			fopt				fenv	
Abbr	Reaction	Subsystem	Mixed Optima	Glucose Aerobic	Glucose Anaerobic	Variable Conditions	SubOptimal	Optimal
12PPDt	12ppd-S[e] <==> 12ppd-S[c]	Transport, Extracellular	0.0088	0	0	0	0.045	0.011
2DGLCNRx	[c]2dhglcn + h + nadh --> glcn + nad	Alternate Carbon Metabolism	0	0	0	0	0	0
2DGLCNRy	[c]2dhglcn + h + nadph --> glcn + nadp	Alternate Carbon Metabolism	0	0	0	0	0	0
2DGULRx	[c]2dhguln + h + nadh --> idon-L + nad	Alternate Carbon Metabolism	0	0	0	0	0	0
2DGULRy	[c]2dhguln + h + nadph --> idon-L + nadp	Alternate Carbon Metabolism	0	0	0	0	0	0
3HCINNMH	[c]3hcinnm + h + nadh + o2 --> dhcinnm + h2o + nad	Alternate Carbon Metabolism	0.0088	0	0	0	0.011	0.011
3HPPPNH	[c]3hpppn + h + nadh + o2 --> dhpppn + h2o + nad	Alternate Carbon Metabolism	0.0088	0	0	0	0.011	0.011
4HTHRS	[c]h2o + phthr --> 4hthr + pi	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
5DGLCNR	[c]5dglcn + h + nadph <==> glcn + nadp	Alternate Carbon Metabolism	0.0159	0	0	0	0.045	0.011
A5PISO	[c]ru5p-D <==> ara5p	Alternate Carbon Metabolism	1	1	1	0	1	1
AACPS1	[c]ACP + atp + ttdca --> amp + myrsACP + ppi	Cell Envelope Biosynthesis	0.0088	0	0	0	1	0.011
AACPS2	[c]ACP + atp + ttdcea --> amp + ppi + tdeACP	Cell Envelope Biosynthesis	0	0	0	0	**1**	**0**
AACPS3	[c]ACP + atp + hdca --> amp + palmACP + ppi	Cell Envelope Biosynthesis	0.0088	0	0	0	1	0.011
AACPS4	[c]ACP + atp + hdcea --> amp + hdeACP + ppi	Cell Envelope Biosynthesis	0	0	0	0	**1**	**0**
AACPS5	[c]ACP + atp + ocdcea --> amp + octeACP + ppi	Cell Envelope Biosynthesis	0	0	0	0	**1**	**0**
AADDGT	[c]dtdp4aaddg + unagamu --> dtdp + h + unagamuf	Cell Envelope Biosynthesis	0	0	0	0	0	0
AB6PGH	[c]arbt6p + h2o --> g6p + hqn	Alternate Carbon Metabolism	0	0	0	0	0	0
ABTA	[c]4abut + akg --> glu-L + sucsal	Arginine and Proline Metabolism	0.0176	0	0	0	1	0.023
ABUTD	[c]4abutn + h2o + nad --> 4abut + (2) h + nadh	Arginine and Proline Metabolism	0.0088	0	0	0	1	0.011
ABUTt2	4abut[e] + h[e] --> 4abut[c] + h[c]	Transport, Extracellular	0	0	0	0	0	0
ACACCT	[c]acac + accoa --> aacoa + ac	Alternate Carbon Metabolism	0.0088	0	0	0	0.011	0.011
ACACT1r	[c](2) accoa <==> aacoa + coa	Membrane Lipid Metabolism	0.0177	0	0	0	0.023	0.023
ACACt2	acac[e] + h[e] <==> acac[c] + h[c]	Putative Transporters	0.0088	0	0	0	0.011	0.011
ACALDi	[c]acald + coa + nad --> accoa + h + nadh	Alternate Carbon Metabolism	0.0620	0	0	18	1	0.136
ACALDt	acald[e] <==> acald[c]	Transport, Extracellular	0.0088	0	0	0	1	0.011
ACBIPGT	[c]adocbip + gtp + h --> agdpcbi + ppi	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
ACCOACr	[c]accoa + atp + hco3 <==> adp + h + malcoa + pi	Membrane Lipid Metabolism	1	1	1	0	1	1
ACCOAL	[c]atp + coa + ppa --> adp + pi + ppcoa	Alternate Carbon Metabolism	0	0	0	0	0	0
ACGAMT	[c]uacgam + udcpp --> ump + unaga	Cell Envelope Biosynthesis	0	0	0	0	0	0
ACGApts	acgam[e] + pep[c] --> acgam6p[c] + pyr[c]	Transport, Extracellular	0.0125	0	0	0	0.011	0.011
ACGK	[c]acglu + atp --> acg5p + adp	Arginine and Proline Metabolism	0.9824	1	1	0	1	0.977
ACGS	[c]accoa + glu-L --> acglu + coa + h	Arginine and Proline Metabolism	0.9824	1	1	0	1	0.977
ACHBS	[c]2obut + h + pyr --> 2ahbut + co2	Valine, leucine, and isoleucine metabolism	1	1	1	0	1	1
ACKr	[c]ac + atp <==> actp + adp	Pyruvate metabolism	1	1	1	0	1	1
ACLS	[c]h + (2) pyr --> alac-S + co2	Valine, leucine, and isoleucine metabolism	1	1	1	0	1	1
ACMAMUT	[c]uacmamu + unaga --> h + udp + unagamu	Cell Envelope Biosynthesis	0	0	0	0	0	0
ACMANApts	acmana[e] + pep[c] --> acmanap[c] + pyr[c]	Transport, Extracellular	0.0131	0	0	0	0.011	0.011
ACNAMt2	acnam[e] + h[e] --> acnam[c] + h[c]	Transport, Extracellular	0.0145	0	0	0	0.011	0.011
ACNML	[c]acnam --> acmana + pyr	Alternate Carbon Metabolism	0.0145	0	0	0	0.011	0.011
ACOATA	[c]ACP + accoa <==> acACP + coa	Membrane Lipid Metabolism	0.4535	0.344	0.471	136	1	1
ACODA	[c]acorn + h2o --> ac + orn	Arginine and Proline Metabolism	0.9824	1	1	0	1	0.977
ACONMT	[c]acon-T + amet --> aconm + ahcys	Unassigned	0	0	0	0	0	0
ACONT	[c]cit <==> icit	Citrate Cycle (TCA)	1	1	1	0	1	1

ACOTA	[c]acorn + akg <==> acg5sa + glu-L	Arginine and Proline Metabolism	0.9824	1	1	0	1	0.977
ACPS1	[c]apoACP + coa --> ACP + h + pap	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
ACS	[c]ac + atp + coa --> accoa + amp + ppi	Pyruvate metabolism	0	0	0	0	**1**	**0**
ACt2r	ac[e] + h[e] <==> ac[c] + h[c]	Transport, Extracellular	0.2326	0	1	0	1	0.011
ADA	[c]adn + h + h2o --> ins + nh4	Nucleotide Salvage Pathways	0.0125	0	0	4	1	0.023
ADCL	[c]4adcho --> 4abz + h + pyr	Cofactor and Prosthetic Group Biosynthesis	1	1	1	0	1	1
ADCS	[c]chor + gln-L --> 4adcho + glu-L	Cofactor and Prosthetic Group Biosynthesis	1	1	1	0	1	1
ADD	[c]ade + h + h2o --> hxan + nh4	Nucleotide Salvage Pathways	0.0106	0	0	4	1	0.023
ADEt2r	ade[e] + h[e] <==> ade[c] + h[c]	Transport, Extracellular	0.0094	0	0	2	**1**	**0**
ADHEr	[c]accoa + (2) h + (2) nadh <==> coa + etoh + (2) nad	Pyruvate metabolism	0.2143	0	1	0	1	0.011
ADK1	[c]amp + atp <==> (2) adp	Nucleotide Salvage Pathways	0	0	0	0	0	0
ADK3	[c]amp + gtp <==> adp + gdp	Nucleotide Salvage Pathways	1	1	1	92	1	1
ADK4	[c]amp + itp <==> adp + idp	Nucleotide Salvage Pathways	0	0	0	0	0	0
ADMDCr	[c]amet + h <==> ametam + co2	Arginine and Proline Metabolism	1	1	1	0	1	1
ADNCYC	[c]atp --> camp + ppi	Nucleotide Salvage Pathways	0	0	0	0	0	0
ADNK1	[c]adn + atp --> adp + amp + h	Nucleotide Salvage Pathways	1	1	1	90	1	1
ADNt2	adn[e] + h[e] --> adn[c] + h[c]	Transport, Extracellular	0	0	0	0	0	0
ADNt2r	adn[e] + h[e] <==> adn[c] + h[c]	Transport, Extracellular	0.0176	0	0	0	1	0.011
ADOCBIK	[c]adocbi + atp --> adocbip + adp + h	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
ADOCBLS	[c]agdpcbi + rdmbzi --> adocbl + gmp + h	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
ADPT	[c]ade + prpp --> amp + ppi	Nucleotide Salvage Pathways	0	0	0	0	**1**	**0**
ADSK	[c]aps + atp --> adp + h + paps	Cysteine Metabolism	1	1	1	0	1	1
ADSL1r	[c]dcamp <==> amp + fum	Purine and Pyrimidine Biosynthesis	0.9656	1	1	0	1	0.977
ADSL2r	[c]25aics <==> aicar + fum	Purine and Pyrimidine Biosynthesis	0.9126	1	1	0	1	0.920
ADSS	[c]asp-L + gtp + imp --> dcamp + gdp + (2) h + pi	Purine and Pyrimidine Biosynthesis	0.9656	1	1	0	1	0.977
AGDC	[c]acgam6p + h2o --> ac + gam6p	Alternate Carbon Metabolism	0.0400	0	0	0	0.034	0.034
AGMHE	[c]adphep-D,D --> adphep-L,D	Cell Envelope Biosynthesis	1	1	1	0	1	1
AGMT	[c]agm + h2o --> ptrc + urea	Arginine and Proline Metabolism	0.0088	0	0	0	1	0.011
AGPR	[c]acg5sa + nadp + pi <==> acg5p + h + nadph	Arginine and Proline Metabolism	0.9824	1	1	0	1	0.977
AHC	[c]ahcys + h2o <==> adn + hcys-L	Methionine Metabolism	0	0	0	0	0	0
AHCYSNS	[c]ahcys + h2o --> ade + rhcys	Methionine Metabolism	0	0	0	0	0	0
AICART	[c]10fthf + aicar <==> fprica + thf	Purine and Pyrimidine Biosynthesis	1	1	1	0	1	1
AIRC2	[c]air + atp + hco3 --> 5caiz + adp + h + pi	Purine and Pyrimidine Biosynthesis	0.9126	1	1	0	1	0.920
AIRC3	[c]5aizc <==> 5caiz	Purine and Pyrimidine Biosynthesis	0.9126	1	1	0	1	0.920
AKGt2r	akg[e] + h[e] <==> akg[c] + h[c]	Transport, Extracellular	0.0088	0	0	0	1	0.011
ALAabc	ala-L[e] + atp[c] + h2o[c] --> adp[c] + ala-L[c] + h[c] + pi[c]	Transport, Extracellular	0	0	0	0	**1**	**0**
ALAALAr	[c](2) ala-D + atp <==> adp + alaala + h + pi	Cell Envelope Biosynthesis	1	1	1	0	1	1
ALAR	[c]ala-L <==> ala-D	Alanine and aspartate metabolism	1	1	1	0	1	1
ALARi	[c]ala-L --> ala-D	Alanine and aspartate metabolism	0	0	0	0	0	0
ALAt2r	ala-L[e] + h[e] <==> ala-L[c] + h[c]	Putative Transporters	0.0088	0	0	0	1	0.011
ALATA_D2	[c]ala-D + pydx5p --> pyam5p + pyr	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	**1**	**0**
ALATA_L	[c]akg + ala-L <==> glu-L + pyr	Alanine and aspartate metabolism	1	1	1	0	1	1
ALATA_L2	[c]ala-L + pydx5p --> pyam5p + pyr	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	**1**	**0**
ALCD19	[c]glyald + h + nadh <==> glyc + nad	Alternate Carbon Metabolism	0.0088	0	0	0	1	0.011
ALDD19x	[c]h2o + nad + pacald --> (2) h + nadh + pac	Alternate Carbon Metabolism	0	0	0	0	0	0
ALDD2x	[c]acald + h2o + nad --> ac + (2) h + nadh	Alternate Carbon Metabolism	0	0	0	0	**1**	**0**
ALLTAH	[c]alltt + h2o --> urdglyc + urea	Nitrogen	0	0	0	0	0	0
ALLTN	[c]alltn + h2o --> alltt + h	Nitrogen	0	0	0	0	0	0
ALLTNt2r	alltn[e] + h[e] <==> alltn[c] + h[c]	Putative Transporters	0	0	0	0	0	0

ALTRH	[c]altrn --> 2ddglcn + h2o	Alternate Carbon Metabolism	0.0133	0	0	0	0.011	0.011
AMALT1	[c]malt + malttr --> glc-D + maltttr	Alternate Carbon Metabolism	0	0	0	0	**0.057**	**0**
AMALT2	[c]malt + maltttr --> glc-D + maltpt	Alternate Carbon Metabolism	0.0309	0	0	10	0.057	0.057
AMALT3	[c]malt + maltpt --> glc-D + malthx	Alternate Carbon Metabolism	0.0236	0	0	10	0.057	0.057
AMALT4	[c]malt + malthx --> glc-D + malthp	Alternate Carbon Metabolism	0.0207	0	0	10	0.057	0.057
AMANAPE	[c]acmanap --> acgam6p	Putative	0.0275	0	0	0	0.023	0.023
AMANK	[c]acmana + atp --> acmanap + adp + h	Putative	0.0145	0	0	0	0.011	0.011
AMAOTr	[c]8aonn + amet <==> amob + dann	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
AMMQT8_2	[c]2dmmq8 + amet --> ahcys + h + mqn8	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
AMPMS	[c]air + h2o --> 4ampm + (2) for + (4) h	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
AMPN	[c]amp + h2o --> ade + r5p	Nucleotide Salvage Pathways	0	0	0	0	**1**	**0**
ANPRT	[c]anth + prpp --> ppi + pran	Tyrosine, Tryptophan, and Phenylalanine Metabolism	0.9912	1	1	0	1	0.989
ANS	[c]chor + gln-L --> anth + glu-L + h + pyr	Tyrosine, Tryptophan, and Phenylalanine Metabolism	0.9912	1	1	0	1	0.989
AOXSr	[c]ala-L + h + pmcoa <==> 8aonn + co2 + coa	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
AP4AH	[c]ap4a + h2o --> (2) adp + (2) h	Nucleotide Salvage Pathways	0	0	0	0	0	0
AP5AH	[c]ap5a + h2o --> adp + atp + (2) h	Nucleotide Salvage Pathways	0	0	0	0	0	0
APRAUR	[c]5apru + h + nadph --> 5aprbu + nadp	Cofactor and Prosthetic Group Biosynthesis	0.9969	1	1	0	1	1
ARAI	[c]arab-L <==> rbl-L	Alternate Carbon Metabolism	0.0162	0	0	0	0.011	0.011
ARBabc	arab-L[e] + atp[c] + h2o[c] --> adp[c] + arab-L[c] + h[c] + pi[c]	Transport, Extracellular	0	0	0	0	**1**	**0**
ARBt2r	arab-L[e] + h[e] <==> arab-L[c] + h[c]	Transport, Extracellular	0.0162	0	0	0	1	0.011
ARGabc	arg-L[e] + atp[c] + h2o[c] --> adp[c] + arg-L[c] + h[c] + pi[c]	Transport, Extracellular	0	0	0	0	**1**	**0**
ARGDC	[c]arg-L + h --> agm + co2	Arginine and Proline Metabolism	0.0088	0	0	0	1	0.011
ARGORNt7	arg-L[e] + orn[c] <==> arg-L[c] + orn[e]	Putative Transporters	0.0088	0	0	0	1	0.011
ARGSL	[c]argsuc <==> arg-L + fum	Arginine and Proline Metabolism	0.9912	1	1	0	1	0.989
ARGSS	[c]asp-L + atp + citr-L --> amp + argsuc + h + ppi	Arginine and Proline Metabolism	0.9912	1	1	0	1	0.989
ASAD	[c]aspsa + nadp + pi <==> 4pasp + h + nadph	Threonine and Lysine Metabolism	1	1	1	0	1	1
ASNabc	asn-L[e] + atp[c] + h2o[c] --> adp[c] + asn-L[c] + h[c] + pi[c]	Transport, Extracellular	0	0	0	0	**1**	**0**
ASNN	[c]asn-L + h2o --> asp-L + nh4	Alanine and aspartate metabolism	0.0088	0	0	0	1	0.011
ASNS1	[c]asp-L + atp + gln-L + h2o --> amp + asn-L + glu-L + h + ppi	Alanine and aspartate metabolism	0.0002	0	0	1	1	0.011
ASNS2	[c]asp-L + atp + nh4 --> amp + asn-L + h + ppi	Alanine and aspartate metabolism	0.9910	1	1	1	1	0.989
ASNt2r	asn-L[e] + h[e] <==> asn-L[c] + h[c]	Transport, Extracellular	0.0088	0	0	0	1	0.011
ASP1DC	[c]asp-L + h --> ala-B + co2	Cofactor and Prosthetic Group Biosynthesis	1	1	1	0	1	1
ASPabc	asp-L[e] + atp[c] + h2o[c] --> adp[c] + asp-L[c] + h[c] + pi[c]	Transport, Extracellular	0	0	0	0	**0.011**	**0**
ASPCT	[c]asp-L + cbp --> cbasp + h + pi	Purine and Pyrimidine Biosynthesis	0.9485	1	1	0	1	0.955
ASPK	[c]asp-L + atp <==> 4pasp + adp	Threonine and Lysine Metabolism	1	1	1	0	1	1
ASPO3	[c]asp-L + q8 --> iasp + q8h2	Cofactor and Prosthetic Group Biosynthesis	0.3178	0.812	0	88	1	1
ASPO4	[c]asp-L + mqn8 --> iasp + mql8	Cofactor and Prosthetic Group Biosynthesis	0.2186	0.132	0.525	136	1	1
ASPO5	[c]asp-L + fum --> iasp + succ	Cofactor and Prosthetic Group Biosynthesis	0.4636	0.056	0.475	136	1	1
ASPO6	[c]asp-L + o2 --> h2o2 + iasp	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	**1**	**0**
ASPT	[c]asp-L --> fum + nh4	Alanine and aspartate metabolism	0.0497	0	0	28	1	0.295
ASPt2	asp-L[e] + h[e] --> asp-L[c] + h[c]	Transport, Extracellular	0.0088	0	0	0	0.011	0.011
ASPt2_2	asp-L[e] + (2) h[e] --> asp-L[c] + (2) h[c]	Transport, Extracellular	0	0	0	0	**0.011**	**0**
ASPt2_3	asp-L[e] + (3) h[e] --> asp-L[c] + (3) h[c]	Transport, Extracellular	0	0	0	0	**0.011**	**0**
ASPTA	[c]akg + asp-L <==> glu-L + oaa	Alanine and aspartate metabolism	0.9985	1	1	28	1	1
AST	[c]arg-L + succoa --> coa + h + sucarg	Arginine and Proline Metabolism	0.0088	0	0	0	1	0.011
ATPM	[c]atp + h2o --> adp + h + pi	Unassigned	1	1	1	0	1	1
ATPPRT	[c]atp + prpp --> ppi + prbatp	Histidine Metabolism	1	1	1	0	1	1
ATPS4r	adp[c] + (4) h[e] + pi[c] <==> atp[c] + (3) h[c] + h2o[c]	Oxidative phosphorylation	1	1	1	0	1	1
BETALDHx	[c]betald + h2o + nad --> glyb + (2) h + nadh	Unassigned	0	0	0	0	0	0

