

Data Table			
Paramters	Values	Units	Source
Average dry weight per cell for E.Coli (g)	2.80E-13	g	Bionumbers (BID: 100008)
Specific Volume Basis (B) (Calculated)	0.000028	gDW	Calculated
Avogadro's constant	6.02E-23	molecules/mol	Bionumbers (BID: 101907)
RNA polymerase elongation rate	3.72	kb/min	Bionumbers (BID: 103021)
RNA polymerase elongation rate	223200	nt/hr	Calculated
Characteristic Transcript Length (L)	1000	nt	Given
Characteristic Elongation Rate Constant <keX>	223.2	hr ⁻¹	Calculated
Coding Region of LacZ gene	3075	nt	Bionumbers (BID: 102070)
Corrected Elongation Rate Constant keX	72.58536585	hr ⁻¹	Calculated
RNAP concentration	30	nM	Bionumbers (BID: 100194)
RNAP concentration	126	nM	Estimated (Correction to above row)
RNAP concentration	4500	nmol/gDW	Calculated
Gene concentration	0.011861271	nmol/gDW	Calculated
kl value	0.024	s ⁻¹	Table 3 McClure (2) (assumed k- >> kl)
kl value	86.4	hr ⁻¹	Calculated
Time constant (tauX)	0.840108401	dimensionless	Calculated
kon	960000	M ⁻¹ s ⁻¹	Table 3 McClure (2) (assumed k- >> kl)
kon	3456	(nmol/mL) ⁻¹ hr ⁻¹	Calculated
k+/k-	40	(nmol/mL) ⁻¹	Calculated
Saturation constant (Kx)	892.8571429	nmol/gDW	Calculated
LacZ mRNA half-life	0.083333333	hr	Given
Degradation Rate Constant (thetam)	8.317766167	hr ⁻¹	Calculated
E.Coli Doubling Time	0.666666667	hr	Given
Specific Growth Rate (mew)	1.039720771	hr ⁻¹	Calculated
Gain Function (KappaX)	0.552	nmol/gDW	Calculated
W1	0.26	unitless	Estimated
W2	300	unitless	Estimated
W2 (corrected after Least Squares)	266	unitless	Found using Least Squares Error
K	0.3	mM	Estimated
K (corrected after Least Squares)	0.36	mM	Found using Least Squares Error
n	1.5	unitless	Estimated
n (corrected after Least Squares)	1.49	unitless	Found using Least Squares Error