Interaction of storage carbohydrates and other cyclic fluxes with central metabolism: A quantitative approach by non-stationary 13C metabolic flux analysis.

Supplementary Material #5: Flux maps & tables

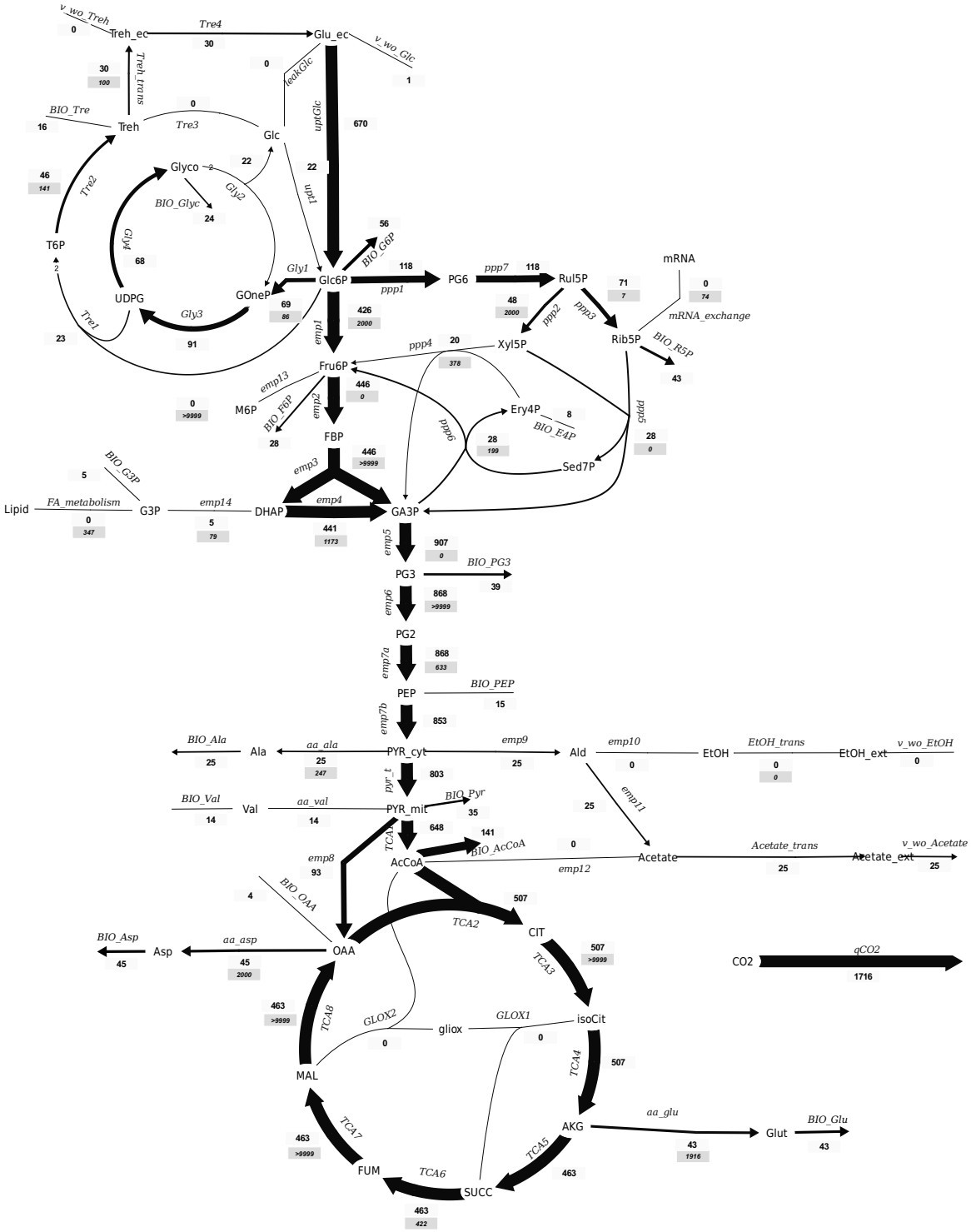

Figure S5-1: Flux distribution at the dilution rate D=0.054 h^{-1}.Flux values are given in 10^{-6} mol g_{DW}^{-1} h^{-1}, see Table S5-1 for standard deviations. The reaction arrow thickness (in pixel) scales linear with the flux (flux value / 10) with a maximal thickness of 20 pixel and a minimum value of 1.

