Parameters

Parameters	Description	Value	Source
$\beta_{\text{transc i}}$	Maximal transcription rate of gene i of length j (nt)	j/80 mol/s	Bremer, H., Dennis, P. P. (1996) Modulation of chemical composition and other parameters of the cell by growth rate. Neidhardt, et al. eds. Escherichia coli and Salmonella typhimurium: Cellular and Molecular Biology, 2nd ed. chapter 97a
$\beta_{\text{transl i}}$	Maximal translation rate of protein i of length j(aa)	j/20 mol/s	Bilgin N, Claesens F, Pahverk H, Ehrenberg M. Kinetic properties of Escherichia coli ribosomes with altered forms of S12. J Mol Biol. 1992 Apr 20 224(4):1011-27
α_{RNA}	Degradation rate of the mRNA of specie i. (Equal for all species)	0.003 mol/s	Yang E, van Nimwegen E, Zavolan M, Rajewsky N, Schroeder M, Magnasco M, Darnell JE Jr. Decay rates of human mRNAs: correlation with functional characteristics and sequence attributes. Genome Res. 2003 Aug13(8):1863-72. doi:10.1101/gr.1272403 p.1864 left column 2nd paragraph
α	Degradation rate of proteins (equal for all, from GFP half life)	1.38e-4, 0.0023	- Li X, Zhao X, Fang Y, Jiang X, Duong T, Fan C, Huang CC, Kain SR. Generation of destabilized green fluorescent protein as a transcription reporter. J Biol Chem. 1998 Dec 25 273(52):34970-5. -Megerle, J. 2011.
$V_{\text{max CzrA}}$	Vmax of production of Czra	70 mol/s	Inference from [9]
$K_{\text{m CzrA}}$	Km for CzrA production	40 mM	Inference from [9]
$K_{\text{cat met in}}$	Maximum number of imported metal molecules per transporter	600 mol/s	Assumption
$K_{\text{m met in}}$	Km for import of metals	50mM	Assumption
$K_{\text{cat met1 out}}$	Maximum number of exported metal molecules per transporter	$= K_{\text{cat met in}}$	Assumption
$K_{\text{m met1 out}}$	Km for export process by any CadA transporter	$= K_{\text{m met in}}$	Assumption
$K_{\text{cat met2 out}}$	Maximum number of exported metal molecules per transporter	$= K_{\text{cat met in}}$	Assumption
$K_{\text{m met2 out}}$	Km for export process by ArsB transporter	$= K_{\text{m met in}}$	Assumption
$K_{\text{a ApARAME1}}$	Afinity constant to its bindinding site	330 nM	Groningen 2009
$K_{\text{a arabinose}}$	Afinity constant of arabinose to AraR and AraC	AraR= 8.4 µM AraC=50 µM	Procházková, 2012 Mergele J, 2011
$K_{\text{a xylose}}$	Afinity to XylR of xylose	8.4 µM	Assumption (equal to arabinose Ka)
$K_{\text{a met1}}$	Ka of Me1 for CzrA	6 µM	Groningen 2009
$K_{\text{a CzrA}}$	Afinity to CadA promoter	330 nM	Assumption (equal to ArsR)
$K_{\text{cat AraE}}$	Kcat for transport of	1000	Megerle, J. 2011

	sugar into the cell.	mol/min	
$K_{m\ AraE}$	Km for transport of sugar into the cell.	50µM	Assumption from Megerle, J. 2005
$K_{cat\ AraA}$	Kcat for conversion of L-Arabinose into L-ribulose	1943/min	Sabio DB ID:39773 PUBMED: 20688514
$K_{m\ AraA}$	Km for conversion of L-Arabinose into L-ribulose	31.9 mM	Sabio DB ID:39773 PUBMED: 20688514
$K_{cat\ XylA}$	Kcat for conversion of D-xylose into D-xylulose	1943/min	Assumption (equal to AraA)
$K_{m\ XylA}$	Km for conversion of D-xylose into D-xylulose	31.9 mM	Assumption (equal to AraA)