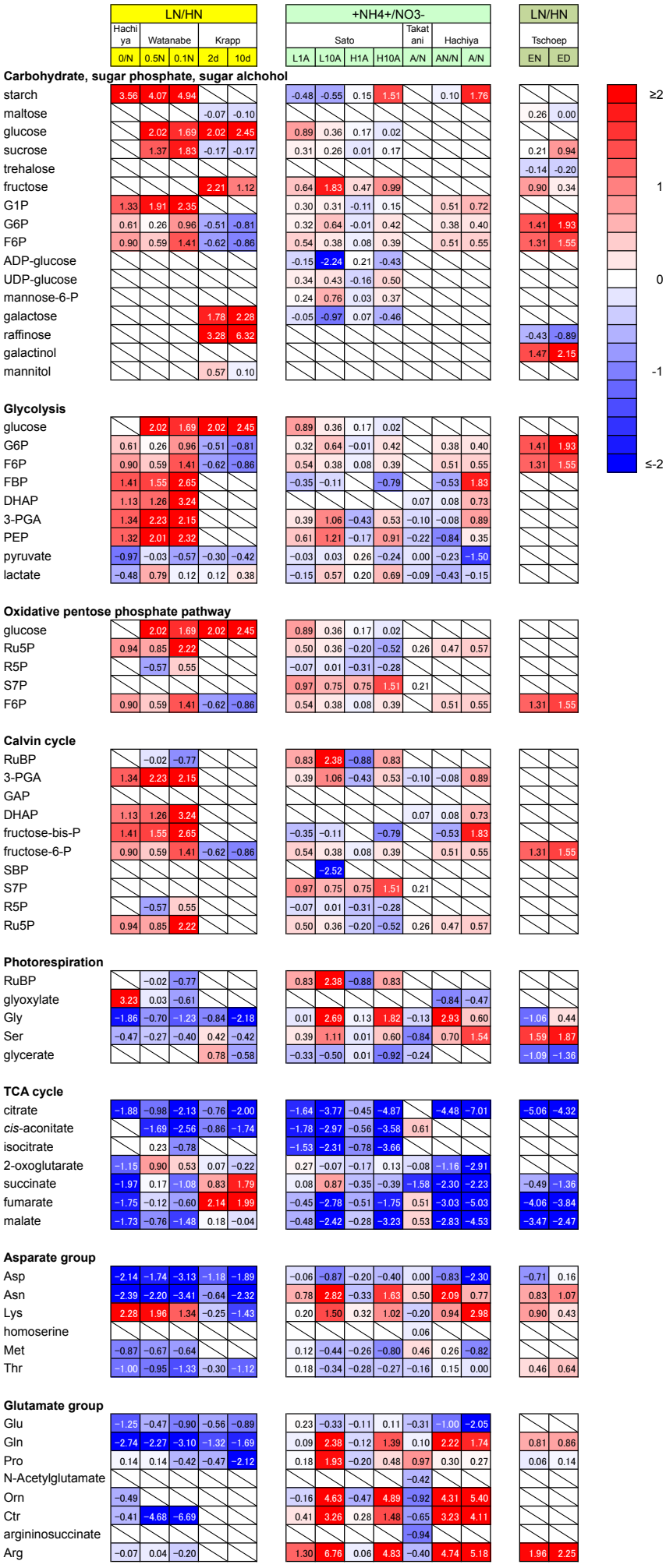
Figure S2


LN/HN
Hachiya
Watanabe
Krapp
0/N
0.5N
0.1N
2d
10d
+NH4+/NO3-
Sato
Takatani
Hachiya
L1A
L10A
H1A
H10A
A/N
AN/N
A/N
LN/HN
Tschoep
EN
ED
Carbohydrate, sugar phosphate, sugar alchohol
starch 3.56 4.07 4.94 -0.48 -0.55 0.15 1.51 0.10 1.76
maltose -0.07 -0.10 0.26 0.00
glucose 2.02 1.69 2.02 2.45 0.89 0.36 0.17 0.02
sucrose 1.37 1.83 -0.17 -0.17 0.31 0.26 0.01 0.17 0.21 0.94
trehalose -0.14 -0.20
fructose 2.21 1.12 0.64 1.83 0.47 0.99 0.90 0.34
G1P 1.33 1.91 2.35 0.30 0.31 -0.11 0.15 0.51 0.72
G6P 0.61 0.26 0.96 -0.51 -0.81 0.32 0.64 -0.01 0.42 0.38 0.40 1.41 1.93
F6P 0.90 0.59 1.41 -0.62 -0.86 0.54 0.38 0.08 0.39 0.51 0.55 1.31 1.55
ADP-glucose -0.15 -2.24 0.21 -0.43
UDP-glucose 0.34 0.43 -0.16 0.50
mannose-6-P 0.24 0.76 0.03 0.37
galactose 1.78 2.28 -0.05 -0.97 0.07 -0.46
raffinose 3.28 6.32 -0.43 -0.89
galactinol 1.47 2.15
mannitol 0.57 0.10
Glycolysis
glucose 2.02 1.69 2.02 2.45 0.89 0.36 0.17 0.02
G6P 0.61 0.26 0.96 −0.51 −0.81 0.32 0.64 −0.01 0.42 0.38 0.40 1.41 1.93
F6P 0.90 0.59 1.41 −0.62 −0.86 0.54 0.38 0.08 0.39 0.51 0.55 1.31 1.55
FBP 1.41 1.55 2.65 −0.35 −0.11 −0.79 −0.53 1.83
DHAP 1.13 1.26 3.24 0.07 0.08 0.73
3-PGA 1.34 2.23 2.15 0.39 1.06 −0.43 0.53 −0.10 −0.08 0.89
PEP 1.32 2.01 2.32 0.61 1.21 −0.17 0.91 −0.22 −0.84 0.35
pyruvate −0.97 −0.03 −0.57 −0.30 −0.42 −0.03 0.03 0.26 −0.24 0.00 −0.23 −1.50
lactate −0.48 0.79 0.12 0.12 0.38 −0.15 0.57 0.20 0.69 −0.09 −0.43 −0.15
Oxidative pentose phosphate pathway
glucose 2.02 1.69 2.02 2.45 0.89 0.36 0.17 0.02
Ru5P 0.94 0.85 2.22 0.50 0.36 −0.20 −0.52 0.26 0.47 0.57
R5P −0.57 0.55 −0.07 0.01 −0.31 −0.28
S7P 0.97 0.75 0.75 1.51 0.21
F6P 0.90 0.59 1.41 −0.62 −0.86 0.54 0.38 0.08 0.39 0.51 0.55 1.31 1.55
Calvin cycle
RuBP −0.02 −0.77 0.83 2.38 −0.88 0.83
3-PGA 1.34 2.23 2.15 0.39 1.06 −0.43 0.53 −0.10 −0.08 0.89
GAP
DHAP 1.13 1.26 3.24 0.07 0.08 0.73
fructose-bis-P 1.41 1.55 2.65 −0.35 −0.11 −0.79 −0.53 1.83
