

Table S3. Average metabolic flux distribution of AGE1.HN in each metabolic phase. Mean values and confidence intervals (90 %, CI) of four parallel cultivations. The probabilities of a paired t-test between the different phases are also depicted. The null hypothesis (no difference) was rejected at the 5 % significance level. P1/P2, phase 1 compared with phase 2; P1/P3, phase 1 compared with phase 3; P2/P3, phase 2 compared with phase 3. Network model and abbreviations are shown in Fig. 1.

	Phase 1 (18-90 h)		Phase 2 (90-160 h)		Phase 3 (160-230 h)		t-test		
	Flux [$\mu\text{mol/g/h}$]	CI	Flux [$\mu\text{mol/g/h}$]	CI	Flux [$\mu\text{mol/g/h}$]	CI	P1/P2	P1/P3	P2/P3
<i>Extracellular fluxes</i>									
Glc	123.0	17.3	56.6	9.1	33.7	10.6	0.00	0.00	0.04
Lac	-236.3	18.0	-4.5	4.3	-14.3	6.0	0.00	0.00	0.20
Pyr	28.7	1.9	0.9	0.3	0.4	0.1	0.00	0.00	0.12
Ala	-17.5	1.0	-8.4	0.5	2.2	1.2	0.00	0.00	0.00
Arg	8.2	0.7	6.6	0.3	1.9	0.7	0.05	0.00	0.00
Asn	2.9	0.5	2.5	0.2	0.8	0.3	0.42	0.02	0.00
Asp	14.1	4.5	9.9	0.4	1.8	0.6	0.25	0.02	0.00
Cys	-0.2	0.0	0.5	0.0	-0.1	0.0	0.00	0.01	0.00
Glu	-4.0	0.7	2.4	0.3	2.9	0.9	0.00	0.00	0.51
Gln	37.1	2.3	23.5	1.5	2.1	0.9	0.01	0.00	0.00
Gly	-2.6	1.7	1.0	0.4	0.5	0.5	0.05	0.04	0.24
His	1.7	0.2	1.5	0.2	0.4	0.2	0.21	0.01	0.01
Ile	8.1	1.4	3.9	0.3	1.2	0.5	0.03	0.01	0.00
Leu	11.5	0.7	7.1	0.4	2.0	0.8	0.01	0.00	0.00
Lys	6.9	0.8	5.7	0.3	1.5	0.6	0.06	0.00	0.00
Met	3.1	0.2	2.3	0.2	0.7	0.3	0.01	0.00	0.00
Phe	3.3	0.4	2.3	0.3	0.6	0.3	0.08	0.00	0.01
Pro	-7.1	1.6	-7.6	0.4	-2.4	0.6	0.62	0.02	0.00
Ser	12.2	0.8	9.1	0.7	2.3	0.8	0.04	0.00	0.00
Thr	4.9	1.5	3.1	0.3	0.7	0.4	0.20	0.03	0.00
Trp	0.9	0.1	0.7	0.1	0.3	0.1	0.11	0.00	0.04
Tyr	2.8	0.7	2.3	0.9	0.7	0.3	0.62	0.04	0.03
Val	8.4	1.8	4.5	0.4	1.4	0.6	0.05	0.01	0.00
<i>Anabolic fluxes</i>									
Car	6.4	0.8	5.1	0.3	0.9	0.2	0.13	0.00	0.00
DNA	0.7	0.1	0.5	0.0	0.1	0.0	0.13	0.00	0.00
RNA	2.6	0.3	2.1	0.1	0.4	0.1	0.13	0.00	0.00
Lip	1.9	0.2	1.5	0.1	0.3	0.1	0.13	0.00	0.00
Pro	94.0	12.2	74.9	4.7	13.7	3.6	0.13	0.00	0.00
<i>Intracellular fluxes</i>									
G6P-F6P	113.3	17.7	48.9	8.6	32.3	10.3	0.00	0.00	0.08
F6P-GAP	113.3	17.7	48.9	8.6	32.3	10.3	0.00	0.00	0.08
GAP-Pyr	225.2	35.4	96.6	17.2	64.3	20.5	0.00	0.01	0.09
Pyr-Pyr _m	-16.9	30.4	74.2	19.2	51.8	16.2	0.01	0.05	0.19
Pyrm-AcC _m	12.2	35.6	88.1	18.2	56.8	19.4	0.01	0.19	0.14
OAA/AcC _m -Cit _m	29.4	38.8	93.0	17.9	62.5	23.3	0.02	0.36	0.19
Cit _m -AKG _m	-4.0	41.8	66.4	16.2	57.7	22.5	0.02	0.15	0.65
AKG _m -SuC _m	9.2	42.1	74.7	16.3	59.3	24.2	0.03	0.23	0.48
SuC _m -Fum _m	17.5	44.3	75.7	15.8	60.9	25.6	0.05	0.31	0.51
Fum _m -Mal _m	18.4	45.0	76.3	16.5	61.5	26.0	0.05	0.32	0.51
Mal _m -OAA _m	22.7	36.5	88.9	18.5	61.4	22.6	0.01	0.27	0.22
Mal _m -Pyr _m	29.1	9.9	14.0	2.6	5.0	4.9	0.13	0.06	0.06
Cit _m -Cit	33.4	4.3	26.6	1.7	4.8	1.3	0.13	0.00	0.00
Cit-AcC/Mal	33.4	4.3	26.6	1.7	4.8	1.3	0.13	0.00	0.00
Mal-Mal _m	33.4	4.3	26.6	1.7	4.8	1.3	0.13	0.00	0.00
G6P-P5P	3.3	0.4	2.6	0.2	0.5	0.1	0.13	0.00	0.00
NADH-OP	48.1	198.4	395.0	82.9	288.8	111.5	0.02	0.21	0.32
FADH ₂ -OP	28.3	46.0	77.5	15.3	63.1	27.2	0.08	0.42	0.54
ATP _{OP}	162.8	565.0	1103.7	229.9	816.8	319.2	0.02	0.23	0.34

