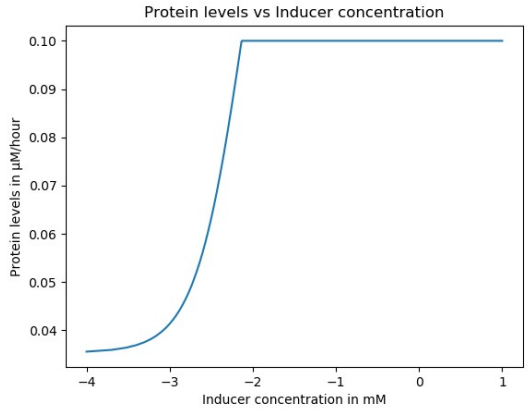
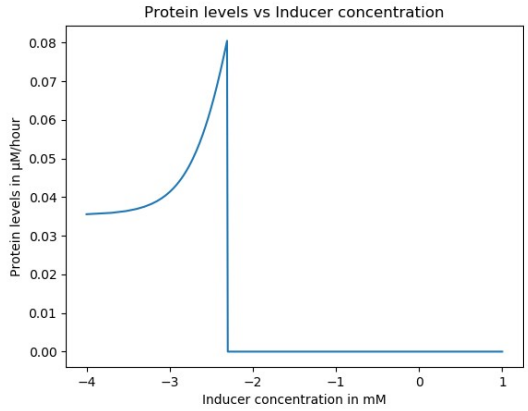
B1



List of exchange fluxes
1. AA
2. NTP
3. protein
4. NMP
5. ATP
6. AMP
7. GTP
8. GDP
9. P_i

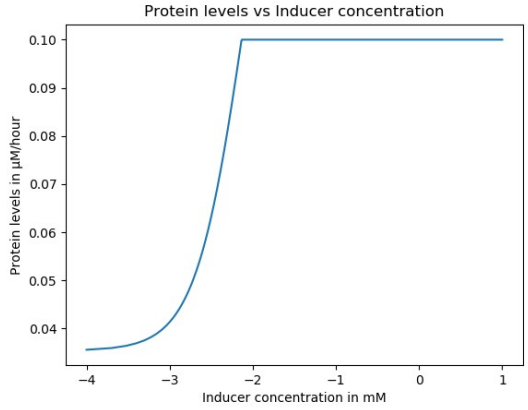
b2



From these graphs, we see that the translation rate is most sensitive to P_i followed by NTP and NMP. Reducing the P_i exchange flux severely restricts protein translation rate. This hints at the toxicity of P_i.

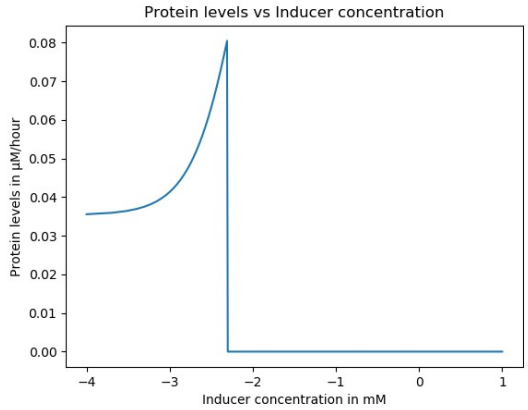
NTPs are building blocks of mRNAs and it would make sense that if the concentration of NTP in the system is low, protein production would be negatively affected.

b3

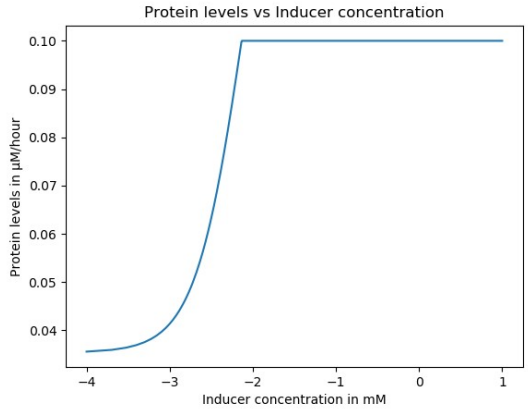


It is interesting to see that the translation rate is limited to the flux values of b1, b3, b5, b6, b7 and b8 if these values are small.