BETALDHy	[c]betald + h2o + nadp --> glyb + (2) h + nadph	Unassigned	0	0	0	0	0	0
BPNT	[c]h2o + pap --> amp + pi	Cysteine Metabolism	1	1	1	0	1	1
BSORx	[c]btnso + h + nadh --> btn + h2o + nad	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
BSORy	[c]btnso + h + nadph --> btn + h2o + nadp	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
BTS2	[c]cys-L + dtbt <==> ala-L + btn + (2) h	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
BUTCT	[c]accoa + but --> ac + btcoa	Alternate Carbon Metabolism	0.0088	0	0	0	0.011	0.011
BUTt2r	but[e] + h[e] <==> but[c] + h[c]	Putative Transporters	0.0088	0	0	0	0.011	0.011
C120SN	[c]actACP + (14) h + (4) malACP + (10) nadph --> (4) ACP + (4) co2 + ddcaACP + (5) h2o + (10) nadp	Membrane Lipid Metabolism	1	1	1	0	1	1
C140SN	[c]actACP + (17) h + (5) malACP + (12) nadph --> (5) ACP + (5) co2 + (6) h2o + myrsACP + (12) nadp	Membrane Lipid Metabolism	0.9912	1	1	0	1	0.989
C141SN	[c]actACP + (16) h + (5) malACP + (11) nadph --> (5) ACP + (5) co2 + (6) h2o + (11) nadp + tdeACP	Membrane Lipid Metabolism	1	1	1	0	1	1
C160SN	[c]actACP + (20) h + (6) malACP + (14) nadph --> (6) ACP + (6) co2 + (7) h2o + (14) nadp + palmACP	Membrane Lipid Metabolism	0.9912	1	1	0	1	0.989
C161SN	[c]actACP + (19) h + (6) malACP + (13) nadph --> (6) ACP + (6) co2 + (7) h2o + hdeACP + (13) nadp	Membrane Lipid Metabolism	1	1	1	0	1	1
C181SN	[c]actACP + (22) h + (7) malACP + (15) nadph --> (7) ACP + (7) co2 + (8) h2o + (15) nadp + octeACP	Membrane Lipid Metabolism	1	1	1	0	1	1
CADVt	15dap[c] + h[e] + lys-L[e] --> 15dap[e] + h[c] + lys-L[c]	Transport, Extracellular	0	0	0	0	**1**	**0**
CAT	[c](2) h2o2 --> (2) h2o + o2	Unassigned	0	0	0	0	**1**	**0**
CBIAT	[c]atp + cbi + h2o <==> adocbi + pi + ppi	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
CBL1abc	atp[c] + cbl1[e] + h2o[c] --> adp[c] + cbl1[c] + h[c] + pi[c]	Transport, Extracellular	0	0	0	0	0	0
CBLAT	[c]atp + cbl1 + h2o <==> adocbl + pi + ppi	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
CBMK	[c]atp + co2 + nh4 --> adp + cbp + (2) h	Putative	1	1	1	0	1	1
CBPS	[c](2) atp + gln-L + h2o + hco3 --> (2) adp + cbp + glu-L + (2) h + pi	Arginine and Proline Metabolism	0	0	0	0	**1**	**0**
CDAPPA_EC	[c](0.02) cdpdag1 + h2o --> cmp + (2) h + (0.02) pa_EC	Membrane Lipid Metabolism	0	0	0	0	**1**	**0**
CDPMEK	[c]4c2me + atp --> 2p4c2me + adp + h	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
CHLabc	atp[c] + chol[e] + h2o[c] --> adp[c] + chol[c] + h[c] + pi[c]	Putative Transporters	0	0	0	0	**1**	**0**
CHLt2r	chol[e] + h[e] <==> chol[c] + h[c]	Transport, Extracellular	0	0	0	0	**1**	**0**
CHORM	[c]chor --> pphn	Tyrosine, Tryptophan, and Phenylalanine Metabolism	1	1	1	0	1	1
CHORS	[c]3psme --> chor + pi	Tyrosine, Tryptophan, and Phenylalanine Metabolism	1	1	1	0	1	1
CHRPL	[c]chor --> 4hbz + pyr	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
CINNDO	[c]cinnm + h + nadh + o2 --> cenchddd + nad	Alternate Carbon Metabolism	0	0	0	0	0	0
CITL	[c]cit --> ac + oaa	Citrate Cycle (TCA)	0.0264	0	0	0	1	0.034
CITt7	cit[e] + succ[c] --> cit[c] + succ[e]	Transport, Extracellular	0.0088	0	0	0	0.011	0.011
CLPNS_EC	[c](0.04) pg_EC <==> (0.02) clpn_EC + glyc	Membrane Lipid Metabolism	1	1	1	0	1	1
CMPN	[c]cmp + h2o --> csn + r5p	Nucleotide Salvage Pathways	0	0	0	0	**1**	**0**
CO2t	co2[e] <==> co2[c]	Transport, Extracellular	1	1	1	0	1	1
CPPPGO	[c]cpppg3 + (2) h + o2 --> (2) co2 + (2) h2o + pppg9	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
CRNBTCT	[c]bbtcoa + crn <==> crncoa + gbbtn	Oxidative phosphorylation	0	0	0	0	0	0
CRNCBCT	[c]crn + ctbtcoa <==> crncoa + ctbt	Oxidative phosphorylation	0	0	0	0	0	0
CRNCDH	[c]crncoa <==> ctbtcoa + h2o	Oxidative phosphorylation	0	0	0	0	0	0
CRNt7	crn[e] + gbbtn[c] --> crn[c] + gbbtn[e]	Transport, Extracellular	0	0	0	0	0	0
CS	[c]accoa + h2o + oaa --> cit + coa + h	Citrate Cycle (TCA)	0.9736	1	1	0	1	0.966
CSND	[c]csn + h + h2o --> nh4 + ura	Nucleotide Salvage Pathways	0	0	0	0	**1**	**0**
CSNt2	csn[e] + h[e] --> csn[c] + h[c]	Transport, Extracellular	0	0	0	0	0	0
CTPS2	[c]atp + gln-L + h2o + utp --> adp + ctp + glu-L + (2) h + pi	Purine and Pyrimidine Biosynthesis	0.9824	1	1	0	1	0.989
CYANST	[c]cyan + tsul --> h + so3 + tcynt	Unassigned	0	0	0	0	0	0

CYNTAH	[c]cynt + (3) h + hco3 --> (2) co2 + nh4	Nitrogen	0	0	0	0	0	0
CYNTt2	cynt[e] + h[e] --> cynt[c] + h[c]	Putative Transporters	0	0	0	0	0	0
CYSabc	atp[c] + cys-L[e] + h2o[c] --> adp[c] + cys-L[c] + h[c] + pi[c]	Transport, Extracellular	0	0	0	0	0	0
CYSS	[c]acser + h2s --> ac + cys-L + h	Cysteine Metabolism	1	1	1	0	1	1
CYSTL	[c]cyst-L + h2o --> hcys-L + nh4 + pyr	Methionine Metabolism	1	1	1	0	1	1
CYTBD	(2) h[c] + (0.5) o2[c] + q8h2[c] --> (2) h[e] + h2o[c] + q8[c]	Oxidative phosphorylation	0	0	0	0	**1**	**0**
CYTBO3	(2.5) h[c] + (0.5) o2[c] + q8h2[c] --> (2.5) h[e] + h2o[c] + q8[c]	Oxidative phosphorylation	0.7695	1	0	0	1	1
CYTD	[c]cytd + h + h2o --> nh4 + uri	Nucleotide Salvage Pathways	0.0176	0	0	2	1	0.011
CYTDK2	[c]cytd + gtp --> cmp + gdp + h	Nucleotide Salvage Pathways	0.0176	0	0	2	1	0.011
CYTDt2	cytd[e] + h[e] --> cytd[c] + h[c]	Transport, Extracellular	0	0	0	0	0	0
CYTDt2r	cytd[e] + h[e] <==> cytd[c] + h[c]	Transport, Extracellular	0.0176	0	0	0	1	0.011
CYTK1	[c]atp + cmp <==> adp + cdp	Nucleotide Salvage Pathways	1	1	1	2	1	1
CYTK2	[c]atp + dcmp <==> adp + dcdp	Nucleotide Salvage Pathways	0.0019	0	0	2	1	0.011
DAAD	[c]ala-D + fad + h2o --> fadh2 + nh4 + pyr	Alanine and aspartate metabolism	0	0	0	0	**1**	**0**
DADA	[c]dad-2 + h + h2o --> din + nh4	Nucleotide Salvage Pathways	0.0156	0	0	4	1	0.023
DADK	[c]atp + damp <==> adp + dadp	Nucleotide Salvage Pathways	0.1660	0.328	0.029	90	1	0.602
DADNt2	dad-2[e] + h[e] --> dad-2[c] + h[c]	Transport, Extracellular	0.0168	0	0	0	0.011	0.011
DAGK_EC	[c](0.02) 12dgr_EC + atp --> adp + h + (0.02) pa_EC	Cell Envelope Biosynthesis	1	1	1	0	1	1
DALAt2r	ala-D[e] + h[e] <==> ala-D[c] + h[c]	Transport, Extracellular	0.0088	0	0	0	1	0.011
DAPabc	26dap-M[e] + atp[c] + h2o[c] --> 26dap-M[c] + adp[c] + h[c] + pi[c]	Transport, Extracellular	0	0	0	0	0	0
DAPDC	[c]26dap-M + h --> co2 + lys-L	Threonine and Lysine Metabolism	1	1	1	0	1	1
DAPE	[c]26dap-LL <==> 26dap-M	Threonine and Lysine Metabolism	1	1	1	0	1	1
DASYN_EC	[c]ctp + h + (0.02) pa_EC <==> (0.02) cdpdag1 + ppi	Membrane Lipid Metabolism	1	1	1	0	1	1
DB4PS	[c]ru5p-D --> db4p + for + h	Cofactor and Prosthetic Group Biosynthesis	0.9969	1	1	0	1	1
DBTSr	[c]atp + co2 + dann <==> adp + dtbt + (3) h + pi	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
DCTPD	[c]dctp + h + h2o --> dutp + nh4	Nucleotide Salvage Pathways	0.0052	0	0	2	1	0.011
DCYTD	[c]dcyt + h + h2o --> duri + nh4	Nucleotide Salvage Pathways	0.0118	0	0	2	1	0.023
DCYTt2	dcyt[e] + h[e] --> dcyt[c] + h[c]	Transport, Extracellular	0.0099	0	0	0	0.011	0.011
DDGALK	[c]2dh3dgal + atp --> 2dh3dgal6p + adp + h	Alternate Carbon Metabolism	0.0132	0	0	0	0.011	0.011
DDGLCNt2r	2ddglcn[e] + h[e] <==> 2ddglcn[c] + h[c]	Transport, Extracellular	0.0132	0	0	0	0.034	0.011
DDGLK	[c]2ddglcn + atp --> 2ddg6p + adp + h	Alternate Carbon Metabolism	0.0399	0	0	0	0.034	0.034
DDPA	[c]e4p + h2o + pep --> 2dda7p + pi	Tyrosine, Tryptophan, and Phenylalanine Metabolism	1	1	1	0	1	1
DDPGALA	[c]2dh3dgal6p <==> g3p + pyr	Alternate Carbon Metabolism	0.0132	0	0	0	0.011	0.011
DGK1	[c]atp + dgmp <==> adp + dgdp	Nucleotide Salvage Pathways	0.2709	0.192	0.926	90	1	0.602
DGSNt2	dgsn[e] + h[e] --> dgsn[c] + h[c]	Transport, Extracellular	0.0099	0	0	0	0.011	0.011
DHAD1	[c]23dhmb --> 3mob + h2o	Valine, leucine, and isoleucine metabolism	1	1	1	0	1	1
DHAD2	[c]23dhmp --> 3mop + h2o	Valine, leucine, and isoleucine metabolism	1	1	1	0	1	1
DHAPT	[c]dha + pep --> dhap + pyr	Alternate Carbon Metabolism	0.2386	0.712	0.510	64	1	0.352
DHAt	dha[e] <==> dha[c]	Transport, Extracellular	0.0088	0	0	0	1	0.011
DHBD	[c]23ddhb + nad <==> 23dhb + h + nadh	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
DHBSr	[c]23dhb + atp <==> 23dhba + ppi	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
DHCIND	[c]cenchddd + nad --> dhcinnm + h + nadh	Alternate Carbon Metabolism	0	0	0	0	0	0
DHCINDO	[c]dhcinnm + o2 --> hkntd	Alternate Carbon Metabolism	0.0088	0	0	0	0.011	0.011
DHDPRy	[c]23dhdp + h + nadph --> nadp + thdp	Threonine and Lysine Metabolism	1	1	1	0	1	1
DHDPS	[c]aspsa + pyr --> 23dhdp + h + (2) h2o	Threonine and Lysine Metabolism	1	1	1	0	1	1
DHFR	[c]dhf + h + nadph <==> nadp + thf	Cofactor and Prosthetic Group Biosynthesis	1	1	1	0	1	1
DHFS	[c]atp + dhpt + glu-L --> adp + dhf + pi	Cofactor and Prosthetic Group Biosynthesis	1	1	1	0	1	1
DHNAOT	[c]dhna + octdp --> 2dmmq8 + co2 + h + ppi	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
DHNPA2	[c]dhnpt --> 6hmhpt + gcald	Cofactor and Prosthetic Group Biosynthesis	1	1	1	0	1	1