Supplementary Material #5: Flux maps & tables

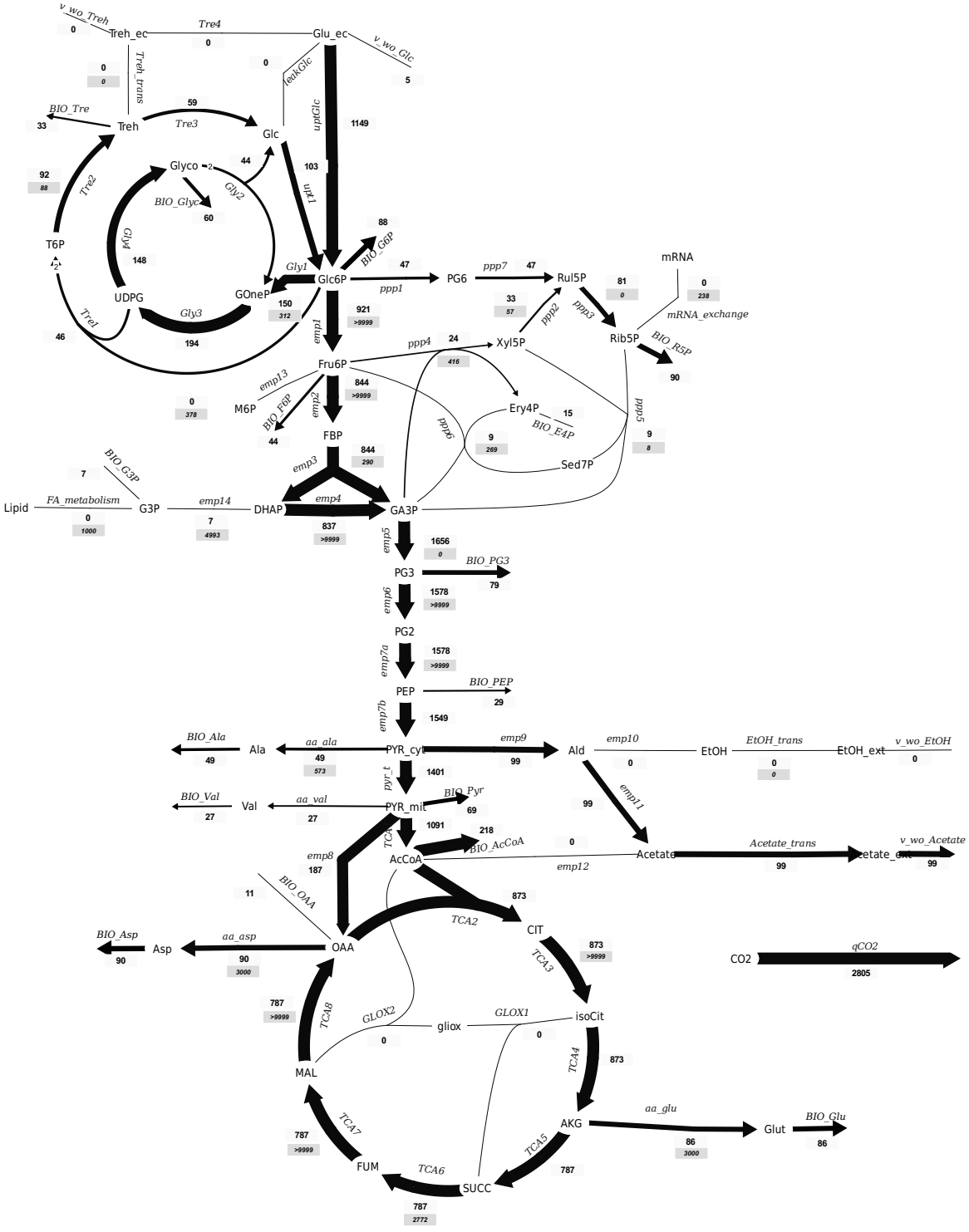

Figure S5-2: Flux distribution at the dilution rate D=0.101 h^{-1}.Flux values are given in 10^{-6} mol g_{DW}^{-1} h^{-1}, see Table S5-1 for standard deviations. The reaction arrow thickness (in pixel) scales linear with the flux (flux value / 10) with a maximal thickness of 20 pixel and a minimum value of 1.

