**Supplementary Table 3. The differences of metabolic reaction flux between anaerobic and aerobic-cultivated SC19 predicted by three algorithms.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Reaction** | **Normoxic fluxes** | **Hypoxic fluxes** | **Def between hypoxic & normoxic** |
| **iMAT** | | | |
| GDH1 | 954.7581 | -33.4285 | 988.1866 |
| NH3c | 954.7581 | -33.4285 | 988.1866 |
| H2Ot | 233.616 | 1000 | 766.384 |
| ARGDr | 18.46812 | 494.9899 | 476.5218 |
| CBMKr | -18.4681 | -494.99 | 476.5218 |
| OCBT\_2 | -18.4681 | -494.99 | 476.5218 |
| FRUK | 0 | 247.8385 | 247.8385 |
| FRUpts | 0 | 247.8385 | 247.8385 |
| MLTG4 | 0 | 38.50166 | 38.50166 |
| G3PD2 | 0 | 27.76445 | 27.76445 |
| G3PD1ir | 21.73195 | 42.75759 | 21.02564 |
| SBTpts | 0 | 18.97777 | 18.97777 |
| LEUabc | 0 | 10.8926 | 10.8926 |
| PUNP2 | 0 | -10.5427 | 10.54266 |
| VALTA | 0.167764 | -9.99138 | 10.15915 |
| ACLS | 7.96E-13 | 10.06165 | 10.06165 |
| ILEabc | 0 | 7.03434 | 7.03434 |
| ASNabc | 0 | 5.69161 | 5.69161 |
| METabc | 5.267312 | -5.7E-12 | 5.267312 |
| PROabc | 0 | 5.219385 | 5.219385 |
| GALKr | 0 | 4.840307 | 4.840307 |
| GALT | 0 | 4.840307 | 4.840307 |
| HEX7 | 0 | 4.840307 | 4.840307 |
| RAFGH | 0 | 4.840307 | 4.840307 |
| SUCR | 0 | 4.840307 | 4.840307 |
| UDPG4E | 0 | -4.84031 | 4.840307 |
| METSR\_S1 | 0 | 3.633984 | 3.633984 |
| METSabc | 0 | 3.633984 | 3.633984 |
| PUNP1 | 6.99519 | 10.54266 | 3.54747 |
| ACGApts | 0 | 3.447243 | 3.447243 |
| ACKr | 0 | 3.447243 | 3.447243 |
| AGDC | 0 | 3.447243 | 3.447243 |
| PTAr | 0 | -3.44724 | 3.447243 |
| TPI | 489.1455 | 492.5113 | 3.365848 |
| NDPK1 | 7.361348 | 9.904755 | 2.543407 |
| TRDR | 3.655725 | 6.156115 | 2.50039 |
| 3NUCLE3 | 5.493735 | 7.824084 | 2.33035 |
| HXPRT | 8.285965 | 10.54266 | 2.256695 |
| GLUabc | 0 | 0.494042 | 0.494042 |
| IPDDI | 0 | -0.01653 | 0.016528 |
| DMPPS | 0.003422 | 0.018889 | 0.015467 |
| CYTK2 | 0 | -0.0107 | 0.010696 |
| DCYTD | 0 | 0.010696 | 0.010696 |
| NTD3 | 0 | 0.010696 | 0.010696 |
| PYNP2r\_1 | 0 | 0.002904 | 0.002904 |
| PGK | -1000 | -1000 | 0 |
| LIPO3S24\_BS | 0.001711 | 0.001181 | -0.00053 |
| CHORS | 0.003422 | 0.002361 | -0.00106 |
| COBALTt5 | -0.00342 | -0.00236 | -0.00106 |
| DDPA | 0.003422 | 0.002361 | -0.00106 |
| DHQS | 0.003422 | 0.002361 | -0.00106 |
| DHQTi | 0.003422 | 0.002361 | -0.00106 |
| DMATT | 0.003422 | 0.002361 | -0.00106 |
| GRTT | 0.003422 | 0.002361 | -0.00106 |
| HEXTT | 0.003422 | 0.002361 | -0.00106 |
| MTHFR3 | 0.003422 | 0.002361 | -0.00106 |
| PSCVT | 0.003422 | 0.002361 | -0.00106 |
| RPE | -0.00342 | -0.00236 | -0.00106 |
| SHK3Dr | 0.003422 | 0.002361 | -0.00106 |
| SHKK | 0.003422 | 0.002361 | -0.00106 |
| TKT2 | -0.00342 | -0.00236 | -0.00106 |
| RPI | 0.004209 | 0.002904 | -0.00131 |
| FMNAT | 0.007632 | 0.005265 | -0.00237 |
| MTHFC | 0.007632 | 0.005265 | -0.00237 |
| MTHFD | 0.007632 | 0.005265 | -0.00237 |
| RBFK | 0.007632 | 0.005265 | -0.00237 |
| THMabc | 0.007632 | 0.005265 | -0.00237 |
| TMDPK | 0.007632 | 0.005265 | -0.00237 |
| METAT | 0.011054 | 0.007626 | -0.00343 |
| r2465\_1 | -0.01167 | -0.00805 | -0.00362 |
| PYNP2r | 0.004209 | 0 | -0.00421 |
| KAS1 | 0.013689 | 0.009445 | -0.00424 |
| RIBFLVt2 | 0.015264 | 0.010531 | -0.00473 |
| DRPA | 0.015503 | 0.010696 | -0.00481 |
| PPM2 | 0.015503 | 0.010696 | -0.00481 |
| DURIPP\_1 | 0.015503 | 0.010696 | -0.00481 |
| DPCOAK | 0.019713 | 0.0136 | -0.00611 |
| DPR | 0.019713 | 0.0136 | -0.00611 |
| PNTK | 0.019713 | 0.0136 | -0.00611 |
| PPCDC | 0.019713 | 0.0136 | -0.00611 |
| PPNCL | 0.019713 | 0.0136 | -0.00611 |
| PTPATi | 0.019713 | 0.0136 | -0.00611 |
| DHFR | 0.022896 | 0.015796 | -0.0071 |
| FOLR2 | 0.022896 | 0.015796 | -0.0071 |
| r0963 | 0.022896 | 0.015796 | -0.0071 |
| MNabc | 0.023648 | 0.016315 | -0.00733 |
| Cuabc | 0.024264 | 0.01674 | -0.00752 |
| TECA1S45 | 0.034224 | 0.023611 | -0.01061 |
| TECA2S45 | 0.034224 | 0.023611 | -0.01061 |
| TECA3S45 | 0.034224 | 0.023611 | -0.01061 |
| KAS13 | 0.041068 | 0.028334 | -0.01273 |
| KAS2 | 0.041068 | 0.028334 | -0.01273 |
| NTD1\_1 | 0.015503 | 0 | -0.0155 |
| KAS6 | 0.068447 | 0.047223 | -0.02122 |
| NADDPp\_1 | -0.07796 | -0.05379 | -0.02417 |
| KAS11 | 0.095826 | 0.066112 | -0.02971 |
| KAS8 | 0.136894 | 0.094445 | -0.04245 |
| FE2t | 0.229811 | 0.15855 | -0.07126 |
| KAS12 | 0.23272 | 0.160557 | -0.07216 |
| FE3abc | 0.267217 | 0.184357 | -0.08286 |
| KAS3 | 0.273788 | 0.18889 | -0.0849 |
| OIVD2 | 0.148051 | 0.056667 | -0.09138 |
| MGt5 | -0.29689 | -0.20483 | -0.09206 |
| 4PEPTabcpp | 0.342235 | 0.236113 | -0.10612 |
| ALAALAr | 0.342235 | 0.236113 | -0.10612 |
| UAGCVT | 0.342235 | 0.236113 | -0.10612 |
| UAGPT3 | 0.342235 | 0.236113 | -0.10612 |
| UAPGR | 0.342235 | 0.236113 | -0.10612 |
| UDCPDP | 0.342235 | 0.236113 | -0.10612 |
| KAS4 | 0.46544 | 0.321113 | -0.14433 |
| H2SO | 0.148462 | 0 | -0.14846 |
| H2St1 | -0.14846 | 0 | -0.14846 |
| ILETA | 0.69816 | 0.48167 | -0.21649 |
| OIVD3 | 0.69816 | 0.48167 | -0.21649 |
| RNDR3 | 0.924618 | 0.648601 | -0.27602 |
| DTMPK | 0.895493 | 0.617812 | -0.27768 |
| NDPK8 | 0.895493 | 0.617812 | -0.27768 |
| RNDR1 | 0.895493 | 0.617812 | -0.27768 |
| NDPK5 | 0.924618 | 0.637905 | -0.28671 |
| NDPK7 | 0.924618 | 0.637905 | -0.28671 |
| RNDR2 | 0.924618 | 0.637905 | -0.28671 |
| GHMT2r | 0.933892 | 0.644304 | -0.28959 |
| NDPK4 | 0.910791 | 0.617812 | -0.29298 |
| RNDR4 | 0.910997 | 0.617812 | -0.29318 |
| URIDK2r | -0.911 | -0.61781 | -0.29318 |
| TRPabc | 1.945369 | 1.342134 | -0.60323 |
| GLYabc | 4.21771 | 3.303167 | -0.91454 |
| CYSDSF | -3.15391 | -2.17592 | -0.97799 |
| St | 3.153905 | 2.175919 | -0.97799 |
| HISabc | 3.24227 | 2.236883 | -1.00539 |
| TYRabc | 4.71929 | 3.255897 | -1.46339 |
| G1PACT | 4.996638 | 3.447243 | -1.54939 |
| PGAMT | -4.99664 | -3.44724 | -1.54939 |
| UAGDP | 4.996638 | 3.447243 | -1.54939 |
| CYTDK1 | 5.493735 | 3.800892 | -1.69284 |
| ACALD | -951.758 | -949.994 | -1.76479 |
| ACALDt | -951.774 | -950.004 | -1.76959 |
| URIK1 | 5.842746 | 4.020288 | -1.82246 |
| ALAR | 5.98912 | 4.131969 | -1.85715 |
| UMPK | 6.287652 | 4.327234 | -1.96042 |
| PHEabc | 6.340425 | 4.374339 | -1.96609 |
| ACCOAC | 7.679764 | 5.298365 | -2.3814 |
| HCO3E | 7.679764 | 5.298365 | -2.3814 |
| GK1 | 8.285965 | 5.716591 | -2.56937 |
| GMPS2 | 8.285965 | 5.716591 | -2.56937 |
| IMPD | 8.285965 | 5.716591 | -2.56937 |
| THRabc | 8.682069 | 5.989868 | -2.6922 |
| ARGabc | 10.12305 | 6.98402 | -3.13903 |
| FBA | 510.8774 | 507.5045 | -3.37296 |
| LYSabc | 11.74419 | 8.102461 | -3.64173 |
| 3NUCLE1 | 15.27773 | 10.5403 | -4.73743 |
| PRPPS | 15.28116 | 10.54266 | -4.73849 |
| PPM | 15.28536 | 10.54556 | -4.7398 |
| NDPK2 | 16.94421 | 11.69003 | -5.25419 |
| ENO | 1000 | 994.2606 | -5.73942 |
| PGM | -1000 | -994.261 | -5.73942 |
| NDPK3 | 25.66369 | 17.7057 | -7.95799 |
| CYTK1 | 26.56859 | 18.3407 | -8.22789 |
| ASPTA | -8.24976 | 0 | -8.24976 |
| ALATA\_L | -26.7233 | -18.4367 | -8.28656 |
| SERabc | 8.319059 | 0 | -8.31906 |
| SPODM | 8.426898 | 0.1 | -8.3269 |
| FORt | -964.654 | -955.443 | -9.21074 |
| PFL | 964.6539 | 955.4432 | -9.21074 |
| ILEt2rpp | 10.64109 | 0.307083 | -10.334 |
| GLNabc | 22.2965 | 11.93539 | -10.3611 |
| ADK1 | 37.53094 | 25.89307 | -11.6379 |