DHORD2	[c]dhor-S + q8 --> orot + q8h2	Purine and Pyrimidine Biosynthesis	0.5316	0.808	0	84	1	0.955
DHORD5	[c]dhor-S + mqn8 --> mql8 + orot	Purine and Pyrimidine Biosynthesis	0.4169	0.192	1	84	1	0.955
DHORTS	[c]dhor-S + h2o <==> cbasp + h	Purine and Pyrimidine Biosynthesis	0.9485	1	1	0	1	0.955
DHPPD	[c]cechddd + nad --> dhpppn + h + nadh	Alternate Carbon Metabolism	0.0088	0	0	0	0.011	0.011
DHPPDA2	[c]25drapp + h + h2o --> 5apru + nh4	Cofactor and Prosthetic Group Biosynthesis	0.9969	1	1	0	1	1
DHPS2	[c]4abz + 6hmhptpp --> dhpt + h + ppi	Cofactor and Prosthetic Group Biosynthesis	1	1	1	0	1	1
DHPTDC	[c]dhptd --> h2o + hmfurn	Methionine Metabolism	0	0	0	0	0	0
DHQD	[c]3dhq <==> 3dhsk + h2o	Tyrosine, Tryptophan, and Phenylalanine Metabolism	1	1	1	0	1	1
DHQS	[c]2dda7p --> 3dhq + pi	Tyrosine, Tryptophan, and Phenylalanine Metabolism	1	1	1	0	1	1
DINSt2	din[e] + h[e] --> din[c] + h[c]	Transport, Extracellular	0.0099	0	0	0	0.011	0.011
DKGLCNR1	[c]25dkglcn + h + nadph --> 2dhguln + nadp	Alternate Carbon Metabolism	0	0	0	0	0	0
DKGLCNR2x	[c]25dkglcn + h + nadh --> 5dglcn + nad	Alternate Carbon Metabolism	0	0	0	0	0	0
DKGLCNR2y	[c]25dkglcn + h + nadph --> 5dglcn + nadp	Alternate Carbon Metabolism	0	0	0	0	0	0
DKMPPD	[c]dkmpp + h2o + o2 --> 2kmb + for + (2) h + pi	Arginine and Proline Metabolism	0.7695	1	0	0	1	1
DKMPPD2	[c]dkmpp + (3) h2o --> 2kmb + for + (6) h + pi	Arginine and Proline Metabolism	0.2305	0	1	0	**1**	**0**
D-LACt2	h[e] + lac-D[e] <==> h[c] + lac-D[c]	Transport, Extracellular	0.0088	0	0	0	1	0.011
DMATT	[c]dmpp + ipdp --> grdp + ppi	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
DMPPS	[c]h + h2mb4p + nadh --> dmpp + h2o + nad	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
DMQMT	[c]2omhmbl + amet --> ahcys + h + q8h2	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
DMSOR1	[c]dmso + mql8 --> dms + h2o + mqn8	Oxidative phosphorylation	0	0	0	0	0	0
DMSOR1e	dmso[e] + mql8[c] --> dms[e] + h2o[e] + mqn8[c]	Oxidative phosphorylation	0	0	0	0	0	0
DMSOR2	[c]2dmmql8 + dmso --> 2dmmq8 + dms + h2o	Oxidative phosphorylation	0	0	0	0	0	0
DMSOR2e	2dmmql8[c] + dmso[e] --> 2dmmq8[c] + dms[e] + h2o[e]	Oxidative phosphorylation	0	0	0	0	0	0
DNMPPA	[c]dhpmp + h2o --> dhnpt + pi	Cofactor and Prosthetic Group Biosynthesis	1	1	1	0	1	1
DNTPPA	[c]ahdt + h2o --> dhpmp + h + ppi	Cofactor and Prosthetic Group Biosynthesis	1	1	1	0	1	1
DOGULNR	[c]23doguln + h + nadh --> 3dhguln + nad	Alternate Carbon Metabolism	0	0	0	0	0	0
DPCOAK	[c]atp + dpcoa --> adp + coa + h	Cofactor and Prosthetic Group Biosynthesis	1	1	1	0	1	1
DPR	[c]2dhp + h + nadph --> nadp + pant-R	Cofactor and Prosthetic Group Biosynthesis	1	1	1	0	1	1
DRPA	[c]2dr5p --> acald + g3p	Alternate Carbon Metabolism	0.7134	1	1	0	1	0.659
DSERt2r	h[e] + ser-D[e] <==> h[c] + ser-D[c]	Transport, Extracellular	0.0088	0	0	0	0.011	0.011
DTMPK	[c]atp + dtmp <==> adp + dtdp	Nucleotide Salvage Pathways	1	1	1	0	1	1
DURIK1	[c]atp + duri --> adp + dump + h	Nucleotide Salvage Pathways	0.0565	0	0	0	1	0.057
DURIPP	[c]duri + pi <==> 2dr1p + ura	Nucleotide Salvage Pathways	0.2764	0.48	0.044	90	1	0.659
DURIt2	duri[e] + h[e] --> duri[c] + h[c]	Transport, Extracellular	0.0099	0	0	0	0.011	0.011
DUTPDP	[c]dutp + h2o --> dump + h + ppi	Nucleotide Salvage Pathways	0	0	0	0	**1**	**0**
DXPRIi	[c]dxyl5p + h + nadph --> 2me4p + nadp	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
DXPS	[c]g3p + h + pyr --> co2 + dxyl5p	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
DXYLK	[c]atp + dxyl --> adp + dxyl5p + h	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
E4PD	[c]e4p + h2o + nad <==> 4per + (2) h + nadh	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
ECAP_EC	[c]unagamuf --> eca_EC + h + udcpdp	Cell Envelope Biosynthesis	0	0	0	0	0	0
EDA	[c]2ddg6p --> g3p + pyr	Pentose Phosphate Cycle	0.0471	0	0	0	1	0.034
EDD	[c]6pgc --> 2ddg6p + h2o	Pentose Phosphate Cycle	0.0072	0	0	0	**1**	**0**
EDTXS1	[c]ddcaACP + kdo2lipid4 --> ACP + kdo2lipid4L	Cell Envelope Biosynthesis	1	1	1	0	1	1
EDTXS2	[c]kdo2lipid4L + myrsACP --> ACP + lipa	Cell Envelope Biosynthesis	1	1	1	0	1	1
EDTXS3	[c]hdeACP + kdo2lipid4 --> ACP + kdo2lipid4p	Cell Envelope Biosynthesis	0	0	0	0	0	0
EDTXS4	[c]kdo2lipid4p + myrsACP --> ACP + lipa_cold	Cell Envelope Biosynthesis	0	0	0	0	0	0
ENO	[c]2pg <==> h2o + pep	Glycolysis/Gluconeogenesis	1	1	1	3	1	1
ENTCS	[c](3) 23dhba + (3) seramp --> (6) amp + enter + (6) h	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
ETHAAL	[c]etha --> acald + nh4	Cell Envelope Biosynthesis	0	0	0	0	**1**	**0**

ETOHt2r	etoh[e] + h[e] <==> etoh[c] + h[c]	Transport, Extracellular	0.2143	0	1	0	1	0.011
F6PA	[c]f6p <==> dha + g3p	Glycolysis/Gluconeogenesis	0.7806	0.712	0.510	64	1	0.955
FAO1	[c]atp + (7) coa + (6) fad + (6) h2o + (6) nad + ttdca --> (7) accoa + amp + (6) fadh2 + (6) h + (6) nadh + ppi	Membrane Lipid Metabolism	0.0088	0	0	0	1	0.011
FAO2	[c]atp + (8) coa + (7) fad + (7) h2o + hdca + (7) nad --> (8) accoa + amp + (7) fadh2 + (7) h + (7) nadh + ppi	Membrane Lipid Metabolism	0.0088	0	0	0	1	0.011
FAO3	[c]atp + (9) coa + (8) fad + (8) h2o + (8) nad + ocdca --> (9) accoa + amp + (8) fadh2 + (8) h + (8) nadh + ppi	Membrane Lipid Metabolism	0.0088	0	0	0	0.011	0.011
FAO4	[c]btcoa + fad + h2o + nad --> aacoa + fadh2 + h + nadh	Alternate Carbon Metabolism	0.0088	0	0	0	0.011	0.011
FBA	[c]fdp <==> dhap + g3p	Glycolysis/Gluconeogenesis	0.7972	1	1	64	1	1
FBP	[c]fdp + h2o --> f6p + pi	Glycolysis/Gluconeogenesis	0.5188	0	0	0	1	0.602
FCI	[c]fuc-L <==> fcl-L	Alternate Carbon Metabolism	0.0088	0	0	0	0.011	0.011
FCLK	[c]atp + fcl-L --> adp + fc1p + h	Alternate Carbon Metabolism	0.0088	0	0	0	0.011	0.011
FCLPA	[c]fc1p <==> dhap + lald-L	Alternate Carbon Metabolism	0.0088	0	0	0	0.011	0.011
FCLT	[c]fe2 + ppp9 --> (2) h + pheme	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
FDH2	for[c] + (3) h[c] + q8[c] --> co2[c] + (2) h[e] + q8h2[c]	Oxidative phosphorylation	0.1794	0.072	0	68	1	0.773
FDH3	for[c] + (3) h[c] + mqn8[c] --> co2[c] + (2) h[e] + mql8[c]	Oxidative phosphorylation	0.1237	0.046	0	68	1	0.773
FE2abc	atp[c] + fe2[e] + h2o[c] --> adp[c] + fe2[c] + h[c] + pi[c]	Transport, Extracellular	0	0	0	0	0	0
FFSD	[c]h2o + suc6p --> fru + g6p	Alternate Carbon Metabolism	0.0166	0	0	0	0.011	0.011
FHL	[c]for + h --> co2 + h2	Pyruvate metabolism	0.2902	0.882	0	68	1	0.773
FMNAT	[c]atp + fmn + h --> fad + ppi	Cofactor and Prosthetic Group Biosynthesis	0.9969	1	1	0	1	1
FORt	for[e] <==> for[c]	Transport, Extracellular	0.2305	0	1	0	**1**	**0**
FRD2	[c]fum + mql8 --> mqn8 + succ	Citrate Cycle (TCA)	0.6653	0.568	1	136	1	1
FRD3	[c]2dmmql8 + fum --> 2dmmq8 + succ	Citrate Cycle (TCA)	0.2492	0.238	0	88	1	1
FRUK	[c]atp + f1p --> adp + fdp + h	Alternate Carbon Metabolism	0.0101	0	0	2	0.011	0.011
FRUpts	fru[e] + pep[c] --> f1p[c] + pyr[c]	Transport, Extracellular	0.0101	0	0	2	0.011	0.011
FRUpts2	fru[e] + pep[c] --> f6p[c] + pyr[c]	Transport, Extracellular	0.0165	0	0	2	0.011	0.011
FTHFD	[c]10fthf + h2o --> for + h + thf	Folate Metabolism	0.4099	1	0	0	1	0.500
FUCPt6_2	fuc1p-L[e] + (2) pi[c] --> fuc1p-L[c] + (2) pi[e]	Transport, Extracellular	0	0	0	0	0	0
FUCt	fuc-L[e] + h[e] <==> fuc-L[c] + h[c]	Transport, Extracellular	0.0088	0	0	0	0.011	0.011
FUM	[c]fum + h2o <==> mal-L	Citrate Cycle (TCA)	1	1	1	29	1	1
FUMt2_2	fum[e] + (2) h[e] --> fum[c] + (2) h[c]	Transport, Extracellular	0.0139	0	0	4	1	0.045
FUMt2_3	fum[e] + (3) h[e] --> fum[c] + (3) h[c]	Transport, Extracellular	0	0	0	0	**1**	**0**
G1PACT	[c]accoa + gam1p --> acgam1p + coa + h	Cell Envelope Biosynthesis	1	1	1	0	1	1
G1PP	[c]g1p + h2o --> glc-D + pi	Glycolysis/Gluconeogenesis	0	0	0	0	**1**	**0**
G1PTT	[c]dttp + g1p + h --> dtdpglu + ppi	Cell Envelope Biosynthesis	0	0	0	0	0	0
G1SATi	[c]glu1sa --> 5aop	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
G3PD2	[c]glyc3p + nadp <==> dhap + h + nadph	Alternate Carbon Metabolism	1	1	1	4	1	1
G3PD5	[c]glyc3p + q8 --> dhap + q8h2	Oxidative phosphorylation	0	0	0	0	**1**	**0**
G3PD6	[c]glyc3p + mqn8 --> dhap + mql8	Oxidative phosphorylation	0	0	0	0	**1**	**0**
G3PD7	[c]2dmmq8 + glyc3p --> 2dmmql8 + dhap	Oxidative phosphorylation	0	0	0	0	**1**	**0**
G5SADs	[c]glu5sa --> 1pyr5c + h + h2o	Arginine and Proline Metabolism	0.9912	1	1	0	1	0.989
G5SD	[c]glu5p + h + nadph --> glu5sa + nadp + pi	Arginine and Proline Metabolism	0.9824	1	1	0	1	0.977
G6PDA	[c]gam6p + h2o --> f6p + nh4	Alternate Carbon Metabolism	0.0553	0	0	1	1	0.057
G6PDH2r	[c]g6p + nadp <==> 6pgl + h + nadph	Pentose Phosphate Cycle	0.3876	1	0	0	1	0.500
G6Pt6_2	g6p[e] + (2) pi[c] --> g6p[c] + (2) pi[e]	Transport, Extracellular	0.0149	0	0	0	0.011	0.011
GALabc	atp[c] + gal[e] + h2o[c] --> adp[c] + gal[c] + h[c] + pi[c]	Transport, Extracellular	0	0	0	0	**0.011**	**0**
GALCTD	[c]galct-D --> 5dh4dglc + h2o	Alternate Carbon Metabolism	0.0169	0	0	0	0.011	0.011
GALCTND	[c]galctn-D --> 2dh3dgal + h2o	Alternate Carbon Metabolism	0.0132	0	0	0	0.011	0.011

