Electronic Supplementary Information for: Dynamic elementary mode modelling of non-steady state flux data

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1 Metabolic models.

1.1 Simulated case study

Metabolite abbreviations

Abbreviation	**Metabolite**
GLCo	Glucose
GLCi	Glucose (intracelullar)
Prb	Energy status
G6P	Glucose-6-phosphate
F6P	Fructose 1,6-phosphate
Glyc	Glycogen
PHOS	Phosphate

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Trh	Trehalose
F16P	Fructose-6-biphosphate
TRIO	Triose-phosphates
NAD	Nicotinamide adenine dinucleotide
BPG	Bisphosphoglycerate
NADH	Nicotinamide adenine dinucleotide phosphate
P3G	3-Phosphoglycerate
P2G	2-Phosphoglycerate
PEP	Phosphoenolpyruvate
PYR	Pyruvate
ACE	Acetate
CO2	Carbon dioxide
SUCC	Succinate
ETOH	Ethanol
X	Polyphosphates

List of reactions

GLCi + Prb ↔ G6P
G6P ↔ F6P
G6P + Prb ↔ Glyc + 2 PHOS
Prb + 2 G6P ↔ Trh + 3 PHOS
F6P + Prb ↔ F16P
F16P ↔ 2 TRIO
PHOS + TRIO + NAD ↔ BPG + NADH
BPG ↔ P3G + Prb
P3G ↔ P2G
P2G ↔ PEP
PEP ↔ Prb + PYR; F16P
PYR ↔ ACE + CO2
2 ACE + 3 NAD ↔ SUCC + 3 NADH
GLCo ↔ GLCi
ACE + NADH ↔ ETOH + NAD
NADH + TRIO ↔ PHOS + GLY + NAD
Prb ↔ PHOS
X ↔ PHOS

1.2 Real case study

Metabolite abbreviations

Abbreviation	Metabolite
g6p	Glucose-6-phosphate
f6p	Fructose-6-phosphate
fbp	Fructose 1,6-biphosphate
g3p	Glyceraldehydes-3-phosphate
3pg	3-Phosphoglycerate
pep	Phosphoenolpyruvate
pyr	Pyruvate
cit	Citric acid
ogl	Oxoaglutarate
succ	Succinate
fum	Fumarate
mal	Malate

List of reactions

g6p $\rightarrow$
g6p $\leftrightarrow$
g6p $\leftrightarrow$ f6p
f6p $\rightarrow$ fbp
fbp $\rightarrow$ g3p
g3p $\rightarrow$
fbp $\leftrightarrow$ 3pg
3pg $\rightarrow$
3pg $\leftrightarrow$ pep
pep $\rightarrow$
pep $\rightarrow$ pyr
pyr $\rightarrow$
pyr $\rightarrow$ cit
cit $\rightarrow$ ogl
ogl $\leftrightarrow$
ogl $\rightarrow$ succ
succ $\rightarrow$
succ $\rightarrow$ fum

fum → mal
mal → cit