Supplementary Material #5: Flux maps & tables

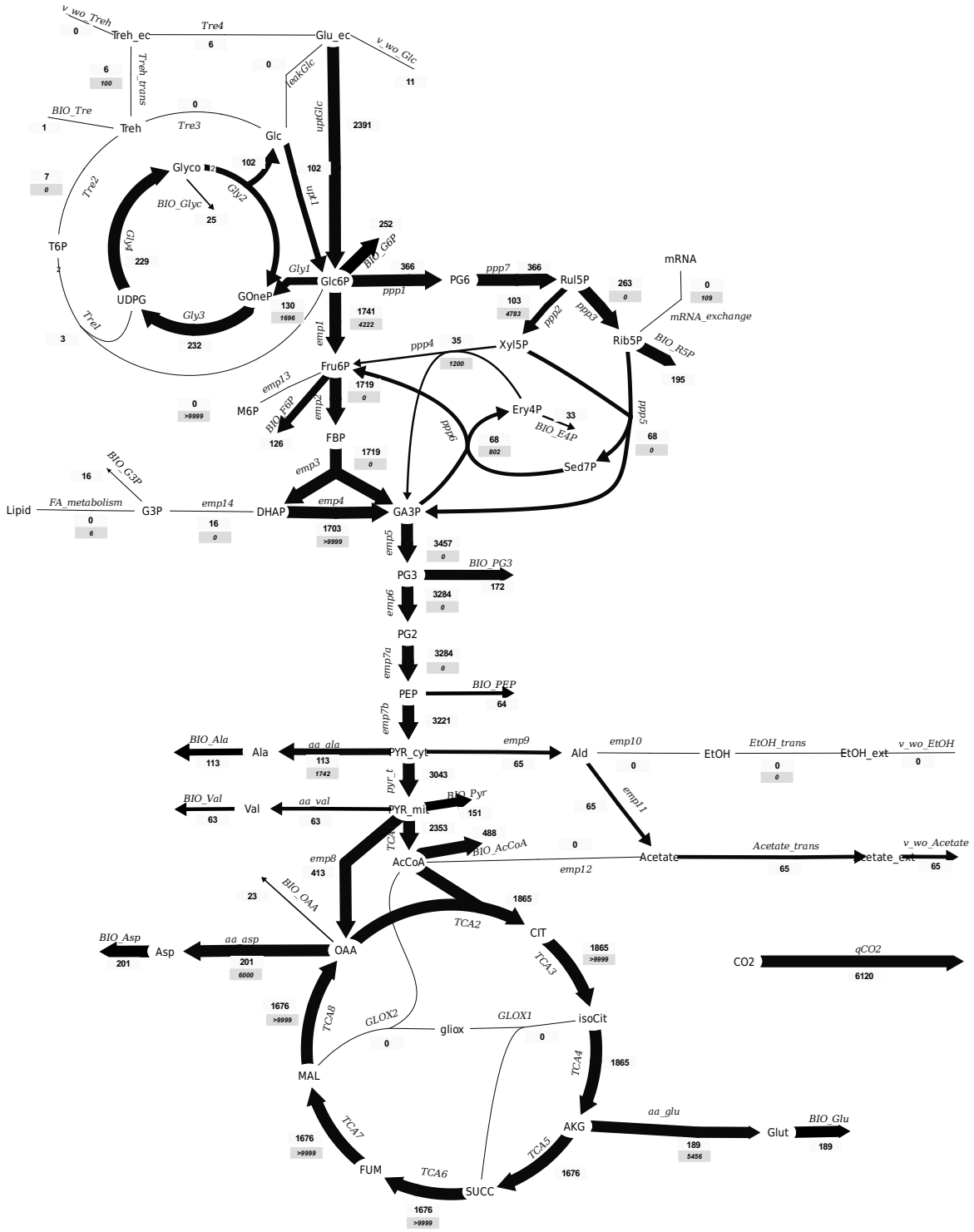

Figure S5-3: Flux distribution at the dilution rate D=0.207 h^{-1}.Flux values are given in 10^{-6} mol g_{DW}^{-1} h^{-1}, see Table S5-1 for standard deviations. The reaction arrow thickness (in pixel) scales linear with the flux (flux value / 10) with a maximal thickness of 20 pixel and a minimum value of 1.

