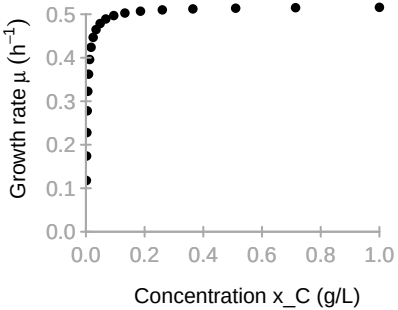
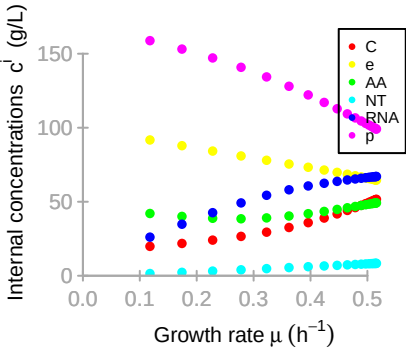
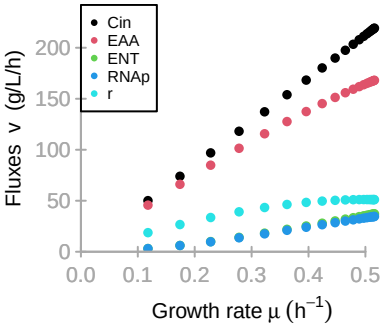
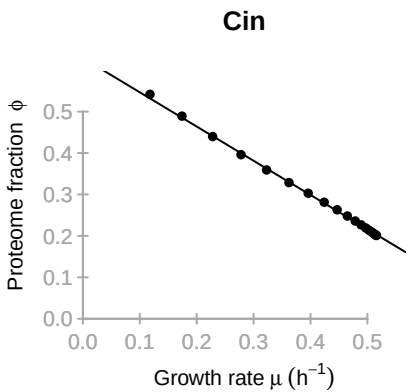
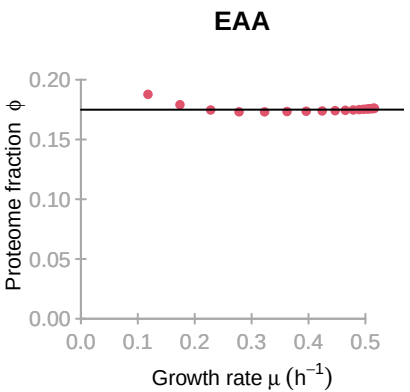
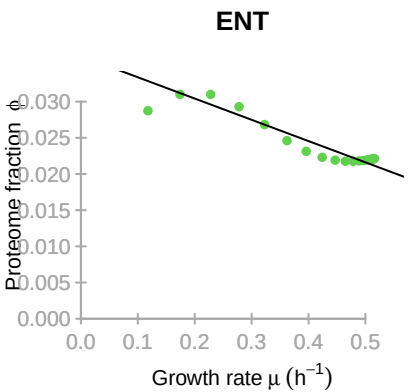

Growth rate μ (h^{-1})
0.0
0.1
0.2
0.3
0.4
0.5
0.0
0.2
0.4
0.6
0.8
1.0
Concentration x_C (g/L)

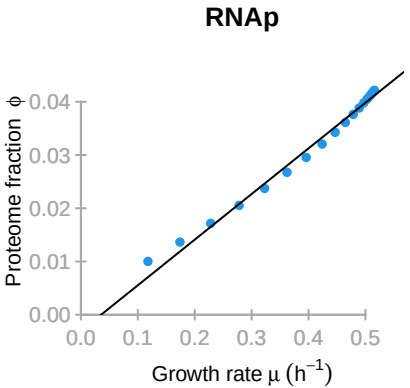

Internal concentrations c^i (g/L)
0
50
100
150
0.0
0.1
0.2
0.3
0.4
0.5
Growth rate μ (h^{-1})
C
e
AA
NT
RNA
p

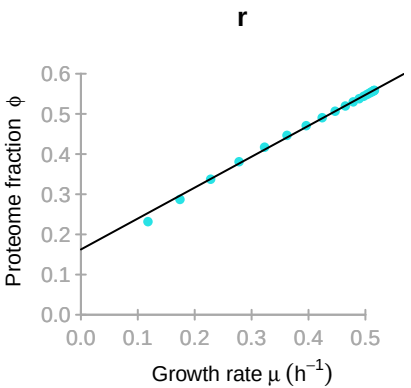

Fluxes v (g/L/h)
0
50
100
150
200
0.0
0.1
0.2
0.3
0.4
0.5
Growth rate μ (h^{-1})
Cin
EAA
ENT
RNAp
r