GALCTNt2r	galctn-D[e] + h[e] <==> galctn-D[c] + h[c]	Transport, Extracellular	0.0132	0	0	0	0.011	0.011
GALCTt2r	galct-D[e] + h[e] <==> galct-D[c] + h[c]	Putative Transporters	0.0169	0	0	0	0.011	0.011
GALKr	[c]atp + gal <==> adp + gal1p + h	Alternate Carbon Metabolism	0.0438	0	0	0	0.034	0.034
GALS3	[c]h2o + melib --> gal + glc-D	Alternate Carbon Metabolism	0.0149	0	0	0	0.011	0.011
GALt2	gal[e] + h[e] --> gal[c] + h[c]	Transport, Extracellular	0.0147	0	0	0	0.011	0.011
GALTpts	galt[e] + pep[c] --> galt1p[c] + pyr[c]	Transport, Extracellular	0.0133	0	0	0	0.011	0.011
GALU	[c]g1p + h + utp <==> ppi + udpg	Alternate Carbon Metabolism	1	1	1	0	1	1
GALUi	[c]g1p + h + utp --> ppi + udpg	Cell Envelope Biosynthesis	0	0	0	0	0	0
GALURt2r	galur[e] + h[e] <==> galur[c] + h[c]	Transport, Extracellular	0.0133	0	0	0	0.011	0.011
GAMpts	gam[e] + pep[c] --> gam6p[c] + pyr[c]	Transport, Extracellular	0.0119	0	0	0	0.011	0.011
GAPD	[c]g3p + nad + pi <==> 13dpg + h + nadh	Glycolysis/Gluconeogenesis	1	1	1	0	1	1
GARFT	[c]10fthf + gar <==> fgam + h + thf	Purine and Pyrimidine Biosynthesis	0.9126	1	1	0	1	0.920
GART	[c]atp + for + gar --> adp + fgam + h + pi	Purine and Pyrimidine Biosynthesis	0.1830	0	0	0	1	0.227
GCALDD	[c]gcald + h2o + nad --> glyclt + (2) h + nadh	Folate Metabolism	1	1	1	0	1	1
GDMANE	[c]gdpddman --> gdpofuc	Cell Envelope Biosynthesis	0	0	0	0	0	0
GF6PTA	[c]f6p + gln-L --> gam6p + glu-L	Cell Envelope Biosynthesis	0.9481	1	1	1	1	0.955
GHMT2	[c]ser-L + thf --> gly + h2o + mlthf	Glycine and Serine Metabolism	0.9814	1	1	0	1	0.977
GK1	[c]atp + gmp <==> adp + gdp	Nucleotide Salvage Pathways	1	1	1	90	1	1
GLCDe	glc-D[e] + h2o[e] + q8[c] --> glcn[e] + h[e] + q8h2[c]	Oxidative phosphorylation	0	0	0	0	**0.023**	**0**
GLCNt2r	glcn[e] + h[e] <==> glcn[c] + h[c]	Transport, Extracellular	0.0161	0	0	0	0.045	0.011
GLCP	[c]glycogen + pi --> g1p	Glycolysis/Gluconeogenesis	0	0	0	0	**1**	**0**
GLCpts	glc-D[e] + pep[c] --> g6p[c] + pyr[c]	Transport, Extracellular	0.0208	1	1	2	0.023	0.023
GLCRAL	[c]5dh4dglc --> 2h3oppan + pyr	Alternate Carbon Metabolism	0.0337	0	0	0	0.023	0.023
GLCRD	[c]glcr --> 5dh4dglc + h2o	Alternate Carbon Metabolism	0.0168	0	0	0	0.011	0.011
GLCRt2r	glcr[e] + h[e] <==> glcr[c] + h[c]	Putative Transporters	0.0168	0	0	0	0.011	0.011
GLCS1	[c]adpglc --> adp + glycogen + h	Glycolysis/Gluconeogenesis	1	1	1	0	1	1
GLCt2	glc-D[e] + h[e] --> glc-D[c] + h[c]	Transport, Extracellular	0	0	0	0	**0.023**	**0**
GLCURt2r	glcur[e] + h[e] <==> glcur[c] + h[c]	Transport, Extracellular	0.0133	0	0	0	0.011	0.011
GLGC	[c]atp + g1p + h --> adpglc + ppi	Glycolysis/Gluconeogenesis	1	1	1	0	1	1
GLNabc	atp[c] + gln-L[e] + h2o[c] --> adp[c] + gln-L[c] + h[c] + pi[c]	Transport, Extracellular	0.0088	0	0	0	0.011	0.011
GLNS	[c]atp + glu-L + nh4 --> adp + gln-L + h + pi	Glutamate metabolism	0.9912	1	1	0	1	0.989
GLTPD	[c]galt1p + nad <==> h + nadh + tag6p-D	Alternate Carbon Metabolism	0.0133	0	0	0	0.011	0.011
GLU5K	[c]atp + glu-L --> adp + glu5p	Arginine and Proline Metabolism	0.9824	1	1	0	1	0.977
GLUabc	atp[c] + glu-L[e] + h2o[c] --> adp[c] + glu-L[c] + h[c] + pi[c]	Transport, Extracellular	0	0	0	0	**1**	**0**
GLUABUTt7	4abut[c] + glu-L[e] <==> 4abut[e] + glu-L[c]	Putative Transporters	0.0088	0	0	0	1	0.011
GLUCYS	[c]atp + cys-L + glu-L --> adp + glucys + h + pi	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
GLUDC	[c]glu-L + h --> 4abut + co2	Glutamate metabolism	0	0	0	0	**1**	**0**
GLUDy	[c]glu-L + h2o + nadp <==> akg + h + nadph + nh4	Glutamate metabolism	0.9870	1	1	28	1	1
GLUN	[c]gln-L + h2o --> glu-L + nh4	Glutamate metabolism	0.0007	0	0	1	1	0.011
GLUPRT	[c]gln-L + h2o + prpp --> glu-L + ppi + pram	Purine and Pyrimidine Biosynthesis	0.9126	1	1	0	1	0.920
GLUR	[c]glu-D <==> glu-L	Cell Envelope Biosynthesis	1	1	1	0	1	1
GLUSy	[c]akg + gln-L + h + nadph --> (2) glu-L + nadp	Glutamate metabolism	0.0049	0	0	1	1	0.011
GLUt2r	glu-L[e] + h[e] <==> glu-L[c] + h[c]	Transport, Extracellular	0.0176	0	0	0	1	0.023
GLUt4	glu-L[e] + na1[e] --> glu-L[c] + na1[c]	Transport, Extracellular	0	0	0	0	0	0
GLUTRR	[c]glutrna + h + nadph --> glu1sa + nadp + trnaglu	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
GLUTRS	[c]atp + glu-L + trnaglu --> amp + glutrna + ppi	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
GLXCL	[c](2) glx + h --> 2h3oppan + co2	Glyoxylate Metabolism	0.1704	0	0	0	1	0.227
GLYALDt	glyald[e] <==> glyald[c]	Transport, Extracellular	0.0088	0	0	0	1	0.011
GLYATi	[c]2aobut + coa --> accoa + gly	Glycine and Serine Metabolism	0.0571	0	0	18	1	0.136

GLYBabc	atp[c] + glyb[e] + h2o[c] --> adp[c] + glyb[c] + h[c] + pi[c]	Putative Transporters	0	0	0	0	**1**	**0**
GLYBt2r	glyb[e] + h[e] <==> glyb[c] + h[c]	Putative Transporters	0	0	0	0	**1**	**0**
GLYC3Pabc	atp[c] + glyc3p[e] + h2o[c] --> adp[c] + glyc3p[c] + h[c] + pi[c]	Transport, Extracellular	0	0	0	0	**0.011**	**0**
GLYC3Pt6	glyc3p[e] + pi[c] --> glyc3p[c] + pi[e]	Transport, Extracellular	0.0156	0	0	0	0.011	0.011
GLYCDx	[c]glyc + nad --> dha + h + nadh	Alternate Carbon Metabolism	0.5406	0	0	4	1	0.636
GLYCK	[c]atp + glyc-R --> 3pg + adp + h	Glyoxylate Metabolism	0.2041	0	0	0	1	0.250
GLYCL	[c]gly + nad + thf --> co2 + mlthf + nadh + nh4	Folate Metabolism	0.1792	0	0	0	1	0.239
GLYCLTDx	[c]glx + h + nadh --> glyclt + nad	Glyoxylate Metabolism	0	0	0	0	**1**	**0**
GLYCLTDy	[c]glx + h + nadph --> glyclt + nadp	Glyoxylate Metabolism	0	0	0	0	**1**	**0**
GLYCLTt2r	glyclt[e] + h[e] <==> glyclt[c] + h[c]	Transport, Extracellular	0.2394	0	1	0	1	0.011
GLYCt	glyc[c] <==> glyc[e]	Transport, Extracellular	0.0088	0	0	0	1	0.011
GLYCTO2	[c]glyclt + q8 --> glx + q8h2	Alternate Carbon Metabolism	0.4058	0.778	0	88	1	1
GLYCTO3	[c]glyclt + mqn8 --> glx + mql8	Alternate Carbon Metabolism	0.1669	0.102	0	88	1	1
GLYCTO4	[c]2dmmq8 + glyclt --> 2dmmql8 + glx	Alternate Carbon Metabolism	0.1968	0.12	0	88	1	1
GLYK	[c]atp + glyc --> adp + glyc3p + h	Alternate Carbon Metabolism	0.4770	1	1	4	1	0.398
GLYOX	[c]h2o + lgt-S --> gthrd + h + lac-D	Methylglyoxal Metabolism	0	0	0	0	**1**	**0**
GLYt2r	gly[e] + h[e] <==> gly[c] + h[c]	Transport, Extracellular	0.0098	0	0	0	1	0.011
GMAND	[c]gdpmann --> gdpddman + h2o	Cell Envelope Biosynthesis	0	0	0	0	0	0
GMHEPAT	[c]atp + gmhep1p + h --> adphep-D,D + ppi	Cell Envelope Biosynthesis	1	1	1	0	1	1
GMHEPK	[c]atp + gmhep7p --> adp + gmhep17bp + h	Cell Envelope Biosynthesis	1	1	1	0	1	1
GMHEPPA	[c]gmhep17bp + h2o --> gmhep1p + pi	Cell Envelope Biosynthesis	1	1	1	0	1	1
GMPR	[c]gmp + (2) h + nadph --> imp + nadp + nh4	Purine and Pyrimidine Biosynthesis	0.0321	0	0	0	1	0.034
GMPS2	[c]atp + gln-L + h2o + xmp --> amp + glu-L + gmp + (2) h + ppi	Purine and Pyrimidine Biosynthesis	0.9790	1	1	0	1	0.977
GND	[c]6pgc + nadp --> co2 + nadph + ru5p-D	Pentose Phosphate Cycle	0.4108	1	0	0	1	0.511
GNK	[c]atp + glcn --> 6pgc + adp + h	Alternate Carbon Metabolism	0.0320	0	0	0	0.045	0.023
GOFUCR	[c]gdpofuc + h + nadph --> gdpfuc + nadp	Cell Envelope Biosynthesis	0	0	0	0	0	0
GP4GH	[c]gp4g + h2o --> (2) gdp + (2) h	Nucleotide Salvage Pathways	0	0	0	0	0	0
GPDDA1	[c]g3pc + h2o --> chol + glyc3p + h	Cell Envelope Biosynthesis	0	0	0	0	0	0
GPDDA2	[c]g3pe + h2o --> etha + glyc3p + h	Cell Envelope Biosynthesis	0	0	0	0	**1**	**0**
GPDDA3	[c]g3ps + h2o --> glyc3p + h + ser-L	Cell Envelope Biosynthesis	0	0	0	0	0	0
GPDDA4	[c]g3pg + h2o --> glyc + glyc3p + h	Cell Envelope Biosynthesis	0	0	0	0	**1**	**0**
GPDDA5	[c]g3pi + h2o --> glyc3p + h + inost	Cell Envelope Biosynthesis	0	0	0	0	0	0
GRTT	[c]grdp + ipdp --> frdp + ppi	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
GSNK	[c]atp + gsn --> adp + gmp + h	Nucleotide Salvage Pathways	0.2905	0.192	0.926	90	1	0.614
GSNt2	gsn[e] + h[e] --> gsn[c] + h[c]	Transport, Extracellular	0.0111	0	0	0	0.011	0.011
GSPMDA	[c]gtspmd + h2o --> gthrd + spmd	Arginine and Proline Metabolism	0	0	0	0	**1**	**0**
GSPMDS	[c]atp + gthrd + spmd --> adp + gtspmd + h + pi	Arginine and Proline Metabolism	0	0	0	0	**1**	**0**
GTHOr	[c]gthox + h + nadph <==> (2) gthrd + nadp	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
GTHS	[c]atp + glucys + gly --> adp + gthrd + h + pi	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
GTPCI	[c]gtp + h2o --> ahdt + for	Cofactor and Prosthetic Group Biosynthesis	1	1	1	0	1	1
GTPCII2	[c]gtp + (3) h2o --> 25drapp + for + (2) h + ppi	Cofactor and Prosthetic Group Biosynthesis	0.9969	1	1	0	1	1
GUAD	[c]gua + h + h2o --> nh4 + xan	Nucleotide Salvage Pathways	0.0210	0	0	0	1	0.023
GUAPRT	[c]gua + prpp --> gmp + ppi	Nucleotide Salvage Pathways	0	0	0	0	**1**	**0**
GUAt	gua[e] <==> gua[c]	Transport, Extracellular	0	0	0	0	**1**	**0**
GUAt2	gua[e] + h[e] --> gua[c] + h[c]	Putative Transporters	0	0	0	0	**1**	**0**
GUI1	[c]glcur <==> fruur	Alternate Carbon Metabolism	0.0133	0	0	0	0.011	0.011
GUI2	[c]galur <==> tagur	Alternate Carbon Metabolism	0.0133	0	0	0	0.011	0.011
H2Ot	h2o[e] <==> h2o[c]	Transport, Extracellular	1	1	1	4	1	1
HBZOPT	[c]4hbz + octdp --> 3ophb + ppi	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0

HCINNMt2r	3hcinnm[e] + h[e] <==> 3hcinnm[c] + h[c]	Putative Transporters	0.0088	0	0	0	0.011	0.011
HCO3E	[c]co2 + h2o <==> h + hco3	Unassigned	1	1	1	0	1	1
HDCAt2	h[e] + hdca[e] --> h[c] + hdca[c]	Transport, Extracellular	0.0088	0	0	0	0.011	0.011
HEMEOS	[c]frdp + h2o + pheme --> hemeO + ppi	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
HETZK	[c]4mhetz + atp --> 4mpetz + adp + h	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
HEX1	[c]atp + glc-D --> adp + g6p + h	Glycolysis/Gluconeogenesis	0.1303	0	0	2	1	0.102
HISabc	atp[c] + h2o[c] + his-L[e] --> adp[c] + h[c] + his-L[c] + pi[c]	Transport, Extracellular	0	0	0	0	**1**	**0**
HISt2r	h[e] + his-L[e] <==> h[c] + his-L[c]	Transport, Extracellular	0	0	0	0	**1**	**0**
HISTD	[c]h2o + histd + (2) nad --> (3) h + his-L + (2) nadh	Histidine Metabolism	1	1	1	0	1	1
HISTP	[c]h2o + hisp --> histd + pi	Histidine Metabolism	1	1	1	0	1	1
HKNDDH	[c]h2o + hkndd --> (2) h + op4en + succ	Alternate Carbon Metabolism	0.0176	0	0	0	0.023	0.023
HKNTDH	[c]h2o + hkntd --> fum + (2) h + op4en	Alternate Carbon Metabolism	0.0088	0	0	0	0.011	0.011
HMBS	[c]h2o + (4) ppbng --> hmbil + (4) nh4	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
HMPK1	[c]4ahmmp + atp --> 4ampm + adp + h	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
HOPNTAL	[c]4h2opntn --> acald + pyr	Alternate Carbon Metabolism	0.0264	0	0	0	0.034	0.034
HPPK2	[c]6hmhpt + atp --> 6hmhptpp + amp + h	Cofactor and Prosthetic Group Biosynthesis	1	1	1	0	1	1
HPPPNDO	[c]dhpppn + o2 --> hkndd	Alternate Carbon Metabolism	0.0176	0	0	0	0.023	0.023
HPPPNt2r	3hpppn[e] + h[e] <==> 3hpppn[c] + h[c]	Putative Transporters	0.0088	0	0	0	0.011	0.011
HPYRI	[c]hpyr <==> 2h3oppan	Alternate Carbon Metabolism	0.1063	0	0	24	1	0.250
HPYRRx	[c]h + hpyr + nadh --> glyc-R + nad	Alternate Carbon Metabolism	0.0972	0	0	24	1	0.250
HPYRRy	[c]h + hpyr + nadph --> glyc-R + nadp	Alternate Carbon Metabolism	0.0106	0	0	18	1	0.205
HSDy	[c]hom-L + nadp <==> aspsa + h + nadph	Threonine and Lysine Metabolism	1	1	1	0	1	1
HSK	[c]atp + hom-L --> adp + h + phom	Threonine and Lysine Metabolism	0.6057	0	1	0	1	0.500
HSST	[c]hom-L + succoa --> coa + suchms	Methionine Metabolism	1	1	1	0	1	1
HSTPT	[c]glu-L + imacp --> akg + hisp	Histidine Metabolism	1	1	1	0	1	1
HXPRT	[c]hxan + prpp --> imp + ppi	Nucleotide Salvage Pathways	0	0	0	0	**1**	**0**
HYD1	(2) h[c] + h2[c] + q8[c] --> (2) h[e] + q8h2[c]	Oxidative phosphorylation	0.1165	0.424	0	68	1	0.773
HYD2	(2) h[c] + h2[c] + mqn8[c] --> (2) h[e] + mql8[c]	Oxidative phosphorylation	0.0996	0.312	0	68	1	0.773
HYD3	2dmmq8[c] + (2) h[c] + h2[c] --> 2dmmql8[c] + (2) h[e]	Oxidative phosphorylation	0.0741	0.146	0	68	1	0.773
HYPOE	[c]h2o + pyam5p --> pi + pydam	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	**1**	**0**
HYXNt	hxan[e] <==> hxan[c]	Transport, Extracellular	0.0152	0	0	2	**1**	**0**
ICDHyr	[c]icit + nadp <==> akg + co2 + nadph	Citrate Cycle (TCA)	1	1	1	8	1	1
ICHORSi	[c]chor --> ichor	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
ICHORT	[c]h2o + ichor --> 23ddhb + pyr	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
ICL	[c]icit --> glx + succ	Anaplerotic reactions	0.2060	0	0	8	1	0.318
IDOND	[c]5dglcn + h + nadh <==> idon-L + nad	Alternate Carbon Metabolism	0.0442	0	0	28	1	0.307
IDOND2	[c]5dglcn + h + nadph --> idon-L + nadp	Alternate Carbon Metabolism	0.0282	0	0	28	1	0.295
IDONt2r	h[e] + idon-L[e] <==> h[c] + idon-L[c]	Transport, Extracellular	0.0159	0	0	0	0.045	0.011
IG3PS	[c]gln-L + prlp --> aicar + eig3p + glu-L + h	Histidine Metabolism	1	1	1	0	1	1
IGPDH	[c]eig3p --> h2o + imacp	Histidine Metabolism	1	1	1	0	1	1
IGPS	[c]2cpr5p + h --> 3ig3p + co2 + h2o	Tyrosine, Tryptophan, and Phenylalanine Metabolism	0.9912	1	1	0	1	0.989
ILEabc	atp[c] + h2o[c] + ile-L[e] --> adp[c] + h[c] + ile-L[c] + pi[c]	Transport, Extracellular	0	0	0	0	**1**	**0**
ILEt2r	h[e] + ile-L[e] <==> h[c] + ile-L[c]	Transport, Extracellular	0	0	0	0	**1**	**0**
ILETA	[c]akg + ile-L <==> 3mop + glu-L	Valine, leucine, and isoleucine metabolism	1	1	1	0	1	1
IMPC	[c]h2o + imp <==> fprica	Purine and Pyrimidine Biosynthesis	1	1	1	0	1	1
IMPD	[c]h2o + imp + nad --> h + nadh + xmp	Purine and Pyrimidine Biosynthesis	0.9679	1	1	0	1	0.966
INDOLEt2r	h[e] + indole[e] <==> h[c] + indole[c]	Transport, Extracellular	0.0088	0	0	0	1	0.011
INSK	[c]atp + ins --> adp + h + imp	Nucleotide Salvage Pathways	0.0554	0	0	0	1	0.045
INSt2	h[e] + ins[e] --> h[c] + ins[c]	Transport, Extracellular	0	0	0	0	0	0