| VALt2rpp | 14.64987 | 0 | -14.6499 |
| ALCD19 | 20.39217 | 0 | -20.3922 |
| ALCD19y | -20.3922 | 0 | -20.3922 |
| PPA | 90.24489 | 62.26108 | -27.9838 |
| NH4tex | -1000 | -971.141 | -28.8585 |
| NH4tpp | -1000 | -971.141 | -28.8585 |
| AMALT2 | 87.14889 | 38.50166 | -48.6472 |
| MALTHXabc | 87.14889 | 38.50166 | -48.6472 |
| MLTG1 | 87.14889 | 38.50166 | -48.6472 |
| MLTG2 | 87.14889 | 38.50166 | -48.6472 |
| MLTP1 | 174.2978 | 77.00332 | -97.2945 |
| HEX1 | 261.4467 | 158.8469 | -102.6 |
| PGMT | 254.4308 | 77.00332 | -177.428 |
| PFK | 510.8774 | 259.666 | -251.211 |
| PYK | 991.4012 | 723.7562 | -267.645 |
| PGI | 515.8775 | 235.8503 | -280.027 |
| CO2t | -1000 | -505.896 | -494.104 |
| NOX | 719.6258 | 0 | -719.626 |
| NADHPO | 728.0527 | 0.1 | -727.953 |
| O2tex | 979.7162 | 0.1 | -979.616 |
| O2tpp | 979.7162 | 0.1 | -979.616 |
| LEUTA | 984.5812 | 0.255002 | -984.326 |
| OIVD1r | 984.5812 | 0.255002 | -984.326 |
| GAPD | 1000 | 0 | -1000 |
| **E-Flux** | | | |
| ALCD19 | 0.0044278 | 0.0295934 | 2.52E-02 |
| ALCD19y | -0.004428 | -0.02869 | 2.43E-02 |
| ALR4x | 0 | 0.0200476 | 0.0200476 |
| ENO | 0.0132844 | 0.0305065 | 1.72E-02 |
| PGM | -0.013284 | -0.030506 | 1.72E-02 |
| FBA | 0.0067488 | 0.0227616 | 1.60E-02 |
| PFK | 0.0067488 | 0.0227616 | 1.60E-02 |
| GAPD | 0.0146467 | 0.0305064 | 1.59E-02 |
| PGK | -0.014647 | -0.030506 | 1.59E-02 |
| FRUpts2 | 0 | 0.0091549 | 0.0091549 |
| PGI | 0.0073925 | 0.0158874 | 8.49E-03 |
| ARGDr | 0.0055807 | 0.0128043 | 7.22E-03 |
| OCBT\_2 | -0.005581 | -0.012804 | 7.22E-03 |
| CBMKr | -0.005581 | -0.012804 | 7.22E-03 |
| ACALD | -0.00081 | -0.007508 | 6.70E-03 |
| OIVD2 | 0.0088004 | 0.0146016 | 5.80E-03 |
| ACKVAL | 0.0087991 | 0.0145997 | 5.80E-03 |
| PTAVAL | 0.0087991 | 0.0145997 | 5.80E-03 |
| ALATA\_L | -0.003411 | -0.008998 | 5.59E-03 |
| CYSDSF | -0.003021 | -0.008426 | 5.41E-03 |
| ACLS | 0.0059474 | 0.0112546 | 5.31E-03 |
| PYK | 0.0114912 | 0.0165663 | 5.08E-03 |
| PFL | 0.0010452 | 0.0055529 | 4.51E-03 |
| FORt | -0.001045 | -0.005553 | 4.51E-03 |
| NO2t2r | 0.0010452 | 0.0055529 | 4.51E-03 |
| PGMT | 0.0038562 | 0.007861 | 4.00E-03 |
| MLTP2 | 0.001385 | 0.0053509 | 3.97E-03 |
| HEX1 | 0.004155 | 0.0080264 | 3.87E-03 |
| KARA1 | -0.004909 | -0.008775 | 3.87E-03 |
| CYSDS | 0.0030856 | 0.0065518 | 3.47E-03 |
| Kt2r | 0.0012675 | 0.0045272 | 3.26E-03 |
| Kt1 | -0.00116 | -0.00437 | 3.21E-03 |
| DHAD1 | 0.005779 | 0.0087754 | 3.00E-03 |
| 23PDE4pp | 0.0046864 | 0.0074968 | 2.81E-03 |
| 3NTD4pp | 0.0046864 | 0.0074968 | 2.81E-03 |
| VALTA | 0.0030217 | 0.0058267 | 2.80E-03 |
| AMALT3 | 0 | 0.0026755 | 0.0026755 |
| ACLDC | 0.0001684 | 0.0024792 | 2.31E-03 |
| ACTD2 | 0.0001684 | 0.0024792 | 2.31E-03 |
| F6PA | 0.0007227 | 0.0026737 | 1.95E-03 |
| DHAPT | 0.0008969 | 0.0026737 | 1.78E-03 |
| SHSL1 | 4.23E-05 | 0.0018003 | 1.76E-03 |
| CYSTL | 4.23E-05 | 0.0018003 | 1.76E-03 |
| SHSL2r | 0 | -0.001676 | 0.0016761 |
| LEUt2r | 0.0032543 | 0.0048354 | 1.58E-03 |
| VALt2r | 0.0032543 | 0.0048354 | 1.58E-03 |
| LEUTA | 0.0030067 | 0.0044718 | 1.47E-03 |
| OIVD1r | 0.0030067 | 0.0044718 | 1.47E-03 |
| ACKLEU | 0.0030008 | 0.0044631 | 1.46E-03 |
| PTALEU | 0.0030008 | 0.0044631 | 1.46E-03 |
| OIVD3 | 0.0026544 | 0.0040538 | 1.40E-03 |
| ACKILE | 0.0026432 | 0.0040373 | 1.39E-03 |
| PTAILE | 0.0026432 | 0.0040373 | 1.39E-03 |
| VALt2rpp | 0 | 0.0013328 | 0.0013328 |
| MLTP1 | 0.001385 | 0.0026755 | 1.29E-03 |
| MLTG1 | 0.001385 | 0.0026755 | 1.29E-03 |
| MLTG2 | 0.001385 | 0.0026755 | 1.29E-03 |
| MALTHXabc | 0.001385 | 0.0026755 | 1.29E-03 |
| ILEt2r | 0.0026893 | 0.0037729 | 1.08E-03 |
| GLYCt | -0.000174 | 0.0009031 | 0.0010773 |
| 3NUCLE2 | 0 | 0.0010192 | 0.0010192 |
| GLUDy | 0.0008349 | 0.0018502 | 1.02E-03 |
| ILETA | 0.0025296 | 0.0035385 | 1.01E-03 |
| PPM | -9.35E-05 | 0.0008819 | 0.0009754 |
| PYNP2r | -9.36E-05 | 0.0008818 | 0.0009754 |
| GLYALDt | 0 | 0.0009031 | 0.0009031 |
| LEUt4rpp | -0.002875 | -0.003773 | 8.98E-04 |
| LEUt2rpp | 0.0028753 | 0.0037729 | 8.98E-04 |
| GLUDxi | 0.0008349 | 0.0017143 | 8.79E-04 |
| RPI | -0.000539 | 0.000325 | 0.0008643 |
| MNLpts | 0.0001881 | 0.0009283 | 7.40E-04 |
| BHBtpp | 0.0016751 | 0.002391 | 7.16E-04 |
| URAt | -0.000304 | -0.000881 | 5.78E-04 |
| PPA | 0.0014484 | 0.0019327 | 4.84E-04 |
| THRt4pp | 0.0002642 | 0.00072 | 4.56E-04 |
| THRD\_L | 0.0001248 | 0.0005153 | 3.90E-04 |
| KARA2 | 0.0001248 | 0.0005153 | 3.90E-04 |
| ACHBS | 0.0001248 | 0.0005153 | 3.90E-04 |
| DHAD2 | 0.0001248 | 0.0005153 | 3.90E-04 |
| SERt4pp | 0 | 0.0003204 | 0.0003204 |
| TKT2 | -0.000121 | 0.0001966 | 0.000318 |
| RPE | 7.89E-05 | 0.0003248 | 2.46E-04 |
| CYTK1 | 0.0004263 | 0.0006265 | 2.00E-04 |
| PPC | 0.0008087 | 0.000989 | 1.80E-04 |
| NDPK3 | 0.0004266 | 0.0006052 | 1.79E-04 |
| AMPEP11 | 0 | 0.0001784 | 0.0001784 |
| DIPEPabc14 | 0 | 0.0001784 | 0.0001784 |
| ASPK | 0.0002364 | 0.0004092 | 1.73E-04 |
| ASAD | -0.000236 | -0.000409 | 1.73E-04 |
| AMPEP1 | 0 | 0.0001698 | 0.0001698 |
| DIPEPabc8 | 0 | 0.0001698 | 0.0001698 |
| G3PD1ir | 0.000349 | 0.0005125 | 1.63E-04 |
| ASPTA | -0.000614 | -0.000769 | 1.55E-04 |
| GHMT2r | 1.49E-05 | 0.0001462 | 1.31E-04 |
| NDPK1 | 0.0002306 | 0.0003604 | 1.30E-04 |
| NDPK2 | 0.0002721 | 0.0003996 | 1.27E-04 |
| MTHFR3 | 0 | 0.0001243 | 0.0001243 |
| UAGDP\_1 | 0 | 0.0001178 | 0.0001178 |
| PRPPS | 0.0002454 | 0.0003604 | 1.15E-04 |
| SDPDS | 0.0001941 | 0.000285 | 9.09E-05 |
| DHDPS | 0.0001941 | 0.000285 | 9.09E-05 |
| DHDPRy | 0.0001941 | 0.000285 | 9.09E-05 |
| THDPS | 0.0001941 | 0.000285 | 9.09E-05 |
| DAPDC | 0.0001886 | 0.0002769 | 8.83E-05 |
| ADK1 | 0.0006022 | 0.0006896 | 8.74E-05 |
| HSDy | -4.23E-05 | -0.000124 | 8.19E-05 |
| HSST | 4.23E-05 | 0.0001242 | 8.19E-05 |
| ARGt2r | 0.0001626 | 0.0002387 | 7.61E-05 |
| ASCBpts | 0 | 6.84E-05 | 6.84E-05 |
| ASCBPL | 0 | 6.84E-05 | 6.84E-05 |
| RBP4E | 0 | 6.84E-05 | 6.84E-05 |
| X5PL3E | 0 | 6.84E-05 | 6.84E-05 |
| KG6PDC | 0 | 6.84E-05 | 6.84E-05 |
| GLNabc | 0.0001448 | 0.0002126 | 6.78E-05 |
| GUAPRT | 0.0001331 | 0.0001954 | 6.23E-05 |
| GK1 | 0.0001331 | 0.0001954 | 6.23E-05 |
| GUAt2r | 0.0001331 | 0.0001954 | 6.23E-05 |
| ACCOAC | 0.0001231 | 0.0001808 | 5.77E-05 |
| HCO3E | 0.0001231 | 0.0001808 | 5.77E-05 |
| HXPRT | 0.0001124 | 0.000165 | 5.26E-05 |
| ADSL1r | 0.0001124 | 0.000165 | 5.26E-05 |
| ADSS | 0.0001124 | 0.000165 | 5.26E-05 |
| HXANt2r | 0.0001123 | 0.0001649 | 5.26E-05 |
| FRDx | 0.0001123 | 0.0001649 | 5.26E-05 |
| PHEabc | 0.0001018 | 0.0001495 | 4.77E-05 |
| ALAR | 0.0001017 | 0.0001493 | 4.76E-05 |
| UMPK | 0.0001007 | 0.0001479 | 4.72E-05 |
| URIK1 | 9.36E-05 | 0.0001374 | 4.38E-05 |
| ICDHyr | 0.0001766 | 0.0002203 | 4.37E-05 |
| CYTDK1 | 8.82E-05 | 0.0001296 | 4.14E-05 |
| 3NUCLE3 | 8.82E-05 | 0.0001296 | 4.14E-05 |
| GAMpts | 8.03E-05 | 0.0001178 | 3.75E-05 |
| PGAMT | -8.03E-05 | -0.000118 | 3.75E-05 |
| G1PACT | 8.03E-05 | 0.0001178 | 3.75E-05 |
| TYRabc | 7.58E-05 | 0.0001113 | 3.55E-05 |
| TRDR | 5.85E-05 | 8.58E-05 | 2.73E-05 |
| CS | 0.0001949 | 0.0002203 | 2.54E-05 |
| ASNabc | 0 | 2.48E-05 | 2.48E-05 |
| HISt2r | 5.21E-05 | 7.65E-05 | 2.44E-05 |
| RNDR3 | 0 | 2.18E-05 | 2.18E-05 |
| NDPK7 | 0 | 2.18E-05 | 2.18E-05 |
| RNTR2 | 0 | 2.18E-05 | 2.18E-05 |
