
305.0541418	1.04755352	1.11314	0.004023053	0.788695289	946.4108982	7.05165671	1.35364	2.84605E-05	-1.667861302
376.1758965	8.19559217	1.11309	0.003495686	0.607864221	947.2478255	8.02887919	1.42638	3.33591E-06	1.854693178
741.2234286	6.24640762	1.11149	0.003479918	-0.721263102	948.3340122	7.06001383	1.55938	2.82341E-09	-2.417330158
165.0543641	5.13606959	1.11017	0.0041255	0.838682071	951.2782169	6.73179378	1.33342	6.50278E-05	-1.096029943
736.2156998	6.43245869	1.10826	0.003468782	-0.928007503	955.3272459	7.63148885	1.34837	3.7037E-05	4.669363012
426.9024608	0.6736446	1.10715	0.004354076	0.407492165	959.3926936	8.40535702	1.08344	0.003220214	3.171892427
113.5317702	0.67066714	1.10652	0.003487725	0.318418418	961.2632401	8.21569583	1.34275	4.54769E-05	1.755868398
324.1265965	1.04490866	1.10609	0.004860251	-1.04733728	961.2633423	7.23319927	1.37604	1.91108E-05	1.638427444

705.2880829	5.63527343	1.10604	0.003807964	0.58468858	965.3633021	7.38858147	1.47626	4.9893E-07	-1.769376006
551.2003054	8.38729879	1.10538	0.003447153	-0.823273106	969.2578085	1.05562042	1.04317	0.005448839	2.175344821
580.295683	8.03641759	1.10401	0.005225364	1.573850489	969.3912644	7.99625485	1.04244	0.004901259	-1.138166558
935.3880687	8.5921446	1.10346	0.003681496	-1.046308096	971.2740252	1.05323552	1.41841	5.18924E-06	1.851042354
319.0813502	6.21354048	1.10097	0.006161569	-0.515603996	971.4858353	9.70055969	1.31617	7.59045E-05	-4.977776956
328.9001436	0.67404216	1.10093	0.005786726	-0.546319775	973.3472992	7.87344737	1.29169	0.000129883	1.888852748
400.9369134	0.72471142	1.09928	0.004364554	-0.653726622	974.4293519	7.98179078	1.28614	0.000140996	-2.086760192
765.8885314	8.12579652	1.09858	0.00371002	-1.101287129	977.2816301	7.99173478	1.48397	3.28402E-07	1.732476467
1011.508691	9.39115341	1.09816	0.00730274	1.029839643	979.130981	5.1013078	1.4166	4.94161E-06	-2.01323765
298.9896161	0.68936603	1.09701	0.00472771	0.44367878	985.3917539	7.55049918	1.29283	0.000116225	-1.677066684
482.1016368	0.9600902	1.09604	0.004621153	-1.182902857	987.3144759	7.73613682	1.0185	0.01180664	-0.475290144
245.0765138	1.21008201	1.09603	0.003882454	0.528071008	992.3037077	6.25591195	1.26455	0.000234802	0.841434651
458.1123476	1.14786578	1.09521	0.003885036	-1.490753002	993.2517725	5.97633019	1.12169	0.002053029	0.597254214
265.0176093	0.68339854	1.09495	0.003855659	0.231502017	995.3405199	7.8770833	1.07722	0.00323888	1.044281012
1018.005126	7.81109548	1.09447	0.004345764	0.945508247	997.3564131	7.93279343	1.09395	0.00407165	1.290287574
