Additional file 3

Updates and new reactions and genes in iTO980 based on literature, KEGG and SGD

Lipid-linked oligosaccharide biosynthesis

New pathway in the iTO980 model, reference: Burda99a PMID: 9878760 [1]

ALG7, YBR243C ALG13, ALG14, ALG1, ALG2_1, ALG2_2, ALG11_1, ALG11_2, ALG3, ALG9_1, ALG12, ALG9_2, ALG6, ALG8, DIE2
Reference ALG13, ALG14 complex PMID: 16100110 [2]

Glycosylphosphatidylinositol (GPI) biosynthesis

New pathway in the iTO980 model, reference: PMID: 11356840 [3]

SPT14, GPI2, GPI3, GPI15 protein complex references PMID: 7768896 [4] and PMID: 11746600 [5],

Maranas' NGG inconsistencies

Updated reactions based on observations reported in Zomorrodi et al., PMID: 21190580 [6]

TPS1 (YBR126C) Change to reversible according to AZ. MALT is reversible based on ΔG. Hits found in yeast based on BLAST bi-directional test.

TPS2 (YDR074W) Change to reversible according to AZ. MALT is reversible based on ΔG. Hits found in yeast based on BLAST bi-directional test.

YJR073C Add new orf OPI3, as isoenzyme to the reaction YGR157W, CHO2, Reference PMID: 3066687 [7]

YPR058W, YBR104W (YMR1 and YMR2), isoenzymes to mitochondrial transporter proteins ODC1 and ODC2. Reference PMID:

KEGG

New genes and reactions added from KEGG pathways

CAB5, YDR196C Annotates reaction U96_ based on homology with KEGG.

SRY1, YKL218C, Serine racemase PMID: 12951240 [8]

Add transport reaction + exchange reaction of D-serine

OXP1, YKL215C PMID: 20402795 [9]

CAX4, YGR036C, PMID: 10024662 [10]

ALG5 YPL227C PMID: 8076653 [11] Irreversible reaction according to metacyc.

PGC1 YPL206C PMID: 18434318 [12] reaction mechanism in the paper

SGD

Added reactions and genes based on SGD pathways

GUD1 (YDL238C) Add according to SGD pathway, reversible, PMID: 15565584 [13]

EDH3 (YDR036C) Add according to SGD pathway, irreversible, PMID: 12697341 [14]

Coenzyme A biosynthesis

Based on paper about CoA biosynthesis in yeast, PMID: 19266201[15]

Annotate YDR531W as CAB1, add reaction CAB2 (YIL083C), annotate YKL088W (CAB3), YGR277C (CAB4) and YDR196C (CAB5). PMID: 19266201 [15]

gene CAB3 YKL088W works as a complex together with *SIS2(YKR072C) and VLH3 (*YOR054C) PMID: 19915539 [16]

Methionine salvage pathway,

New pathway based on evidence in literature. Reference PMID: 18625006 [17]

New reactions MRI1,MDE1,UTR4,ADI1,BAT2_4. UTR4 and ADI1 is lumped reaction in the consensus network. Split into two different reactions.. + include oxygen. PMID: 18625006 [17]

Quinon biosynthesis

CAT5 (YOR125C) New reaction from reference PMID: 8621692 [18]

Other changes

BUD16, YEL029C and BUD17 (YNR027W) Add reaction, isoenzymes. Pyridoxal phosphor transferase. Reference: PMID: 11452010 [19]

YEL042W extra orf, GDP phosphohydrolase, PMID: 7506254 [20]

NIT1, YIL164C Isoenzyme to NIT2. PMID: 11380987 [21]

PHO12, YHR215W isoenzyme to PHO11, PMID: 2646592 [22]

SOR2 isoenzyme to SOR1. PMID: 8125328 [23]

AAP1 (YHR047C) New reaction based on KEGG pathway. PMID: 8100228 [24]

APE2 (YKL158W) isoenzyme to AAP1. PMID: 6352682 [25]

YHR210C, isoenzyme to Gal10 PMID: 14764091 [26] sequence similarity confirmed by bbh blast

CTS1, CTS2 PMID: 1730413 [27]

GRE3 YHR104W, PMID: 11722921 [28]

LCS1 change to be complex with LCS1,LCS2 and YBR058C-A (TSC3) PMID:10713067 [29]

Csh1 added isoenzyme to SUR1 PMID: 12954640 [30]

Transporter YBR180W [31]

transporter mitochondria RIM2 YBR192W PMID: 7891656 [32]

YDL181W YDR322C-A added to the ATP synthase complex PMID: 16341776 [33]

YDL198C Mitochondrial ATP transport GCC1 PMID: 14998997 [34]

KCS1 added reaction according to iMM904

ATF2 isoenzyme to ATF1 PMID: 9836419 [35] (4 reactions)

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