| ACONT | 0.0002017 | 0.0002203 | 1.86E-05 |
| TRPabc | 3.12E-05 | 4.59E-05 | 1.47E-05 |
| RNDR4 | 1.44E-05 | 2.11E-05 | 6.70E-06 |
| DTMPK | 1.44E-05 | 2.11E-05 | 6.70E-06 |
| NDPK4 | 1.44E-05 | 2.11E-05 | 6.70E-06 |
| URIDK2r | -1.44E-05 | -2.11E-05 | 6.70E-06 |
| RNTR1 | 1.44E-05 | 2.11E-05 | 6.70E-06 |
| FE3abc | 0 | 6.30E-06 | 6.30E-06 |
| KAS4 | 7.48E-06 | 1.10E-05 | 3.52E-06 |
| SULabc | 0 | 3.50E-06 | 3.50E-06 |
| UAMAGS | 5.50E-06 | 8.07E-06 | 2.57E-06 |
| UAGPT3 | 5.50E-06 | 8.07E-06 | 2.57E-06 |
| UAAGDS | 5.50E-06 | 8.07E-06 | 2.57E-06 |
| UAPGR | 5.50E-06 | 8.07E-06 | 2.57E-06 |
| UAGCVT | 5.50E-06 | 8.07E-06 | 2.57E-06 |
| ALAALAr | 5.50E-06 | 8.07E-06 | 2.57E-06 |
| GLUR | -5.50E-06 | -8.07E-06 | 2.57E-06 |
| UAMAS | 5.50E-06 | 8.07E-06 | 2.57E-06 |
| UDCPDP | 5.50E-06 | 8.07E-06 | 2.57E-06 |
| MGt5 | -4.77E-06 | -7.00E-06 | 2.23E-06 |
| KAS3 | 4.40E-06 | 6.46E-06 | 2.06E-06 |
| KAS12 | 3.74E-06 | 5.49E-06 | 1.75E-06 |
| FE2t | 3.69E-06 | 5.42E-06 | 1.73E-06 |
| CA2abc | 2.86E-06 | 4.20E-06 | 1.34E-06 |
| KAS8 | 2.20E-06 | 3.23E-06 | 1.03E-06 |
| KAS11 | 1.54E-06 | 2.26E-06 | 7.20E-07 |
| IPDPS | 0 | 6.46E-07 | 6.46E-07 |
| NADDPp\_1 | -1.25E-06 | -1.84E-06 | 5.90E-07 |
| KAS6 | 1.10E-06 | 1.61E-06 | 5.10E-07 |
| NADK\_1 | 0 | 3.61E-07 | 3.61E-07 |
| KAS13 | 6.60E-07 | 9.68E-07 | 3.08E-07 |
| KAS2 | 6.05E-07 | 8.88E-07 | 2.83E-07 |
| TECA2S45 | 5.50E-07 | 8.07E-07 | 2.57E-07 |
| TECA1S45 | 5.50E-07 | 8.07E-07 | 2.57E-07 |
| TECA3S45 | 5.50E-07 | 8.07E-07 | 2.57E-07 |
| Cuabc | 3.90E-07 | 5.72E-07 | 1.82E-07 |
| MNabc | 3.80E-07 | 5.58E-07 | 1.78E-07 |
| DHFR | 3.68E-07 | 5.40E-07 | 1.72E-07 |
| FOLR2 | 3.68E-07 | 5.40E-07 | 1.72E-07 |
| r0963 | 3.68E-07 | 5.40E-07 | 1.72E-07 |
| PPCDC | 3.17E-07 | 4.65E-07 | 1.48E-07 |
| PPNCL | 3.17E-07 | 4.65E-07 | 1.48E-07 |
| PNTK | 3.17E-07 | 4.65E-07 | 1.48E-07 |
| DPR | 3.17E-07 | 4.65E-07 | 1.48E-07 |
| DPCOAK | 3.17E-07 | 4.65E-07 | 1.48E-07 |
| PTPATi | 3.17E-07 | 4.65E-07 | 1.48E-07 |
| RIBFLVt2 | 2.45E-07 | 3.60E-07 | 1.15E-07 |
| KAS1 | 2.20E-07 | 3.23E-07 | 1.03E-07 |
| r2465\_1 | -1.87E-07 | -2.75E-07 | 8.80E-08 |
| METAT | 1.78E-07 | 2.61E-07 | 8.30E-08 |
| DADA | 0 | 8.07E-08 | 8.07E-08 |
| PUNP2 | 0 | -8.07E-08 | 8.07E-08 |
| PUNP1 | 0 | 8.07E-08 | 8.07E-08 |
| PUNP6 | 0 | 8.07E-08 | 8.07E-08 |
| THMabc | 1.23E-07 | 1.80E-07 | 5.70E-08 |
| MTHFC | 1.23E-07 | 1.80E-07 | 5.70E-08 |
| MTHFD | 1.23E-07 | 1.80E-07 | 5.70E-08 |
| FMNAT | 1.23E-07 | 1.80E-07 | 5.70E-08 |
| RBFK | 1.23E-07 | 1.80E-07 | 5.70E-08 |
| TMDPK | 1.23E-07 | 1.80E-07 | 5.70E-08 |
| IPDDI | 5.50E-08 | 8.07E-08 | 2.57E-08 |
| 24DECOAR | 5.50E-08 | 8.07E-08 | 2.57E-08 |
| COBALTt5 | -5.50E-08 | -8.07E-08 | 2.57E-08 |
| DMATT | 5.50E-08 | 8.07E-08 | 2.57E-08 |
| GRTT | 5.50E-08 | 8.07E-08 | 2.57E-08 |
| HEXTT | 5.50E-08 | 8.07E-08 | 2.57E-08 |
| LIPO3S24\_BS | 2.75E-08 | 4.04E-08 | 1.29E-08 |
| GLYCK2 | 2.75E-08 | 4.04E-08 | 1.29E-08 |
| ADA | 5.50E-08 | 0 | -5.50E-08 |
| PUNP5 | 5.50E-08 | 0 | -5.50E-08 |
| NADK | 2.46E-07 | 0 | -2.46E-07 |
| MI1PP | 3.17E-07 | 0 | -3.17E-07 |
| MEVK1 | 4.40E-07 | 0 | -4.40E-07 |
| DPMVD | 4.40E-07 | 0 | -4.40E-07 |
| PMEVK | 4.40E-07 | 0 | -4.40E-07 |
| ACACT1r | 4.40E-07 | 0 | -4.40E-07 |
| HMGCOAS | -4.40E-07 | 0 | -4.40E-07 |
| HMGCOAR | -4.40E-07 | 0 | -4.40E-07 |
| ACONTa | 1.80E-06 | 0 | -1.80E-06 |
| ACONTb | 1.80E-06 | 0 | -1.80E-06 |
| TKT1 | 0.0002004 | 0.0001966 | -3.80E-06 |
| TALA | 0.0002004 | 0.0001966 | -3.80E-06 |
| FEDCabc | 4.29E-06 | 0 | -4.29E-06 |
| RNDR2 | 1.49E-05 | 0 | -1.49E-05 |
| NDPK5 | 1.49E-05 | 0 | -1.49E-05 |
| RNTR3 | 1.49E-05 | 0 | -1.49E-05 |
| ICITRED | 2.69E-05 | 0 | -2.69E-05 |
| OSUCCL | 2.69E-05 | 0 | -2.69E-05 |
| HCYSMT2 | 4.23E-05 | 0 | -4.23E-05 |
| MMETt2pp | 4.23E-05 | 0 | -4.23E-05 |
| AKGDH | 5.35E-05 | 0 | -5.35E-05 |
| UAGDP | 8.03E-05 | 0 | -8.03E-05 |
| URAt2pp | 9.36E-05 | 0 | -9.36E-05 |
| PROabc | 0.0001215 | 0 | -0.000122 |
| ASNS2 | 0.0001325 | 0 | -0.000133 |
| GALUi | 0.0002988 | 0.0001654 | -1.33E-04 |
| ACKr | 0.0001573 | 0 | -0.000157 |
| CYSS | 0.0001573 | 0 | -0.000157 |
| PTAr | -0.000157 | 0 | -0.000157 |
| SERAT | 0.0001573 | 0 | -0.000157 |
| GLYCDx | 0.0001742 | 0 | -0.000174 |
| GALKr | -0.000186 | 0 | -0.000186 |
| GALT | -0.000186 | 0 | -0.000186 |
| GALpts | -0.000186 | 0 | -0.000186 |
| UDPG4E | 0.0001861 | 0 | -0.000186 |
| A6PAG | 0.0001861 | 0 | -0.000186 |
| URAt2 | 0.0003037 | 0 | -0.000304 |
| 4HTHRS | 0.0003218 | 0 | -0.000322 |
| OHPBAT | 0.0003218 | 0 | -0.000322 |
| G6PDH2r | 0.0006184 | 0 | -0.000618 |
| PGL | 0.0006184 | 0 | -0.000618 |
| GND | 0.0006184 | 0 | -0.000618 |
| GDH1 | 0.0008349 | 0 | -0.000835 |
| 2ACLMM | 0.0008696 | 0 | -0.00087 |
| KARA4 | -0.00087 | 0 | -0.00087 |
| SERD\_L | 0.0010716 | 0 | -0.001072 |
| PSP\_L | 0.0013624 | 0 | -0.001362 |
| PSERT | 0.0013624 | 0 | -0.001362 |
| PGCD | 0.0013624 | 0 | -0.001362 |
| MLTP3 | 0.001385 | 0 | -0.001385 |
| AMALT4 | 0.001385 | 0 | -0.001385 |
| TPI | 0.0072969 | 0.0048753 | -2.42E-03 |
| NADHPO | 0.0137405 | 0 | -0.01374 |
| NOX | 0.0137405 | 0 | -0.01374 |
|  |  |  |  |
| **HPCOF** | | | |
| EX\_h2o\_e | -6.491 | -55.979 | 49.487 |
| H2Otex | 11.608 | 60.475 | 48.867 |
| CO2t | -24.521 | -66.881 | 42.360 |
| EX\_co2\_e | 22.927 | 63.844 | 40.916 |
| H2Otpp | 0.632 | 38.012 | 37.380 |
| ENO | 12.439 | 44.933 | 32.494 |
| PGM | -12.359 | -44.727 | 32.368 |
| PGK | -13.420 | -45.346 | 31.926 |
| NH4tex | -12.384 | -42.765 | 30.381 |
| EX\_nh4\_e | 12.384 | 42.765 | 30.381 |
| NH4tpp | -12.383 | -42.764 | 30.381 |
| LALDO2x | 1.866 | 28.052 | 26.186 |
| LALDO | 1.866 | 28.052 | 26.186 |
| GLYOX\_1 | 1.866 | 28.052 | 26.186 |
| GAPD\_1 | 10.150 | 33.436 | 23.286 |
| FBA | 5.649 | 27.392 | 21.743 |
| PGI | 5.154 | 25.528 | 20.374 |
| PFK | 5.506 | 25.721 | 20.215 |
| ALR4x | 0.145 | 20.268 | 20.123 |
| ALR2 | 0.145 | 20.268 | 20.123 |
| 12PPDRte | 0.145 | 20.268 | 20.123 |
| EX\_12ppd\_\_R\_e | 0.145 | 20.268 | 20.123 |
| MGSA | 0.145 | 20.268 | 20.123 |
| ALCD19 | 7.345 | 27.105 | 19.760 |
| ALCD19y | -7.428 | -26.183 | 18.755 |
| PYK | 8.388 | 25.222 | 16.835 |
| ACALDt | -1.841 | -17.978 | 16.136 |
| EX\_acald\_e | 1.841 | 17.978 | 16.136 |
| NP1\_1 | 10.619 | 23.223 | 12.604 |
| NP1 | 10.601 | 23.166 | 12.565 |
| CBMKr | -4.633 | -17.072 | 12.439 |
| ALATA\_L | -6.516 | -18.686 | 12.170 |
| HPROb | -10.660 | -22.480 | 11.820 |
| ARGDr | 2.615 | 13.690 | 11.074 |
| EX\_arg\_\_L\_e | -2.632 | -13.638 | 11.006 |
| ARGtex | 2.607 | 13.596 | 10.990 |
| ARGORNt7pp | 2.582 | 13.555 | 10.973 |
| ORNtex | -2.565 | -13.518 | 10.953 |
| OCBT\_2 | -2.565 | -13.518 | 10.953 |
| EX\_orn\_e | 2.565 | 13.518 | 10.953 |
| HPROa | 7.677 | 17.744 | 10.067 |
| ACALD | 0.356 | -9.401 | 9.757 |
| HCO3E | 4.303 | 13.906 | 9.603 |
| HEX1 | 3.015 | 12.564 | 9.549 |
| ACLS | 5.653 | 14.920 | 9.267 |
| H2St1 | 2.958 | 12.219 | 9.260 |
| EX\_h2s\_e | 2.958 | 12.219 | 9.260 |
| H2CO3D | -3.497 | -12.681 | 9.183 |
| H2CO3D2 | 3.497 | 12.681 | 9.183 |
| GAPD | 4.092 | 13.188 | 9.096 |
| YUMPS | -3.183 | -11.916 | 8.733 |
| PSUDS | 3.183 | 11.916 | 8.733 |
| EX\_s\_e | -2.794 | -11.218 | 8.424 |
| CYSDSF | -2.794 | -11.218 | 8.424 |
| St | 2.794 | 11.218 | 8.424 |
| OIVD2 | 6.786 | 15.210 | 8.424 |
