





0.8 - 0.6 - 0.4 - 0.4 - 0.2 - 0.0 - 0.0 0.2 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 | -0.45 | -0.3 | 0 | 0 | 0 | 0 | 0 | 0 |
| I | 0 | 0.25 | 0.25 | 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 | -0.55 | -0.7 | 1 | 0 | 0.666 | 0 | 0 | 0.8 |
| ATP | 0 | 0.55 | 0.7 | 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 | 0.333333333333333 | 3.33333333333333 | 0 | 0 | 0 | 0 | 0 | 0 |
| I | 0 | 0 | 0 | 0 | 13 | 13 | 0 | 0 | 0 |
| AA | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 4 |
| NT | 0 | 0 | 0 | 3 | 0 | 0 | 3 | 3 | 0 |
| ADP | 0 | 0.0333333333333333 | 0.333333333333333 | 0 | 0 | 0 | 0 | 0 | 0 |
| ATP | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 4 |
| 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 |

KA

| | tC | GLY | RESP | ADPS | EAA | ENT | 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 | 20 |
| DNA | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 4 | 0 |
| р | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

kcat

| | tC | FERM | RESP | ADPS | EAA | ENT | RNAp | DNAp | r |
|-------|----|------|------|------|-----|-----|------|------|----|
| kcatf | 38 | 660 | 220 | 29 | 8 | 212 | 7 | 14 | 24 |
| kcatb | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 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] |
|------|------|------|------|------|------|------|------|------|------|
| [1,] | Ō | Ō | Ō | Ō | Ō | Ō | Ō | Ō | Ō |