

S3 Table. List of metabolic models analyzed. The table shows the model identifiers (column 1), the scientific names of the modeled organisms (column 2), the domain of life that each organism belongs to (column 3), the journal, authors and year of the model publications (columns 4-6) whether the Excel format of a model was analyzed (column 7), the SBML level used to format each model's SBML release (column 8), whether the subsystem information was available for model comparison (column 9), the main biomass reaction used to simulate model growth (column 10), additional biomass reactions included in the model (column 11), whether the model is stoichiometrically consistent (column 12), and the percentage of internal reactions in the model that were blocked (column 13).

Model Identifier	Organism	Domain	Reference	Journal	Date	Excel Format	Matlab Format	SBML level	Subsystem Analyzed	Biomass reaction	Alternative biomass reactions	Stoichiometric Consistency	% Blocked Reactions
IFF708	<i>Saccharomyces cerevisiae</i>	Eukaryota	Forster et al.	Genome Res	2003	No	No	2	No	R_VGRO		No	27.20%
UR904	<i>Escherichia coli</i>	Bacteria	Reed et al.	Genome Biol	2003	No	No	2	Yes	R_BiomassEcol		Yes	17.70%
NDY50	<i>Saccharomyces cerevisiae</i>	Eukaryota	Quarte et al.	Genome Res	2004	No	No	2	Yes	R_biomass_SCA_bal		Yes	43.51%
IB711	<i>Streptomyces coelicolor</i>	Bacteria	Bordogna et al.	Genome Res	2005	No	No	2	No	R_r793		No	6.88%
IT341	<i>Helicobacter pylori</i>	Bacteria	Thiele et al.	J Bacteriol	2005	No	No	2	No	R_BiomassHP_published		Yes	9.64%
ISB919	<i>Staphylococcus aureus</i>	Bacteria	Becker et al.	BMC Microbiol	2005	No	No	2	Yes	R_biomass_SA_Ba	R_SA_biomass_1a R_biomass_SA_2a R_biomass_SA_2b R_biomass_SA_2c R_biomass_SA_3b R_biomass_SA_4a R_biomass_SA_5a R_biomass_SA_5b R_biomass_SA_5c R_biomass_SA_5d R_biomass_SA_5e R_biomass_SA_5f R_biomass_SA_5g R_biomass_SA_5h R_biomass_SA_5i R_biomass_SA_5j R_biomass_SA_5k R_biomass_SA_5l R_biomass_SA_5m R_biomass_SA_5n R_biomass_SA_5o R_biomass_SA_5p R_biomass_SA_5q R_biomass_SA_5r R_biomass_SA_5s R_biomass_SA_5t R_biomass_SA_5u R_biomass_SA_5v R_biomass_SA_5w R_biomass_SA_5x R_biomass_SA_5y R_biomass_SA_5z	Yes	24.35%
IAF692	<i>Methanococcus jensenii</i>	Archaea	Faist et al.	Mol Syst Biol	2008	No	No	2	Yes	R_Mb_biomass_30		Yes	20.97%
IAF1260	<i>Escherichia coli</i>	Bacteria	Faist et al.	Mol Syst Biol	2007	No	No	2	Yes	R_EC_biomass_IAF1260_core_59g81M		Yes	9.82%
INJ681	<i>Mycobacterium tuberculosis</i>	Bacteria	Jamshidi et al.	BMC Syst Biol	2007	Yes	No	2	Yes	R_biomass_Mtb_9_60atp		No	22.99%
RECON 1 (Downloaded from BiGG Database)	<i>Homo sapiens</i>	Eukaryota	Duarte et al.	PNAS	2007	No	No	3	No	N/A		No	55.76%
IMB_musculus	<i>Mus musculus</i>	Eukaryota	Quek et al.	Genome Inform.	2008	No	No	2	No	BIO028		No	58.67%