289.0882037	1.04054906	1.09327	0.004322567	-1.530703977	999.441364	7.97928063	1.40594	6.45871E-06	-2.28934875
358.2697844	7.99420664	1.09324	0.005130705	-0.731839471	1001.295006	8.33342826	1.06356	0.004091414	-0.761147324
557.2345491	4.03005458	1.09144	0.004330484	1.708660025	1003.328737	5.63262164	1.28153	0.000178313	1.647643342
744.2426161	6.24754176	1.09137	0.00423812	-0.744665797	1013.350684	7.99629524	1.03051	0.0073201	1.641607917
402.1561039	1.04035957	1.09135	0.00564616	1.397241471	1017.390885	8.4722412	1.15498	0.001321227	0.795040733
245.1857029	5.88518169	1.09046	0.005120863	-1.26882617	1023.369986	8.33671292	1.22306	0.000412158	-0.97773247
359.2280612	4.52282533	1.09006	0.004085304	-0.885424678	1035.334975	7.36897123	1.58776	1.58784E-10	-2.458471258
907.4347589	7.98989146	1.08981	0.005119021	-0.71442944	1038.020376	1.40851723	1.38542	1.79441E-05	1.929569418
538.1967658	6.55774059	1.08945	0.00472744	1.590470537	1039.294392	7.65782696	1.44168	2.5769E-06	3.068977616
282.0846691	0.76139193	1.08889	0.004275302	-0.585253948	1041.345879	7.94751508	1.28633	0.000155103	1.815130986
528.2736016	9.5462377	1.08814	0.004578672	-0.610318007	1049.378804	8.87553904	1.23673	0.00032544	-1.106236375
472.3103523	7.6012706	1.08795	0.00430452	-1.030135885	1053.401149	5.77967145	1.49797	1.646E-07	-1.581627824
912.4416493	8.01592808	1.08575	0.004273149	-0.792660546	1054.316959	6.23454919	1.29758	0.000102235	-0.529154139
817.9890539	6.43273434	1.08494	0.004518606	-0.924194589	1061.45806	7.55044326	1.22281	0.000417609	-1.585990836
610.2708112	7.06328052	1.08488	0.004551294	-0.754483908	1063.473895	7.61118337	1.30452	9.12085E-05	-1.181991214
310.0715436	7.90716255	1.08221	0.007348075	-0.371846724	1065.347244	7.59899463	1.40109	8.06215E-06	-1.34958535
600.1617734	7.90083133	1.08157	0.007867137	-0.364955913	1067.36113	7.37212466	1.07895	0.003217246	-0.659144322
333.094694	4.41080398	1.08139	0.005535387	1.826082367	1077.417782	8.89379084	1.28447	0.000151246	-1.095127527
493.1933903	5.33637024	1.08021	0.005159192	1.027392584	1079.397006	7.95552412	1.31462	8.63913E-05	-1.139202567
502.2639715	5.99180491	1.0795	0.004616663	-0.739678754	1085.262403	5.14916677	1.42586	3.85156E-06	0.771696564
651.1165738	3.64909994	1.07929	0.006289175	-0.830635786	1087.332307	8.34233961	1.19518	0.000661237	1.301531566
326.1291283	4.5862622	1.07906	0.005875922	-0.577142545	1091.362002	7.68525935	1.25296	0.000375972	-0.661189589
983.3328582	7.38026531	1.07771	0.004674285	-0.391166506	1099.422229	7.88615621	1.18216	0.000841006	-1.173023988