Supplementary Material #5: Flux maps & tables

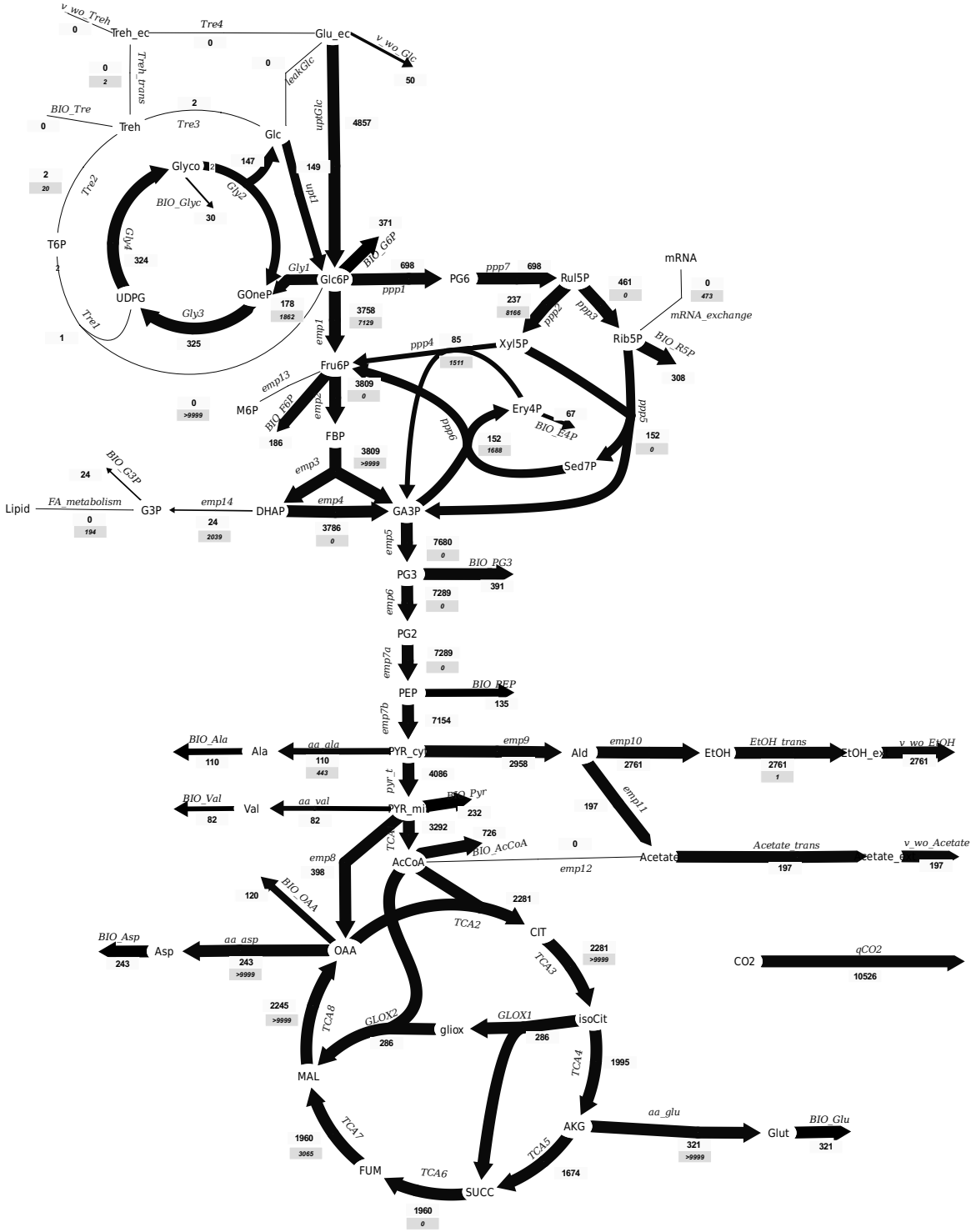

Figure S5-4: Flux distribution at the dilution rate D=0.307 h^{-1}.Flux values are given in 10^{-6} mol g_{DW}^{-1} h^{-1}, see Table S5-1 for standard deviations. The reaction arrow thickness (in pixel) scales linear with the flux (flux value / 10) with a maximal thickness of 20 pixel and a minimum value of 1.