| PTAVAL | 6.786 | 15.210 | 8.424 |
| ACKVAL | 6.786 | 15.210 | 8.424 |
| 2MPAt6 | 6.786 | 15.210 | 8.424 |
| EX\_2mpa\_e | 6.786 | 15.210 | 8.424 |
| GLBRAN2 | 15.722 | 23.878 | 8.156 |
| GLDBRAN2 | 15.722 | 23.878 | 8.156 |
| DHAD1 | 5.378 | 13.520 | 8.142 |
| PFL | 0.562 | 8.644 | 8.082 |
| FORt | -0.894 | -8.455 | 7.561 |
| EX\_for\_e | 0.894 | 8.455 | 7.561 |
| CYSDS | 2.334 | 9.765 | 7.431 |
| NO2t2r | 0.897 | 8.160 | 7.263 |
| NARK | 0.897 | 8.160 | 7.263 |
| PGMT | 1.649 | 7.926 | 6.277 |
| PPA | 3.172 | 9.047 | 5.874 |
| TPI | 6.681 | 12.067 | 5.386 |
| KARA1 | -3.058 | -7.984 | 4.926 |
| Kt2r | 0.934 | 5.761 | 4.827 |
| Kt1 | -0.890 | -5.682 | 4.792 |
| EX\_gthrd\_e | -1.329 | -5.448 | 4.119 |
| PItex | -4.714 | -8.824 | 4.109 |
| EX\_pi\_e | 4.697 | 8.761 | 4.064 |
| P52O | 3.681 | 7.735 | 4.054 |
| GLUR | 3.680 | 7.733 | 4.053 |
| DHAPT | 0.630 | 4.070 | 3.440 |
| OIVD3 | 3.208 | 6.584 | 3.376 |
| PTAILE | 3.207 | 6.580 | 3.374 |
| ACKILE | 3.207 | 6.580 | 3.374 |
| EX\_2mba\_e | 3.207 | 6.580 | 3.373 |
| 2MBAt6 | 3.207 | 6.580 | 3.373 |
| F6PA | 0.409 | 3.756 | 3.347 |
| KARA4 | -2.320 | -5.536 | 3.216 |
| 2ACLMM | 2.320 | 5.536 | 3.216 |
| ATHRDHr | -1.256 | -4.195 | 2.939 |
| THRA2 | 1.256 | 4.195 | 2.939 |
| GLYAT | 1.256 | 4.195 | 2.939 |
| MLTP1 | 0.719 | 3.505 | 2.786 |
| MLTP2 | 0.719 | 3.505 | 2.786 |
| PDHcr | 0.647 | 3.249 | 2.602 |
| PDHbr | 0.647 | 3.249 | 2.602 |
| PDHa | 0.647 | 3.249 | 2.601 |
| PYNP2r | -2.216 | -4.802 | 2.586 |
| G3PD1ir | 0.726 | 3.282 | 2.556 |
| EX\_fe2\_e | 1.762 | 4.269 | 2.507 |
| G3PD2 | 0.927 | 3.418 | 2.491 |
| EX\_fru\_e | -0.303 | -2.662 | 2.358 |
| DRPA | 0.647 | 2.908 | 2.262 |
| MLTG1 | 0.596 | 2.838 | 2.241 |
| MLTG2 | 0.591 | 2.825 | 2.234 |
| UDPACGLP | -1.172 | -3.385 | 2.214 |
| UAG4Ei | 1.172 | 3.385 | 2.214 |
| OIVD1r | 2.195 | 4.394 | 2.199 |
| PTALEU | 2.194 | 4.392 | 2.198 |
| ACKLEU | 2.194 | 4.392 | 2.198 |
| 3MBAt6 | 2.194 | 4.392 | 2.198 |
| EX\_3mba\_e | 2.194 | 4.392 | 2.198 |
| EX\_malthx\_e | -0.559 | -2.719 | 2.161 |
| MALTHXabc | 0.559 | 2.719 | 2.161 |
| NDPK1 | 1.050 | 3.201 | 2.151 |
| ALATA\_D2 | 1.739 | 3.882 | 2.143 |
| PPM2 | 0.584 | 2.710 | 2.125 |
| ADK1 | 1.038 | 3.118 | 2.080 |
| EX\_h2o2\_e | -0.648 | -2.661 | 2.013 |
| GTHPe | 0.648 | 2.661 | 2.013 |
| EX\_gthox\_e | 0.648 | 2.661 | 2.013 |
| ALAR | 1.748 | 3.746 | 1.998 |
| EX\_leu\_\_L\_e | -1.983 | -3.961 | 1.978 |
| EX\_ile\_\_L\_e | -3.063 | -4.980 | 1.917 |
| ALATA\_L2 | 1.942 | 3.852 | 1.911 |
| LEUt2r | 1.956 | 3.863 | 1.907 |
| GLUDxi | 0.743 | -1.102 | 1.845 |
| NADKd | -0.990 | -2.758 | 1.768 |
| NDPK4 | -0.967 | -2.694 | 1.727 |
| NDPK9 | 0.783 | 2.482 | 1.699 |
| FRUpts | 0.210 | 1.895 | 1.685 |
| PYNP2r\_1 | 2.052 | 3.730 | 1.678 |
| GLCptspp | 0.206 | 1.828 | 1.622 |
| PYNP1\_1 | 0.413 | 2.026 | 1.613 |
| FRUK | 0.178 | 1.780 | 1.602 |
| UMPK | 0.291 | 1.879 | 1.588 |
| NADDP | 1.405 | 2.957 | 1.552 |
| HPROx | -2.931 | -4.456 | 1.525 |
| PYNP1 | 0.372 | 1.888 | 1.516 |
| THRD\_L | 0.537 | 2.053 | 1.516 |
| ACHBS | 0.210 | 1.722 | 1.511 |
| DHAD2 | 0.210 | 1.722 | 1.511 |
| KARA2 | 0.210 | 1.722 | 1.511 |
| CBMKr2 | 2.030 | 3.540 | 1.509 |
| NADDPp\_1 | -1.371 | -2.850 | 1.479 |
| RPE | -0.179 | -1.632 | 1.453 |
| PTAr | -0.661 | -2.106 | 1.445 |
| CO2tpp | 1.594 | 3.038 | 1.444 |
| CO2tex | 1.594 | 3.038 | 1.444 |
| GALM | 1.703 | 3.123 | 1.420 |
| GALK2 | 1.703 | 3.123 | 1.420 |
| GALKr | -1.727 | -3.129 | 1.402 |
| CYSTL | 0.680 | 2.000 | 1.320 |
| RPI | -0.618 | -1.922 | 1.305 |
| EX\_raffin\_e | -0.270 | -1.555 | 1.285 |
| SHSL1 | 1.032 | 2.299 | 1.267 |
| SHSL2r | -1.026 | -2.287 | 1.261 |
| EX\_istfrnB\_e | -0.881 | -2.135 | 1.254 |
| SMIB1 | -0.881 | -2.135 | 1.254 |
| EX\_istfrnA\_e | -0.881 | -2.135 | 1.254 |
| EX\_stfrnB\_e | 0.881 | 2.135 | 1.254 |
| EX\_stfrnA\_e | 0.881 | 2.135 | 1.254 |
| SMIA1 | -0.881 | -2.134 | 1.253 |
| GLYCt | -0.366 | 0.879 | 1.246 |
| EX\_glyc\_e | -0.366 | 0.879 | 1.246 |
| LEUt4rpp | -1.317 | -2.562 | 1.245 |
| ILEt2r | 1.761 | 2.993 | 1.232 |
| RHA40tpp | -1.453 | -2.659 | 1.205 |
| BHBtpp | 1.453 | 2.659 | 1.205 |
| EX\_thr\_\_L\_e | -0.528 | -1.710 | 1.182 |
| LEUt2rpp | 1.290 | 2.468 | 1.178 |
| EX\_tre\_e | -0.184 | -1.343 | 1.159 |
| EX\_glyald\_e | 0.025 | -1.127 | 1.152 |
| GLYALDt | -0.025 | 1.127 | 1.152 |
| ACLDC | 0.275 | 1.400 | 1.125 |
| ADK4 | 0.652 | 1.764 | 1.113 |
| PRPPS | 0.520 | 1.625 | 1.105 |
| UAGDP\_1 | 0.707 | 1.810 | 1.104 |
| UAGDP | 0.707 | 1.810 | 1.104 |
| ACTD2 | 0.279 | 1.379 | 1.100 |
| MELIBtex | -0.185 | -1.270 | 1.085 |
| RAFHpp | 0.185 | 1.270 | 1.085 |
| FRUpts2pp | 0.185 | 1.270 | 1.085 |
| EX\_melib\_e | 0.185 | 1.270 | 1.085 |
| RAFFtex | 0.185 | 1.270 | 1.085 |
| ILETA | 1.519 | 2.579 | 1.060 |
| ACKr | 0.611 | 1.664 | 1.053 |
| LEUTA | 1.140 | 2.179 | 1.038 |
| URIDK2r | -0.219 | -1.237 | 1.018 |
| EX\_23cgmp\_e | -1.250 | -2.254 | 1.004 |
| EX\_23cump\_e | -1.250 | -2.254 | 1.004 |
| EX\_23camp\_e | -1.250 | -2.254 | 1.004 |
| EX\_23ccmp\_e | -1.250 | -2.254 | 1.004 |
| GSNtex | -1.250 | -2.254 | 1.004 |
| ADNtex | -1.250 | -2.254 | 1.004 |
| CYTDtex | -1.250 | -2.254 | 1.004 |
| URItex | -1.250 | -2.254 | 1.004 |
| 23PDE9pp | 1.250 | 2.254 | 1.004 |
| 23PDE7pp | 1.250 | 2.254 | 1.004 |
| 23PDE2pp | 1.250 | 2.254 | 1.004 |
| 23PDE4pp | 1.250 | 2.254 | 1.004 |
| 3NTD9pp | 1.250 | 2.254 | 1.004 |
| 3NTD7pp | 1.250 | 2.254 | 1.004 |
| 3NTD2pp | 1.250 | 2.254 | 1.004 |
| 3NTD4pp | 1.250 | 2.254 | 1.004 |
| 23CCMPtex | 1.250 | 2.254 | 1.004 |
| 23CAMPtex | 1.250 | 2.254 | 1.004 |
| 23CUMPtex | 1.250 | 2.254 | 1.004 |
| 23CGMPtex | 1.250 | 2.254 | 1.004 |
| EX\_uri\_e | 1.250 | 2.254 | 1.004 |
| EX\_gsn\_e | 1.250 | 2.254 | 1.004 |
| EX\_adn\_e | 1.250 | 2.254 | 1.004 |
| EX\_cytd\_e | 1.250 | 2.254 | 1.004 |
| MNL1P\_Et | -0.554 | -1.550 | 0.996 |
| EX\_mnl\_e | -0.554 | -1.550 | 0.996 |
| MNLpts | 0.554 | 1.550 | 0.996 |
| EX\_mnl1p\_e | 0.554 | 1.550 | 0.996 |
| PDH | 0.281 | 1.275 | 0.994 |
| CYTK1 | 0.444 | 1.428 | 0.984 |
| NDPK2 | 0.459 | 1.434 | 0.975 |
| THRtex | 0.367 | 1.340 | 0.974 |
| URAt | -0.284 | -1.258 | 0.973 |
| G6PDA | 0.098 | 1.012 | 0.914 |
| ASPTA | -0.434 | -1.318 | 0.884 |
| NADK\_1 | 0.495 | 1.379 | 0.884 |
| NADK | 0.495 | 1.379 | 0.884 |
| TKT2 | -0.156 | -1.025 | 0.869 |
| SUCCt | -0.684 | -1.535 | 0.850 |
| EX\_succ\_e | 0.684 | 1.535 | 0.850 |
| AMALT4 | 0.200 | 1.006 | 0.806 |
| TREHpp | 0.093 | 0.898 | 0.806 |
| TREtex | 0.093 | 0.898 | 0.806 |
| ADK3 | 0.495 | 1.301 | 0.805 |
| EX\_sucr\_e | -0.198 | -0.999 | 0.802 |
| SUCpts | 0.198 | 0.999 | 0.802 |
| EX\_3cmp\_e | -0.001 | -0.787 | 0.787 |
| 3NUCLE3 | 0.001 | 0.787 | 0.787 |
| 3CMPt6 | 0.001 | 0.787 | 0.786 |
| DURIPP\_1 | 0.215 | 1.002 | 0.786 |
| DURIPP | 0.215 | 1.002 | 0.786 |
| THRt4pp | 0.220 | 1.003 | 0.783 |
| MAN6PI | 0.134 | 0.886 | 0.752 |
| NDPK3 | 0.362 | 1.100 | 0.738 |
| HEX7 | 0.232 | 0.966 | 0.735 |
| MLTP3 | 0.165 | 0.893 | 0.728 |
| PPM | -0.103 | -0.827 | 0.724 |
| NTD1\_1 | 0.183 | 0.893 | 0.710 |
| AMALT2 | 0.196 | 0.900 | 0.705 |
| AMALT3 | 0.196 | 0.900 | 0.705 |
| EX\_ura\_e | 0.283 | 0.976 | 0.693 |
| EX\_man\_e | -0.094 | -0.776 | 0.683 |
| MANpts | 0.094 | 0.776 | 0.683 |
| EX\_cellb\_e | -0.449 | -1.129 | 0.680 |