fructose-6-P 0.90 0.59 1.41 −0.62 −0.86 0.54 0.38 0.08 0.39 0.51 0.55 1.31 1.55
SBP −2.52
S7P 0.97 0.75 0.75 1.51 0.21
R5P −0.57 0.55 −0.07 0.01 −0.31 −0.28
Ru5P 0.94 0.85 2.22 0.50 0.36 −0.20 −0.52 0.26 0.47 0.57
Photorespiration
RuBP −0.02 −0.77 0.83 2.38 −0.88 0.83
glyoxylate 3.23 0.03 −0.61 −0.84 −0.47
Gly −1.86 −0.70 −1.23 −0.84 −2.18 0.01 2.69 0.13 1.82 −0.13 2.93 0.60 −1.06 0.44
Ser −0.47 −0.27 −0.40 0.42 −0.42 0.39 1.11 0.01 0.60 −0.84 0.70 1.54 1.59 1.87
glycerate 0.78 −0.58 −0.33 −0.50 0.01 −0.92 −0.24 −1.09 −1.36
TCA cycle
citrate −1.88 −0.98 −2.13 −0.76 −2.00 −1.64 −3.77 −0.45 −4.87 −4.48 −7.01 −5.06 −4.32
cis-aconitate −1.69 −2.56 −0.86 −1.74 −1.78 −2.97 −0.56 −3.58 0.61
isocitrate 0.23 −0.78 −1.53 −2.31 −0.78 −3.66
2-oxoglutarate −1.15 0.90 0.53 0.07 −0.22 0.27 −0.07 −0.17 0.13 −0.08 −1.16 −2.91
succinate −1.97 0.17 −1.08 0.83 1.79 0.08 0.87 −0.35 −0.39 −1.58 −2.30 −2.23 −0.49 −1.36
fumarate −1.75 −0.12 −0.60 2.14 1.99 −0.45 −2.78 −0.51 −1.75 0.51 −3.03 −5.03 −4.06 −3.84
malate −1.73 −0.76 −1.48 0.18 −0.04 −0.48 −2.42 −0.28 −3.23 0.53 −2.83 −4.53 −3.47 −2.47
Asparate group
Asp −2.14 −1.74 −3.13 −1.18 −1.89 −0.06 −0.87 −0.20 −0.40 0.00 −0.83 −2.30 −0.71 0.16
Asn −2.39 −2.20 −3.41 −0.64 −2.32 0.78 2.82 −0.33 1.63 0.50 2.09 0.77 0.83 1.07
Lys 2.28 1.96 1.34 −0.25 −1.43 0.20 1.50 0.32 1.02 −0.20 0.94 2.98 0.90 0.43
homoserine 0.06
Met −0.87 −0.67 −0.64 0.12 −0.44 −0.26 −0.80 0.46 0.26 −0.82
Thr −1.00 −0.95 −1.33 −0.30 −1.12 0.18 −0.34 −0.28 −0.27 −0.16 0.15 0.00 0.46 0.64
Glutamate group
Glu −1.25 −0.47 −0.90 −0.56 −0.89 0.23 −0.33 −0.11 0.11 −0.31 −1.00 −2.05
Gln −2.74 −2.27 −3.10 −1.32 −1.69 0.09 2.38 −0.12 1.39 0.10 2.22 1.74 0.81 0.86
Pro 0.14 0.14 −0.42 −0.47 −2.12 0.18 1.93 −0.20 0.48 0.97 0.30 0.27 0.06 0.14
N-Acetylglutamate −0.42
Orn −0.49 −0.16 4.63 −0.47 4.89 −0.92 4.31 5.40
Ctr −0.41 −4.68 −6.69 0.41 3.26 0.28 1.48 −0.65 3.23 4.11
argininosuccinate −0.94
Arg −0.07 0.04 −0.20 1.30 6.76 0.06 4.83 −0.40 4.74 5.18 1.96 2.25
≥2
1
0
-1
≤-2

