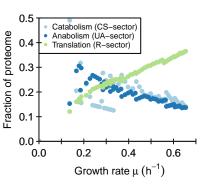
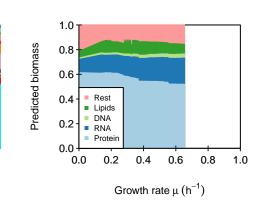


Proteome sectors





Relative biomass composition

0.8

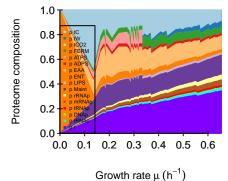
0.6

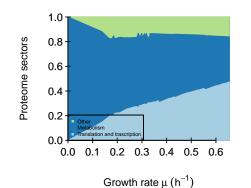
0.4

0.2

0.2 0.3 0.4 0.5 0.6

Growth rate μ (h⁻¹)





| | tC | tW | tCO2 | FERM | ATPS | ADPS | EAA | ENT | LIPS | Maint | rRNAp | mRNAp | tRNAp | DNAp | tRNAc | r |
|------|----|----|------|------|-------|------|------|--------|-------|-------|-------|-------|-------|------|-------|-------|
| С | 1 | 0 | 0 | -0.2 | 0 | 0 | -0.5 | -0.167 | 0 | 0 | 0 | Ō | Ö | Ō | 0 | 0 |
| AA | 0 | 0 | 0 | 0 | 0 | 0 | 1 | -0.167 | 0 | 0 | 0 | 0 | 0 | 0 | -0.01 | 0 |
| NT | 0 | 0 | 0 | 0 | 0 | -1 | 0 | 0.334 | 0 | 0 | -1 | -1 | -1 | -1 | 0 | 0 |
| ADP | 0 | 0 | 0 | -0.8 | -0.98 | 1 | 0 | 0.666 | 0.82 | 1 | 0 | 0 | 0 | 0 | 0.05 | 0.05 |
| ATP | 0 | 0 | 0 | 0.8 | 0.98 | 0 | 0 | -0.666 | -0.82 | -1 | 0 | 0 | 0 | 0 | -0.05 | -0.05 |
| CI1 | 0 | -1 | 0 | 0.2 | -0.02 | 0 | -0.5 | 0 | -0.18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CI2 | 0 | 0 | -1 | 0 | 0.02 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| LIP | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| rRNA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| mRNA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| tRNA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | -0.94 | 0.94 |
| DNA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| TC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.95 | -0.95 |
| р | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.01 |
| | | | | | | | | | | | | | | | | |

| | tC | tW | tCO2 | FERM | ATPS | ADPS | EAA | ENT | LIPS | Maint | rRNAp | mRNAp | tRNAp | DNAp | tRNAc | r |
|-------|------|----|------|------|------|------|-----|-----|------|-------|-------|-------|-------|------|-------|---|
| x_C | 0.05 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Ö | Ö | Ö | 0 | 0 |
| x_W | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| x_CO2 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| С | 0.5 | 0 | 0 | 2 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| AA | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 |
| NT | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 10 | 0 | 0 | 6 | 6 | 6 | 6 | 0 | 0 |
| ADP | 0 | 0 | 0 | 1 | 3 | 1 | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ATP | 0 | 0 | 0 | 5 | 5 | 0 | 0 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 4 | 4 |
| CI1 | 0 | 1 | 0 | 5 | 7 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CI2 | 0 | 0 | 1 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| LIP | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| rRNA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| mRNA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| tRNA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| DNA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| р | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | tC | tW | tCO2 | FERM | ATPS | ADPS | EAA | ENT | LIPS | Maint | rRNAp | mRNAp | tRNAp | DNAp | tRNAc | r |
|-------|----|----|------|------|------|------|-----|-----|------|-------|-------|-------|-------|------|-------|----|
| x_C | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.005 | 0 | 0 | Ō | 0 | 0 | 0 |
| x_W | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| x_CO2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| С | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| AA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ADP | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ATP | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CI1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CI2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| LIP | 60 | 60 | 60 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| rRNA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50 |
| mRNA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| tRNA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| DNA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 | 8 | 8 | 0 | 0 |
| TC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| р | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

kcat

| | [,1] | [,2] | [,3] | [,4] | [,5] 150 | [,6] | [,7] | [,8] | [,9] 73 | [,10] | [,11] | [,12] | [,13] | [,14] | [,15] | [,16] |
|-------|------|------|------|------|--------------------|------|------|------|-------------------|-------|-------|-------|-------|-------|-------|-------|
| kcatf | 1100 | 300 | 300 | 2000 | 150 | 14 | 18 | 220 | 73 | 79 | 10 | 2 | 10 | 16 | 15000 | 800 |
| kcatb | 70 | 30 | 30 | 200 | 15 | 1 | 1 | | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Keq

| [1,] | [,1] | [,2] | [,3] | [,4] | [,5] | [,6] | [,7] | [,8] | [,9] | [,10] | [,11] | [,12] | [,13] | [,14] | [,15] | [,16] |
|------|------------------|-------------|-------------|-------------|------------------|-------------------|-------------|------------------|------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | 157.142857142857 | 30 | 30 | 125 | 11.9047619047619 | 2.333333333333333 | 22.5 | 10.4166666666667 | 19.5535714285714 | Inf |

minimal phi constraint

| | | | Г | | _ | _ | | |
|------|------|------|---|------|---|-------|------|--|
| | | | | | | | | |
| | | | | | | | | |

| 21 | |
|----|--|

[1,]

[,2] [,3] [,4] [,5] 0 0 0

[,6] [,7] [,8] [,9] [,10] [,11] [,12] [,13] [,14] [,15] [,16] 0 0 0 0 0 0 0 0

minimal f constraint

[,6] [,7] [,8] [,9] [,10] [,11] [,12] [,13] [,14] [,15] [,16] 0 0 0 0 0 0 0

[,1] [,2] [,3] [,4] [,5] 0 0 0 0 0

[1,]