

Table 2S. Values of the model parameters, which have been taken from the different literature sources. The initial concentrations of model variables have been taken from the literature [1S].

Parameter	Value (mM)	Literature source
Glc _{out}	0.0647	taken form [1S];
Mg ²⁺	1	taken form [2S];
Phosph	5	taken form [3S];
HCO ³⁻	10	taken form [3S];
ATP _{tot}	4.48	taken form [1S];
NAD _{tot}	1.57	taken form [1S];
NADP _{tot}	1.1	taken form [1S];
Q _{tot}	1	taken form [1S];
CoA _{tot}	0.5	taken form [1S];
ICD _{tot}	0.043	taken form [4S];
Tal _{tot}	0.006	taken form [5S];
Tkt _{tot}	0.007	taken form [6S];
K _d _{ATPMg}	0.0588	taken form [7S];
K _d _{ADPMg}	0.9	taken form [7S];
K _d _{FbPMg}	10	taken form [7S];
pH	7.5	taken form [3S];

1S. Hoque MA, H.Ushiyama, Tomita M & Shimizu K (2005) Dynamic responses of the intracellular metabolite concentrations of the wild type and *pykA* mutant *Escherichia coli* against pulse addition of glucose or NH₃ under those limiting continuous cultures. *Biochem Eng J* **26**, 38-49.

2S. Froschauer EM, Kolisek M, Dieterich F, Schweigel M & R.J.Schweyen (2004) Fluorescence measurements of free [Mg₂₊] by use of mag-fura 2 in *Salmonella enterica*.

3S. Sundararaj S, Guo A, Habibi-Nazhad B, Rouani M, Stothard P, Ellison M & Wishart DS (2004) The CyberCell Database (CCDB): a comprehensive, self-updating, relational database to coordinate and facilitate in silico modeling of *Escherichia coli*. *Nucleic Acids Res* **32**, 293-295.

4S. Peng L & Shimizu K (2003) Global metabolic regulation analysis for *Escherichia coli* K12 based on protein expression by 2-dimensional electrophoresis and enzyme activity measurement. *Appl Microbiol Biotechnol* **61**, 163–178.

5S. Sprenger GA, Schorken U, Sprenger G & SAHM H (1995) Transketolase A of *Escherichia coli* K12. Purification and properties of the enzyme from recombinant strains. *Eur J Biochem* **232**, 525-532.

6S. Sprenger GA, Schorken U, Sprenger G & SAHM H (1996) Transaldolase B of *Escherichia coli* K12: Cloning of Its Gene, talB, and Characterization of the Enzyme from Recombinant Strains. *J Bacteriol* **177**, 5930–5936.

7S. Taquikhan MM & Martell AE (1962) Metal chelates of adenosine triphosphate. *J Phys Chem* **66**, 10-15.