| FRUpts2 | 0.093 | 0.766 | 0.673 |
| EX\_val\_\_L\_e | -1.816 | -2.477 | 0.661 |
| 5DGLCNR | 0.832 | 1.493 | 0.661 |
| 5DKGR | 0.832 | 1.493 | 0.661 |
| HSTPTr | -0.621 | -1.280 | 0.658 |
| HSTPT | 0.621 | 1.280 | 0.658 |
| NTD1 | 0.180 | 0.834 | 0.654 |
| GLCpts | 0.093 | 0.745 | 0.652 |
| ILEtex | 1.276 | 1.892 | 0.616 |
| RNDR4 | 0.123 | 0.729 | 0.606 |
| SERAT | 0.310 | 0.911 | 0.601 |
| TRPTA | 0.746 | 1.342 | 0.597 |
| VALTA | 1.721 | 2.306 | 0.585 |
| ABTt | -1.124 | -1.706 | 0.582 |
| ARABR | 1.124 | 1.706 | 0.582 |
| EX\_abt\_e | 1.124 | 1.706 | 0.582 |
| AKGDH | 0.233 | 0.807 | 0.574 |
| ILEt2rpp | 1.250 | 1.798 | 0.548 |
| PEPC | 0.308 | 0.856 | 0.548 |
| PHETA1 | 0.723 | 1.264 | 0.541 |
| TKT1 | -0.011 | -0.541 | 0.530 |
| TALA | -0.011 | -0.541 | 0.530 |
| CYTK2 | -0.200 | -0.721 | 0.521 |
| ASAD | -0.154 | -0.672 | 0.518 |
| ASPK | 0.154 | 0.672 | 0.518 |
| SULR\_1 | -0.141 | -0.642 | 0.501 |
| VALt2r | 1.053 | 1.551 | 0.498 |
| TYRTA | 0.708 | 1.197 | 0.489 |
| HSDy | -0.095 | -0.565 | 0.470 |
| GLYCLTt | 0.106 | -0.361 | 0.467 |
| EX\_glyclt\_e | -0.106 | 0.361 | 0.467 |
| THRS | 0.082 | 0.540 | 0.458 |
| HSK | 0.082 | 0.540 | 0.458 |
| GAPDi\_nadp | 0.823 | 1.279 | 0.456 |
| EX\_galt\_e | -0.282 | -0.738 | 0.456 |
| TGBPA | 0.282 | 0.738 | 0.456 |
| GALTpts | 0.282 | 0.738 | 0.456 |
| GLTPD | 0.282 | 0.738 | 0.455 |
| FTHFLi | 0.068 | 0.521 | 0.453 |
| XYLt | -0.221 | -0.674 | 0.453 |
| RNTR4 | 0.114 | 0.564 | 0.450 |
| ASPTA4 | 0.145 | 0.593 | 0.448 |
| HMR\_6515 | 0.145 | 0.593 | 0.448 |
| PPC | 0.264 | 0.702 | 0.437 |
| FFSD\_2 | 0.122 | 0.559 | 0.437 |
| ABFPT2 | 0.122 | 0.559 | 0.437 |
| MTHFC | -0.032 | -0.463 | 0.431 |
| MTHFD | -0.032 | -0.463 | 0.431 |
| AGDC | 0.276 | 0.706 | 0.430 |
| URIK1 | 0.089 | 0.518 | 0.430 |
| GHMT2r | -0.018 | -0.434 | 0.416 |
| URIK3 | 0.088 | 0.504 | 0.416 |
| NDPK6 | -0.096 | -0.508 | 0.412 |
| URIK2 | 0.088 | 0.498 | 0.410 |
| DXPS | 0.091 | 0.490 | 0.399 |
| DXPRIi | 0.091 | 0.490 | 0.398 |
| MECDPDH\_syn | 0.091 | 0.490 | 0.398 |
| MECDPS | 0.091 | 0.490 | 0.398 |
| MEPCT | 0.091 | 0.490 | 0.398 |
| CDPMEK\_1 | 0.091 | 0.490 | 0.398 |
| GLGC | 0.179 | 0.573 | 0.394 |
| SUCOAS | -0.330 | -0.722 | 0.393 |
| TMAMt | -0.050 | -0.441 | 0.392 |
| EX\_glyb\_e | -0.050 | -0.441 | 0.392 |
| GLYBabc | 0.050 | 0.441 | 0.392 |
| SR5 | 0.050 | 0.441 | 0.392 |
| EX\_tmam\_e | 0.050 | 0.441 | 0.392 |
| NTD3 | 0.155 | 0.543 | 0.388 |
| EX\_xyl\_\_D\_e | 0.186 | 0.562 | 0.376 |
| EX\_ser\_\_L\_e | -0.065 | -0.433 | 0.368 |
| FFSD | 0.076 | 0.440 | 0.365 |
| DADK | -0.090 | -0.450 | 0.360 |
| EX\_meoh\_e | 0.563 | 0.916 | 0.353 |
| TREpts | 0.092 | 0.445 | 0.353 |
| TRE6PH | 0.092 | 0.445 | 0.353 |
| FRDx | 0.264 | 0.617 | 0.353 |
| EX\_gam\_e | -0.031 | -0.380 | 0.349 |
| GAMpts | 0.031 | 0.380 | 0.348 |
| NTD6 | 0.083 | 0.419 | 0.336 |
| ALCD2ir | 0.019 | 0.354 | 0.335 |
| ALCD2x | 0.019 | 0.354 | 0.335 |
| HXPRT | 0.184 | 0.516 | 0.332 |
| ADSS | 0.198 | 0.528 | 0.329 |
| ADSL1r | 0.198 | 0.528 | 0.329 |
| MCA | -0.109 | -0.436 | 0.327 |
| MICITDr | 0.109 | 0.436 | 0.327 |
| MCITD | 0.109 | 0.436 | 0.327 |
| aratyr1 | -0.261 | -0.588 | 0.327 |
| PUNP1 | -0.180 | -0.506 | 0.326 |
| aratyr2 | -0.508 | -0.821 | 0.313 |
| HQNt6 | -0.122 | -0.434 | 0.312 |
| EX\_arbt\_e | -0.122 | -0.434 | 0.312 |
| ARBTpts | 0.122 | 0.434 | 0.312 |
| EX\_hqn\_e | 0.122 | 0.434 | 0.312 |
| EX\_abt\_\_L\_e | -1.055 | -1.361 | 0.306 |
| ARABRr | -1.055 | -1.361 | 0.306 |
| ABTt\_1 | 1.055 | 1.361 | 0.306 |
| GLNS | 0.112 | 0.416 | 0.304 |
| IPPMIb | -0.313 | -0.615 | 0.303 |
| IPPMIa | -0.313 | -0.615 | 0.303 |
| IPPS | 0.313 | 0.615 | 0.303 |
| SERt4pp | 0.046 | 0.349 | 0.302 |
| SERtex | 0.046 | 0.349 | 0.302 |
| RHCCE | 0.156 | 0.458 | 0.302 |
| AHCYSNS | 0.156 | 0.458 | 0.302 |
| DHPt | 0.156 | 0.458 | 0.302 |
| EX\_dhptd\_e | 0.156 | 0.458 | 0.302 |
| EX\_so3\_e | -0.019 | -0.312 | 0.293 |
| SO3abcpp | 0.019 | 0.312 | 0.293 |
| SO3tex | 0.019 | 0.312 | 0.293 |
| DCYTD | 0.110 | 0.400 | 0.290 |
| araphe1 | -0.249 | -0.537 | 0.288 |
| RNDR3 | 0.105 | 0.393 | 0.287 |
| SHK3Dr | 0.104 | 0.389 | 0.285 |
| DHQS | 0.104 | 0.389 | 0.285 |
| PSCVT | 0.104 | 0.389 | 0.285 |
| DDPA | 0.104 | 0.389 | 0.285 |
| CHORS | 0.104 | 0.389 | 0.285 |
| DHQTi | 0.104 | 0.389 | 0.285 |
| SHKK | 0.104 | 0.389 | 0.285 |
| SLCYSS | 0.086 | 0.371 | 0.285 |
| SCYSSL | 0.086 | 0.371 | 0.285 |
| GUAPRT | 0.138 | 0.420 | 0.282 |
| EX\_arab\_\_L\_e | -0.069 | -0.345 | 0.276 |
| EX\_dextrin\_e | -0.170 | -0.442 | 0.271 |
| MLTG6 | 0.170 | 0.442 | 0.271 |
| DEXTRINt2 | 0.170 | 0.442 | 0.271 |
| araphe2 | -0.495 | -0.764 | 0.269 |
| BGLA1 | 0.087 | 0.350 | 0.263 |
| CELBpts | 0.087 | 0.350 | 0.263 |
| OCDCAt2pp | 0.093 | 0.355 | 0.262 |
| GK2 | 0.151 | 0.409 | 0.258 |
| THMP | 0.107 | 0.365 | 0.258 |
| GALpts | -0.158 | -0.410 | 0.252 |
| A6PAG | 0.158 | 0.410 | 0.252 |
| EX\_gal\_e | 0.158 | 0.410 | 0.251 |
| CTPS1 | 0.032 | 0.283 | 0.251 |
| OSUCCL | 0.077 | 0.327 | 0.250 |
| ICITRED | 0.077 | 0.327 | 0.250 |
| ADCL | 0.060 | 0.309 | 0.250 |
| EX\_4abz\_e | 0.060 | 0.309 | 0.250 |
| 4ABZt | 0.060 | 0.309 | 0.250 |
| PABB | 0.060 | 0.309 | 0.250 |
| EX\_2pglyc\_e | -0.113 | -0.361 | 0.248 |
| 2PGLYCt6 | 0.113 | 0.361 | 0.248 |
| OCDCEAt2pp | 0.108 | 0.355 | 0.247 |
| AHCi | -0.144 | -0.389 | 0.245 |
| DDCAt2pp | 0.110 | 0.355 | 0.245 |
| aratry1 | -0.231 | -0.475 | 0.244 |
| 6PHBG\_2 | 0.084 | 0.324 | 0.240 |
| CELLBpts\_2 | 0.084 | 0.324 | 0.240 |
| RNTR3 | 0.101 | 0.339 | 0.239 |
| NDPK7 | -0.095 | -0.328 | 0.234 |
| DCMPDA | 0.090 | 0.321 | 0.231 |
| 2HXMPt6 | -0.083 | -0.313 | 0.230 |
| EX\_salcn\_e | -0.083 | -0.313 | 0.230 |
| SALCpts | 0.083 | 0.313 | 0.230 |
| S6PG | 0.083 | 0.313 | 0.230 |
| EX\_2hxmp\_e | 0.083 | 0.313 | 0.230 |
| PFK\_2 | 0.153 | 0.382 | 0.229 |
| EX\_4hpro\_LT\_e | -0.052 | -0.280 | 0.228 |
| EHGLAT | 0.052 | 0.280 | 0.228 |
| DDPGA | 0.052 | 0.280 | 0.228 |
| PHCD | 0.052 | 0.280 | 0.228 |
| 4HPRO\_LT\_Et | 0.052 | 0.280 | 0.228 |
| T6PK | 0.129 | 0.356 | 0.227 |
| aratry2 | -0.477 | -0.699 | 0.222 |
| NTD5 | 0.103 | 0.322 | 0.219 |
| PUNP4 | 0.070 | 0.287 | 0.217 |
| G3PCT | 0.104 | 0.315 | 0.211 |
| THRabc | 0.161 | 0.369 | 0.208 |
| HMGCOAR | -0.118 | -0.323 | 0.205 |
| HMGCOAS | -0.118 | -0.323 | 0.205 |
| DPMVD | 0.118 | 0.323 | 0.205 |
| ACACT1r | 0.118 | 0.323 | 0.205 |
| PMEVK | 0.118 | 0.323 | 0.205 |
| CMPDAi | 0.036 | 0.239 | 0.204 |
| G3PT | 0.045 | 0.248 | 0.203 |
| AIRCr | -0.084 | -0.288 | 0.203 |
| EX\_pheme\_e | -0.069 | -0.271 | 0.201 |
| DMATT | 0.070 | 0.271 | 0.201 |
| GRTT | 0.070 | 0.271 | 0.201 |
| PHEMEt | 0.070 | 0.271 | 0.201 |
| HEMEOS | 0.070 | 0.271 | 0.201 |
| sink\_hemeO\_c | 0.070 | 0.271 | 0.201 |
| RAFFINt2 | 0.085 | 0.285 | 0.200 |
| IPDPS | 0.046 | 0.245 | 0.200 |
| DMPPS | 0.046 | 0.245 | 0.199 |
| TDP | 0.090 | 0.288 | 0.199 |
| PMPK | 0.079 | 0.277 | 0.198 |
| TMPPP | 0.079 | 0.277 | 0.198 |
| AMPAH | 0.079 | 0.277 | 0.198 |
| PUNP2 | 0.009 | 0.203 | 0.194 |
| THRabcpp | 0.147 | 0.338 | 0.191 |
| PUNP5 | 0.096 | 0.284 | 0.188 |
| EX\_gln\_\_L\_e | -0.137 | -0.322 | 0.185 |
| GLNabc | 0.137 | 0.322 | 0.185 |
| Growth | 0.224 | 0.405 | 0.180 |
| EX\_acgam\_e | -0.047 | -0.227 | 0.179 |
| RNDR1 | 0.045 | 0.223 | 0.178 |