ATP _{wOP}	-102.3	110.9	-111.6	16.1	71.3	33.2	0.89	0.11	0.01
ATP _{exc}	60.5	674.4	992.1	244.7	888.1	352.3	0.04	0.21	0.73
Ala-Pyr	-24.2	1.6	-13.8	0.5	1.4	1.2	0.00	0.00	0.00
Arg-Glu	3.3	1.0	2.7	0.3	1.2	0.6	0.36	0.05	0.01
Asn-Asp	-1.5	0.4	-1.0	0.2	0.2	0.3	0.26	0.02	0.00
Asp-OAA _m	6.7	4.5	4.1	0.8	1.1	0.8	0.48	0.16	0.01
Cys-Pyr	-1.3	0.7	-0.7	0.2	0.0	0.2	0.18	0.06	0.00
Gln-Glu	31.1	1.7	18.7	1.3	1.2	0.9	0.00	0.00	0.00
Glu-AKG _m	13.2	1.2	8.3	1.3	1.7	2.2	0.03	0.01	0.03
Gly-Ser	-13.2	2.4	-7.4	0.3	-1.1	0.6	0.03	0.00	0.00
His-Glu	-0.4	0.4	-0.2	0.1	0.1	0.2	0.52	0.24	0.08
Ile-AcC _m /SuC _m	3.9	1.1	0.6	0.3	0.6	0.5	0.03	0.03	0.99
Leu-AcC _m	3.3	0.4	0.6	0.4	0.8	0.7	0.01	0.02	0.58
Lys-AcC _m	-0.2	1.4	0.0	0.4	0.5	0.5	0.78	0.50	0.22
Met/Ser-SuC _m /Cys	1.5	0.4	1.0	0.1	0.5	0.2	0.04	0.02	0.02
Phe-Tyr	-0.1	0.3	-0.4	0.2	0.2	0.3	0.34	0.57	0.07
Pro-Glu	-10.9	1.1	-10.6	0.6	-3.0	0.8	0.69	0.00	0.00
Ser-Pyr	-9.1	2.1	-4.5	0.7	-0.1	0.9	0.03	0.01	0.00
Thr-SuC _m	0.3	1.4	-0.6	0.3	0.0	0.4	0.47	0.80	0.09
Trp-AcC _m /Ala	0.9	0.1	0.7	0.1	0.3	0.1	0.11	0.00	0.04
Tyr-AcC _m /Fum _m	0.9	0.9	0.6	0.9	0.6	0.5	0.67	0.76	0.90
Val-SuC _m	2.7	1.4	0.0	0.4	0.6	0.5	0.09	0.14	0.16