INSt2r	h[e] + ins[e] <==> h[c] + ins[c]	Transport, Extracellular	0.0111	0	0	0	1	0.011
IPDDIi	[c]ipdp --> dmpp	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
IPDPS	[c]h + h2mb4p + nadh --> h2o + ipdp + nad	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
IPMD	[c]3c2hmp + nad --> 3c4mop + h + nadh	Valine, leucine, and isoleucine metabolism	1	1	1	0	1	1
IPPMIa	[c]3c2hmp <==> 2ippm + h2o	Valine, leucine, and isoleucine metabolism	1	1	1	0	1	1
IPPMIb	[c]2ippm + h2o <==> 3c3hmp	Valine, leucine, and isoleucine metabolism	1	1	1	0	1	1
IPPS	[c]3mob + accoa + h2o --> 3c3hmp + coa + h	Valine, leucine, and isoleucine metabolism	1	1	1	0	1	1
Kabc	atp[c] + h2o[c] + k[e] --> adp[c] + h[c] + k[c] + pi[c]	Transport, Extracellular	0	0	0	0	**1**	**0**
KARA1i	[c]alac-S + h + nadph --> 23dhmb + nadp	Valine, leucine, and isoleucine metabolism	1	1	1	0	1	1
KARA2i	[c]2ahbut + h + nadph --> 23dhmp + nadp	Valine, leucine, and isoleucine metabolism	1	1	1	0	1	1
KAS14	[c]acACP + h + malACP --> ACP + actACP + co2	Membrane Lipid Metabolism	0.4535	0.344	0.471	136	1	1
KAS15	[c]accoa + h + malACP --> actACP + co2 + coa	Membrane Lipid Metabolism	0.5465	0.656	0.529	136	1	1
KAS16	[c]ddcaACP + (2) h + malACP + nadph --> 3hmrsACP + ACP + co2 + nadp	Membrane Lipid Metabolism	1	1	1	0	1	1
KDOCT2	[c]ctp + kdo --> ckdo + ppi	Cell Envelope Biosynthesis	1	1	1	0	1	1
KDOPP	[c]h2o + kdo8p --> kdo + pi	Cell Envelope Biosynthesis	1	1	1	0	1	1
KDOPS	[c]ara5p + h2o + pep --> kdo8p + pi	Cell Envelope Biosynthesis	1	1	1	0	1	1
KG6PDC	[c]3dgulnp + h --> co2 + xu5p-L	Alternate Carbon Metabolism	0	0	0	0	0	0
Kt2r	h[e] + k[e] <==> h[c] + k[c]	Transport, Extracellular	0	0	0	0	**1**	**0**
LACZ	[c]h2o + lcts --> gal + glc-D	Alternate Carbon Metabolism	0.0141	0	0	0	0.011	0.011
LCAD	[c]h2o + lald-L + nad <==> (2) h + lac-L + nadh	Alternate Carbon Metabolism	0.0264	0	0	0	0.045	0.034
LCADi	[c]h2o + lald-L + nad --> (2) h + lac-L + nadh	Alternate Carbon Metabolism	0	0	0	0	0	0
LCAR	[c]h + lald-L + nadh <==> 12ppd-S + nad	Alternate Carbon Metabolism	0.0088	0	0	0	0.045	0.011
LCTSt	h[e] + lcts[e] <==> h[c] + lcts[c]	Transport, Extracellular	0.0141	0	0	0	0.011	0.011
LDH_D	[c]lac-D + nad <==> h + nadh + pyr	Pyruvate metabolism	0.0088	0	0	0	1	0.011
LDH_D2	[c]lac-D + q8 --> pyr + q8h2	Oxidative phosphorylation	0	0	0	0	**1**	**0**
LEUabc	atp[c] + h2o[c] + leu-L[e] --> adp[c] + h[c] + leu-L[c] + pi[c]	Transport, Extracellular	0	0	0	0	**1**	**0**
LEUt2r	h[e] + leu-L[e] <==> h[c] + leu-L[c]	Transport, Extracellular	0	0	0	0	**1**	**0**
LEUTAi	[c]4mop + glu-L --> akg + leu-L	Valine, leucine, and isoleucine metabolism	1	1	1	0	1	1
LGTHL	[c]gthrd + mthgxl --> lgt-S	Methylglyoxal Metabolism	0	0	0	0	**1**	**0**
L-LACD2	[c]lac-L + q8 --> pyr + q8h2	Oxidative phosphorylation	0.0232	0	0	4	0.045	0.045
L-LACD3	[c]lac-L + mqn8 --> mql8 + pyr	Oxidative phosphorylation	0.0120	0	0	4	0.045	0.045
L-LACt2r	h[e] + lac-L[e] <==> h[c] + lac-L[c]	Transport, Extracellular	0.0088	0	0	0	0.045	0.011
LPADSS	[c]lipidX + u23ga --> h + lipidAds + udp	Cell Envelope Biosynthesis	1	1	1	0	1	1
LPLIPA1	[c](0.02) agpg_EC + h2o --> g3pg + h + (0.36) hdca + (0.07) hdcea + (0.5) ocdcea + (0.02) ttdca + (0.05) ttdcea	Cell Envelope Biosynthesis	0	0	0	0	**1**	**0**
LPLIPA2	[c](0.02) agpe_EC + h2o --> g3pe + h + (0.36) hdca + (0.07) hdcea + (0.5) ocdcea + (0.02) ttdca + (0.05) ttdcea	Cell Envelope Biosynthesis	0	0	0	0	**1**	**0**
LPLIPA3	[c](0.02) agpc_EC + h2o --> g3pc + h + (0.36) hdca + (0.07) hdcea + (0.5) ocdcea + (0.02) ttdca + (0.05) ttdcea	Cell Envelope Biosynthesis	0	0	0	0	0	0
LPLIPA4	[c](0.02) agpe_EC + (0.02) pg_EC --> (0.02) apg_EC + g3pe	Cell Envelope Biosynthesis	0	0	0	0	0	0
LPLIPA5	[c](0.02) agpc_EC + (0.02) pg_EC --> (0.02) apg_EC + g3pc	Cell Envelope Biosynthesis	0	0	0	0	0	0
LPLIPA6	[c](0.02) agpg_EC + (0.02) pg_EC --> (0.02) apg_EC + g3pg	Cell Envelope Biosynthesis	0	0	0	0	0	0
LPSSYN_EC	[c](3) adphep-L,D + (2) cdpea + (3) ckdo + lipa + (2) udpg --> (3) adp + (2) cdp + (3) cmp + (10) h + lps_EC + (2) udp	Cell Envelope Biosynthesis	1	1	1	0	1	1
LYSabc	atp[c] + h2o[c] + lys-L[e] --> adp[c] + h[c] + lys-L[c] + pi[c]	Transport, Extracellular	0	0	0	0	**1**	**0**
LYSDC	[c]h + lys-L --> 15dap + co2	Threonine and Lysine Metabolism	0	0	0	0	**1**	**0**
LYSt2r	h[e] + lys-L[e] <==> h[c] + lys-L[c]	Transport, Extracellular	0	0	0	0	**1**	**0**
M1PD	[c]mnl1p + nad <==> f6p + h + nadh	Alternate Carbon Metabolism	0.0088	0	0	0	0.011	0.011
MACPD	[c]h + malACP --> acACP + co2	Membrane Lipid Metabolism	0	0	0	0	**1**	**0**

MALS	[c]accoa + glx + h2o --> coa + h + mal-L	Anaplerotic reactions	0.6079	1	0	8	1	0.784
MALt2_2	(2) h[e] + mal-L[e] --> (2) h[c] + mal-L[c]	Transport, Extracellular	0.0088	0	0	0	0.011	0.011
MALt2_3	(3) h[e] + mal-L[e] --> (3) h[c] + mal-L[c]	Transport, Extracellular	0	0	0	0	**0.011**	**0**
MALTabc	atp[c] + h2o[c] + malt[e] --> adp[c] + h[c] + malt[c] + pi[c]	Transport, Extracellular	0.0141	0	0	0	0.011	0.011
MALTHXabc	atp[c] + h2o[c] + malthx[e] --> adp[c] + h[c] + malthx[c] + pi[c]	Transport, Extracellular	0.0162	0	0	0	0.011	0.011
MALTPTabc	atp[c] + h2o[c] + maltpt[e] --> adp[c] + h[c] + maltpt[c] + pi[c]	Transport, Extracellular	0.0126	0	0	0	0.011	0.011
MALTpts	malt[e] + pep[c] --> malt6p[c] + pyr[c]	Transport, Extracellular	0	0	0	0	0	0
MALTTRabc	atp[c] + h2o[c] + malttr[e] --> adp[c] + h[c] + malttr[c] + pi[c]	Transport, Extracellular	0.0146	0	0	0	0.011	0.011
MALTTTRabc	atp[c] + h2o[c] + maltttr[e] --> adp[c] + h[c] + maltttr[c] + pi[c]	Transport, Extracellular	0.0176	0	0	0	0.011	0.011
MAN1PT2	[c]gdp + h + man1p --> gdpmann + pi	Cell Envelope Biosynthesis	0	0	0	0	0	0
MAN6PI	[c]man6p <==> f6p	Alternate Carbon Metabolism	0.0304	0	0	0	0.023	0.023
MAN6Pt6_2	man6p[e] + (2) pi[c] --> man6p[c] + (2) pi[e]	Transport, Extracellular	0.0146	0	0	0	0.011	0.011
MANAO	[c]mana + nad <==> fruur + h + nadh	Alternate Carbon Metabolism	0.0133	0	0	0	0.011	0.011
MANpts	man[e] + pep[c] --> man6p[c] + pyr[c]	Transport, Extracellular	0.0158	0	0	0	0.011	0.011
MCITD	[c]2mcit --> 2mcacn + h2o	Alternate Carbon Metabolism	0.0118	0	0	0	1	0.023
MCITL2	[c]micit <==> pyr + succ	Alternate Carbon Metabolism	0.0118	0	0	0	1	0.023
MCITS	[c]h2o + oaa + ppcoa --> 2mcit + coa + h	Alternate Carbon Metabolism	0.0118	0	0	0	1	0.023
MCOATA	[c]ACP + malcoa <==> coa + malACP	Membrane Lipid Metabolism	1	1	1	0	1	1
MDH	[c]mal-L + nad <==> h + nadh + oaa	Citrate Cycle (TCA)	0.9952	1	1	28	1	1
MDH2	[c]mal-L + q8 --> oaa + q8h2	Citrate Cycle (TCA)	0	0	0	0	**1**	**0**
MDH3	[c]mal-L + mqn8 --> mql8 + oaa	Citrate Cycle (TCA)	0	0	0	0	**1**	**0**
MDRPD	[c]5mdru1p --> dkmpp + h2o	Arginine and Proline Metabolism	1	1	1	0	1	1
ME1	[c]mal-L + nad --> co2 + nadh + pyr	Anaplerotic reactions	0.0275	0	0	16	1	0.182
ME2	[c]mal-L + nadp --> co2 + nadph + pyr	Anaplerotic reactions	0.2015	0	0	16	1	0.295
MECDPDH	[c]2mecdp + h --> h2mb4p + h2o	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
MECDPS	[c]2p4c2me --> 2mecdp + cmp	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
MELIBt2	h[e] + melib[e] --> h[c] + melib[c]	Transport, Extracellular	0.0149	0	0	0	0.011	0.011
MEPCT	[c]2me4p + ctp + h --> 4c2me + ppi	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
METabc	atp[c] + h2o[c] + met-L[e] --> adp[c] + h[c] + met-L[c] + pi[c]	Transport, Extracellular	0	0	0	0	0	0
METAT	[c]atp + h2o + met-L --> amet + pi + ppi	Methionine Metabolism	1	1	1	0	1	1
METDabc	atp[c] + h2o[c] + met-D[e] --> adp[c] + h[c] + met-D[c] + pi[c]	Transport, Extracellular	0	0	0	0	0	0
METS	[c]5mthf + hcys-L --> met-L + thf	Methionine Metabolism	1	1	1	0	1	1
MGSA	[c]dhap --> mthgxl + pi	Methylglyoxal Metabolism	0	0	0	0	**1**	**0**
MI1PP	[c]h2o + mi1p-D --> inost + pi	Cell Envelope Biosynthesis	0	0	0	0	0	0
MICITD	[c]2mcacn + h2o --> micit	Alternate Carbon Metabolism	0.0118	0	0	0	1	0.023
MLTG1	[c]h2o + malttr --> glc-D + malt	Alternate Carbon Metabolism	0.0611	0	0	0	0.045	0.045
MLTG2	[c]h2o + maltttr --> glc-D + malttr	Alternate Carbon Metabolism	0.0464	0	0	0	0.057	0.034
MLTG3	[c]h2o + maltpt --> glc-D + maltttr	Alternate Carbon Metabolism	0	0	0	0	**1**	**0**
MLTG4	[c]h2o + malthx --> glc-D + maltpt	Alternate Carbon Metabolism	0	0	0	0	**1**	**0**
MLTG5	[c]h2o + malthp --> glc-D + malthx	Alternate Carbon Metabolism	0	0	0	0	**1**	**0**
MLTP1	[c]maltpt + pi <==> g1p + maltttr	Alternate Carbon Metabolism	0.0470	0	0	10	1	0.057
MLTP2	[c]malthx + pi <==> g1p + maltpt	Alternate Carbon Metabolism	0.0320	0	0	10	1	0.057
MLTP3	[c]malthp + pi <==> g1p + malthx	Alternate Carbon Metabolism	0.0207	0	0	10	1	0.057
MMCD	[c]h + mmcoa-S --> co2 + ppcoa	Alternate Carbon Metabolism	0	0	0	0	**1**	**0**
MME	[c]mmcoa-R <==> mmcoa-S	Alternate Carbon Metabolism	0	0	0	0	**1**	**0**
MMM2	[c]succoa --> mmcoa-R	Alternate Carbon Metabolism	0	0	0	0	**1**	**0**
MNLpts	mnl[e] + pep[c] --> mnl1p[c] + pyr[c]	Transport, Extracellular	0.0088	0	0	0	0.011	0.011
MNNH	[c]mana --> 2ddglcn + h2o	Alternate Carbon Metabolism	0.0133	0	0	0	0.011	0.011
MOAT	[c]ckdo + lipidA --> cmp + h + kdolipid4	Cell Envelope Biosynthesis	1	1	1	0	1	1