334.8679708	0.70094867	1.07706	0.006186935	-0.608566879
458.2755772	5.99548947	1.07227	0.004932802	-1.055385516
369.0820446	7.67706315	1.07063	0.013728511	-0.217879664
521.2019126	5.83201367	1.06972	0.00517857	-1.768898674
295.1361046	4.81110343	1.0674	0.007474813	0.558385116
274.9461126	0.67255041	1.06696	0.005670336	-0.905067808
635.4130683	14.0362125	1.06484	0.006025976	-0.182185389
495.1867164	6.05336337	1.06479	0.005432611	-0.425121404
312.1291822	2.90214722	1.06413	0.005925851	2.672589883
115.0753597	4.40469413	1.06226	0.006861196	1.956305628
351.1661843	4.84012224	1.0595	0.008181207	0.647865399
981.9918332	8.76091646	1.05917	0.005689307	-1.355170391
696.2760895	5.57968765	1.05895	0.005689708	0.615649587
539.1740068	6.19374491	1.05889	0.005682127	0.434559534
435.1290148	7.89852175	1.05845	0.008357204	-0.553841549
412.1466961	4.28442463	1.05819	0.005722184	0.471763751
245.0723205	1.03264987	1.05611	0.00843515	-0.740484096
294.1045824	6.00245182	1.05561	0.007525472	-0.528244649
728.3980229	9.20428681	1.05545	0.007452376	-0.523714781
627.1929597	6.23178529	1.0528	0.006352479	-0.781698038
328.0999435	8.05187801	1.05203	0.006318038	-0.478068159
177.0544172	7.67812605	1.05189	0.014421409	-0.203893889
434.1913953	1.04089562	1.05133	0.01063683	1.910936087
293.1233289	8.14163177	1.04895	0.010264343	-0.386931796
337.5922333	8.89335069	1.0484	0.010247791	-0.588193551
448.1691557	1.04863058	1.04834	0.009473702	0.993827811
602.5824768	6.72107468	1.04742	0.007906193	1.197874864
473.1077568	8.7045124	1.04712	0.006771842	-0.497894351
158.1537063	10.6332997	1.04676	0.010155495	-0.188028321
714.2069532	5.74149455	1.04636	0.006455919	-1.496708085
639.226529	8.05585562	1.04606	0.006475701	-0.426083222
191.0725558	6.80366155	1.0425	0.007376443	-1.380883982
436.217743	8.64398713	1.04155	0.010416992	1.524534329
505.2435661	8.27028811	1.04122	0.00739098	-3.804401459
359.1310796	7.80790061	1.03846	0.007096242	1.012446452
471.2610381	0.99618157	1.03629	0.007414112	1.095779379
398.1661822	6.4611819	1.03547	0.007656247	1.791462747
317.0802157	8.89417117	1.03473	0.012315132	-0.55523207

477.1739178	6.05259896	1.03465	0.007292247	-0.627365321
319.2034591	5.69424998	1.03449	0.010431285	-2.044992419
445.2222612	7.81171944	1.03341	0.007892473	-2.857803012
353.1684611	1.04408577	1.03287	0.007773992	-0.733823887
936.5055496	7.88412193	1.03227	0.007836627	-1.027858351
513.1968023	6.05251587	1.03186	0.007480048	-0.405247156
665.1716691	7.23751415	1.03149	0.010200035	1.295128959
368.1913118	8.71083008	1.03009	0.007668623	-1.546035142
511.201101	6.87695631	1.02873	0.007710473	1.064294477
403.1222819	6.46309548	1.02867	0.007915669	1.628872044
515.1241722	7.22227211	1.02798	0.016528667	1.42618817
410.926097	0.6794222	1.02763	0.008289381	0.645180414
300.2012325	4.71677626	1.02667	0.008201219	-0.876755048
250.1774626	10.4536869	1.02495	0.010160973	-0.414175859
766.3534768	9.2053345	1.02462	0.01686318	-0.312013948
321.560525	7.67812605	1.02357	0.009905701	-0.379177812
266.1038932	0.76478647	1.02315	0.008167331	-0.880884017
707.8694226	6.86859025	1.0228	0.012885481	0.905575933
198.9400965	0.67798697	1.02264	0.014396633	-0.312601443
525.2304152	8.99981643	1.01952	0.008636449	-0.852112948
511.2288918	4.19344589	1.01806	0.008647638	0.834851659
305.0631401	1.66713528	1.0168	0.011136325	0.718587468
129.0234643	0.66639494	1.01464	0.010347524	-0.573146335
483.1630914	4.33865307	1.01409	0.008903482	-0.515672639
727.2444465	7.89631143	1.01179	0.013053326	-0.627885808
401.167948	7.55663393	1.01174	0.010322811	-0.650171452
333.1908761	8.15889178	1.0113	0.00921702	1.387378864
419.13435	7.89922525	1.01037	0.014367814	-0.43321986
465.139671	6.21099053	1.0099	0.01403079	-0.54704809
447.1348001	6.99283237	1.00975	0.009681774	1.273372304
423.1627189	9.31958034	1.00887	0.009908606	1.320105932
527.2386002	8.97332363	1.00883	0.014798805	1.280799186
257.0778048	4.40532483	1.00876	0.00931937	0.61416354
339.1075142	7.30262931	1.00745	0.011411161	0.640629215
284.1338418	1.66610922	1.00427	0.013609238	0.730870934
367.1868868	1.49893771	1.00408	0.010027017	-0.441992931
316.0935425	1.00004794	1.00377	0.011668262	0.58317337