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Supplementary Material #5: Flux maps & tables

Table S5-1: Flux values with standard deviation in 10^{-6} mol/g/h. Standard deviation of 0 indicate that the flux was a given flux, resp. reached the given boundaries in the flux estimation.

flux	D=0.054 h^{-1}		D=0.101 h^{-1}		D=0.207 h^{-1}		D=0.307 h^{-1}	
aa_ala_bwd	246.9 +/-	6.3	573.2 +/-	21.9	1741.6 +/-	34.6	443.2 +/-	13.1
aa_ala_fwd	271.8 +/-	6.3	621.9 +/-	21.9	1854.3 +/-	34.6	553.1 +/-	13.1
aa_asp_bwd	2000 +/-	442.7	3000 +/-	0.0	6000 +/-	0.0	10000 +/-	0.0
aa_asp_fwd	2045 +/-	442.7	3090 +/-	0.0	6201 +/-	0.0	10243 +/-	0.0
aa_glu_bwd	1916 +/-	34.9	3000 +/-	94.2	5456 +/-	120.7	10000 +/-	0.0
aa_glu_fwd	1959 +/-	34.9	3086 +/-	94.2	5645 +/-	120.7	10321 +/-	0.0
aa_val_fwd	13.6 +/-	0.0	27.3 +/-	0.0	62.6 +/-	0.0	81.8 +/-	0.0
Acetate_trans_fwd	25.2 +/-	0.0	99.2 +/-	0.0	65.2 +/-	0.0	197.4 +/-	0.0
BIO_AcCoA_fwd	141.3 +/-	0.0	217.7 +/-	0.0	488.5 +/-	0.0	725.6 +/-	0.0
BIO_Ala_fwd	24.9 +/-	0.0	48.7 +/-	0.0	112.7 +/-	0.0	109.9 +/-	0.0
BIO_Asp_fwd	45.4 +/-	0.0	90.1 +/-	0.0	200.8 +/-	0.0	242.9 +/-	0.0
BIO_E4P_fwd	7.7 +/-	0.0	15.1 +/-	0.0	33.3 +/-	0.0	67.4 +/-	0.0
BIO_F6P_fwd	28.0 +/-	0.0	44.0 +/-	0.0	125.8 +/-	0.0	185.6 +/-	0.0
BIO_G3P_fwd	5.0 +/-	0.0	7.3 +/-	0.0	16.3 +/-	0.0	23.8 +/-	0.0
BIO_G6P_fwd	56.0 +/-	0.0	88.0 +/-	0.0	251.6 +/-	0.0	370.8 +/-	0.0
BIO_Glu_fwd	43.5 +/-	0.0	85.8 +/-	0.0	189.3 +/-	0.0	321.4 +/-	0.0
BIO_Glyc_fwd	23.7 +/-	0.0	59.8 +/-	0.0	25.0 +/-	0.0	29.9 +/-	0.0
BIO_OAA_fwd	4.1 +/-	0.0	11.0 +/-	0.0	22.6 +/-	0.0	119.6 +/-	0.0
BIO_PEP_fwd	14.6 +/-	0.0	28.9 +/-	0.0	63.7 +/-	0.0	134.8 +/-	0.0
BIO_PG3_fwd	38.7 +/-	0.0	78.7 +/-	0.0	172.3 +/-	0.0	391.2 +/-	0.0
BIO_Pyr_fwd	34.7 +/-	0.0	68.6 +/-	0.0	151.5 +/-	0.0	231.9 +/-	0.0
BIO_R5P_fwd	42.8 +/-	0.0	89.7 +/-	0.0	194.7 +/-	0.0	308.5 +/-	0.0
BIO_Tre_fwd	15.8 +/-	0.0	32.7 +/-	0.0	0.7 +/-	0.0	0.2 +/-	0.0
BIO_Val_fwd	13.6 +/-	0.0	27.3 +/-	0.0	62.6 +/-	0.0	81.8 +/-	0.0
CO2out1_fwd	1682.8 +/-	0.0	2738.2 +/-	0.0	5975.4 +/-	0.0	10301 +/-	0.0