MOAT2	[c]ckdo + kdolipid4 --> cmp + h + kdo2lipid4	Cell Envelope Biosynthesis	1	1	1	0	1	1
MOHMT	[c]3mob + h2o + mlthf --> 2dhp + thf	Cofactor and Prosthetic Group Biosynthesis	1	1	1	0	1	1
MTAN	[c]5mta + h2o --> 5mtr + ade	Arginine and Proline Metabolism	1	1	1	0	1	1
MTHFC	[c]h2o + methf <==> 10fthf	Folate Metabolism	1	1	1	0	1	1
MTHFD	[c]mlthf + nadp <==> h + methf + nadph	Folate Metabolism	1	1	1	0	1	1
MTHFR2	[c]h + mlthf + nadh --> 5mthf + nad	Folate Metabolism	1	1	1	0	1	1
MTRI	[c]5mdr1p <==> 5mdru1p	Arginine and Proline Metabolism	1	1	1	0	1	1
MTRK	[c]5mtr + atp --> 5mdr1p + adp + h	Arginine and Proline Metabolism	1	1	1	0	1	1
NACODA	[c]acg5sa + h2o --> ac + glu5sa	Arginine and Proline Metabolism	0	0	0	0	**1**	**0**
NACUP	nac[e] --> nac[c]	Transport, Extracellular	0	0	0	0	0	0
NADDP	[c]h2o + nad --> amp + (2) h + nmn	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	**1**	**0**
NADDPe	[e]h2o + nad --> amp + (2) h + nmn	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
NADH10	[c]h + mqn8 + nadh --> mql8 + nad	Oxidative phosphorylation	0	0	0	0	**1**	**0**
NADH5	[c]h + nadh + q8 --> nad + q8h2	Oxidative phosphorylation	0	0	0	0	**1**	**0**
NADH6	(4.5) h[c] + nadh[c] + q8[c] --> (3.5) h[e] + nad[c] + q8h2[c]	Oxidative phosphorylation	0.7695	1	0	0	1	1
NADH7	(3) h[c] + mqn8[c] + nadh[c] --> (2) h[e] + mql8[c] + nad[c]	Oxidative phosphorylation	0	0	0	0	**1**	**0**
NADH8	2dmmq8[c] + (3.8) h[c] + nadh[c] --> 2dmmql8[c] + (2.8) h[e] + nad[c]	Oxidative phosphorylation	0	0	0	0	**1**	**0**
NADH9	[c]2dmmq8 + h + nadh --> 2dmmql8 + nad	Oxidative phosphorylation	0	0	0	0	**1**	**0**
NADK	[c]atp + nad --> adp + h + nadp	Cofactor and Prosthetic Group Biosynthesis	1	1	1	0	1	1
NADPPPS	[c]h2o + nadp --> nad + pi	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	**1**	**0**
NADS1	[c]atp + dnad + nh4 --> amp + h + nad + ppi	Cofactor and Prosthetic Group Biosynthesis	1	1	1	0	1	1
NAMNPP	[c]atp + h2o + nac + prpp --> adp + nicrnt + pi + ppi	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	**1**	**0**
NAt3_1	h[e] + na1[c] <==> h[c] + na1[e]	Transport, Extracellular	0	0	0	0	**1**	**0**
NAt3_1.5	(3) h[e] + (2) na1[c] --> (3) h[c] + (2) na1[e]	Transport, Extracellular	0	0	0	0	**1**	**0**
NAt3_2	(2) h[e] + na1[c] --> (2) h[c] + na1[e]	Transport, Extracellular	0	0	0	0	**1**	**0**
NDPK1	[c]atp + gdp <==> adp + gtp	Nucleotide Salvage Pathways	1	1	1	136	1	1
NDPK2	[c]atp + udp <==> adp + utp	Nucleotide Salvage Pathways	1	1	1	126	1	1
NDPK3	[c]atp + cdp <==> adp + ctp	Nucleotide Salvage Pathways	1	1	1	136	1	1
NDPK4	[c]atp + dtdp <==> adp + dttp	Nucleotide Salvage Pathways	1	1	1	0	1	1
NDPK5	[c]atp + dgdp <==> adp + dgtp	Nucleotide Salvage Pathways	0.5969	0.7	0.667	136	1	1
NDPK6	[c]atp + dudp <==> adp + dutp	Nucleotide Salvage Pathways	0.3526	0.248	0.475	126	1	0.943
NDPK7	[c]atp + dcdp <==> adp + dctp	Nucleotide Salvage Pathways	0.6232	0.834	0.525	136	1	1
NDPK8	[c]atp + dadp <==> adp + datp	Nucleotide Salvage Pathways	0.6736	0.8	0.515	136	1	1
NH3t	nh4[e] <==> nh4[c]	Transport, Extracellular	0.9959	1	1	2	1	1
NMNAT	[c]atp + h + nmn --> nad + ppi	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	**1**	**0**
NMNDA	[c]h2o + nmn --> nh4 + nicrnt	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	**1**	**0**
NMNN	[c]h2o + nmn --> h + ncam + r5p	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	**1**	**0**
NMNP	nmn[e] --> nmn[c]	Transport, Extracellular	0	0	0	0	0	0
NMNt7	h2o[c] + nmn[e] --> h[c] + ncam[c] + r5p[c]	Transport, Extracellular	0	0	0	0	0	0
NNAM	[c]h2o + ncam --> nac + nh4	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	**1**	**0**
NNAT	[c]atp + h + nicrnt --> dnad + ppi	Cofactor and Prosthetic Group Biosynthesis	1	1	1	0	1	1
NNDMBRT	[c]dmbzid + nicrnt --> 5prdmbz + h + nac	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
NNDPR	[c](2) h + prpp + quln --> co2 + nicrnt + ppi	Cofactor and Prosthetic Group Biosynthesis	1	1	1	0	1	1
NO2t2r	h[e] + no2[e] <==> h[c] + no2[c]	Transport, Extracellular	0	0	0	0	0	0
NO3R1	(2) h[c] + no3[c] + q8h2[c] --> (2) h[e] + h2o[c] + no2[c] + q8[c]	Oxidative phosphorylation	0	0	0	0	0	0
NO3R2	(2) h[c] + mql8[c] + no3[c] --> (2) h[e] + h2o[c] + mqn8[c] + no2[c]	Oxidative phosphorylation	0	0	0	0	0	0
NO3t7	no2[c] + no3[e] --> no2[e] + no3[c]	Transport, Extracellular	0	0	0	0	0	0
NPHS	[c]sbzcoa --> coa + dhna	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0

NTD1	[c]dump + h2o --> duri + pi	Nucleotide Salvage Pathways	0.2180	0.48	0.044	90	1	0.602
NTD10	[c]h2o + xmp --> pi + xtsn	Nucleotide Salvage Pathways	0.0352	0	0	0	1	0.045
NTD11	[c]h2o + imp --> ins + pi	Nucleotide Salvage Pathways	0	0	0	0	**1**	**0**
NTD2	[c]h2o + ump --> pi + uri	Nucleotide Salvage Pathways	0.0366	0	0	0	1	0.034
NTD3	[c]dcmp + h2o --> dcyt + pi	Nucleotide Salvage Pathways	0.0019	0	0	2	1	0.011
NTD4	[c]cmp + h2o --> cytd + pi	Nucleotide Salvage Pathways	0	0	0	0	**1**	**0**
NTD5	[c]dtmp + h2o --> pi + thymd	Nucleotide Salvage Pathways	0	0	0	0	**1**	**0**
NTD6	[c]damp + h2o --> dad-2 + pi	Nucleotide Salvage Pathways	0.1660	0.328	0.029	90	1	0.602
NTD7	[c]amp + h2o --> adn + pi	Nucleotide Salvage Pathways	0	0	0	0	**1**	**0**
NTD8	[c]dgmp + h2o --> dgsn + pi	Nucleotide Salvage Pathways	0.2709	0.192	0.926	90	1	0.602
NTD9	[c]gmp + h2o --> gsn + pi	Nucleotide Salvage Pathways	0	0	0	0	**1**	**0**
NTPP1	[c]dgtp + h2o --> dgmp + h + ppi	Nucleotide Salvage Pathways	0	0	0	0	**1**	**0**
NTPP2	[c]gtp + h2o --> gmp + h + ppi	Nucleotide Salvage Pathways	0	0	0	0	**1**	**0**
NTPP3	[c]dctp + h2o --> dcmp + h + ppi	Nucleotide Salvage Pathways	0	0	0	0	**1**	**0**
NTPP4	[c]ctp + h2o --> cmp + h + ppi	Nucleotide Salvage Pathways	0	0	0	0	**1**	**0**
NTPP5	[c]datp + h2o --> damp + h + ppi	Nucleotide Salvage Pathways	0	0	0	0	**1**	**0**
NTPP6	[c]atp + h2o --> amp + h + ppi	Nucleotide Salvage Pathways	0	0	0	0	**1**	**0**
NTPP7	[c]dttp + h2o --> dtmp + h + ppi	Nucleotide Salvage Pathways	0	0	0	0	**1**	**0**
NTPP8	[c]h2o + utp --> h + ppi + ump	Nucleotide Salvage Pathways	0	0	0	0	**1**	**0**
NTPTP1	[c]dgtp + h2o --> dgsn + pppi	Nucleotide Salvage Pathways	0	0	0	0	0	0
NTPTP2	[c]gtp + h2o --> gsn + pppi	Nucleotide Salvage Pathways	0	0	0	0	0	0
NTRIR2x	[c](5) h + (3) nadh + no2 --> (2) h2o + (3) nad + nh4	Oxidative phosphorylation	0	0	0	0	0	0
O2t	o2[e] <==> o2[c]	Transport, Extracellular	0.7695	1	0	0	1	1
OBTFL	[c]2obut + coa --> for + ppcoa	Alternate Carbon Metabolism	0.0118	0	0	0	1	0.023
OCBT	[c]cbp + orn <==> citr-L + h + pi	Arginine and Proline Metabolism	0.9912	1	1	0	1	0.989
OCDCAt2	h[e] + ocdca[e] --> h[c] + ocdca[c]	Transport, Extracellular	0.0088	0	0	0	0.011	0.011
OCTDPS	[c]frdp + (5) ipdp --> octdp + (5) ppi	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
OHPBAT	[c]glu-L + ohpb <==> akg + phthr	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
OHPHM	[c]2ohph + amet --> 2omph + ahcys + h	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
OMBZLM	[c]2ombzl + amet --> 2ommbl + ahcys + h	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
OMCDC	[c]3c4mop + h --> 4mop + co2	Valine, leucine, and isoleucine metabolism	1	1	1	0	1	1
OMMBLHX	[c]2ommbl + (0.5) o2 --> 2omhmbl	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
OMPDC	[c]h + orot5p --> co2 + ump	Purine and Pyrimidine Biosynthesis	0.9485	1	1	0	1	0.955
OMPHHX	[c]2omph + (0.5) o2 --> 2ombzl	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
OP4ENH	[c]h2o + op4en --> 4h2opntn	Alternate Carbon Metabolism	0.0264	0	0	0	0.034	0.034
OPHBDC	[c]3ophb + h --> 2oph + co2	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
OPHHX	[c]2oph + (0.5) o2 --> 2ohph	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
ORNabc	atp[c] + h2o[c] + orn[e] --> adp[c] + h[c] + orn[c] + pi[c]	Transport, Extracellular	0	0	0	0	**1**	**0**
ORNDC	[c]h + orn --> co2 + ptrc	Arginine and Proline Metabolism	0.9824	1	1	0	1	0.977
ORNTA	[c]akg + orn --> glu-L + glu5sa	Arginine and Proline Metabolism	0.0088	0	0	0	1	0.011
ORPT	[c]orot5p + ppi <==> orot + prpp	Purine and Pyrimidine Biosynthesis	0.9485	1	1	0	1	0.955
OXGDC2	[c]akg + h + thmpp --> co2 + ssaltpp	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
P5CD	[c]1pyr5c + (2) h2o + nad --> glu-L + h + nadh	Arginine and Proline Metabolism	0.0176	0	0	0	1	0.023
P5CR	[c]1pyr5c + (2) h + nadph --> nadp + pro-L	Arginine and Proline Metabolism	0.9912	1	1	0	1	0.989
PACCOAL	[c]atp + coa + pac --> amp + phaccoa + ppi	Alternate Carbon Metabolism	0	0	0	0	0	0
PANTS	[c]ala-B + atp + pant-R --> amp + h + pnto-R + ppi	Cofactor and Prosthetic Group Biosynthesis	1	1	1	0	1	1
PAPA_EC	[c]h2o + (0.02) pa_EC --> (0.02) 12dgr_EC + pi	Cell Envelope Biosynthesis	0	0	0	0	**1**	**0**
PAPPT3	[c]udcpp + ugmda --> uagmda + ump	Cell Envelope Biosynthesis	1	1	1	0	1	1
PAPSR	[c]paps + trdrd --> (2) h + pap + so3 + trdox	Cysteine Metabolism	1	1	1	0	1	1

PASYN_EC	[c]glyc3p + (0.14) hdeACP + (0.04) myrsACP + octeACP + (0.72) palmACP + (0.1) tdeACP --> (2) ACP + (0.02) pa_EC	Membrane Lipid Metabolism	1	1	1	0	1	1
PDH	[c]coa + nad + pyr --> accoa + co2 + nadh	Glycolysis/Gluconeogenesis	0.6682	1	0	8	1	0.830
PDX5PO	[c]o2 + pdx5p <==> h2o2 + pydx5p	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
PDX5PS	[c]dxyl5p + nad + phthr --> co2 + h + (2) h2o + nadh + pdx5p + pi	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
PDXPP	[c]h2o + pdx5p --> pi + pydxn	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	**1**	**0**
PEAMNO	[c]h2o + o2 + peamn --> h2o2 + nh4 + pacald	Alternate Carbon Metabolism	0	0	0	0	0	0
PEPT_EC	[c]cmp + h + (0.02) pe_EC <==> (0.02) 12dgr_EC + cdpea	Cell Envelope Biosynthesis	1	1	1	0	1	1
PERD	[c]4per + nad <==> h + nadh + ohpb	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
PFK	[c]atp + f6p --> adp + fdp + h	Glycolysis/Gluconeogenesis	0.2683	1	1	64	1	0.398
PFK_2	[c]atp + tag6p-D --> adp + h + tagdp-D	Alternate Carbon Metabolism	0.0133	0	0	0	0.011	0.011
PFL	[c]coa + pyr --> accoa + for	Pyruvate metabolism	0.2834	0	1	0	1	0.068
PGAMT	[c]gam1p <==> gam6p	Cell Envelope Biosynthesis	1	1	1	0	1	1
PGCD	[c]3pg + nad --> 3php + h + nadh	Glycine and Serine Metabolism	0.9912	1	1	0	1	0.989
PGI	[c]g6p <==> f6p	Glycolysis/Gluconeogenesis	1	1	1	0	1	1
PGK	[c]3pg + atp <==> 13dpg + adp	Glycolysis/Gluconeogenesis	1	1	1	0	1	1
PGL	[c]6pgl + h2o --> 6pgc + h	Pentose Phosphate Cycle	0.3876	1	0	0	1	0.500
PGLYCP	[c]2pglyc + h2o --> glyclt + pi	Alternate Carbon Metabolism	0	0	0	0	0	0
PGM	[c]2pg <==> 3pg	Glycolysis/Gluconeogenesis	1	1	1	3	1	1
PGMT	[c]g1p <==> g6p	Alternate Carbon Metabolism	1	1	1	0	1	1
PGPP_EC	[c]h2o + (0.02) pgp_EC --> (0.02) pg_EC + pi	Membrane Lipid Metabolism	1	1	1	0	1	1
PGSA_EC	[c](0.02) cdpdag1 + glyc3p <==> cmp + h + (0.02) pgp_EC	Membrane Lipid Metabolism	1	1	1	0	1	1
PHEt2r	h[e] + phe-L[e] <==> h[c] + phe-L[c]	Transport, Extracellular	0	0	0	0	**1**	**0**
PHETA1	[c]akg + phe-L <==> glu-L + phpyr	Tyrosine, Tryptophan, and Phenylalanine Metabolism	1	1	1	0	1	1
PIabc	atp[c] + h2o[c] + pi[e] --> adp[c] + h[c] + (2) pi[c]	Transport, Extracellular	0	0	0	0	**1**	**0**
PIt2r	h[e] + pi[e] <==> h[c] + pi[c]	Transport, Extracellular	1	1	1	0	1	1
PLIPA1	[c]h2o + (0.02) pg_EC --> (0.02) agpg_EC + h + (0.36) hdca + (0.07) hdcea + (0.5) ocdcea + (0.02) ttdca + (0.05) ttdcea	Cell Envelope Biosynthesis	0	0	0	0	**1**	**0**
PLIPA2	[c]h2o + (0.02) pe_EC --> (0.02) agpe_EC + h + (0.36) hdca + (0.07) hdcea + (0.5) ocdcea + (0.02) ttdca + (0.05) ttdcea	Cell Envelope Biosynthesis	0	0	0	0	**1**	**0**
PLIPA3	[c]h2o + (0.02) pc_EC --> (0.02) agpc_EC + h + (0.36) hdca + (0.07) hdcea + (0.5) ocdcea + (0.02) ttdca + (0.05) ttdcea	Cell Envelope Biosynthesis	0	0	0	0	0	0
PMANM	[c]man1p <==> man6p	Alternate Carbon Metabolism	0	0	0	0	0	0
PMDPHT	[c]5aprbu + h2o --> 4r5au + pi	Cofactor and Prosthetic Group Biosynthesis	0.9969	1	1	0	1	1
PMPK	[c]4ampm + atp --> 2mahmp + adp	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
PNTK	[c]atp + pnto-R --> 4ppan + adp + h	Cofactor and Prosthetic Group Biosynthesis	1	1	1	0	1	1
PNTOt4	na1[e] + pnto-R[e] --> na1[c] + pnto-R[c]	Transport, Extracellular	0	0	0	0	0	0
POX	[c]h2o + pyr + q8 --> ac + co2 + q8h2	Oxidative phosphorylation	0	0	0	0	**1**	**0**
PPA	[c]h2o + ppi --> h + (2) pi	Anaplerotic reactions	1	1	1	0	1	1
PPAKr	[c]adp + ppap <==> atp + ppa	Alternate Carbon Metabolism	0	0	0	0	0	0
PPBNGS	[c](2) 5aop --> h + (2) h2o + ppbng	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
PPC	[c]co2 + h2o + pep --> h + oaa + pi	Anaplerotic reactions	0.6684	1	1	6	1	0.580
PPCDC	[c]4ppcys + h --> co2 + pan4p	Cofactor and Prosthetic Group Biosynthesis	1	1	1	0	1	1
PPCK	[c]atp + oaa --> adp + co2 + pep	Anaplerotic reactions	0.2501	0	0	18	1	0.330
PPCSCT	[c]ppcoa + succ --> ppa + succoa	Alternate Carbon Metabolism	0	0	0	0	0	0
PPM	[c]r1p <==> r5p	Alternate Carbon Metabolism	1	1	1	0	1	1
PPM2	[c]2dr1p <==> 2dr5p	Alternate Carbon Metabolism	0.7134	1	1	0	1	0.659
PPNCL2	[c]4ppan + ctp + cys-L --> 4ppcys + cmp + h + ppi	Cofactor and Prosthetic Group Biosynthesis	1	1	1	0	1	1
PPND	[c]nad + pphn --> 34hpp + co2 + nadh	Tyrosine, Tryptophan, and Phenylalanine Metabolism	1	1	1	0	1	1

