









maintenance_fun constant

keep_ribosome_kcat FALSE keep_transport_kcat FALSE

| | tC | FERM | RESP | ADPS | EAA | ENT | LIPS | Maint | rRNAp | mRNAp | tRNAp | rRNase | mRNase | tRNAse | DNAp | tRNAc | r |
|------|----|-------|-------|------|-----|-------|-------|-------|-------|-------|-------|--------|--------|--------|------|--------|--------|
| С | 1 | -0.15 | -0.1 | 0 | 0 | 0 | 0 | 0 | Ō | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | 0.075 | 0.075 | 0 | -1 | -0.17 | -0.18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| AA | 0 | 0 | 0 | 0 | 1 | -0.17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -0.006 | 0 |
| NT | 0 | 0 | 0 | -1 | 0 | 0.34 | 0 | 0 | -1 | -1 | -1 | 1 | 1 | 1 | -1 | 0 | 0 |
| ADP | 0 | -0.85 | -0.9 | 1 | 0 | 0.66 | 0.82 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.026 | 0.026 |
| ATP | 0 | 0.85 | 0.9 | 0 | 0 | -0.66 | -0.82 | -1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -0.026 | -0.026 |
| LIP | 0 | 0 | 0 | 0 | 0 | 0 | 0.18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| rRNA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | -1 | 0 | 0 | 0 | 0 | 0 |
| mRNA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | -1 | 0 | 0 | 0 | 0 |
| tRNA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | -1 | 0 | -0.968 | 0.968 |
| DNA | 0 | 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 | 0.974 | -0.974 |
| р | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.006 |

| x_C 0.05 0 <th></th> <th>tC</th> <th>FERM</th> <th>RESP</th> <th>ADPS</th> <th>EAA</th> <th>ENT</th> <th>LIPS</th> <th>Maint</th> <th>rRNAp</th> <th>mRNAp</th> <th>tRNAp</th> <th>rRNase</th> <th>mRNase</th> <th>tRNAse</th> <th>DNAp</th> <th>tRNAc</th> <th>r</th> | | tC | FERM | RESP | ADPS | EAA | ENT | LIPS | Maint | rRNAp | mRNAp | tRNAp | rRNase | mRNase | tRNAse | DNAp | tRNAc | r |
|--|------|------|------|------|------|-----|-----|------|-------|-------|-------|-------|--------|--------|--------|------|-------|---|
| C 0 11 2.2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | x_C | 0.05 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Ö | Ö | Ö | 0 | 0 | 0 | Ö | 0 | 0 |
| NT 0 0 0 2 0 0 0 0 2 2 0 0 0 0 0 2 2 2 0 | x_W | 0 | 20 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NT 0 0 0 2 0 0 0 0 2 2 0 0 0 0 0 2 2 2 0 | С | 0 | 11 | 2.2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NT 0 0 0 2 0 0 0 0 2 2 0 0 0 0 0 2 2 2 0 | ı | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ADP 0 1 0.2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | AA | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| ATP 0 0 0 0 2 2 2 2 0 | | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 0 | 0 | 0 | 2 | 0 | 0 |
| LIP 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | | 0 | 1 | 0.2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| rRNA 0 0 0 0 0 0 0 0 19 0 0 0 0 0 mRNA 0< | | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 |
| mRNA 0 | | 0 | 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 | 19 | 0 | 0 | 0 | 0 | 0 |
| DNA 0 0 0 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 | 2 | 0 | 0 | 0 | 0 |
| DNA 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 |
| TC 0 0 0 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 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| p 0 0 0 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 | 0 | 3 |
| | р | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | tC | FERM | RESP | ADPS | EAA | ENT | LIPS | Maint | rRNAp | mRNAp | tRNAp | rRNase | mRNase | tRNAse | DNAp | tRNAc | r |
|---------------------------|----|------|------|------|-----|-----|------|-------|-------|-------|-------|--------|--------|--------|------|-------|----|
| x_C | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.01 | Ö | Ö | Ö | 0 | 0 | 0 | Ö | 0 | 0 |
| x_W | 0 | 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 | 0 |
| 1 | 0 | 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 | 0 |
| NT | 0 | 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 | 0 |
| ATP | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| LIP | 0 | 0 | 0 | 0 | 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 | 0 | 25 |
| mRNA tRNA DNA TC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| tRNA | 0 | 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 | 4 | 4 | 4 | 0 | 0 | 0 | 4 | 0 | 0 |
| TC | 0 | 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 | 0 |

kcat

| | tC | FERM | RESP | ADPS | EAA | ENT | LIPS | Maint | rRNAp | mRNAp | tRNAp | rRNase | mRNase | tRNAse | DNAp | tRNAc | r |
|-------|------|--------|-------|------|-----|-------|-------|-------|-------|-------|-------|--------|--------|--------|------|---------|--------|
| kcatf | 98.9 | 2547.2 | 509.5 | 23.5 | 18 | 253.4 | 104.2 | 73.9 | 16.3 | 1 | 16.3 | 18 | 18 | 18 | 27.1 | 30852.7 | 1873.4 |
| kcatb | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Keq

| [1,] | [,1] Inf | [,2] Inf | [,3] Inf | [,4] Inf | [, 5] Inf | [,6] Inf | [, 7] Inf | [,8] Inf | [, 9] Inf | [, 10] Inf | [,11] Inf | [,12] Inf | [,13] Inf | [,14] Inf | [,15] Inf | [,16] Inf | [,17] Inf | |
|------|--------------------|--------------------|--------------------|--------------------|----------------------|---------------------|----------------------|-------------|----------------------|----------------------|--------------|----------------------|--------------|----------------------|--------------|----------------------|--------------|--|

phi input

[,8] 0.3036 **[,9]** 0.0426 **[,10]** 0.0213 **[,11]** 0.0071 **[,12]** 0.002 **[,13]** 0.006 **[,17]** 0.284

[,5] 0.165

[,3] 0.023

[,1] 0.043

[1,]

[,6] 0.021 **[,7]** 0.031

average saturation input

minimal phi constraint

[,11] 0 **[,12]** 0.002 **[,13]** 0.006 [,14] [,15] [,16] 4e-04 0 0 **[,17]** 0

[,7] [,8] [,9] [,10] 0.031 0 0 0

[,6] 0

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

[1,]

minimal f constraint

[,8] [,9] [,10] [,11] [,12] [,13] [,14] [,15] [,16] 5.15121841070434 0 0 0 0 0 0 0

| | Iai | | 113 | LIC | 4111 | Į, |
|------|-----|--|-----|-----|------|----|
| | | | | | | |
| | | | | | | |

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