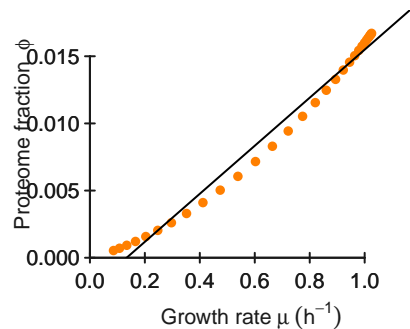
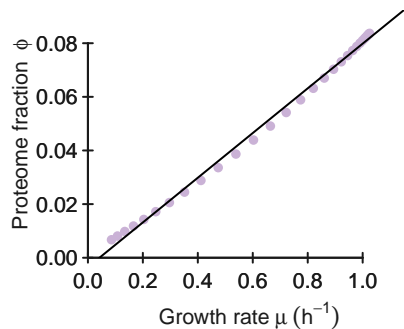


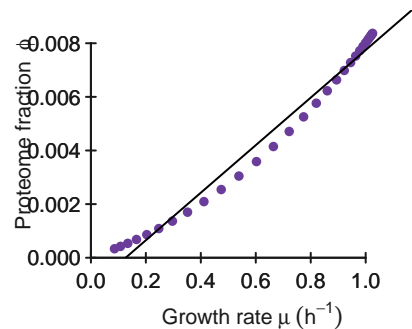
ENT



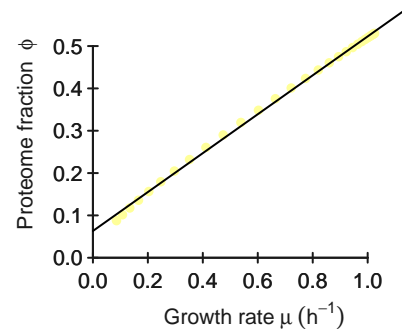
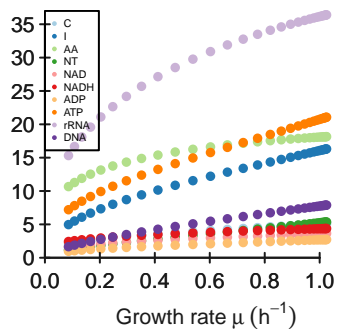
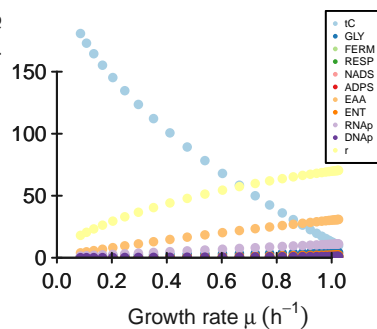
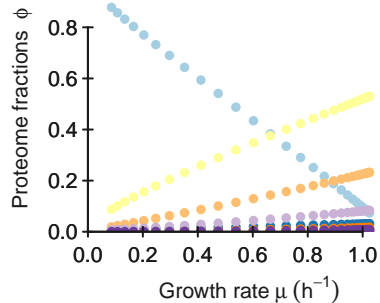
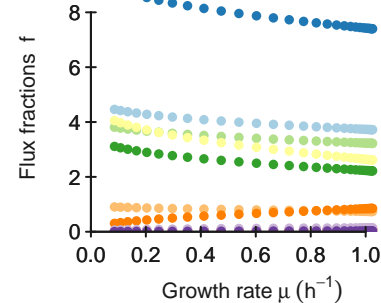
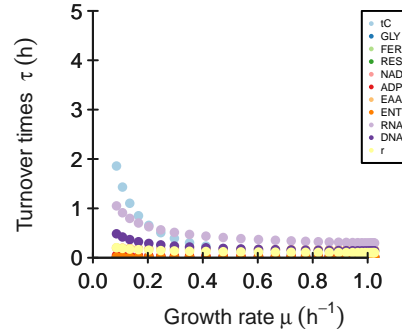
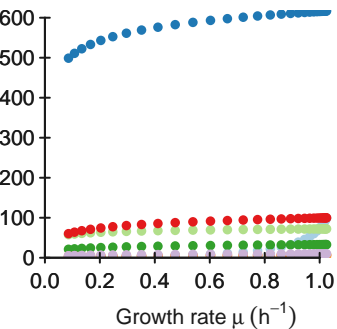
RNAP



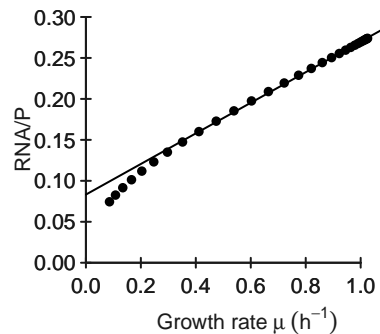
DNAP



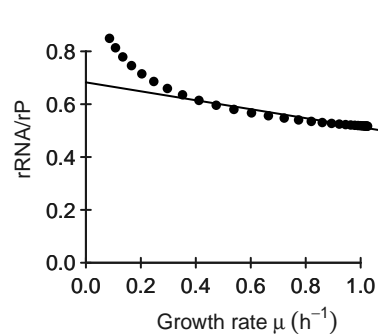
r

Metabolite concentrations  $c^m$  (g/L)Protein concentrations  $p$  (g/L)Proteome fractions  $\phi$ Flux fractions  $f$ Turnover times  $\tau$  (h)Apparent turnover numbers  $k_{app}$  ( $\text{h}^{-1}$ )