PPNDH	[c]h + pphn --> co2 + h2o + phpyr	Tyrosine, Tryptophan, and Phenylalanine Metabolism	1	1	1	0	1	1
PPPGO	[c](1.5) o2 + pppg9 --> (3) h2o + ppp9	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
PPPNDO	[c]h + nadh + o2 + pppn --> cechddd + nad	Alternate Carbon Metabolism	0.0088	0	0	0	0.011	0.011
PPPNt2r	h[e] + pppn[e] <==> h[c] + pppn[c]	Putative Transporters	0.0088	0	0	0	0.011	0.011
PPS	[c]atp + h2o + pyr --> amp + (2) h + pep + pi	Glycolysis/Gluconeogenesis	0.0789	0	0	2	1	0.125
PPTGS	[c]uaagmda --> h + peptido_EC + udcpdp	Cell Envelope Biosynthesis	1	1	1	0	1	1
PRAGSr	[c]atp + gly + pram <==> adp + gar + h + pi	Purine and Pyrimidine Biosynthesis	0.9126	1	1	0	1	0.920
PRAIi	[c]pran --> 2cpr5p	Tyrosine, Tryptophan, and Phenylalanine Metabolism	0.9912	1	1	0	1	0.989
PRAIS	[c]atp + fpram --> adp + air + (2) h + pi	Purine and Pyrimidine Biosynthesis	0.9126	1	1	0	1	0.920
PRAMPC	[c]h2o + prbamp --> prfp	Histidine Metabolism	1	1	1	0	1	1
PRASCS	[c]5aizc + asp-L + atp <==> 25aics + adp + h + pi	Purine and Pyrimidine Biosynthesis	0.9126	1	1	0	1	0.920
PRATPP	[c]h2o + prbatp --> h + ppi + prbamp	Histidine Metabolism	1	1	1	0	1	1
PRFGS	[c]atp + fgam + gln-L + h2o --> adp + fpram + glu-L + h + pi	Purine and Pyrimidine Biosynthesis	0.9126	1	1	0	1	0.920
PRMICIi	[c]prfp --> prlp	Histidine Metabolism	1	1	1	0	1	1
PROabc	atp[c] + h2o[c] + pro-L[e] --> adp[c] + h[c] + pi[c] + pro-L[c]	Transport, Extracellular	0	0	0	0	**1**	**0**
PROD2	[c]fad + pro-L --> 1pyr5c + fadh2 + h	Arginine and Proline Metabolism	0.0088	0	0	0	1	0.011
PROt2r	h[e] + pro-L[e] <==> h[c] + pro-L[c]	Transport, Extracellular	0.0088	0	0	0	1	0.011
PROt4	na1[e] + pro-L[e] --> na1[c] + pro-L[c]	Transport, Extracellular	0	0	0	0	0	0
PRPPS	[c]atp + r5p <==> amp + h + prpp	Histidine Metabolism	1	1	1	0	1	1
PSCVT	[c]pep + skm5p <==> 3psme + pi	Tyrosine, Tryptophan, and Phenylalanine Metabolism	1	1	1	0	1	1
PSD_EC	[c]h + (0.02) ps_EC --> co2 + (0.02) pe_EC	Membrane Lipid Metabolism	1	1	1	0	1	1
PSERT	[c]3php + glu-L --> akg + pser-L	Glycine and Serine Metabolism	0.9912	1	1	0	1	0.989
PSP_L	[c]h2o + pser-L --> pi + ser-L	Glycine and Serine Metabolism	0.9912	1	1	0	1	0.989
PSSA_EC	[c](0.02) cdpdag1 + ser-L <==> cmp + h + (0.02) ps_EC	Membrane Lipid Metabolism	1	1	1	0	1	1
PTA2	[c]pi + ppcoa --> coa + ppap	Alternate Carbon Metabolism	0	0	0	0	0	0
PTAr	[c]accoa + pi <==> actp + coa	Pyruvate metabolism	1	1	1	0	1	1
PTPATi	[c]atp + h + pan4p --> dpcoa + ppi	Cofactor and Prosthetic Group Biosynthesis	1	1	1	0	1	1
PTRCabc	atp[c] + h2o[c] + ptrc[e] --> adp[c] + h[c] + pi[c] + ptrc[c]	Transport, Extracellular	0	0	0	0	**1**	**0**
PTRCORNt7	orn[c] + ptrc[e] <==> orn[e] + ptrc[c]	Transport, Extracellular	0.0176	0	0	0	1	0.023
PTRCt2r	h[e] + ptrc[e] <==> h[c] + ptrc[c]	Transport, Extracellular	0.0264	0	0	0	1	0.034
PTRCTA	[c]akg + ptrc --> 4abutn + glu-L	Arginine and Proline Metabolism	0.0088	0	0	0	1	0.011
PUNP1	[c]adn + pi <==> ade + r1p	Nucleotide Salvage Pathways	0.9983	1	1	93	1	1
PUNP2	[c]dad-2 + pi <==> 2dr1p + ade	Nucleotide Salvage Pathways	0.1877	0.328	0.029	93	1	0.614
PUNP3	[c]gsn + pi <==> gua + r1p	Nucleotide Salvage Pathways	0.2905	0.192	0.926	90	1	0.614
PUNP4	[c]dgsn + pi <==> 2dr1p + gua	Nucleotide Salvage Pathways	0.2809	0.192	0.926	90	1	0.614
PUNP5	[c]ins + pi <==> hxan + r1p	Nucleotide Salvage Pathways	0.0379	0	0	4	1	0.034
PUNP6	[c]din + pi <==> 2dr1p + hxan	Nucleotide Salvage Pathways	0.0255	0	0	4	1	0.034
PUNP7	[c]pi + xtsn <==> r1p + xan	Nucleotide Salvage Pathways	0.0463	0	0	0	1	0.057
PYAM5PO	[c]h2o + o2 + pyam5p --> h2o2 + nh4 + pydx5p	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	**1**	**0**
PYDAMK	[c]atp + pydam --> adp + h + pyam5p	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	**1**	**0**
PYDXK	[c]atp + pydx --> adp + h + pydx5p	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	**1**	**0**
PYDXNK	[c]atp + pydxn --> adp + h + pdx5p	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	**1**	**0**
PYDXPP	[c]h2o + pydx5p --> pi + pydx	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	**1**	**0**
PYK	[c]adp + h + pep --> atp + pyr	Glycolysis/Gluconeogenesis	0.5998	0.288	0.490	83	1	0.705
PYNP2r	[c]pi + uri <==> r1p + ura	Nucleotide Salvage Pathways	0.2950	0.48	0.044	90	1	0.659
PYRt2r	h[e] + pyr[e] <==> h[c] + pyr[c]	Transport, Extracellular	0.0088	0	0	0	1	0.011
QULNS	[c]dhap + iasp --> h + (2) h2o + pi + quln	Cofactor and Prosthetic Group Biosynthesis	1	1	1	0	1	1
RBFK	[c]atp + ribflv --> adp + fmn + h	Cofactor and Prosthetic Group Biosynthesis	0.9969	1	1	0	1	1
RBFSa	[c]4r5au + db4p --> dmlz + (2) h2o + pi	Cofactor and Prosthetic Group Biosynthesis	0.9969	1	1	0	1	1

RBFSb	[c](2) dmlz --> 4r5au + ribflv	Cofactor and Prosthetic Group Biosynthesis	0.9969	1	1	0	1	1
RBK	[c]atp + rib-D --> adp + h + r5p	Alternate Carbon Metabolism	0.0088	0	0	0	0.011	0.011
RBK_L1	[c]atp + rbl-L --> adp + h + ru5p-L	Alternate Carbon Metabolism	0.0162	0	0	0	0.011	0.011
RBP4E	[c]ru5p-L <==> xu5p-D	Alternate Carbon Metabolism	0.0162	0	0	0	0.011	0.011
RHCCE	[c]rhcys --> dhptd + hcys-L	Methionine Metabolism	0	0	0	0	0	0
RIBabc	atp[c] + h2o[c] + rib-D[e] --> adp[c] + h[c] + pi[c] + rib-D[c]	Transport, Extracellular	0.0088	0	0	0	0.011	0.011
RMI	[c]rmn <==> rml	Alternate Carbon Metabolism	0.0088	0	0	0	0.011	0.011
RMK	[c]atp + rml --> adp + h + rml1p	Alternate Carbon Metabolism	0.0088	0	0	0	0.011	0.011
RMNt	h[e] + rmn[e] --> h[c] + rmn[c]	Transport, Extracellular	0.0088	0	0	0	0.011	0.011
RMPA	[c]rml1p <==> dhap + lald-L	Alternate Carbon Metabolism	0.0088	0	0	0	0.011	0.011
RNDR1	[c]adp + trdrd --> dadp + h2o + trdox	Nucleotide Salvage Pathways	0.6633	0.818	0.505	136	1	1
RNDR2	[c]gdp + trdrd --> dgdp + h2o + trdox	Nucleotide Salvage Pathways	0.6396	0.676	0.681	136	1	1
RNDR3	[c]cdp + trdrd --> dcdp + h2o + trdox	Nucleotide Salvage Pathways	0.6232	0.834	0.525	136	1	1
RNDR4	[c]trdrd + udp --> dudp + h2o + trdox	Nucleotide Salvage Pathways	0.5909	0.752	0.525	126	1	0.943
RNTR1	[c]atp + trdrd --> datp + h2o + trdox	Nucleotide Salvage Pathways	0.3606	0.228	0.495	136	1	1
RNTR2	[c]gtp + trdrd --> dgtp + h2o + trdox	Nucleotide Salvage Pathways	0.4631	0.342	0.632	136	1	1
RNTR3	[c]ctp + trdrd --> dctp + h2o + trdox	Nucleotide Salvage Pathways	0.3774	0.166	0.475	136	1	1
RNTR4	[c]trdrd + utp --> dutp + h2o + trdox	Nucleotide Salvage Pathways	0.3474	0.248	0.475	126	1	0.943
RPE	[c]ru5p-D <==> xu5p-D	Pentose Phosphate Cycle	1	1	1	0	1	1
RPI	[c]r5p <==> ru5p-D	Pentose Phosphate Cycle	1	1	1	0	1	1
RZ5PP	[c]5prdmbz + h2o --> pi + rdmbzi	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
S7PI	[c]s7p --> gmhep7p	Cell Envelope Biosynthesis	1	1	1	0	1	1
SADH	[c](2) h + (2) h2o + sucarg --> co2 + (2) nh4 + sucorn	Arginine and Proline Metabolism	0.0088	0	0	0	1	0.011
SADT2	[c]atp + gtp + h2o + so4 --> aps + gdp + pi + ppi	Cysteine Metabolism	1	1	1	0	1	1
SBTPD	[c]nad + sbt6p <==> f6p + h + nadh	Alternate Carbon Metabolism	0.0129	0	0	0	0.011	0.011
SBTpts	pep[c] + sbt-D[e] --> pyr[c] + sbt6p[c]	Transport, Extracellular	0.0129	0	0	0	0.011	0.011
SDPDS	[c]h2o + sl26da --> 26dap-LL + succ	Threonine and Lysine Metabolism	1	1	1	0	1	1
SDPTA	[c]akg + sl26da <==> glu-L + sl2a6o	Threonine and Lysine Metabolism	1	1	1	0	1	1
SELNPS	[c]atp + h2o + seln --> amp + pi + selnp	Unassigned	0	0	0	0	0	0
SERASr	[c]atp + h + ser-L <==> ppi + seramp	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
SERAT	[c]accoa + ser-L <==> acser + coa	Cysteine Metabolism	1	1	1	0	1	1
SERD_D	[c]ser-D --> nh4 + pyr	Glycine and Serine Metabolism	0.0088	0	0	0	0.011	0.011
SERD_L	[c]ser-L --> nh4 + pyr	Glycine and Serine Metabolism	0.0078	0	0	1	1	0.011
SERt2r	h[e] + ser-L[e] <==> h[c] + ser-L[c]	Transport, Extracellular	0.0088	0	0	0	1	0.011
SERt4	na1[e] + ser-L[e] --> na1[c] + ser-L[c]	Transport, Extracellular	0	0	0	0	0	0
SGDS	[c]h2o + sucglu --> glu-L + succ	Arginine and Proline Metabolism	0.0088	0	0	0	1	0.011
SGSAD	[c]h2o + nad + sucgsa --> (2) h + nadh + sucglu	Arginine and Proline Metabolism	0.0088	0	0	0	1	0.011
SHCHCS2	[c]ichor + ssaltpp --> 2shchc + pyr + thmpp	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
SHCHD2	[c]nad + shcl --> h + nadh + srch	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
SHCHF	[c]fe2 + srch --> (3) h + sheme	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
SHK3Dr	[c]3dhsk + h + nadph <==> nadp + skm	Tyrosine, Tryptophan, and Phenylalanine Metabolism	1	1	1	0	1	1
SHKK	[c]atp + skm --> adp + h + skm5p	Tyrosine, Tryptophan, and Phenylalanine Metabolism	1	1	1	0	1	1
SHSL1	[c]cys-L + suchms --> cyst-L + h + succ	Methionine Metabolism	1	1	1	0	1	1
SOTA	[c]akg + sucorn --> glu-L + sucgsa	Arginine and Proline Metabolism	0.0088	0	0	0	1	0.011
SPMDabc	atp[c] + h2o[c] + spmd[e] --> adp[c] + h[c] + pi[c] + spmd[c]	Transport, Extracellular	0	0	0	0	0	0
SPMDAT1	[c]accoa + spmd --> N1aspmd + coa + h	Arginine and Proline Metabolism	0	0	0	0	0	0
SPMDAT2	[c]accoa + spmd --> coa + h + n8aspmd	Arginine and Proline Metabolism	0	0	0	0	0	0
SPMS	[c]ametam + ptrc --> 5mta + h + spmd	Arginine and Proline Metabolism	1	1	1	0	1	1
SPODM	[c](2) h + (2) o2- --> h2o2 + o2	Unassigned	0	0	0	0	0	0