Note: M/Z refers to mass-to-charge ratio. RT refers to retention time, min. VIP refers to the variable importance in the projection of PLS-DA. Fold change (M/W) refers to the ratio of 'HAL' mean of normalization m/z value to 'AL' mean of normalization m/z value. The significant difference of m/z was screened by the criteria of VIP > 1 and p-value < 0.01.

Table s2 The primers used for PCR confirmation of the genes involved in citrate synthesis, transport, and degradation or utilization

Gene Name	Description	Sequence (5'-3')	Product size, bp	Sequence ID
		Forward primer		
<i>PEPC1</i>		TGTTGGAAGAGGAGGTGGTC	951	orange1.1g002089m
<i>PEPC2</i>	phosphoenolpyruvate carboxylase	ATGGCTGCTAGAAATTTGGAGAAG	783	orange1.1g002112m
<i>PEPC3</i>		TCTTCTTTCGCCTCTATGCCACTG	581	orange1.1g001537m
<i>CS1</i>	citrate synthase	GAGGCTTATGAGAAGGGAAT	756	orange1.1g012107m
<i>CS2</i>		ATGGCGCCAAGCGTAGAATCATCGT	1542	orange1.1g010304m
<i>NAD-IDH1</i>		GATCCCTCCCTTTCCTGAAG	917	orange1.1g018224
<i>NAD-IDH2</i>	NAD-isocitrate dehydrogenase	TCTCAACCACAAACCCCAAC	1062	Ciclev10025889m
<i>NAD-IDH3</i>		CCCTACCGATCCTCAAACAA	1094	orange1.1g017413
<i>NADP-IDH1</i>		ATCCCATCGTTGAAATGGAC	975	orange1.1g015012
<i>NADP-IDH2</i>	NADP-isocitrate dehydrogenase	AGGTTACCGTAGAAAGCGCT	919	Ciclev10005058
<i>NADP-IDH3</i>		GATGAAGTGCGGGTTAAGGA	797	orange1.1g009041
<i>GS1</i>		ATGTCTCTTCTCAACGATCTCCTCAA	1071	orange1.1g013478m
<i>GS2</i>	glutamine synthetase	ATGTCTCTGCTCTCAGATCTCCTT	1071	orange1.1g018391m
<i>GS3</i>		ATGGCGCAGATTTTGGCACCTTCTA	1449	orange1.1g018434m
<i>PEPCK1</i>	phosphoenolpyruvate carboxykinase	CCAGAACACCGGATCAAAGT	794	orange1.1g005865m
<i>PEPCK2</i>		ATGGCAGCGAACGGTAACGGAGAGTT	1995	orange1.1g006486m
<i>FBPase1</i>	fructose-1,6-bisphosphatase	TCGGCTCTCTCCTTACCAAA	751	orange1.1g015111m
<i>FBPase2</i>		CCGTTGGATGGGTCTTCTAA	605	orange1.1g019437m
<i>CsPH8</i>	p-type proton pump	CCGTGAAGGAATTGATTTGG	877	Shi et al.(2015)
<i>VHA-af</i>	VHA assembly factor	ATGGTATCCGAATCCGACAA	633	orange1.1g028366m
<i>VHA-A</i>	V-type ATPase A subunit	AACACACAAGCCTCTCTCGG	1066	Ciclev10030969m
<i>VHA-B</i>	V-type ATPase B subunit	GCTGGTTTAGTCAAGCGATT	846	orange1.1g011329m
<i>VHA-C</i>	V-type ATPase C subunit	TACTGGGTGGTGTCTCTTCC	557	Ciclev10015638m

