**A)**

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| --- | --- | --- | --- |
| **Enzyme Groups** | **Flat** | **Total Flux Change** | **Flux Count** |
| Biomass | 70.94733662 | -0.5894 | (-): 1, no change: 0, (+): 0 |
| accABCD | 1 | 14.1948 | (-): 0, no change: 0, (+): 1 |
| aceEF and lpd | 1 | 5.6507 | (-): 0, no change: 0, (+): 1 |
| gpmI or gpmB or gpmA | 1 | 3.8444 | (-): 0, no change: 0, (+): 1 |
| pflAB | 1 | 1.8451 | (-): 0, no change: 0, (+): 1 |
| trpA and trpB | 1 | 1.5510 | (-): 1, no change: 1, (+): 1 |
| thrB | -1 | 1.5084 | (-): 0, no change: 0, (+): 1 |
| Acs | -1 | 0.0000 | (-): 0, no change: 1, (+): 0 |
| nrdEF and grxA | 1 | -0.0627 | (-): 4, no change: 0, (+): 0 |
| fabD and acpP | -1 | -1.4221 | (-): 1, no change: 0, (+): 0 |
| glyA | -1 | -2.4943 | (-): 1, no change: 0, (+): 0 |
| Pgk | -1 | -2.5803 | (-): 1, no change: 0, (+): 0 |
| fumC or fumA or fumB | -1 | -4.3411 | (-): 1, no change: 0, (+): 0 |
| fold | -1 | -4.8562 | (-): 2, no change: 0, (+): 0 |
| acnB or acnA | -1 | -8.7229 | (-): 2, no change: 0, (+): 0 |

**B)**

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| **Enzyme Name** | **Power** | **Total Flux Change** | **Flux Change Count** |
| Biomass | 113.0909 | -0.5894 | (-): 1, no change: 0, (+): 0 |
| accABCD | 1.75 | 14.1951 | (-): 0, no change: 0, (+): 1 |
| cynT or can | 0.25 | 13.9318 | (-): 0, no change: 0, (+): 1 |
| gpmI or gpmB or gpmA | 1 | 3.8444 | (-): 0, no change: 0, (+): 1 |
| Ppk | 0.5 | 1.8372 | (-): 0, no change: 1, (+): 1 |
| trpA and trpB | 0.5 | 1.5511 | (-): 1, no change: 1, (+): 1 |
| ybcF or yahI or yqeA | 0.5 | -0.3693 | (-): 1, no change: 0, (+): 0 |
| metL or thrA | -1 | -1.4178 | (-): 1, no change: 0, (+): 0 |
| acpP and fabD | -1.5 | -1.4222 | (-): 1, no change: 0, (+): 0 |
| tnaA | -0.125 | -1.6181 | (-): 1, no change: 0, (+): 0 |
| purN | -0.5 | -2.1090 | (-): 1, no change: 0, (+): 0 |
| glyA | -1.5 | -2.4944 | (-): 1, no change: 0, (+): 0 |
| sucC and sucD | -0.125 | -3.4183 | (-): 1, no change: 0, (+): 0 |
| gltA | -1 | -4.3615 | (-): 1, no change: 0, (+): 0 |
| fold | -0.5 | -4.8564 | (-): 2, no change: 0, (+): 0 |
| acnB or acnA | -1 | -8.7229 | (-): 2, no change: 0, (+): 0 |
| atpABCDEGHI | -0.75 | -24.5181 | (-): 1, no change: 0, (+): 0 |