| BG\_CELLB | 0.277 | 0.455 | 0.177 |
| EX\_madg\_e | -0.281 | -0.458 | 0.177 |
| EX\_mbdg\_e | -0.281 | -0.458 | 0.177 |
| BG\_MADG | 0.281 | 0.458 | 0.177 |
| BG\_MBDG | 0.281 | 0.458 | 0.177 |
| CYTDK1 | 0.043 | 0.216 | 0.174 |
| HYPOE | 0.076 | 0.249 | 0.173 |
| ATPX5P | 0.076 | 0.249 | 0.173 |
| SPMDabc | 0.082 | 0.254 | 0.172 |
| ITCY | 0.043 | 0.214 | 0.171 |
| CYTDK2 | 0.043 | 0.213 | 0.170 |
| EX\_ala\_\_L\_e | -0.053 | -0.219 | 0.165 |
| EX\_so4\_e | -0.014 | -0.178 | 0.164 |
| SULabc | 0.014 | 0.178 | 0.164 |
| AI2abcpp | 0.073 | 0.236 | 0.163 |
| AI2tpp | 0.073 | 0.236 | 0.163 |
| RNTR1 | 0.044 | 0.206 | 0.163 |
| AB6PGH | 0.062 | 0.224 | 0.162 |
| RIBabc1 | 0.076 | 0.238 | 0.162 |
| FACOAL141t2pp | 0.073 | 0.233 | 0.160 |
| FACOAE141 | 0.073 | 0.233 | 0.160 |
| FACOAE161 | 0.073 | 0.233 | 0.160 |
| FACOAL161t2pp | 0.073 | 0.233 | 0.160 |
| EX\_3ump\_e | -0.001 | -0.161 | 0.160 |
| 3NUCLE2 | 0.001 | 0.161 | 0.160 |
| DGK1 | -0.049 | -0.209 | 0.160 |
| 3UMPt6 | 0.001 | 0.161 | 0.160 |
| NTD8 | 0.049 | 0.209 | 0.160 |
| EX\_glu\_\_L\_e | -0.085 | -0.243 | 0.158 |
| NADPHXD | 0.071 | 0.224 | 0.153 |
| NADPHXE | 0.071 | 0.224 | 0.153 |
| NADPHHR | 0.071 | 0.224 | 0.153 |
| NADHXE | -0.071 | -0.224 | 0.153 |
| NADHXD | 0.071 | 0.224 | 0.153 |
| ACP1\_FMN | 0.070 | 0.223 | 0.153 |
| NADHHR | 0.071 | 0.224 | 0.153 |
| RBFK | 0.070 | 0.223 | 0.153 |
| THFAT | 0.070 | 0.222 | 0.152 |
| FTHFCL | 0.070 | 0.222 | 0.152 |
| IPMD | 0.156 | 0.308 | 0.151 |
| IPMD\_1 | 0.156 | 0.308 | 0.151 |
| OMCDC | 0.156 | 0.308 | 0.151 |
| IPMD2 | 0.156 | 0.308 | 0.151 |
| AB6PGH\_1 | 0.059 | 0.210 | 0.151 |
| AMANAPEr | 0.032 | 0.182 | 0.150 |
| EX\_mobd\_e | -0.070 | -0.220 | 0.150 |
| MOBDabc | 0.070 | 0.220 | 0.150 |
| sink\_mobd\_c | 0.070 | 0.220 | 0.150 |
| AMPTASECG | 0.051 | 0.199 | 0.149 |
| ICDHyr | 0.063 | -0.085 | 0.147 |
| GLYCtpp | -0.065 | -0.213 | 0.147 |
| GLYALDDr | 0.059 | 0.206 | 0.147 |
| PAPA160pp | 0.065 | 0.213 | 0.147 |
| CLPNH160pp | 0.065 | 0.213 | 0.147 |
| DAGK160 | 0.065 | 0.213 | 0.147 |
| CLPNS160 | -0.065 | -0.213 | 0.147 |
| 12DGR160tipp | 0.065 | 0.213 | 0.147 |
| PG160abcpp | 0.065 | 0.213 | 0.147 |
| DASYN160 | 0.065 | 0.213 | 0.147 |
| CLPNS160pp | 0.066 | 0.213 | 0.147 |
| CLS | 0.066 | 0.213 | 0.147 |
| AHSERL4 | 0.042 | 0.188 | 0.147 |
| ACSERHS | 0.042 | 0.188 | 0.147 |
| PLIPA1E180pp | 0.031 | 0.177 | 0.146 |
| CHLabcpp | 0.107 | 0.253 | 0.146 |
| GLYBabcpp | 0.107 | 0.253 | 0.146 |
| CHLt3pp | 0.107 | 0.253 | 0.146 |
| GLYBt3pp | 0.107 | 0.253 | 0.146 |
| ADA | 0.076 | 0.222 | 0.146 |
| SPMDabcpp | 0.108 | 0.254 | 0.145 |
| SPMDt3pp | 0.108 | 0.254 | 0.145 |
| DARBabcpp | 0.110 | 0.255 | 0.145 |
| DARBt3ipp | 0.110 | 0.255 | 0.145 |
| CRO4abcpp | 0.110 | 0.255 | 0.145 |
| CRO4t3pp | 0.110 | 0.255 | 0.145 |
| PACALDtex | 0.143 | -0.001 | 0.144 |
| EX\_pacald\_e | -0.143 | 0.001 | 0.144 |
| ASNN | 0.036 | 0.180 | 0.144 |
| ARBabcpp | 0.035 | 0.179 | 0.144 |
| ARBtex | 0.035 | 0.179 | 0.144 |
| G6PI | -0.054 | -0.196 | 0.142 |
| DADA | 0.074 | 0.216 | 0.142 |
| PUNP6 | 0.074 | 0.216 | 0.142 |
| URAt2 | 0.001 | 0.142 | 0.142 |
| GalMr\_2 | -0.083 | -0.224 | 0.141 |
| PGCM | -0.083 | -0.224 | 0.141 |
| GLUKA\_1 | 0.083 | 0.224 | 0.141 |
| URAt2pp | 0.001 | 0.139 | 0.139 |
| URAtex | 0.001 | 0.139 | 0.139 |
| TMPK | 0.062 | 0.200 | 0.138 |
| EX\_lipoate\_e | -0.058 | -0.195 | 0.137 |
| LIPAMPL | 0.059 | 0.195 | 0.136 |
| LIPATPT\_2 | 0.059 | 0.195 | 0.136 |
| LIPOPBt | 0.059 | 0.195 | 0.136 |
| sink\_lipopb\_c | 0.059 | 0.195 | 0.136 |
| EX\_drib\_e | -0.063 | -0.199 | 0.136 |
| DRIBabc | 0.063 | 0.199 | 0.136 |
| DRBK | 0.063 | 0.199 | 0.136 |
| 2AGPGAT180 | 0.042 | 0.177 | 0.136 |
| EX\_sbt\_\_D\_e | -0.100 | -0.234 | 0.133 |
| SBTpts | 0.100 | 0.234 | 0.133 |
| SBTPD | 0.100 | 0.234 | 0.133 |
| GMPS2 | 0.061 | 0.194 | 0.133 |
| ARBabc | 0.034 | 0.166 | 0.132 |
| EX\_tsul\_e | -0.023 | -0.154 | 0.130 |
| TSULabc | 0.024 | 0.154 | 0.130 |
| GF6PTA | 0.032 | 0.162 | 0.129 |
| NAPRT | 0.059 | 0.186 | 0.127 |
| 2AGPEAT180 | 0.050 | 0.177 | 0.127 |
| 2AGPE180tipp | 0.052 | 0.177 | 0.126 |
| GLYCK2 | 0.080 | 0.206 | 0.126 |
| PE180abcpp | 0.052 | 0.177 | 0.125 |
| PGLYCP\_1 | 0.058 | 0.183 | 0.125 |
| PLIPA1G181pp | 0.053 | 0.177 | 0.124 |
| NAabcO | 0.049 | 0.173 | 0.124 |
| NDPK8 | 0.120 | 0.244 | 0.124 |
| 2AGPGAT181 | 0.053 | 0.177 | 0.124 |
| EX\_g3pg\_e | -0.094 | -0.218 | 0.124 |
| GPDDA4 | 0.094 | 0.218 | 0.124 |
| G3PGtex | 0.095 | 0.218 | 0.124 |
| G3PGabcpp | 0.095 | 0.218 | 0.124 |
| 2AGPE181tipp | 0.054 | 0.177 | 0.123 |
| PLIPA1G180pp | 0.054 | 0.177 | 0.123 |
| PGLYCP | 0.056 | 0.179 | 0.123 |
| 2AGPEAT181 | 0.054 | 0.177 | 0.123 |
| 2AGPG181tipp | 0.055 | 0.177 | 0.123 |
| PE120abcpp | 0.055 | 0.177 | 0.123 |
| PG120abcpp | 0.055 | 0.177 | 0.123 |
| 2AGPGAT120 | 0.055 | 0.177 | 0.123 |
| 2AGPEAT120 | 0.055 | 0.177 | 0.123 |
| 2AGPE120tipp | 0.055 | 0.177 | 0.123 |
| PLIPA1G120pp | 0.055 | 0.177 | 0.123 |
| PLIPA1E120pp | 0.055 | 0.177 | 0.123 |
| 2AGPG120tipp | 0.055 | 0.177 | 0.123 |
| PLIPA1E181pp | 0.055 | 0.177 | 0.122 |
| PG181abcpp | 0.055 | 0.177 | 0.122 |
| PE181abcpp | 0.055 | 0.177 | 0.122 |
| PG180abcpp | 0.055 | 0.177 | 0.122 |
| ARGSL | 0.050 | 0.171 | 0.121 |
| EX\_malt\_e | -0.057 | -0.178 | 0.121 |
| MALTabc | 0.057 | 0.178 | 0.121 |
| APSR | 0.056 | 0.176 | 0.120 |
| SADT | 0.056 | 0.176 | 0.120 |
| ETHAt | -0.090 | -0.209 | 0.119 |
| EX\_g3pe\_e | -0.090 | -0.209 | 0.119 |
| GPDDA2 | 0.090 | 0.209 | 0.119 |
| EX\_etha\_e | 0.090 | 0.209 | 0.119 |
| G3PEtex | 0.090 | 0.209 | 0.119 |
| G3PEabcpp | 0.090 | 0.209 | 0.119 |
| GDPTPDP | 0.054 | 0.171 | 0.117 |
| Cut1 | 0.053 | 0.169 | 0.116 |
| 2AGPG180tipp | 0.062 | 0.177 | 0.116 |
| RNDR2 | 0.039 | 0.154 | 0.115 |
| CA2abc1 | 0.052 | 0.167 | 0.115 |
| MS\_1 | -0.044 | -0.159 | 0.115 |
| MHPGLUT | 0.044 | 0.159 | 0.114 |
| GSEALD | -0.053 | -0.166 | 0.113 |
| GLUTRS\_2 | 0.053 | 0.166 | 0.113 |
| GLUTRR | 0.053 | 0.166 | 0.113 |
| EX\_chtbs\_e | -0.036 | -0.148 | 0.112 |
| DC6PH | 0.036 | 0.148 | 0.112 |
| CHTBSptspp | 0.036 | 0.148 | 0.112 |
| CHTBStex | 0.036 | 0.148 | 0.112 |
| ACGAMK | 0.036 | 0.148 | 0.112 |
| HEX4 | 0.054 | 0.165 | 0.111 |
| MN6PP | 0.054 | 0.165 | 0.111 |
| TMDK1 | 0.052 | 0.162 | 0.111 |
| DHORDfum | 0.002 | 0.111 | 0.109 |
| TMDK2 | 0.051 | 0.160 | 0.109 |
| ORPT | -0.003 | -0.111 | 0.107 |
| OMPDC | 0.003 | 0.111 | 0.107 |
| DHORTS | -0.003 | -0.111 | 0.107 |
| ASPCT | 0.003 | 0.111 | 0.107 |
| RNTR2 | 0.038 | 0.144 | 0.107 |
| CYTD | 0.042 | 0.144 | 0.102 |
| CS | 0.138 | 0.239 | 0.101 |
| SUCR | 0.042 | 0.143 | 0.101 |
| RAFGH | 0.042 | 0.143 | 0.101 |
| SPMDt3i | -0.154 | -0.254 | 0.100 |
| RAFH | 0.042 | 0.142 | 0.100 |
| GALS3 | 0.042 | 0.142 | 0.100 |
| HMPK1 | 0.042 | 0.141 | 0.099 |
| HETZK\_1 | 0.039 | 0.138 | 0.099 |
| HETZK | 0.039 | 0.138 | 0.099 |
| GLCS3\_1 | 0.045 | 0.143 | 0.099 |
| ADPT | 0.057 | 0.155 | 0.098 |
| HMPK1\_1 | 0.037 | 0.136 | 0.098 |
| ADADir | 0.045 | 0.143 | 0.098 |
| VALtex | 0.737 | 0.834 | 0.097 |
| CSND | 0.041 | 0.138 | 0.097 |
| IMPD | 0.044 | 0.141 | 0.097 |
| DALAabcpp | 0.031 | 0.125 | 0.094 |
| GLYCDx | 0.221 | 0.314 | 0.093 |
| CGLYabcpp | 0.034 | 0.126 | 0.092 |
| GTHRDabc2pp | 0.034 | 0.126 | 0.092 |
