

Constants:

parameter	value	units	Source
kl	.024	$s^{-1}$	McClure WR. Rate-limiting steps in RNA chain initiation. <i>Proc Natl Acad Sci U S A</i> . 1980;77(10):5634-8.
$e_x$	42	nt/s	Proshkin S, Rahmouni AR, Mironov A, Nudler E. Cooperation between translating ribosomes and RNA polymerase in transcription elongation. <i>Science</i> . 2010;328(5977):504-8.
RNAP Conc.	30	nM	Arkin, A., Ross, J., & McAdams, H. H. (1998). Stochastic kinetic analysis of developmental pathway bifurcation in phage lambda-infected <i>Escherichia coli</i> cells. <i>Genetics</i> , 149(4), 1633-48.
Vol. per cell	6.7E-10	uL/cell	Wang, Lei, Zhou, Yongjin J., Ji, Debin, Zhao, Zongbao K., An accurate method for estimation of the intracellular aqueous volume of <i>Escherichia coli</i> cells, <i>Journal of Microbiological Methods</i> (2013), doi: 10.1016/j.mimet.2013.02.006 p.8 top
Slope of McClure	1.04	uM/s	McClure WR. Rate-limiting steps in RNA chain initiation. <i>Proc Natl Acad Sci U S A</i> . 1980;77(10):5634-8.
mRNA halflife	5	min	Moran MA et al., Sizing up metatranscriptomics. <i>ISME J</i> . 2013 Feb7(2):237-43. doi: 10.1038/ismej.2012.94.

Solved for Constants (in Julia):

parameter	value	units
$k_{E,j}$	.01365	$s^{-1}$
$R_{X,T}$	30E-6	mM
$K_{X,j}$	2.496E-5	mM
$G_j$	3093	mM
$\tau_{X,j}$	.569	--
$r_{x,j}$	2.611E-7	mM
$k_{x,j}^d$	.00231	$s^{-1}$
$B^{-1}\dot{B}$	.00055	$s^{-1}$