SSALx	[c]h2o + nad + sucsal --> (2) h + nadh + succ	Arginine and Proline Metabolism	0.0032	0	0	2	1	0.023
SSALy	[c]h2o + nadp + sucsal --> (2) h + nadph + succ	Arginine and Proline Metabolism	0.0164	0	0	2	1	0.023
SUCBZL	[c]atp + coa + sucbz --> amp + ppi + sbzcoa	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
SUCBZS	[c]2shchc --> h2o + sucbz	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
SUCCabc	atp[c] + h2o[c] + succ[e] --> adp[c] + h[c] + pi[c] + succ[c]	Putative Transporters	0	0	0	0	**1**	**0**
SUCCt2_2	(2) h[e] + succ[e] --> (2) h[c] + succ[c]	Transport, Extracellular	0.0213	0	0	4	1	0.045
SUCCt2_3	(3) h[e] + succ[e] --> (3) h[c] + succ[c]	Transport, Extracellular	0	0	0	0	**1**	**0**
SUCCt2b	h[c] + succ[c] --> h[e] + succ[e]	Transport, Extracellular	0.2305	0	1	0	**1**	**0**
SUCD1i	[c]fad + succ --> fadh2 + fum	Citrate Cycle (TCA)	0.7695	1	0	88	1	1
SUCD4	[c]fadh2 + q8 <==> fad + q8h2	Oxidative phosphorylation	0.7695	1	0	88	1	1
SUCFUMt	fum[e] + succ[c] <==> fum[c] + succ[e]	Transport, Extracellular	0.0178	0	0	4	1	0.045
SUCOAS	[c]atp + coa + succ <==> adp + pi + succoa	Citrate Cycle (TCA)	0.9983	1	1	8	1	1
SUCpts	pep[c] + sucr[e] --> pyr[c] + suc6p[c]	Transport, Extracellular	0.0166	0	0	0	0.011	0.011
SULabc	atp[c] + h2o[c] + so4[e] --> adp[c] + h[c] + pi[c] + so4[c]	Transport, Extracellular	1	1	1	0	1	1
SULR	[c](3) h2o + h2s + (3) nadp <==> (5) h + (3) nadph + so3	Cysteine Metabolism	1	1	1	0	1	1
TAGURr	[c]altrn + nad <==> h + nadh + tagur	Alternate Carbon Metabolism	0.0133	0	0	0	0.011	0.011
TALA	[c]g3p + s7p <==> e4p + f6p	Pentose Phosphate Cycle	1	1	1	0	1	1
TARTD	[c]tartr-L --> h2o + oaa	Alternate Carbon Metabolism	0.0088	0	0	0	0.011	0.011
TARTRt7	succ[c] + tartr-L[e] <==> succ[e] + tartr-L[c]	Putative Transporters	0.0088	0	0	0	0.011	0.011
TAUDO	[c]akg + o2 + taur --> aacald + co2 + h + so3 + succ	Alternate Carbon Metabolism	0	0	0	0	0	0
TAURabc	atp[c] + h2o[c] + taur[e] --> adp[c] + h[c] + pi[c] + taur[c]	Transport, Extracellular	0	0	0	0	0	0
TDPADGAT	[c]accoa + dtdp4addg --> coa + dtdp4aaddg + h	Cell Envelope Biosynthesis	0	0	0	0	0	0
TDPAGTA	[c]dtdp4d6dg + glu-L --> akg + dtdp4addg	Cell Envelope Biosynthesis	0	0	0	0	0	0
TDPDRE	[c]dtdp4d6dg --> dtdp4d6dm	Cell Envelope Biosynthesis	0	0	0	0	0	0
TDPDRR	[c]dtdp4d6dm + h + nadph --> dtdprmn + nadp	Cell Envelope Biosynthesis	0	0	0	0	0	0
TDPGDH	[c]dtdpglu --> dtdp4d6dg + h2o	Cell Envelope Biosynthesis	0	0	0	0	0	0
TDSK	[c]atp + lipidAds --> adp + h + lipidA	Cell Envelope Biosynthesis	1	1	1	0	1	1
TEST_AKGDH	[c]akg + coa + nad --> co2 + nadh + succoa	Citrate Cycle (TCA)	0.7473	1	0	8	1	0.966
TEST_NADTRHD	[c]nad + nadph --> nadh + nadp	Oxidative phosphorylation	0.1444	0	0	28	1	0.295
TGBPA	[c]tagdp-D <==> dhap + g3p	Alternate Carbon Metabolism	0.0133	0	0	0	0.011	0.011
THD2	(2) h[e] + nadh[c] + nadp[c] --> (2) h[c] + nad[c] + nadph[c]	Oxidative phosphorylation	0.4280	0	1	0	1	0.273
THDPS	[c]h2o + succoa + thdp --> coa + sl2a6o	Threonine and Lysine Metabolism	1	1	1	0	1	1
THMabc	atp[c] + h2o[c] + thm[e] --> adp[c] + h[c] + pi[c] + thm[c]	Transport, Extracellular	0	0	0	0	0	0
THMDt2	h[e] + thymd[e] --> h[c] + thymd[c]	Transport, Extracellular	0	0	0	0	0	0
THMDt2r	h[e] + thymd[e] <==> h[c] + thymd[c]	Transport, Extracellular	0	0	0	0	**1**	**0**
THRabc	atp[c] + h2o[c] + thr-L[e] --> adp[c] + h[c] + pi[c] + thr-L[c]	Transport, Extracellular	0	0	0	0	**1**	**0**
THRAr	[c]thr-L <==> acald + gly	Threonine and Lysine Metabolism	0.7572	1	1	18	1	0.727
THRD	[c]nad + thr-L --> 2aobut + h + nadh	Glycine and Serine Metabolism	0.0571	0	0	18	1	0.136
THRD_L	[c]thr-L --> 2obut + nh4	Valine, leucine, and isoleucine metabolism	1	1	1	0	1	1
THRS	[c]h2o + phom --> pi + thr-L	Threonine and Lysine Metabolism	0.6057	0	1	1	1	0.500
THRt2r	h[e] + thr-L[e] <==> h[c] + thr-L[c]	Transport, Extracellular	0.0088	0	0	0	1	0.011
THRt4	na1[e] + thr-L[e] --> na1[c] + thr-L[c]	Transport, Extracellular	0	0	0	0	0	0
THZPSN	[c]atp + cys-L + dxyl5p + tyr-L --> 4hba + 4mpetz + ala-L + amp + co2 + h + h2o + ppi	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
TKT1	[c]r5p + xu5p-D <==> g3p + s7p	Pentose Phosphate Cycle	1	1	1	0	1	1
TKT2	[c]e4p + xu5p-D <==> f6p + g3p	Pentose Phosphate Cycle	1	1	1	0	1	1
TMAOR1	[c]h + mql8 + tmao --> h2o + mqn8 + tma	Oxidative phosphorylation	0	0	0	0	0	0
TMAOR1e	h[e] + mql8[c] + tmao[e] --> h2o[e] + mqn8[c] + tma[e]	Oxidative phosphorylation	0	0	0	0	0	0
TMAOR2	[c]2dmmql8 + h + tmao --> 2dmmq8 + h2o + tma	Oxidative phosphorylation	0	0	0	0	0	0

TMAOR2e	2dmmql8[c] + h[e] + tmao[e] --> 2dmmq8[c] + h2o[e] + tma[e]	Oxidative phosphorylation	0	0	0	0	0	0
TMDK1	[c]atp + thymd --> adp + dtmp + h	Nucleotide Salvage Pathways	0	0	0	0	**1**	**0**
TMDPP	[c]pi + thymd <==> 2dr1p + thym	Nucleotide Salvage Pathways	0	0	0	0	0	0
TMDS	[c]dump + mlthf --> dhf + dtmp	Nucleotide Salvage Pathways	1	1	1	0	1	1
TMKr	[c]atp + thm <==> adp + h + thmmp	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
TMPKr	[c]atp + thmmp <==> adp + thmpp	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
TMPPP	[c]2mahmp + 4mpetz + h --> ppi + thmmp	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
TPI	[c]dhap <==> g3p	Glycolysis/Gluconeogenesis	1	1	1	0	1	1
TRDR	[c]h + nadph + trdox --> nadp + trdrd	Oxidative phosphorylation	1	1	1	0	1	1
TRE6PH	[c]h2o + tre6p --> g6p + glc-D	Alternate Carbon Metabolism	0.0096	0	0	2	1	0.011
TRE6PP	[c]h2o + tre6p --> pi + tre	Alternate Carbon Metabolism	0	0	0	0	**1**	**0**
TRE6PS	[c]g6p + udpg --> h + tre6p + udp	Alternate Carbon Metabolism	0	0	0	0	**1**	**0**
TREH	[c]h2o + tre --> (2) glc-D	Alternate Carbon Metabolism	0	0	0	0	**1**	**0**
TREHe	[e]h2o + tre --> (2) glc-D	Alternate Carbon Metabolism	0.0084	0	0	2	0.011	0.011
TREpts	pep[c] + tre[e] --> pyr[c] + tre6p[c]	Transport, Extracellular	0.0096	0	0	2	0.011	0.011
TRPAS1	[c]cys-L + h2o --> h2s + nh4 + pyr	Cysteine Metabolism	0	0	0	0	**1**	**0**
TRPAS2	[c]h2o + trp-L <==> indole + nh4 + pyr	Tyrosine, Tryptophan, and Phenylalanine Metabolism	0.9992	1	1	1	1	1
TRPS1	[c]3ig3p + ser-L --> g3p + h2o + trp-L	Tyrosine, Tryptophan, and Phenylalanine Metabolism	0.0010	0	0	1	1	0.011
TRPS2	[c]indole + ser-L --> h2o + trp-L	Tyrosine, Tryptophan, and Phenylalanine Metabolism	0.0014	0	0	1	1	0.011
TRPS3	[c]3ig3p --> g3p + indole	Tyrosine, Tryptophan, and Phenylalanine Metabolism	0.9902	1	1	1	1	0.989
TRPt2r	h[e] + trp-L[e] <==> h[c] + trp-L[c]	Transport, Extracellular	0.0088	0	0	0	1	0.011
TRSAR	[c]2h3oppan + h + nadh --> glyc-R + nad	Glyoxylate Metabolism	0.0995	0	0	24	1	0.250
TSULabc	atp[c] + h2o[c] + tsul[e] --> adp[c] + h[c] + pi[c] + tsul[c]	Transport, Extracellular	0	0	0	0	0	0
TTDCAt2	h[e] + ttdca[e] --> h[c] + ttdca[c]	Transport, Extracellular	0.0088	0	0	0	0.011	0.011
TYRt2r	h[e] + tyr-L[e] <==> h[c] + tyr-L[c]	Transport, Extracellular	0	0	0	0	**1**	**0**
TYRTA	[c]akg + tyr-L <==> 34hpp + glu-L	Tyrosine, Tryptophan, and Phenylalanine Metabolism	1	1	1	0	1	1
U23GAAT	[c]3hmrsACP + u3hga --> ACP + h + u23ga	Cell Envelope Biosynthesis	1	1	1	0	1	1
UAAGDS	[c]26dap-M + atp + uamag --> adp + h + pi + ugmd	Cell Envelope Biosynthesis	1	1	1	0	1	1
UACMAMO	[c]h2o + (2) nad + uacmam --> (3) h + (2) nadh + uacmamu	Cell Envelope Biosynthesis	0	0	0	0	0	0
UAG2Ei	[c]uacgam --> uacmam	Cell Envelope Biosynthesis	0	0	0	0	0	0
UAGAAT	[c]3hmrsACP + uacgam <==> ACP + u3aga	Cell Envelope Biosynthesis	1	1	1	0	1	1
UAGCVT	[c]pep + uacgam --> pi + uaccg	Cell Envelope Biosynthesis	1	1	1	0	1	1
UAGDP	[c]acgam1p + h + utp --> ppi + uacgam	Cell Envelope Biosynthesis	1	1	1	0	1	1
UAGPT3	[c]uacgam + uagmda --> h + uaagmda + udp	Cell Envelope Biosynthesis	1	1	1	0	1	1
UAMAGS	[c]atp + glu-D + uama --> adp + h + pi + uamag	Cell Envelope Biosynthesis	1	1	1	0	1	1
UAMAS	[c]ala-L + atp + uamr --> adp + h + pi + uama	Cell Envelope Biosynthesis	1	1	1	0	1	1
UAPGR	[c]h + nadph + uaccg --> nadp + uamr	Cell Envelope Biosynthesis	1	1	1	0	1	1
UDCPDP	[c]h2o + udcpdp --> h + pi + udcpp	Cell Envelope Biosynthesis	1	1	1	0	1	1
UDCPDPS	[c]frdp + (8) ipdp --> (8) ppi + udcpdp	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
UDPG4E	[c]udpg <==> udpgal	Alternate Carbon Metabolism	0.0438	0	0	0	0.034	0.034
UDPGALM	[c]udpgal --> udpgalfur	Cell Envelope Biosynthesis	0	0	0	0	0	0
UDPGD	[c]h2o + (2) nad + udpg --> (3) h + (2) nadh + udpglcur	Cell Envelope Biosynthesis	0	0	0	0	0	0
UGLT	[c]gal1p + udpg <==> g1p + udpgal	Alternate Carbon Metabolism	0.0438	0	0	0	0.034	0.034
UGLYCH	[c](2) h + h2o + urdglyc --> co2 + glx + (2) nh4	Nitrogen	0	0	0	0	0	0
UGMDDS	[c]alaala + atp + ugmd --> adp + h + pi + ugmda	Cell Envelope Biosynthesis	1	1	1	0	1	1
UHGADA	[c]h2o + u3aga --> ac + u3hga	Cell Envelope Biosynthesis	1	1	1	0	1	1
UMPK	[c]atp + ump <==> adp + udp	Nucleotide Salvage Pathways	1	1	1	90	1	1
UNK3	[c]2kmb + glu-L --> akg + met-L	Arginine and Proline Metabolism	1	1	1	0	1	1
UPP3MT	[c](2) amet + uppg3 --> (2) ahcys + h + shcl	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0

UPP3S	[c]hmbil --> h2o + uppg3	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
UPPDC1	[c](4) h + uppg3 --> (4) co2 + cpppg3	Cofactor and Prosthetic Group Biosynthesis	0	0	0	0	0	0
UPPRT	[c]prpp + ura --> ppi + ump	Nucleotide Salvage Pathways	0	0	0	0	**1**	**0**
URAt2	h[e] + ura[e] --> h[c] + ura[c]	Transport, Extracellular	0	0	0	0	0	0
URAt2r	h[e] + ura[e] <==> h[c] + ura[c]	Putative Transporters	0.0515	0	0	0	1	0.045
UREAt	urea[e] <==> urea[c]	Transport, Extracellular	0.0088	0	0	0	1	0.011
URIDK2r	[c]atp + dump <==> adp + dudp	Nucleotide Salvage Pathways	0.9435	1	1	90	1	0.943
URIK2	[c]gtp + uri --> gdp + h + ump	Nucleotide Salvage Pathways	0.2584	0.48	0.044	90	1	0.625
URIt2	h[e] + uri[e] --> h[c] + uri[c]	Transport, Extracellular	0	0	0	0	0	0
URIt2r	h[e] + uri[e] <==> h[c] + uri[c]	Transport, Extracellular	0.0140	0	0	0	1	0.011
USHD	[c]h2o + u23ga --> (2) h + lipidX + ump	Cell Envelope Biosynthesis	1	1	1	0	1	1
VALabc	atp[c] + h2o[c] + val-L[e] --> adp[c] + h[c] + pi[c] + val-L[c]	Transport, Extracellular	0	0	0	0	**1**	**0**
VALt2r	h[e] + val-L[e] <==> h[c] + val-L[c]	Transport, Extracellular	0	0	0	0	**1**	**0**
VALTA	[c]akg + val-L <==> 3mob + glu-L	Valine, leucine, and isoleucine metabolism	1	1	1	0	1	1
VPAMT	[c]3mob + ala-L --> pyr + val-L	Alanine and aspartate metabolism	0	0	0	0	0	0
X5PL3E	[c]xu5p-L --> ru5p-L	Alternate Carbon Metabolism	0	0	0	0	0	0
XANt	xan[e] <==> xan[c]	Transport, Extracellular	0.0673	0	0	0	1	0.080
XANt2	h[e] + xan[e] --> h[c] + xan[c]	Putative Transporters	0	0	0	0	**1**	**0**
XPPT	[c]prpp + xan --> ppi + xmp	Nucleotide Salvage Pathways	0.0111	0	0	0	1	0.011
XTSNt2r	h[e] + xtsn[e] <==> h[c] + xtsn[c]	Transport, Extracellular	0.0111	0	0	0	1	0.011
XYLabc	atp[c] + h2o[c] + xyl-D[e] --> adp[c] + h[c] + pi[c] + xyl-D[c]	Transport, Extracellular	0	0	0	0	**0.011**	**0**
XYLI1	[c]xyl-D <==> xylu-D	Alternate Carbon Metabolism	0.0151	0	0	0	0.011	0.011
XYLI2i	[c]fru --> glc-D	Alternate Carbon Metabolism	0.0166	0	0	0	0.011	0.011
XYLK	[c]atp + xylu-D --> adp + h + xu5p-D	Alternate Carbon Metabolism	0.0151	0	0	0	0.011	0.011
XYLt2	h[e] + xyl-D[e] --> h[c] + xyl-D[c]	Transport, Extracellular	0.0151	0	0	0	0.011	0.011