

Table IV. Consumption or production of amino acids for biosynthetic demand as well as for other metabolites production in phase 1.*

| Carbon source | Supply from medium ^a | Biosynthetic demand | Contribution | | Flux sum | Consumption |
|---------------|---------------------------------|---------------------|--------------|-------------|----------|-------------|
| | | | To others | From others | | |
| ALA | 0.718 | 0.521 | 0.197 | | 0.718 | Complete |
| ARG | 2.280 | 0.300 | 1.980 | | 2.280 | Incomplete |
| ASN | 0.080 | 0.244 | | 0.164 | 0.244 | Complete |
| ASP | 0.395 | 0.244 | 0.151 | | 2.079 | Complete |
| CYS | 0.000 | 0.093 | | 0.093 | 0.093 | NA |
| GLU | 0.868 | 0.267 | 0.601 | | 6.930 | Complete |
| GLN | 0.000 | 0.267 | | 0.210 | 2.351 | NA |
| GLY | 0.027 | 0.621 | | 0.594 | 1.429 | Complete |
| HIS | -0.320 | 0.096 | | 0.416 | 0.416 | Incomplete |
| ILE | 0.173 | 0.295 | | 0.059 | 0.295 | Incomplete |
| LEU | 0.457 | 0.457 | | | 0.457 | Incomplete |
| LYS | 0.187 | 0.348 | | 0.161 | 0.348 | Incomplete |
| MET | 0.163 | 0.156 | 0.007 | | 0.163 | Complete |
| PHE | 0.188 | 0.188 | | | 0.188 | Incomplete |
| PRO | 0.187 | 0.224 | | 0.037 | 0.224 | Complete |
| SER | 3.355 | 0.219 | 3.136 | | 3.355 | Complete |
| THR | 0.562 | 0.257 | 0.305 | | 0.562 | Incomplete |
| TYR | 0.096 | 0.140 | | 0.044 | 0.140 | Complete |
| TRP | 0.000 | 0.058 | | 0.058 | 0.058 | NA |
| VAL | 0.139 | 0.429 | | 0.290 | 0.429 | Incomplete |

NA, not available.

*All units are in mmol/gDCW/h.

^aValues were obtained from in silico simulation.**Table V.** Consumption or production of amino acids for biosynthetic demand as well as for other metabolites production in phase 2.*

| Carbon source | Supply from medium ^a | Biosynthetic demand | Contribution | | Flux sum | Consumption |
|---------------|---------------------------------|---------------------|--------------|-------------|----------|-------------|
| | | | To others | From others | | |
| ALA | 0.420 | 0.178 | 0.242 | | 0.420 | Complete |
| ARG | 0.411 | 0.102 | 0.309 | | 0.411 | Incomplete |
| ASN | 0.080 | 0.083 | | 0.003 | 0.083 | Complete |
| ASP | 0.104 | 0.083 | 0.021 | | 0.543 | Complete |
| CYS | 0.000 | 0.032 | | 0.032 | 0.032 | NA |
| GLU | 0.670 | 0.091 | 0.579 | | 2.010 | Complete |
| GLN | 0.000 | 0.091 | | 0.675 | 0.675 | NA |
| GLY | 0.248 | 0.212 | 0.036 | 0.357 | 0.605 | Complete |
| HIS | 0.017 | 0.033 | | 0.016 | 0.033 | Incomplete |
| ILE | 0.069 | 0.101 | | 0.032 | 0.101 | Incomplete |
| LEU | 0.164 | 0.156 | 0.008 | | 0.156 | Incomplete |
| LYS | 0.051 | 0.119 | | 0.680 | 0.119 | Incomplete |
| MET | 0.053 | 0.053 | | | 0.055 | Complete |
| PHE | 0.064 | 0.064 | | | 0.064 | Incomplete |
| PRO | 0.040 | 0.076 | | 0.036 | 0.076 | Complete |
| SER | 0.000 | 0.075 | | 0.320 | 0.320 | Complete |
| THR | 0.304 | 0.088 | 0.216 | | 0.304 | Incomplete |
| TYR | 0.045 | 0.048 | | 0.030 | 0.048 | Complete |
| TRP | 0.000 | 0.020 | | 0.020 | 0.020 | NA |
| VAL | 0.102 | 0.041 | 0.061 | 0.044 | 0.146 | Incomplete |

NA, not available.

*All units are in mmol/gDCW/h.

^aValues were obtained from in silico simulation.