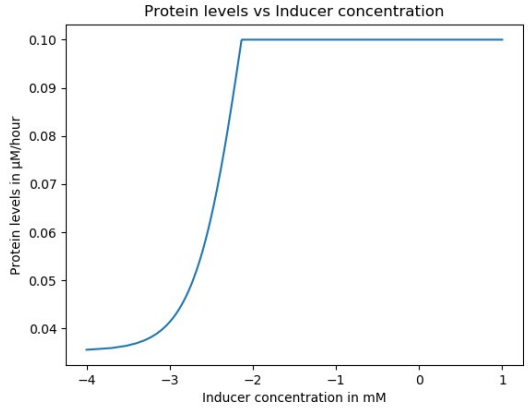
b4


Protein levels vs Inducer concentration
Protein levels in µM/hour
Inducer concentration in mM
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
−4
−3
−2
−1
0
1

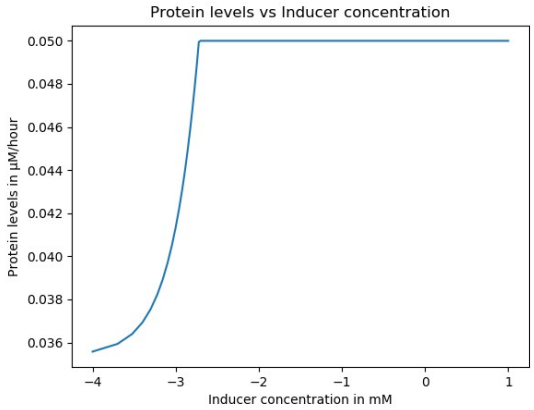
b5


Protein levels vs Inducer concentration
Protein levels in µM/hour
Inducer concentration in mM
0.10
0.09
0.08
0.07
0.06
0.05
0.04
−4
−3
−2
−1
0
1

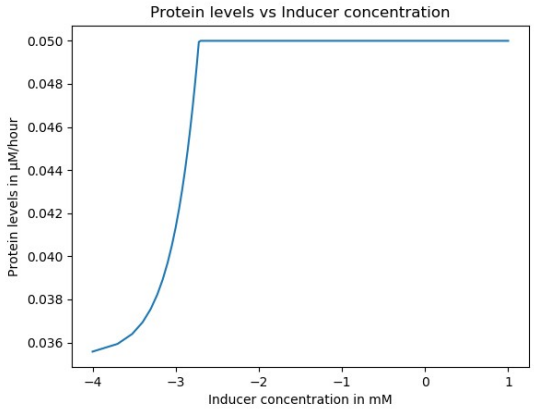
b6


Protein levels vs Inducer concentration
Protein levels in µM/hour
Inducer concentration in mM
0.10
0.09
0.08
0.07
0.06
0.05
0.04
−4
−3
−2
−1
0
1

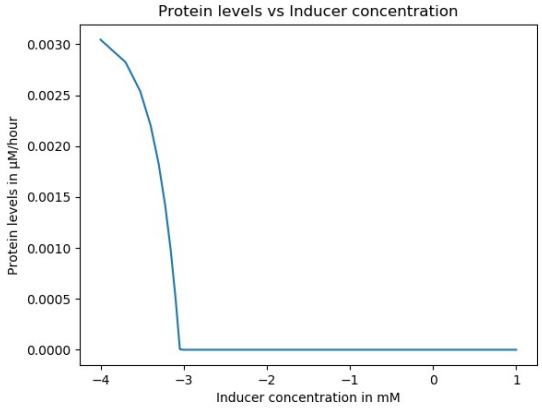
b7


Protein levels vs Inducer concentration
Protein levels in µM/hour
0.050
0.048
0.046
0.044
0.042
0.040
0.038
0.036
−4
−3
−2
−1
0
1
Inducer concentration in mM

b8


Protein levels vs Inducer concentration
Protein levels in µM/hour
0.050
0.048
0.046
0.044
0.042
0.040
0.038
0.036
−4
−3
−2
−1
0
1
Inducer concentration in mM

b9


Protein levels vs Inducer concentration
Protein levels in µM/hour
0.0030
0.0025
0.0020
0.0015
0.0010
0.0005
0.0000
−4
−3
−2
−1
0
1
Inducer concentration in mM