**Table S4. Reactions of the metabolic network**

|  |  |
| --- | --- |
| No. | Reaction |
| 1 GLC+ATP→G6P+ADP | |
| 2 G6P→F6P | |
| 3 | F6P+ATP→2GAP+ADP |
| 4 | GAP+ADP+NAD++Pi→PEP+ATP+NADH |
| 5 | PEP+ADP→PYR+ATP |
| 6 | PYR+NADH↔LAC+NAD+ |
| 7 | G6P+2NADP+→R5P+2NADPH+CO2 |
| 8 | R5P→X5P |
| 9 | R5P+2X5P→2F6P+GAP |
| 10 | PYR+COA+NAD+→ACCOA+NADH+CO2 |
| 11 | ACCOA+OXA→CIT+CoA |
| 12 | CIT+NAD+→AKG+NADH+CO2 |
| 13 | AKG+CoA+NAD++ADP+Pi →SUC+NADH+CO2+CoA+ATP |
| 14 | SUC+2/3NAD+→MAL+2/3NADH+CO2 |
| 15 | MAL+NAD+→OAA+NADH |
| 16 | MAL+NADP →PYR+NADPH+CO2 |
| 17 | PYR →OAA+CO2 |
| 18 | GLN+ATP↔GLU+ADP+NH4 |
| 19 | GLU+NAD+↔AKG+NADH+NH4 |
| 20 | GLU+PYR↔AKG+ALA |
| 21 | GLU+ADP+Pi→EGLU+ATP |
| 22 | O2+(P/O ratio)\*2ADP+2NADH+(P/O ratio)\*2Pi→(P/O ratio)\*2ATP+NAD++2H2O |
| 23 | O2+2NADH→2NAD++2H2O |
| 24 | ATP→ADP+Pi |
| 25 | ATP+AMP↔2ADP |
| 26 | Pcr+ADP↔Cr+ATP |
| 27 | 2GLN+0.6R5P+2ASP+GLY+2ATP→2GLU+2MAL+AMP+2ADP |
| 28 | NADPH→NADP+ |
| 29 | SER→PYR+ NH4 |
| 30 | ASX→ASP+ NH4 |
| 31 | ASP+AKG↔GLU+OAA+NH4 |
| 32 | HIS+ARG+AKG→GLU+NH4+CO2 |
| 33 | LYS+ILE+LEU+HIS+VAL+TYR+7AKG+ATP+9NAD+2NADP→4GLU+3SUC+MAL+8ACCOA+ADP+9NADH+2NADPH+4CO2 |
| 34 | 0.024R5P+0.029G6P+0.04GLN+0.013ALA+0.007ARG+0.0261ASP+0.003HIS+0.0084ILE+0.013LEU+0.01LYS+0.099SER+0.004TYR+0.0096VAL+0.016GLY+3.78ATP→X |
| 35 | 0.01GLU+0.01GLN+0.01ALA+0.005ARG+0.007ASN+0.008ASP+0.003HIS+0.005ILE+0.014LEU+0.014LYS+0.026SER+0.008TYR+0.018VAL+0.0145GLY+4ATP→mAb |