Branched-chain amino acids

Val	0.23	0.90	0.53	−0.14	−0.12	0.24	0.38	0.00	0.22		0.81	0.50	−0.42	−0.14
Leu		1.64	1.32	0.48	−0.51	0.37	0.28	0.09	0.27	0.44				
Ile		1.51	1.20	0.21	−0.58	0.21	0.46	−0.18	0.01	0.21			−0.18	−0.01

Alanine Serine group

Ala	−2.19	−1.73	−1.88	−0.60	−1.89	0.19	−0.12	0.02	−0.14	0.45	1.18	−0.70	−3.84	−0.92
β-Ala										0.42			0.16	0.56
Gly	−1.86	−0.70	−1.23	−0.84	−2.18	0.01	2.69	0.13	1.82	−0.13	2.93	0.60	−1.06	0.44
Ser	−0.47	−0.27	−0.40	0.42	−0.42	0.39	1.11	0.01	0.60	−0.84	0.70	1.54	1.59	1.87
O-acetylserine						0.33	0.80	0.13	0.54	0.32				
Cys	−0.57					0.20					0.72	1.23		
GSH						0.14	1.88	0.04	2.50	−0.11				
GSSG						0.22	0.22	−0.13	0.56	0.36				

Aromatic amino acids

shikimic acid				0.04	−0.38					0.22				
Trp	1.96	1.15	1.21			0.25	0.28	0.19	0.34	0.56	2.20	1.74		
Phe	0.85	0.49	0.21	0.37	−0.60	0.29	0.46	−0.01	0.61	0.16	0.67	1.29	0.21	0.44
Tyr	1.29	1.60	1.37	0.77	−0.60	0.39	0.71	−0.11	0.91	0.08	0.39	1.10	0.58	0.55

Histidine

histidinol										0.85				
His	−0.37	0.36	0.14			0.42	2.05	−0.03	1.08	−0.12	1.32	2.04		

Others

ascorbate				0.96	1.06	0.51	0.32	−0.46	1.26	0.11				
dehydroascorbate				0.41	0.51									
GABA	−0.33	0.47	1.15	1.03	0.46	0.17	1.03	−0.21	−0.07	0.16	0.71	1.11		
oxalic acid				0.68	−0.27									
urea				0.24	0.69					1.00				
putrescine										0.56			−0.92	−1.15
spermidine										−0.05				
spermine										−0.21				

Major AA	−1.64	−0.92	−1.38			0.19	1.07	−0.10	0.50	−0.06	1.25	0.52		
Minor AA	−0.05	0.16	−0.11			0.29	2.39	−0.15	1.03	−0.24	1.83	2.31		
High N/C AA	−2.36	−1.87	−2.60			0.28	2.90	−0.10	1.78	−0.06	2.45	1.85		
Total AA/Total OA	0.35	−0.49	−0.34			0.72	3.83	0.30	2.97	−0.37	4.38	5.57		
Gln/Glu	−1.49	−1.80	−2.20			−0.14	2.71	−0.02	1.28	0.41	3.22	3.79		
Gly/Ser	−1.39	−0.43	−0.83			−0.38	1.58	0.12	1.22	0.71	2.23	−0.94		
Gln/2OG	−1.60	−3.17	−3.63			−0.18	2.45	0.04	1.27	0.18	3.38	4.65		