| GTHRDt2\_1 | 0.034 | 0.126 | 0.092 |
| GTHRDHpp | 0.034 | 0.126 | 0.092 |
| aratyr3 | 0.030 | 0.120 | 0.090 |
| ACGApts | 0.024 | 0.114 | 0.090 |
| ACTNabc1 | 0.033 | 0.123 | 0.090 |
| 4ABUTabcpp | 0.042 | 0.131 | 0.089 |
| GLUABUTt7pp | 0.042 | 0.131 | 0.089 |
| ACGAptspp | 0.023 | 0.113 | 0.089 |
| ACGAtex | 0.023 | 0.113 | 0.089 |
| NNAM | 0.041 | 0.130 | 0.089 |
| NADS1 | 0.041 | 0.130 | 0.089 |
| NNATr | 0.041 | 0.130 | 0.089 |
| EX\_acmana\_e | -0.024 | -0.112 | 0.088 |
| ACMANApts | 0.024 | 0.112 | 0.088 |
| GALUi | 0.001 | 0.089 | 0.088 |
| F6PP | 0.039 | 0.126 | 0.087 |
| NTD2 | 0.059 | 0.143 | 0.085 |
| araphe3 | 0.025 | 0.109 | 0.084 |
| F1PP | 0.032 | 0.115 | 0.083 |
| ATPM | 0.037 | 0.118 | 0.082 |
| NIt5 | 0.034 | 0.116 | 0.082 |
| BTNt | 0.036 | 0.118 | 0.081 |
| BTNTe | 0.036 | 0.118 | 0.081 |
| GLUabcpp | 0.037 | 0.118 | 0.081 |
| DURIK1 | 0.042 | 0.124 | 0.081 |
| EX\_malttr\_e | -0.037 | -0.118 | 0.081 |
| MALTTRabc | 0.038 | 0.118 | 0.081 |
| MG2uabcpp | 0.036 | 0.117 | 0.081 |
| MG2tex | 0.036 | 0.117 | 0.080 |
| 2AGPEAT161 | 0.036 | 0.117 | 0.080 |
| PLIPA1E161pp | 0.036 | 0.117 | 0.080 |
| 2AGPE161tipp | 0.036 | 0.117 | 0.080 |
| PE141abcpp | 0.036 | 0.117 | 0.080 |
| PG161abcpp | 0.036 | 0.117 | 0.080 |
| PE161abcpp | 0.036 | 0.117 | 0.080 |
| 2AGPGAT161 | 0.036 | 0.117 | 0.080 |
| PG141abcpp | 0.036 | 0.117 | 0.080 |
| PLIPA1G161pp | 0.036 | 0.117 | 0.080 |
| PLIPA1E141pp | 0.036 | 0.117 | 0.080 |
| 2AGPEAT141 | 0.036 | 0.117 | 0.080 |
| 2AGPG161tipp | 0.036 | 0.117 | 0.080 |
| PLIPA1G141pp | 0.036 | 0.117 | 0.080 |
| 2AGPG141tipp | 0.036 | 0.117 | 0.080 |
| 2AGPGAT141 | 0.036 | 0.117 | 0.080 |
| 2AGPE141tipp | 0.036 | 0.116 | 0.080 |
| EX\_lmn2\_e | -0.038 | -0.118 | 0.080 |
| LMN2 | 0.038 | 0.118 | 0.080 |
| LMN2abc | 0.038 | 0.118 | 0.080 |
| GLUabc | 0.040 | 0.120 | 0.080 |
| NIabc | 0.036 | 0.116 | 0.080 |
| MLTG4 | 0.036 | 0.115 | 0.079 |
| MLTG3 | 0.036 | 0.115 | 0.079 |
| THRA | 0.016 | 0.095 | 0.079 |
| MGt5 | 0.034 | 0.113 | 0.079 |
| CHLabc | 0.036 | 0.115 | 0.079 |
| NTPP9 | 0.036 | 0.115 | 0.079 |
| CHLabc\_rev | 0.036 | 0.115 | 0.079 |
| ATPHs | 0.036 | 0.115 | 0.079 |
| NI2abcpp | 0.036 | 0.114 | 0.079 |
| GLYabcpp | 0.033 | 0.112 | 0.079 |
| NI2uabcpp | 0.036 | 0.114 | 0.079 |
| GLYtpp | 0.033 | 0.112 | 0.079 |
| GLUtex | 0.045 | 0.123 | 0.078 |
| NTD10 | 0.036 | 0.114 | 0.078 |
| PUNP7 | 0.036 | 0.114 | 0.078 |
| XPPT | 0.036 | 0.114 | 0.078 |
| PTHRP | 0.036 | 0.113 | 0.078 |
| LTHRK | 0.036 | 0.113 | 0.078 |
| NTP1 | 0.036 | 0.113 | 0.078 |
| MLTG5 | 0.036 | 0.113 | 0.078 |
| COabc | 0.035 | 0.113 | 0.077 |
| COBALTt5 | 0.035 | 0.112 | 0.077 |
| Cobalt2abcppI | 0.035 | 0.112 | 0.076 |
| COBALT2abcpp | 0.035 | 0.112 | 0.076 |
| XYLabc | 0.035 | 0.112 | 0.076 |
| G1PP | 0.035 | 0.112 | 0.076 |
| NTP3 | 0.035 | 0.111 | 0.076 |
| EX\_asn\_\_L\_e | -0.040 | -0.116 | 0.076 |
| ASNabc | 0.040 | 0.116 | 0.076 |
| EX\_xyl3\_e | -0.037 | -0.113 | 0.076 |
| XYLOS2 | 0.038 | 0.113 | 0.076 |
| XYL3abc | 0.038 | 0.113 | 0.075 |
| AIRC1 | 0.035 | 0.111 | 0.075 |
| EX\_xylb\_e | -0.037 | -0.111 | 0.075 |
| XYLOS3 | 0.037 | 0.111 | 0.075 |
| XYLBabc | 0.037 | 0.111 | 0.075 |
| G6PP | 0.035 | 0.110 | 0.075 |
| FBP | 0.035 | 0.109 | 0.074 |
| AMALT1 | 0.032 | 0.105 | 0.074 |
| MALT | 0.030 | 0.103 | 0.073 |
| CYSabc2pp | 0.033 | 0.106 | 0.073 |
| CYSabcpp | 0.033 | 0.106 | 0.073 |
| NO3t | -0.035 | -0.107 | 0.072 |
| NO3abc | 0.035 | 0.107 | 0.072 |
| CTPS2 | 0.020 | 0.092 | 0.072 |
| PUNP3 | 0.033 | 0.105 | 0.072 |
| ACONT | 0.088 | 0.160 | 0.072 |
| LEUabc | 0.027 | 0.098 | 0.071 |
| ALAt4 | 0.022 | 0.092 | 0.070 |
| ASPtpp | -0.031 | -0.102 | 0.070 |
| ASPabcpp | 0.031 | 0.102 | 0.070 |
| AIRC4 | 0.033 | 0.103 | 0.070 |
| AIRC3 | -0.033 | -0.103 | 0.069 |
| AIRC2 | 0.033 | 0.103 | 0.069 |
| EX\_man6pglyc\_e | -0.040 | -0.110 | 0.069 |
| MANPGH | 0.040 | 0.109 | 0.069 |
| MAN6Gpts | 0.040 | 0.109 | 0.069 |
| EX\_lcts\_e | -0.051 | -0.120 | 0.069 |
| LCTSabc | 0.051 | 0.120 | 0.069 |
| GALabcpp | 0.051 | 0.120 | 0.069 |
| ILEabc | 0.027 | 0.095 | 0.069 |
| LCTSt3ipp | 0.051 | 0.120 | 0.069 |
| LACZpp | 0.051 | 0.120 | 0.069 |
| UPPRT | 0.026 | 0.094 | 0.068 |
| LEUabcpp | 0.026 | 0.094 | 0.068 |
| ILEabcpp | 0.026 | 0.094 | 0.068 |
| EX\_gly\_glu\_\_L\_e | -0.015 | -0.083 | 0.067 |
| AMPEP8 | 0.015 | 0.083 | 0.067 |
| DIPEPabc10 | 0.015 | 0.083 | 0.067 |
| ZNabcpp | 0.032 | 0.099 | 0.067 |
| ZN2abcpp | 0.032 | 0.099 | 0.067 |
| GK1 | 0.004 | 0.070 | 0.066 |
| EX\_gly\_asn\_\_L\_e | -0.015 | -0.081 | 0.066 |
| AMPEP1 | 0.015 | 0.081 | 0.066 |
| DIPEPabc8 | 0.015 | 0.081 | 0.066 |
| GLCP4 | 0.030 | 0.095 | 0.066 |
| GLBRAN3 | 0.030 | 0.095 | 0.066 |
| VALabc | 0.026 | 0.091 | 0.066 |
| SERabc | 0.019 | 0.084 | 0.065 |
| VALabcpp | 0.026 | 0.090 | 0.064 |
| EX\_gly\_e | -0.014 | -0.078 | 0.064 |
| GLYabc | 0.014 | 0.078 | 0.064 |
| ACTNabc | 0.038 | 0.102 | 0.064 |
| AMANK\_1 | 0.008 | 0.070 | 0.062 |
| UAG2EMA | 0.008 | 0.070 | 0.062 |
| NTD7 | 0.026 | 0.087 | 0.061 |
| ARGSS2 | 0.025 | 0.086 | 0.061 |
| ARGSS | 0.025 | 0.086 | 0.061 |
| TMDPK | 0.028 | 0.088 | 0.060 |
| EX\_glucan4\_e | -0.027 | -0.086 | 0.059 |
| GLS | 0.027 | 0.086 | 0.059 |
| GLUCANabc | 0.027 | 0.086 | 0.059 |
| CA2abcpp | 0.027 | 0.086 | 0.059 |
| CA2tex | 0.027 | 0.086 | 0.059 |
| EX\_asp\_\_L\_e | -0.020 | -0.079 | 0.059 |
| ASPabc | 0.020 | 0.079 | 0.059 |
| R5PP | 0.029 | 0.088 | 0.059 |
| EX\_rib\_\_D\_e | 0.029 | 0.088 | 0.059 |
| GTPDPK | 0.027 | 0.085 | 0.059 |
| GTPDPK\_1 | 0.027 | 0.085 | 0.059 |
| GLCabcpp | 0.030 | 0.088 | 0.058 |
| CUabcpp | 0.027 | 0.085 | 0.058 |
| CU2tex | 0.027 | 0.085 | 0.058 |
| Cuabc | 0.026 | 0.084 | 0.058 |
| EX\_cgly\_e | -0.017 | -0.073 | 0.057 |
| HCYSMT | 0.012 | 0.069 | 0.057 |
| DIPEPabc15 | 0.017 | 0.073 | 0.057 |
| CA2abc | 0.026 | 0.083 | 0.057 |
| NTPTP1 | 0.021 | 0.078 | 0.057 |
| GLCabc | 0.025 | 0.081 | 0.056 |
| NAabc | 0.027 | 0.081 | 0.054 |
| GCALDt | -0.042 | -0.096 | 0.054 |
| OHPBAT | 0.042 | 0.095 | 0.054 |
| 4HTHRS | 0.042 | 0.095 | 0.054 |
| EX\_gcald\_e | 0.042 | 0.096 | 0.054 |
| EX\_ascb\_\_L\_e | -0.012 | -0.066 | 0.054 |
| PERD | 0.042 | 0.095 | 0.054 |
| 4HTHRA | 0.042 | 0.095 | 0.054 |
| E4PD | 0.042 | 0.095 | 0.054 |
| KG6PDC | 0.012 | 0.066 | 0.054 |
| ASCBpts | 0.012 | 0.066 | 0.054 |
| X5PL3E | 0.012 | 0.066 | 0.054 |
| RBP4E | 0.012 | 0.066 | 0.054 |
| ASCBPL | 0.012 | 0.066 | 0.054 |
| NADN | 0.025 | 0.078 | 0.053 |
| PIt7ipp | 0.350 | 0.404 | 0.053 |
| RIBabcpp | 0.024 | 0.076 | 0.052 |
| RIBtex | 0.024 | 0.076 | 0.052 |
| EX\_glyc3p\_e | -0.030 | -0.081 | 0.051 |
| GLYC3Pabc | 0.030 | 0.081 | 0.051 |
| RIBabc | 0.023 | 0.073 | 0.050 |
| EX\_gly\_asp\_\_L\_e | -0.011 | -0.061 | 0.050 |
| AMPEP10 | 0.011 | 0.061 | 0.050 |
| DIPEPabc13 | 0.011 | 0.061 | 0.050 |
| EX\_ala\_L\_glu\_\_L\_e | -0.017 | -0.066 | 0.049 |
| AMPEP5 | 0.017 | 0.066 | 0.049 |
| DIPEPabc3 | 0.017 | 0.066 | 0.049 |
| DHDPS | 0.059 | 0.107 | 0.048 |
| DHDPRy | 0.059 | 0.107 | 0.048 |
| GLYCK\_1 | 0.077 | 0.125 | 0.048 |
| GLYCK | 0.077 | 0.125 | 0.048 |
| DAPE | 0.059 | 0.107 | 0.048 |
| ALAabc | 0.016 | 0.063 | 0.048 |
| ALAabcpp | 0.016 | 0.063 | 0.047 |
| ALAtex | 0.016 | 0.063 | 0.047 |
| EX\_glucan6\_e | -0.021 | -0.068 | 0.047 |
