

Compounds	$\frac{nmol}{qFW}$	5s/10s	10s/60s	60s/180s	180s/600s	600s/1200s	1200s/3600s
2PGA	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
3PGA	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
ADPG	0.71 ± 0.29	0.271	<b>0.034</b>	0.275	0.194	0.431	0.278
DHAP	15.9±5.5	0.947	0.950	0.119	0.738	0.137	0.751
F6P	129±26	0.705	0.640	0.091	0.493	0.141	0.370
FBP	21.2±9.6	0.622	0.347	0.144	0.816	0.153	0.542
G1P	18.9±6.1	0.931	0.538	0.212	0.440	0.578	0.630
G6P	213±50	0.783	0.650	0.104	0.552	0.205	0.393
RuBP	84.6±23.4	0.283	0.139	0.195	0.720	0.057	0.884
S7P	65.3±13.0	0.405	0.907	0.918	0.843	0.131	0.342
SBP	16.3±4.9	0.975	0.995	0.368	0.522	0.234	0.623
UDPG	92.6±19.5	0.129	0.748	0.071	0.794	0.393	0.265
Tre6P	0.16±0.03	0.609	0.712	n.d.	n.d.	0.515	0.466
Suc6P	0.82±0.36	0.555	0.488	n.d.	n.d.	<b>0.004</b>	<b>0.009</b>
Glycine	532±205	0.460	0.052	0.885	0.786	0.272	0.358
Glycerate	17.3±4.5	0.066	0.394	0.159	0.259	0.311	0.799
Serine	1000±195	0.863	0.624	0.921	0.926	0.305	0.326
myo-inositol	153±19	0.478	0.401	0.473	0.465	0.424	0.424
Sucrose	1114±117	0.411	0.215	0.341	0.709	0.424	0.422
Trehalose	2.86±0.86	0.135	0.402	<b>0.043</b>	<b>0.004</b>	0.420	0.420
Glutamate	1278±230	0.394	0.784	<b>0.007</b>	0.581	0.180	0.565
Malate	761±270	0.428	0.674	0.480	0.622	0.379	0.921
2-oxoglutarate	47.9±19.7	0.742	0.934	0.273	0.520	0.419	0.758
Alanine	325±85	0.213	0.200	0.613	0.472	0.525	0.692
Pyruvate	24.1±5.2	0.293	0.461	0.721	0.601	0.430	0.334
Valine	51.9±8.1	0.985	0.569	0.287	0.095	0.435	0.392
Isoleucine	12.5±2.4	0.858	0.753	0.582	0.238	0.429	0.429
Proline	131±63	0.634	0.790	0.073	0.689	0.378	0.597
Threonine	180±39	0.541	0.395	0.821	0.499	0.503	0.193
Fumarate	108±54	0.179	0.605	0.962	0.800	0.422	0.432
Aspartate	35.1±5.0	0.430	0.373	0.670	0.596	0.423	0.505
Phenylalanine	18.3±5.6	0.984	0.671	0.662	0.604	0.427	0.419
Asparagine	114±31	0.822	0.498	0.514	0.296	0.429	0.420
Fructose	1058±237	0.933	0.062	0.574	0.604	0.422	0.421
Glucose	1859±88	0.133	0.136	0.339	0.869	0.422	0.422
Tyrosine	1.98±0.47	0.531	0.819	0.638	0.369	0.429	0.425
Succinate	27.6±15.4	0.659	0.675	0.372	0.461	0.983	0.947
Lysine	15.0±2.4	0.957	0.686	0.205	0.302	0.429	0.427
Maltose	13.9±16.4	0.385	0.876	0.209	<b>0.022</b>	0.417	0.418

**Supplemental Table 1: Metabolic content of  $^{13}\text{CO}_2$  labeled Arabidopsis rosettes.** For a given compound, amounts of all isotopomers were summed. Values are average of 21 biological replicates,  $\pm$  SD, with the exception of Tre6P and Suc6P for which are average of 19 biological replicates. Student's t-Tests (two tailed; heteroscedastic) were performed on metabolite levels at subsequent labeling durations (e.g., 5 s versus 10 s). Significant differences are indicated in bold ( $p$ -value  $< 0.05$ ). As indicated in Materials and Methods, quantification was not performed for 3PGA and 2PGA. n.d. stands for not determined.