DNAp

Proteome fraction ϕ

0.008

0.006

0.004

0.002

0.000

Growth rate μ (h^{-1})
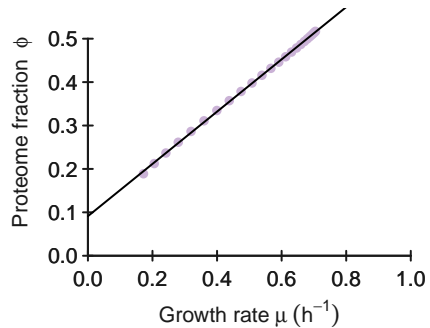
r

Proteome fraction ϕ

0.5

0.4

0.3

0.2

0.1

0.0

Growth rate μ (h^{-1})

Metabolite concentrations c^m (g/L)

60

40

20

Growth rate μ (h^{-1})

Legend: C, I, AA, NT, ADP, ATP, RNA, DNA
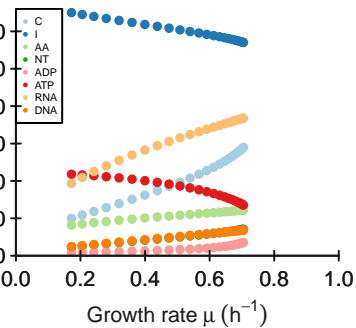
Protein concentrations p (g/L)

80

60

40

20

Growth rate μ (h^{-1})

Legend: tC, FERM, RESP, ADPS, EAA, ENT, RNAp, DNAp, r

Proteome fractions ϕ

0.6

0.5

0.4

0.3

0.2

0.1

0.0

Growth rate μ (h^{-1})

Flux fractions f

4

3

2

1

0

Growth rate μ (h^{-1})

Turnover times τ (h)

5

4

3

2

1

0

Growth rate μ (h^{-1})

Legend: tC, FERM, RESP, ADPS, EAA, ENT, RNAp, DNAp, r
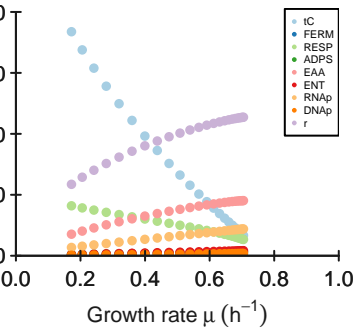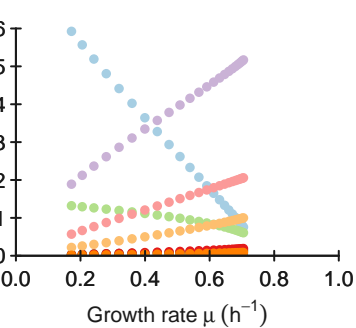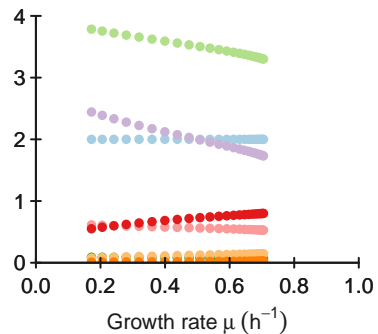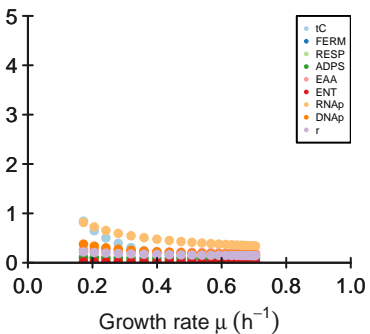
Apparent turnover numbers k_{app} (h^{-1})
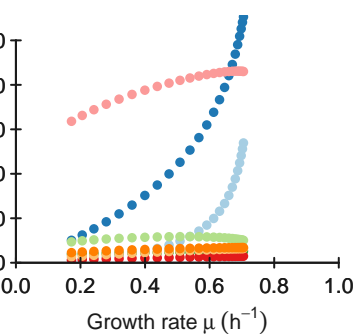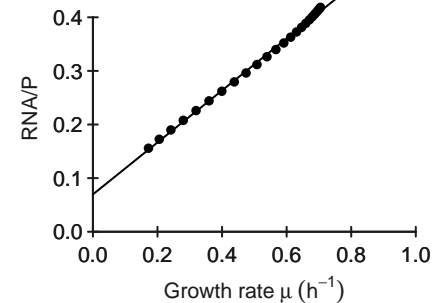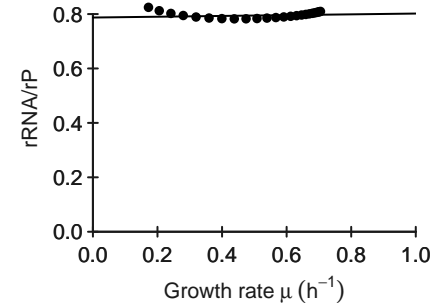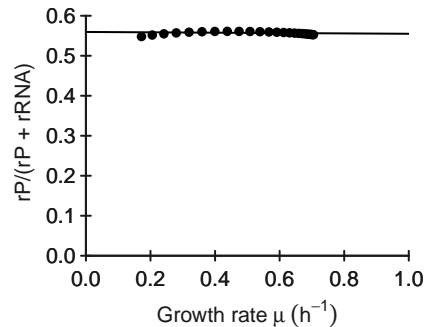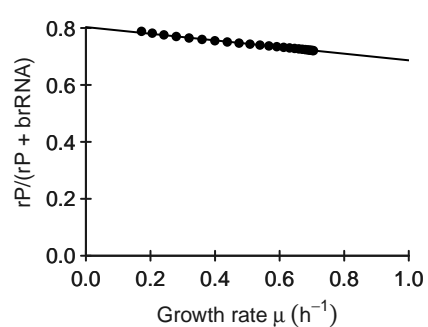
100