deg_prod_in_fwd	128.3 +/-	2.0	849.2 +/-	10.6	442.7 +/-	4.5	9999 +/-	124.1
deg_prod_out_fwd	128.3 +/-	2.0	849.2 +/-	10.6	442.7 +/-	4.5	9999 +/-	124.1
emp1_bwd	2000 +/-	54.7	20000.0 +/-	3071	4222 +/-	87.1	7129 +/-	209.6
emp1_fwd	2426 +/-	54.8	20921.1 +/-	3071	5963 +/-	87.1	10887 +/-	207.3
emp10_fwd	0.0 +/-	0.0	0.0 +/-	0.0	0.0 +/-	0.0	2761 +/-	0.0
emp11_fwd	25.2 +/-	0.0	99.2 +/-	109.8	65.2 +/-	0.0	197.4 +/-	0.0
emp12_fwd	0.0 +/-	0.0	0.0 +/-	109.8	0.0 +/-	0.0	0.0 +/-	0.0
emp13_bwd	20000 +/-	39280	377.5 +/-	12.8	10000 +/-	0.0	20000 +/-	0.0
emp13_fwd	20000 +/-	39280	377.5 +/-	12.8	10000 +/-	0.0	20000 +/-	0.0
emp14_bwd	78.8 +/-	77.3	4993 +/-	1051	0.0 +/-	0.0	2039 +/-	64068
emp14_fwd	83.8 +/-	77.3	5000 +/-	1051	16.3 +/-	0.0	2063 +/-	64068
emp2_bwd	0.0 +/-	4.5	19996 +/-	213031	0.0 +/-	0.0	0.0 +/-	115.7
emp2_fwd	445.7 +/-	4.9	20840 +/-	213031	1719 +/-	1.4	3809 +/-	119.0
emp3_bwd	20000 +/-	1163846	290.0 +/-	169.9	0.0 +/-	0.0	50000 +/-	1648709
emp3_fwd	20446 +/-	1163846	1133.9 +/-	169.9	1719 +/-	1.4	53809 +/-	1648709
emp4_bwd	1173 +/-	126.2	10000 +/-	6482	20000 +/-	0.0	0.0 +/-	3704
emp4_fwd	1613 +/-	126.2	10837 +/-	6482	21703 +/-	1.4	3786 +/-	3703
emp5_bwd	0.0 +/-	16.3	0.0 +/-	68.7	0.0 +/-	0.0	0.0 +/-	1480
emp5_fwd	907 +/-	16.2	1656 +/-	68.7	3457 +/-	1.4	7680 +/-	1480
emp6_bwd	20000 +/-	43251	20000 +/-	32681	0.0 +/-	0.0	0.0 +/-	14882
emp6_fwd	20868 +/-	43251	21578 +/-	32681	3284 +/-	1.4	7289 +/-	14883
emp7a_bwd	633 +/-	137.7	20000 +/-	37325	0.0 +/-	0.0	0.0 +/-	4478
emp7a_fwd	1501 +/-	137.7	21578 +/-	37325	3284 +/-	1.4	7289 +/-	4479
emp7b_fwd	853.2 +/-	0.8	1549 +/-	0.1	3221 +/-	1.4	7154 +/-	7.3
emp8_fwd	92.9 +/-	0.7	186.9 +/-	2.2	412.7 +/-	0.0	398.2 +/-	5.6
emp9_fwd	25.2 +/-	0.0	99.2 +/-	109.8	65.2 +/-	0.0	2958 +/-	0.0
EtOH_trans_bwd	0.1 +/-	0.0	0.1 +/-	0.0	0.1 +/-	0.0	1.0 +/-	0.0
EtOH_trans_fwd	0.1 +/-	0.0	0.1 +/-	0.0	0.1 +/-	0.0	2762 +/-	0.0
FA_metabolism_bwd	346.9 +/-	1435.2	1000 +/-	0.0	6.0 +/-	4.8	194.4 +/-	48.4
FA_metabolism_fwd	346.9 +/-	1435.2	1000 +/-	0.0	6.0 +/-	4.8	194.4 +/-	48.4
GLOX1_fwd	0.0 +/-	0.7	0.0 +/-	2.2	0.0 +/-	0.0	285.7 +/-	5.6