<i>VHA-D</i>	V-type ATPase D subunit	GGTTCCCACAGTGACAATGC	TTCAAGCGAAAGAAATCCTC	585	Ciclev10009240m
<i>VHA-E1</i>	V-type ATPase E subunit	CGGTTTATCCGCCAAGAA	CCACCACGACACCTCCTG	535	orange1.1g027450m
<i>VHA-E2</i>		TGAGGTTTCATTCCGCCAGG	CAACTCCACCCGAGCAAG	531	Cs6g10330.1
<i>VHA-F1</i>	V-type ATPase F subunit	ACTGGATTTTTGCTGGCTGG	GGTCATACGGATGGTCCTTAGA	247	Ciclev10002833m
<i>VHA-F2</i>		ATGGCTAATAGACCTCAAATACG	TCAGCGCCTGTCAGATGC	468	Ciclev10022651m
<i>VHA-G</i>	V-type ATPase G subunit	ATGGCATCTAATAGGGGTC	TTAATTCTTCACAGTTGTAACA	333	Cs6g11650.2
<i>VHA-H1</i>	V-type ATPase H subunit	ATGCACAAAGATCCCCTATTC	TCAGGCCTGCAAAAAGCTCGT	312	orange1.1g034108m
<i>VHA-H2</i>		CAGTGGAGTACTTGGCAACTA	TCCTTCAAACCTTCTTCCAGTTG	250	Cs7g14520.1
<i>VHA-a1</i>	V-type ATPase a subunit	CAGGTAAAGCGATGCGGA	AGGCGATTCCATAGAGTCCA	963	orange1.1g003454m
<i>VHA-a2</i>		TCATCCCTATTGAATCCGCT	AAAATAACATAACGACCGCC	1338	Cs8g08330.1
<i>VHA-c1</i>	V-type ATPase c subunit	CACCGTTCTTCGGCTTCT	TTATGTTTTCGTGCATGA	425	Cs8g07570.1
<i>VHA-c2</i>		ATGTCATCGACTTTCTCCGGC	TTATTCTGCCCAGATTGGCCT	498	orange1.1g031149m
<i>VHA-c3</i>		GTATGGGACGGCGAAGAGTG	CAAGCGAGACCCGAAGACAA	213	Cs1g25080.1
<i>VHA-c4</i>		GTGGCGATGAAACCGCTC	ACCTGACACCAGCATCACC	351	Ciclev10002781m
<i>VHA-c''</i>	V-type ATPase c'' subunit	ATGTCGGGCTCCGTAATGTTG	TTACACTGGTTTTGCAGGCCAT	549	Cs4g20460.1
<i>VHA-d</i>	V-type ATPase d subunit	ACAATTTGTGCCAGTGCGA	TACGACGATCATCTCGGGTG	615	orange1.1g018709m
<i>VHA-e</i>	V-type ATPase e subunit	ATGGGGTTTTTGGTGACA	TCACTCCTCTTCACTCAG	213	Ciclev10010112m
<i>VHP1</i>	V-type Ppase	CAGTGGTTCATCGTCTCCCG	GCCTCAAAAAGTCCCTCCCA	593	Ciclev10024946m
<i>VHP2</i>		CAGCCCTGTCCAAGATGTGCG	GGACCAAGAGTTCTGGCGTG	840	Ciclev10007524m
<i>VHP3</i>		TGCCGTTGCTGCTTATGC	TGGGTGAGGCATCAGTGG	436	orange1.1g040141m
<i>VHP4</i>		GTTTCGCAATACAACCCCTC	GCTGCTGGCTCATCTCTACA	1247	orange1.1g003697m

Table s3 The mass spectrometric parameters for the positive and negative ion modes

	Positive ion mode	Negative ion mode
Capillary voltage	4 kV	3.5 kV
Cone voltage	35 kV	5 0kV
Iron source temperature	100°C	100°C
Desolvation temperature	350 °C	300 °C
Reverse cone gas flow	50 L/h	50 L/h
Desolvation gas flow	600 L/h	700 L/h
Extraction cone voltage	4 V	4 V