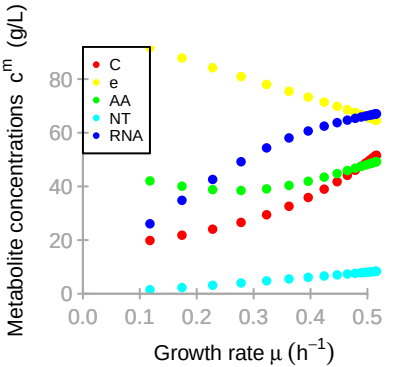

Cin
Proteome fraction ϕ
0.0
0.1
0.2
0.3
0.4
0.5
0.0
0.1
0.2
0.3
0.4
0.5
Growth rate μ (h^{-1})

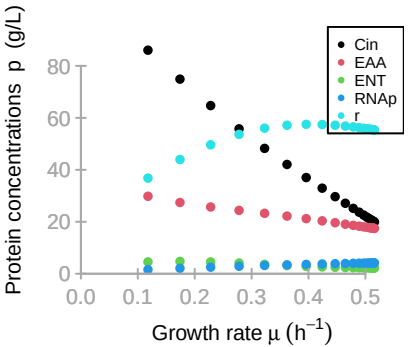

EAA
Proteome fraction ϕ
0.00
0.05
0.10
0.15
0.20
0.0
0.1
0.2
0.3
0.4
0.5
Growth rate μ (h^{-1})

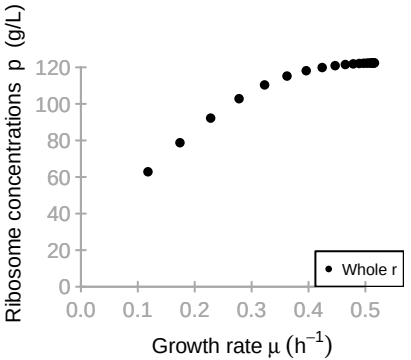

ENT
Proteome fraction ϕ
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.0
0.1
0.2
0.3
0.4
0.5
Growth rate μ (h^{-1})

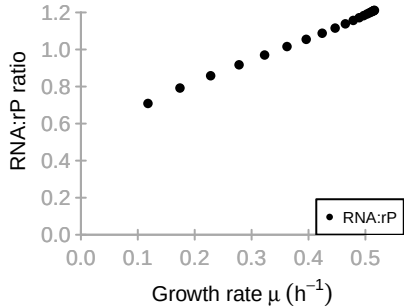

RNAp
Proteome fraction ϕ
0.00
0.01
0.02
0.03
0.04
0.0
0.1
0.2
0.3
0.4
0.5
Growth rate μ (h−1)

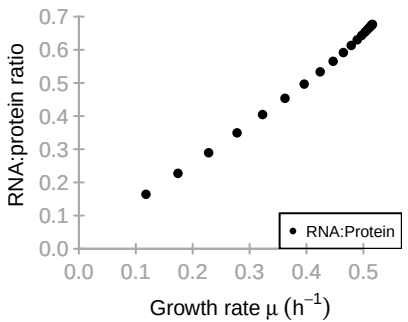

r
Proteome fraction ϕ
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.0
0.1
0.2
0.3
0.4
0.5
Growth rate μ (h−1)

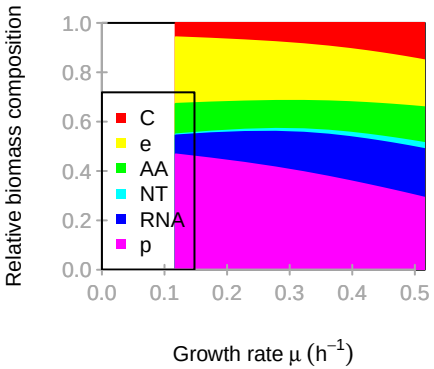

Metabolite concentrations cm (g/L)
C
e
AA
NT
RNA
0
20
40
60
80
0.0
0.1
0.2
0.3
0.4
0.5
Growth rate μ (h−1)

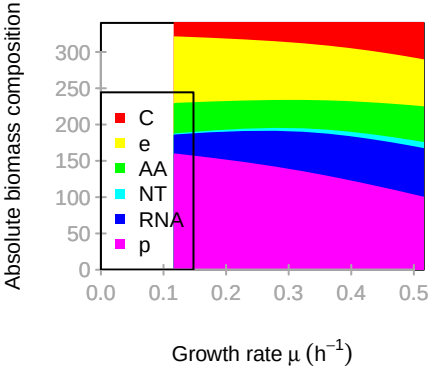

Protein concentrations p (g/L)
Cin
EAA
ENT
RNAp
r
0
20
40
60
80
0.0
0.1
0.2
0.3
0.4
0.5
Growth rate μ (h−1)

