





0.8 0.6 0.6 0.4 0.4 0.6 0.8 1

Growth rate μ (h⁻¹)

maintenance_fun constant

keep_ribosome_kcat FALSE keep_transport_kcat FALSE

	tC	FERM	RESP	ADPS	EAA	ENT	RNAp	DNAp	r
С	1	-0.5	0.25	0	0	0	0	0	0
I	0	0.15	0.2	0	-1	-0.167	0	0	0
AA	0	0	0	0	1	-0.167	0	0	-0.2
NT	0	0	0	-1	0	0.334	–1	-1	0
ADP	0	-0.5	-0.75	1	0	0.666	0	0	0.8
ATP	0	0.5	0.75	0	0	-0.666	0	0	-0.8
rRNA	0	0	0	0	0	0	1	0	0
DNA	0	0	0	0	0	0	0	1	0
р	0	0	0	0	0	0	0	0	0.2

	tC	FERM	RESP	ADPS	EAA	ENT	RNAp	DNAp	r
x_C	0.1	0	0	0	0	0	Ō	Ō	0
x_W	0	0	0	0	0	0	0	0	0
С	0	0	0	0	0	0	0	0	0
I	0	0	0	0	2	2	0	0	0
AA	0	0	0	0	0	2	0	0	2
NT	0	0	0	2	0	0	2	2	0
ADP	0	0.1	1	0	0	0	0	0	0
ATP	0	0	0	0	0	2	0	0	2
rRNA	0	0	0	0	0	0	0	0	0
DNA	0	0	0	0	0	0	0	0	0
р	0	0	0	0	0	0	0	0	0

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	tC	GLY	RESP	ADPS	EAA	ENI	RNAp	DNAp	r
x_C	0	0	0	0	0	0	Ō	Ō	0
x_W	0	0	0	0	0	0	0	0	0
С	0	0	0	0	0	0	0	0	0
I	0	0	0	0	0	0	0	0	0
AA	0	0	0	0	0	0	0	0	0
NT	0	0	0	0	0	0	0	0	0
ADP	0	0	0	0	0	0	0	0	0
ATP	0	0	0	0	0	0	0	0	0
rRNA	0	0	0	0	0	0	0	0	40
DNA	0	0	0	0	0	0	4	4	0
р	0	0	0	0	0	0	0	0	0

kcat

DNAp r
7 19 0 0

Keq



phi input

				[,4]						
[1,]	0.065	0.035	0.035	0.003	0.248	0.032	0.119	0.003	0.46	

average saturation input

minimal phi constraint

[1,]

minimal f constraint

	[,1]	[,2]	[,3]	[,4]	[,5]	[,6]	[,7]	[,8]	[,9]
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