Supplementary Material #5: Flux maps & tables

Table S5-1 (continued)

flux	D=0.054 h^{-1}		D=0.101 h^{-1}		D=0.207 h^{-1}		D=0.307 h^{-1}	
GLOX2_fwd	0.0 +/-	0.7	0.0 +/-	2.2	0.0 +/-	0.0	285.7 +/-	5.6
Gly1_bwd	86.3 +/-	3.1	311.7 +/-	14.3	1696 +/-	46.3	1862 +/-	62.9
Gly1_fwd	154.9 +/-	2.8	461.5 +/-	14.4	1826 +/-	46.3	2040 +/-	63.5
Gly2_fwd	22.1 +/-	0.3	44.0 +/-	1.5	101.8 +/-	0.5	147.1 +/-	2.3
Gly3_fwd	90.7 +/-	0.6	193.8 +/-	1.6	231.9 +/-	1.1	325.2 +/-	4.6
Gly4_fwd	67.9 +/-	0.7	147.8 +/-	2.9	228.6 +/-	1.1	324.0 +/-	4.6
leakGlc_fwd	0.0 +/-	0.0	0.0 +/-	0.0	0.0 +/-	0.0	0.0 +/-	0.0
mRNA_exchange_bwd	74.4 +/-	1.3	237.9 +/-	167.7	109.1 +/-	1.1	472.8 +/-	8.0
mRNA_exchange_fwd	74.4 +/-	1.3	237.9 +/-	167.7	109.1 +/-	1.1	472.8 +/-	8.0
ppp1_fwd	118.5 +/-	2.3	47.5 +/-	0.4	366.4 +/-	4.3	697.9 +/-	21.7
ppp2_bwd	2000 +/-	1959	90.2 +/-	5.8	4783 +/-	3608	8166 +/-	27316
ppp2_fwd	2048 +/-	1960	57.0 +/-	5.8	4887 +/-	3607	8403 +/-	27319
ppp3_bwd	6.7 +/-	0.9	0.0 +/-	0.3	0.0 +/-	0.0	0.0 +/-	5.1
ppp3_fwd	77.3 +/-	1.3	80.7 +/-	0.4	263.0 +/-	1.4	460.7 +/-	8.6
ppp4_bwd	378.2 +/-	6.4	440.6 +/-	8.0	1200 +/-	17.9	1511 +/-	68.9
ppp4_fwd	398.3 +/-	6.3	416.5 +/-	8.0	1236 +/-	17.7	1596 +/-	67.1
ppp5_bwd	0.0 +/-	1.0	17.0 +/-	1.5	0.0 +/-	0.0	0.0 +/-	8.1
ppp5_fwd	27.8 +/-	0.6	8.0 +/-	1.5	68.4 +/-	1.4	152.3 +/-	4.9
ppp6_bwd	199.2 +/-	3.4	277.9 +/-	6.6	801.8 +/-	10.2	1688 +/-	97.8
ppp6_fwd	227.0 +/-	3.7	268.9 +/-	6.6	870.1 +/-	10.3	1841 +/-	100.6
ppp7_fwd	118.5 +/-	2.3	47.5 +/-	0.4	366.4 +/-	4.3	697.9 +/-	21.7
pyr_t_fwd	803.0 +/-	0.8	1400.9 +/-	109.8	3043 +/-	1.4	4086 +/-	7.3
TCA1_fwd	648.1 +/-	1.0	1090.8 +/-	109.6	2353 +/-	1.4	3292.4 +/-	8.9
TCA2_fwd	506.9 +/-	0.8	873.0 +/-	0.1	1864.9 +/-	1.4	2281.1 +/-	7.3
TCA3_bwd	20000 +/-	1486152	10000 +/-	244049	10000 +/-	0.0	10000 +/-	0.0