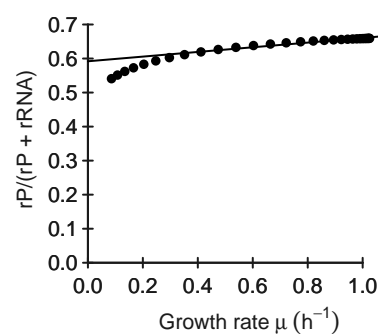
RNA/P



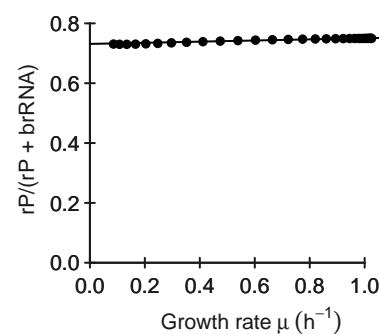
rRNA/rP



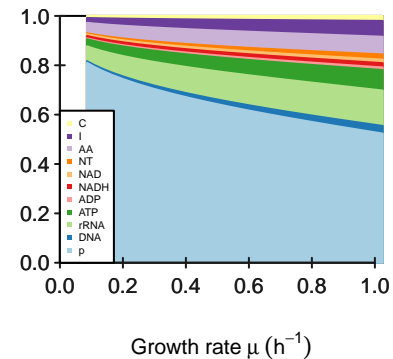
rP/(rP + rRNA)



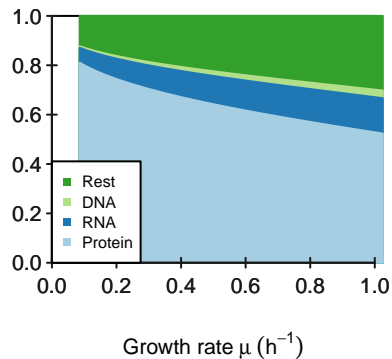
Protein mass fraction in ribosome



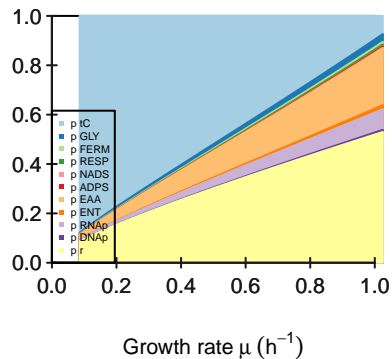
Relative biomass composition



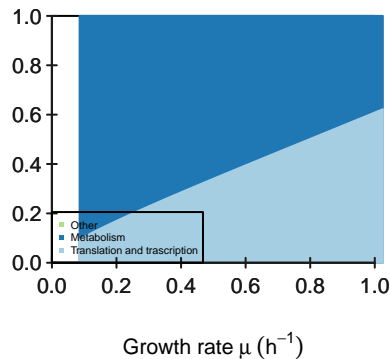
Predicted biomass



Proteome composition



Proteome sectors



keep\_ribosome\_kcat FALSE  
keep\_transport\_kcat FALSE  
maintenance\_fun constant

**M**

[illegible]

**K**

[illegible]

**KA**[illegible]

**kcat**[illegible]



**Keq**

|             |                    |                    |                    |                    |                    |                    |                    |                    |                    |                     |                     |
|-------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------------|---------------------|
| <b>[1,]</b> | <b>[,1]</b><br>Inf | <b>[,2]</b><br>Inf | <b>[,3]</b><br>Inf | <b>[,4]</b><br>Inf | <b>[,5]</b><br>Inf | <b>[,6]</b><br>Inf | <b>[,7]</b><br>Inf | <b>[,8]</b><br>Inf | <b>[,9]</b><br>Inf | <b>[,10]</b><br>Inf | <b>[,11]</b><br>Inf |
|-------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------------|---------------------|

## phi input

|      |       |      |       |       |       |       |       |       |       |       |       |
|------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| [1,] | [,1]  | [,2] | [,3]  | [,4]  | [,5]  | [,6]  | [,7]  | [,8]  | [,9]  | [,10] | [,11] |
|      | 0.065 | 0.03 | 0.005 | 0.034 | 0.002 | 0.002 | 0.248 | 0.032 | 0.119 | 0.003 | 0.46  |

**average saturation input**

3

### minimal phi constraint

|      |           |           |           |           |           |           |           |           |           |            |            |
|------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|------------|
| [1,] | [,1]<br>0 | [,2]<br>0 | [,3]<br>0 | [,4]<br>0 | [,5]<br>0 | [,6]<br>0 | [,7]<br>0 | [,8]<br>0 | [,9]<br>0 | [,10]<br>0 | [,11]<br>0 |
|------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|------------|

## minimal f constraint

|      |           |           |           |           |           |           |           |           |           |            |            |
|------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|------------|
| [1,] | [,1]<br>0 | [,2]<br>0 | [,3]<br>0 | [,4]<br>0 | [,5]<br>0 | [,6]<br>0 | [,7]<br>0 | [,8]<br>0 | [,9]<br>0 | [,10]<br>0 | [,11]<br>0 |
|------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|------------|