80

60

40

20

Growth rate μ (h^{-1})

RNA/P

RNA/P

0.4

0.3

0.2

0.1

0.0

Growth rate μ (h^{-1})

rRNA/rP

rRNA/rP

0.8

0.6

0.4

0.2

0.0

Growth rate μ (h^{-1})
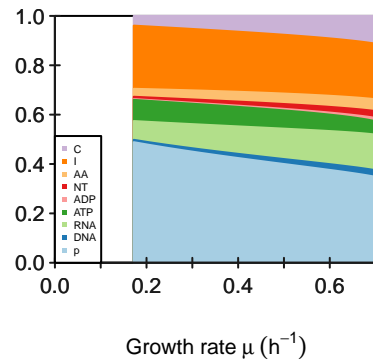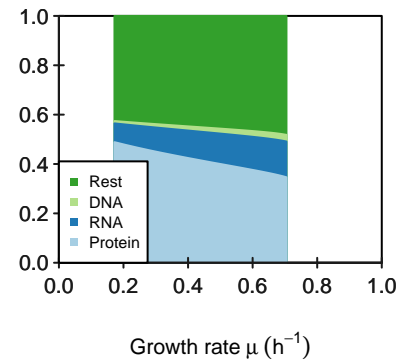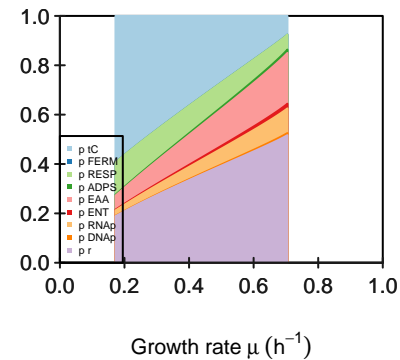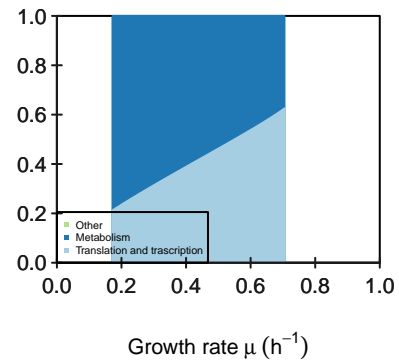
keep_ribosome_kcat FALSE
keep_transport_kcat FALSE
maintenance_fun constant

M

	tC	FERM	RESP	ADPS	EAA	ENT	RNAp	DNAp	r
C	0.5	−0.2	−0.1	0	−0.8	−0.167	0	0	0
I	0	0.1	0.1	0	−0.2	0	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	0.5	−0.8	−0.9	1	0	0.666	0	0	0.8
ATP	−0.5	0.8	0.9	0	0	−0.666	0	0	−0.8
RNA	0	0	0	0	0	0	1	0	0
DNA	0	0	0	0	0	0	0	1	0
p	0	0	0	0	0	0	0	0	0.2

K

	tC	FERM	RESP	ADPS	EAA	ENT	RNAp	DNAp	r
x_C	0.1	0	0	0	0	0	0	0	0
x_W	0	10	30	0	0	0	0	0	0
C	19	7	21	0	7	7	0	0	0
I	0	61	183	0	21	0	0	0	0
AA	0	0	0	0	6	2	0	0	2
NT	0	0	0	2	0	4	2	2	0
ADP	1	1	3	1	0	1	0	0	0
ATP	2	6	18	0	0	2	0	0	2
RNA	0	0	0	0	0	0	0	0	0
DNA	0	0	0	0	0	0	0	0	0
p	0	0	0	0	0	0	0	0	0

KA

	tC	GLY	RESP	ADPS	EAA	ENT	RNAp	DNAp	r
x_C	0	0	0	0	0	0	0	0	0
x_W	0	0	0	0	0	0	0	0	0
C	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
RNA	0	0	0	0	0	0	0	0	40
DNA	0	0	0	0	0	0	4	4	0
p	0	0	0	0	0	0	0	0	0

kcat

	tC	FERM	RESP	ADPS	EAA	ENT	RNAp	DNAp	r
kcatf	77	8920	446	26	10	149	6	13	19
kcatb	8	892	45	3	1	15	0	0	0

Keq

	[,1]	[,2]	[,3]	[,4]	[,5]	[,6]	[,7]	[,8]	[,9]
[1,]	914.375	5228.57142857143	518.209523809524	4.33333333333333	0.408163265306122	1.41904761904762	Inf	Inf	Inf

phi input

	[,1]	[,2]	[,3]	[,4]	[,5]	[,6]	[,7]	[,8]	[,9]
[1,]	0.065	0.035	0.035	0.003	0.248	0.032	0.119	0.003	0.46

average saturation input

3

minimal phi constraint

```
     [,1]  [,2]  [,3]  [,4]  [,5]  [,6]  [,7]  [,8]  [,9]
[1,]    0     0     0     0     0     0     0     0     0
```

minimal f constraint

	[,1]	[,2]	[,3]	[,4]	[,5]	[,6]	[,7]	[,8]	[,9]
[1,]	0	0	0	0	0	0	0	0	0