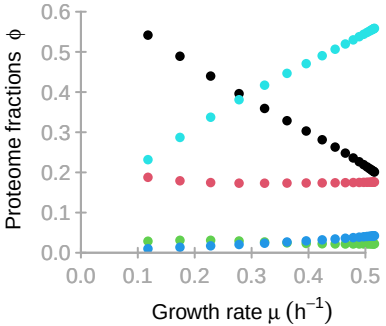

Ribosome concentrations p (g/L)
Whole r
0
20
40
60
80
100
120
0.0
0.1
0.2
0.3
0.4
0.5
Growth rate μ (h−1)

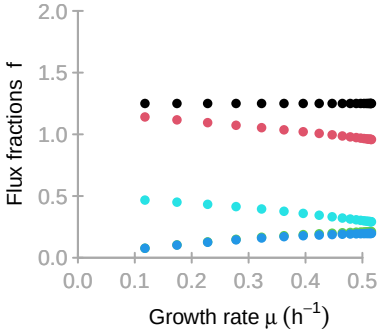

RNA:rP ratio
RNA:rP
0.0
0.2
0.4
0.6
0.8
1.0
1.2
0.0
0.1
0.2
0.3
0.4
0.5
Growth rate μ (h−1)

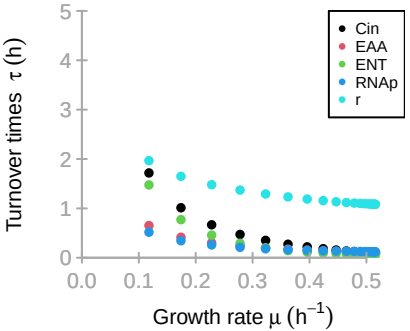

RNA:protein ratio
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
RNA:Protein
0.0
0.1
0.2
0.3
0.4
0.5
Growth rate μ (h−1)

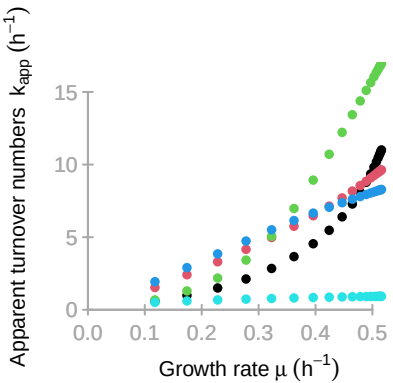

Relative biomass composition
0.0
0.2
0.4
0.6
0.8
1.0
C
e
AA
NT
RNA
p
0.0
0.1
0.2
0.3
0.4
0.5
Growth rate μ (h−1)


Absolute biomass composition
0
50
100
150
200
250
300
C
e
AA
NT
RNA
p
0.0
0.1
0.2
0.3
0.4
0.5
Growth rate μ (h−1)


Proteome fractions ϕ
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.0
0.1
0.2
0.3
0.4
0.5
Growth rate μ (h−1)


Flux fractions f
0.0
0.5
1.0
1.5
2.0
0.0
0.1
0.2
0.3
0.4
0.5
Growth rate μ (h−1)


Turnover times τ (h)
0
1
2
3
4
5
Cin
EAA
ENT
RNAp
r
0.0
0.1
0.2
0.3
0.4
0.5
Growth rate μ (h−1)


Apparent turnover numbers k_{app} (h^{-1})
15
10
5
0
0.0
0.1
0.2
0.3
0.4
0.5
Growth rate μ (h^{-1})

M

	Cin	EAA	ENT	RNAp	r
C	1	−1	−0.66	0	0
e	−0.2	0.5	0	−0.05	−0.1
AA	0	0.5	−0.34	0	−0.9
NT	0	0	1	−0.95	0
RNA	0	0	0	1	0
p	0	0	0	0	1

K

	Cin	EAA	ENT	RNAp	r
[1,]	0.01	0	0	0	0
[2,]	40	40	40	0	0
[3,]	62	62	0	62	62
[4,]	0	60	60	0	60
[5,]	0	0	0	54	0
[6,]	0	0	0	0	0
[7,]	0	0	0	0	0

KA

	Cin	EAA	ENT	RNAp	r
[1,]	0	0	0	0	0
[2,]	0	0	0	0	0
[3,]	0	0	0	0	0
[4,]	0	0	0	0	0
[5,]	0	0	0	0	0
[6,]	0	0	0	0	100
[7,]	0	0	0	0	0

kcat

	Cin	EAA	ENT	RNAp	r
kcatf	22	48	97	121	10
kcatb	7	16	32	0	0

Keq

	[,1]	[,2]	[,3]	[,4]	[,5]
[1,]	202.764976958525	279	0.00126302083333333	Inf	Inf