

maintenance\_fun constant

keep\_ribosome\_kcat FALSE keep\_transport\_kcat FALSE

	tC	GLY	FERM	RESP	NADS	ADPS	EAA	ENT	RNAp	DNAp	r
С	1	-0.5	0	0	0	0	0	0	Ō	Ō	0
I	0	0.5	-0.5	-0.5	-1	0	-1	-0.17	0	0	0
AA	0	0	0	0	0	0	1	-0.17	0	0	-0.2
NT	0	0	0	0	0	-1	0	0.34	-1	-1	0
NAD	0	-0.25	0.5	0.1	1	0	0	0	0	0	0
NADH	0	0.25	-0.5	-0.1	0	0	0	0	0	0	0
ADP	0	-0.25	0	-0.4	0	1	0	0.66	0	0	0.8
ATP	0	0.25	0	0.4	0	0	0	-0.66	0	0	-0.8
rRNA	0	0	0	0	0	0	0	0	1	0	0
DNA	0	0	0	0	0	0	0	0	0	1	0
р	0	0	0	0	0	0	0	0	0	0	0.2

	tC	GLY	FERM	RESP	NADS	ADPS	EAA	ENT	RNAp	DNAp	r
x_C	0.1	0	0	0	0	0	0	0	Ō	Ō	0
x_W	0	0	10	2	0	0	0	0	0	0	0
С	0	2	0	0	0	0	0	0	0	0	0
I	0	0	2	0.4	2	0	2	2	0	0	0
AA	0	0	0	0	0	0	0	2	0	0	2
NT	0	0	0	0	0	1	0	0	1	1	0
NAD	0	1	0	0	0	0	0	0	0	0	0
NADH	0	0	6	1.2	0	0	0	0	0	0	0
ADP	0	1	0	0	0	0	0	0	0	0	0
ATP	0	0	0	0	0	0	0	3	0	0	3
rRNA	0	0	0	0	0	0	0	0	0	0	0
DNA	0	0	0	0	0	0	0	0	0	0	0
р	0	0	0	0	0	0	0	0	0	0	0

	tC	GLY	FERM	RESP	NADS	ADPS	EAA	ENT	RNAp	DNAp	r
x_C	0	0	0	0	0	0	0	0	Ō	0	0
x_W	0	0	0	0	0	0	0	0	0	0	0
С	0	0	0	0	0	0	0	0	0	0	0
I	0	0	0	0	0	0	0	0	0	0	0
AA	0	0	0	0	0	0	0	0	0	0	0
NT	0	0	0	0	0	0	0	0	0	0	0
NAD	0	0	0	0	0	0	0	0	0	0	0
NADH	0	0	0	0	0	0	0	0	0	0	0
ADP	0	0	0	0	0	0	0	0	0	0	0
ATP	0	0	0	0	0	0	0	0	0	0	0
rRNA	0	0	0	0	0	0	0	0	0	0	20
DNA	0	0	0	0	0	0	0	0	4	4	0
р	0	0	0	0	0	0	0	0	0	0	0

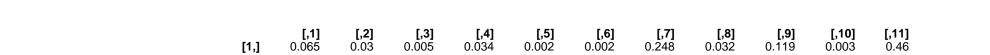
kcat

	tC	GLY	FERM	RESP	NADS	ADPS	EAA	ENT	RNAp	DNAp	r
kcatf	109	1114	2012.5	402.5	81	39	7	142	6	13	19
kcatb	0	0	0	0	0	0	0	0	0	0	0

## Keq



## phi input



### average saturation input

# minimal phi constraint

**[,5]** 0

**[,6]** 0

[,1] [,2] 0 0

[1,]

[,**3]** [,**4]** 0

**[8,]** 0 **[,9]** 0 **[,11]** 0

**[,7]** 0

#### minimal f constraint

[,1] [,2] [,3] [,4] 0 0 0 0

[1,]

**[,7]** 0 **[,9]** 0

**[,8]** 0

**[,11]** 0

[,**5]** [,**6]** 0