TCA3_fwd	20507 +/-	1486152	10873 +/-	244049	11865 +/-	1.4	12281 +/-	7.3
TCA4_fwd	506.9 +/-	1.1	873.0 +/-	2.3	1864.9 +/-	1.4	1995 +/-	9.4
TCA5_fwd	231.7 +/-	1.1	393.6 +/-	2.3	837.8 +/-	1.4	837.0 +/-	9.4
TCA5B_fwd	231.7 +/-	0.0	393.6 +/-	0.0	837.8 +/-	0.0	837.0 +/-	0.0
TCA6_bwd	211.1 +/-	18.0	1386.1 +/-	210.5	12178.5 +/-	4857.9	0.0 +/-	31.2
TCA6_fwd	442.8 +/-	18.1	1780 +/-	210.5	13016 +/-	4858	979.8 +/-	32.1
TCA6B_bwd	211.1 +/-	0.0	1386 +/-	0.0	12179 +/-	0.0	0.0 +/-	0.0
TCA6B_fwd	442.8 +/-	0.0	1780 +/-	0.0	13016 +/-	0.0	979.8 +/-	0.0
TCA7_bwd	20000 +/-	0.0	10000 +/-	3871	20000 +/-	0.0	3065 +/-	6113
TCA7_fwd	20463 +/-	0.8	10787 +/-	3871	21676 +/-	1.4	5025 +/-	6114
TCA8_bwd	20000 +/-	0.0	10000 +/-	3312	20000 +/-	0.0	20000 +/-	0.0
TCA8_fwd	20463 +/-	1.0	10787 +/-	3313	21676 +/-	1.4	22245 +/-	8.9
Tre1_fwd	22.8 +/-	0.8	46.0 +/-	1.4	3.3 +/-	0.0	1.2 +/-	0.1
Tre2_bwd	70.4 +/-	2.5	44.0 +/-	1.5	0.2 +/-	0.0	10.0 +/-	13.5
Tre2_fwd	93.3 +/-	3.3	90.1 +/-	2.9	3.6 +/-	0.0	11.2 +/-	13.4
Tre2c_bwd	70.4 +/-	0.0	44.0 +/-	0.0	0.2 +/-	0.0	10.0 +/-	0.0
Tre2c_fwd	93.3 +/-	0.8	90.1 +/-	1.4	3.6 +/-	0.0	11.2 +/-	0.1
Tre3_fwd	0.0 +/-	0.9	59.0 +/-	3.4	0.0 +/-	0.0	2.1 +/-	0.3
Tre4_fwd	29.8 +/-	1.3	0.0 +/-	1.9	5.9 +/-	0.0	0.0 +/-	0.2
Treh_trans_bwd	100.0 +/-	2324	0.0 +/-	25.8	100.0 +/-	0.0	1.6 +/-	0.7
Treh_trans_fwd	129.9 +/-	2325	0.3 +/-	25.8	105.9 +/-	0.0	1.7 +/-	0.6
upt1_fwd	22.1 +/-	0.7	103.0 +/-	2.4	101.8 +/-	0.5	149.1 +/-	2.3
uptGlc_fwd	669.7 +/-	1.3	1149 +/-	1.9	2391 +/-	0.0	4857 +/-	0.2
v_wo_Acetate_fwd	25.2 +/-	0.0	99.2 +/-	0.0	65.2 +/-	0.0	197.4 +/-	0.0
v_wo_EtOH_fwd	0.0 +/-	0.0	0.0 +/-	0.0	0.0 +/-	0.0	2761 +/-	0.0
v_wo_Glc_fwd	1.1 +/-	0.0	5.1 +/-	0.0	10.7 +/-	0.0	49.7 +/-	0.0
v_wo_Treh_fwd	0.1 +/-	0.0	0.3 +/-	0.0	0.0 +/-	0.0	0.1 +/-	0.0
vFeedB_fwd	640.9 +/-	0.0	1154 +/-	0.0	2396 +/-	0.0	4906 +/-	0.0