| GLS2 | 0.021 | 0.068 | 0.047 |
| EX\_alaala\_e | -0.016 | -0.063 | 0.047 |
| GLUCAN2abc | 0.021 | 0.068 | 0.047 |
| ALAALAD\_1 | 0.016 | 0.063 | 0.047 |
| ALAALAtex | 0.016 | 0.063 | 0.047 |
| DAPDC | 0.058 | 0.105 | 0.047 |
| aratyr4 | 0.013 | 0.059 | 0.047 |
| GMPR | 0.024 | 0.071 | 0.046 |
| ASNS2 | 0.035 | 0.081 | 0.046 |
| NDPK5 | -0.011 | -0.056 | 0.045 |
| PIabc | 0.018 | 0.063 | 0.045 |
| NTD9 | 0.020 | 0.064 | 0.044 |
| H2SO | 0.043 | 0.000 | 0.043 |
| NTD11 | 0.020 | 0.062 | 0.043 |
| ADK2\_1 | 0.017 | 0.059 | 0.042 |
| ADK2 | 0.017 | 0.059 | 0.042 |
| CBPS\_1 | 0.020 | 0.063 | 0.042 |
| CBPS | 0.020 | 0.063 | 0.042 |
| EX\_cys\_\_L\_e | -0.026 | -0.067 | 0.041 |
| CYSabc | 0.026 | 0.067 | 0.041 |
| MEVK2 | 0.024 | 0.065 | 0.041 |
| MEVK1 | 0.024 | 0.065 | 0.041 |
| MEVK1\_1 | 0.024 | 0.065 | 0.041 |
| MEVK4 | 0.024 | 0.065 | 0.041 |
| MEVK3 | 0.023 | 0.064 | 0.041 |
| DTMPK | 0.023 | 0.064 | 0.041 |
| EX\_ala\_L\_asp\_\_L\_e | -0.012 | -0.051 | 0.040 |
| AMPEP13 | 0.012 | 0.051 | 0.040 |
| DIPEPabc1 | 0.012 | 0.051 | 0.040 |
| NT5C | 0.018 | 0.056 | 0.039 |
| DUTPDP | 0.018 | 0.056 | 0.038 |
| NMNAT | 0.018 | 0.056 | 0.038 |
| NTPP11 | 0.017 | 0.053 | 0.036 |
| GTPHs | 0.017 | 0.053 | 0.036 |
| NTPP7 | 0.017 | 0.053 | 0.036 |
| NTPP8 | 0.017 | 0.053 | 0.036 |
| CHORM | 0.044 | 0.080 | 0.036 |
| PNP | 0.016 | 0.052 | 0.035 |
| EX\_k\_e | -0.044 | -0.079 | 0.035 |
| EX\_ppi\_e | -0.014 | -0.047 | 0.033 |
| PPIabc | 0.014 | 0.047 | 0.033 |
| VALt2rpp | 0.711 | 0.744 | 0.033 |
| GLCP3 | 0.015 | 0.048 | 0.033 |
| SDPTA | -0.040 | -0.072 | 0.032 |
| THDPS | 0.040 | 0.072 | 0.032 |
| SDPDS | 0.040 | 0.072 | 0.032 |
| ACONTa | 0.052 | 0.083 | 0.031 |
| ACONTb | 0.052 | 0.083 | 0.031 |
| NTPTP2 | 0.013 | 0.041 | 0.028 |
| GLU5K | 0.033 | 0.061 | 0.027 |
| G5SADs | 0.033 | 0.061 | 0.027 |
| ADPRDP | 0.012 | 0.039 | 0.027 |
| ADPRDP\_1 | 0.012 | 0.039 | 0.027 |
| EX\_actn\_\_R\_e | -0.005 | 0.021 | 0.026 |
| ADKd | 0.007 | 0.031 | 0.024 |
| PPNDH | 0.026 | 0.048 | 0.022 |
| NMNHYD\_1 | 0.008 | 0.026 | 0.018 |
| NMNHYD | 0.008 | 0.026 | 0.018 |
| EX\_his\_\_L\_e | -0.021 | -0.038 | 0.017 |
| ADPTA | -0.019 | -0.035 | 0.016 |
| ADPDS | 0.019 | 0.035 | 0.016 |
| APATi | 0.019 | 0.035 | 0.016 |
| EX\_lys\_\_L\_e | -0.019 | -0.034 | 0.015 |
| PPND | 0.018 | 0.032 | 0.014 |
| G5SD | 0.017 | 0.030 | 0.014 |
| P5CR | 0.017 | 0.030 | 0.014 |
| G5SD2 | 0.017 | 0.030 | 0.014 |
| P5CRx | 0.017 | 0.030 | 0.014 |
| EX\_phe\_\_L\_e | -0.016 | -0.027 | 0.012 |
| PHEabc | 0.016 | 0.027 | 0.012 |
| CYSS\_2 | 0.071 | 0.082 | 0.011 |
| CYSS | 0.071 | 0.082 | 0.011 |
| GLUPRT | 0.018 | 0.029 | 0.011 |
| GARFT | 0.018 | 0.029 | 0.011 |
| PRAIS\_1 | 0.018 | 0.029 | 0.011 |
| PRFGS | 0.018 | 0.029 | 0.011 |
| PRASCSi | 0.018 | 0.029 | 0.011 |
| ADSL2r | 0.018 | 0.029 | 0.011 |
| AICART | 0.018 | 0.029 | 0.011 |
| IMPC | -0.018 | -0.029 | 0.011 |
| EX\_tyr\_\_L\_e | -0.013 | -0.024 | 0.011 |
| TYRabc | 0.013 | 0.024 | 0.011 |
| PTRCORNt7pp | -0.008 | -0.019 | 0.010 |
| ARGabc | 0.008 | 0.019 | 0.010 |
| ORNabcpp | 0.008 | 0.019 | 0.010 |
| ARGabcpp | 0.008 | 0.019 | 0.010 |
| PTRCabcpp | 0.008 | 0.019 | 0.010 |
| EX\_trp\_\_L\_e | -0.013 | -0.023 | 0.010 |
| TRPabc | 0.013 | 0.023 | 0.010 |
| MTHFR3 | 0.008 | 0.018 | 0.010 |
| HISabc | 0.007 | 0.017 | 0.010 |
| METS | 0.008 | 0.018 | 0.010 |
| EX\_gly\_pro\_\_L\_e | -0.010 | -0.019 | 0.010 |
| AMPEP11 | 0.010 | 0.019 | 0.010 |
| DIPEPabc14 | 0.010 | 0.019 | 0.010 |
| BUTKr | 0.009 | 0.000 | 0.009 |
| 6PHBG2 | -0.005 | -0.014 | 0.008 |
| 6PHBG | 0.005 | 0.014 | 0.008 |
| LYSabc | 0.009 | 0.017 | 0.007 |
| LYSabcpp | 0.009 | 0.017 | 0.007 |
| LYStex | 0.010 | 0.017 | 0.007 |
| HISt2r | 0.014 | 0.021 | 0.007 |
| HSST | 0.006 | 0.012 | 0.006 |
| HSERTA | 0.006 | 0.012 | 0.006 |
| ARGt2r | 0.017 | 0.023 | 0.006 |
| ARGt2pp | 0.017 | 0.022 | 0.006 |
| PPRGL | 0.009 | 0.015 | 0.006 |
| PRAGSr | 0.009 | 0.015 | 0.006 |
| TMDS3 | 0.006 | 0.011 | 0.005 |
| EX\_metox\_e | -0.006 | -0.010 | 0.005 |
| GLXCL | 0.135 | 0.140 | 0.004 |
| TRSARr | 0.135 | 0.140 | 0.004 |
| METSR\_S1 | 0.006 | 0.010 | 0.004 |
| METSabc | 0.006 | 0.010 | 0.004 |
| EX\_met\_\_L\_e | -0.006 | -0.010 | 0.004 |
| EX\_3amp\_e | -0.014 | -0.019 | 0.004 |
| 3NUCLE1 | 0.014 | 0.019 | 0.004 |
| 3AMPt6 | 0.014 | 0.019 | 0.004 |
| PPAP\_Et | -0.327 | -0.331 | 0.004 |
| OBTFL | 0.327 | 0.331 | 0.004 |
| PTA2 | 0.327 | 0.331 | 0.004 |
| EX\_ppap\_e | 0.327 | 0.331 | 0.004 |
| EX\_pro\_\_L\_e | -0.007 | -0.010 | 0.003 |
| PROabc | 0.007 | 0.010 | 0.003 |
| EX\_met\_L\_ala\_\_L\_e | -0.002 | -0.005 | 0.002 |
| EX\_mmet\_e | -0.004 | -0.007 | 0.002 |
| AMPEP14 | 0.002 | 0.005 | 0.002 |
| DIPEPabc12 | 0.002 | 0.005 | 0.002 |
| MMETt2pp | 0.004 | 0.007 | 0.002 |
| HCYSMT2 | 0.004 | 0.007 | 0.002 |
| IPDDI | 0.024 | 0.026 | 0.002 |
| MMETtex | 0.004 | 0.007 | 0.002 |
| DLMETR | -0.003 | -0.005 | 0.002 |
| EX\_met\_\_D\_e | -0.003 | -0.005 | 0.002 |
| EX\_hxan\_e | -0.014 | -0.016 | 0.002 |
| METDabc | 0.003 | 0.005 | 0.002 |
| METabc | 0.003 | 0.005 | 0.002 |
| METabcpp | 0.003 | 0.005 | 0.002 |
| HXANt2r | 0.014 | 0.016 | 0.002 |
| METtex | 0.003 | 0.005 | 0.002 |
| UGT\_BS | 0.001 | 0.003 | 0.002 |
| PAP\_BS | 0.001 | 0.003 | 0.002 |
| AGPATr\_BS | 0.001 | 0.003 | 0.002 |
| G3POA\_BS | 0.001 | 0.003 | 0.002 |
| UDCPDP | 0.002 | 0.004 | 0.002 |
| UAGPT3 | 0.002 | 0.004 | 0.002 |
| ALAALAr | 0.002 | 0.004 | 0.002 |
| UAPGR | 0.002 | 0.004 | 0.002 |
| UAGCVT | 0.002 | 0.004 | 0.002 |
| PAPPT3 | 0.002 | 0.004 | 0.002 |
| PPTGS\_BS | 0.002 | 0.004 | 0.002 |
| UGMDDS | 0.002 | 0.004 | 0.002 |
| EX\_mg2\_e | -0.002 | -0.004 | 0.002 |
| EX\_cit\_e | -0.002 | -0.003 | 0.001 |
| KAS4 | 0.001 | 0.002 | 0.001 |
| EX\_fe3\_e | -0.002 | -0.003 | 0.001 |
| FACOAL150\_anteiso | 0.001 | 0.002 | 0.001 |
| EX\_ca2\_e | -0.001 | -0.002 | 0.001 |
| EX\_cl\_e | -0.001 | -0.002 | 0.001 |
| UAMAS | 0.001 | 0.002 | 0.001 |
| UAAGDS | 0.001 | 0.002 | 0.001 |
| UAMAGS | 0.001 | 0.002 | 0.001 |
| Clt | 0.001 | 0.002 | 0.001 |
| EX\_LalaDgluMdapDala\_e | -0.001 | -0.002 | 0.001 |
| 4PEPTabcpp | 0.001 | 0.002 | 0.001 |
| KAS3 | 0.001 | 0.001 | 0.001 |
| FACOAL150\_ISO | 0.001 | 0.001 | 0.001 |
| UM3PL | 0.001 | 0.002 | 0.001 |
| 4PCP | 0.001 | 0.002 | 0.001 |
| 4PEPTtex | 0.001 | 0.002 | 0.001 |
| FE3abc | 0.001 | 0.002 | 0.001 |
| FEDCabc | 0.001 | 0.002 | 0.001 |
| KAS12 | 0.001 | 0.001 | 0.001 |
| 2AGPE160tipp | 0.000 | 0.001 | 0.001 |
| FACOAL170\_anteiso | 0.001 | 0.001 | 0.001 |
| EX\_fe3pyovd\_kt\_e | -0.001 | -0.001 | 0.001 |
| EX\_nmn\_e | 0.000 | -0.001 | 0.001 |
| EX\_pyovd\_kt\_e | 0.001 | 0.001 | 0.001 |
| NMNTP | 0.000 | 0.001 | 0.001 |
| FE2abcpp | 0.001 | 0.001 | 0.001 |

In the results obtained from each algorithm, the differential fluxes of reactions were defined based on two principles: 1) if the direction of flux in a reaction is the same between the anaerobic and aerobic groups, or if the reaction carries no flux in the anaerobic group, the differential flux is represented as the absolute difference (|anaerobic group| - |aerobic group|); 2) if the direction is opposite in the two groups, the differential flux is represented as the absolute sum (|anaerobic group | + |aerobic group|).