ADRYAE_COBRA	<i>Aspergillus oryzae</i>	Eukaryota	Vongsangrak et al.	BMC Genomics	2008	No	No	2	No	R_r2359	R_r1897_R_r1898	No	35.08%
IA0260	<i>Leishmania major</i>	Eukaryota	Chavali et al.	Mol Syst Biol	2008	No	No	2	No	R_BIOMASS_LM3		No	36.93%
LVY148	<i>Pseudomonas putida</i>	Bacteria	Nogales et al.	BMC Syst Biol	2008	No	No	2	No	R_biomass_C_TEMP		Yes	14.23%
LP815	<i>Pseudomonas putida</i>	Bacteria	Puchaka et al.	PLoS Comput Biol	2008	No	No	2	No	EX_EC6324		No	35.30%
IAA871	<i>Aspergillus niger</i>	Eukaryota	Andersen et al.	Mol Syst Biol	2008	No	No	2	No	R_1024		No	13.88%
IA01066	<i>Pseudomonas aeruginosa</i>	Bacteria	Oberhardt et al.	J Bacteriol	2008	No	No	3	No	R_PA_Biomass_DM	R_DM_EC_PREGRO	No	23.79%
IBsu1103	<i>Bacillus subtilis</i>	Bacteria	Henry et al.	Genome Biol	2009	No	No	2	No	bio0006		Yes	19.42%
IAA945	<i>Salmonella enterica</i>	Bacteria	AhuCun et al.	J Biol Chem	2009	Yes	No	2	No	R_ST_biomass_core		No	31.99%
IMM804	<i>Saccharomyces cerevisiae</i>	Eukaryota	Mo et al.	BMC Syst Biol	2009	No	No	2	Yes	R_biomass_SC5_noTrace		Yes	38.08%
IP5189_fixed	<i>Mycoplasma genitalium</i>	Bacteria	Suthers et al.	PLoS Comput Biol	2009	No	No	2	No	R_Biomass		Yes	22.73%
ITZ479	<i>Thermotoga maritima</i>	Bacteria	Zhang et al.	Science	2009	No	No	2	No	R_BiomassEcol_TM		Yes	17.41%
AbAMEL1891	<i>Acinetobacter baumannii</i>	Bacteria	Kim et al.	Mol Biosyst	2010	No	No	1	No	R761		No	37.96%
AbGEM	<i>Arabidopsis thaliana</i>	Eukaryota	de Cuijpers Dal'Molin et al.	Plant Physiol	2010	No	No	2	No	R_BIO_L		No	58.85%
IAE448	<i>Dehalococcoides ethenogenes</i>	Bacteria	Ahsanul et al.	PLoS Comput Biol	2010	No	No	2	Yes	R_BIO_CRDB1_DM_855		Yes	40.00%
IM11415	<i>Mus musculus</i>	Eukaryota	Sigurdsson et al.	BMC Syst Biol	2010	No	No	3	Yes	R_biomass_nm_1_no_glycyl		No	21.67%
INJ861m	<i>Mycobacterium tuberculosis</i>	Bacteria	Fang et al.	BMC Syst Biol	2010	Yes	No	2	Yes	R_biomass_Mtb_9_60atp_test_NCF		No	18.47%
INJ851v	<i>Mycobacterium tuberculosis</i>	Bacteria	Fang et al.	BMC Syst Biol	2010	Yes	No	2	Yes	R_biomass_Mtb_9_60atp_test_NCF		No	19.94%
ISR432	<i>Clostridium thermocellum</i>	Bacteria	Roberts et al.	BMC Syst Biol	2010	No	No	2	No	R_biomass_target		No	40.54%
ISyn669	<i>Synechocystis sp. PCC6803</i>	Bacteria	Montagud et al.	BMC Syst Biol	2010	No	No	2	No	R_Biomass		No	43.29%
ITH066	<i>Plasmodium falciparum</i>	Eukaryota	Plata et al.	Molecular Systems Biology	2010	No	No	2	No	R_biomass		No	35.02%
PIAMEL1254	<i>Pichia pastoris</i>	Eukaryota	Sohn et al.	Biotechnol J	2010	No	No	2	No	RD128		No	43.33%
PIAMEL1071	<i>Pseudomonas putida</i>	Bacteria	Sohn et al.	Biotechnol J	2010	No	No	2	No	R_Biomass		No	38.19%
S_coelicolor_fixed	<i>Streptomyces coelicolor</i>	Bacteria	Alam et al.	BMC Genomics	2010	No	No	2	No	R_biomass		No	16.24%
IA1273	<i>Escherichia coli</i>	Bacteria	Archer et al.	BMC Genomics	2011	No	No	2	Yes	R_EC_biomass_CA1273_core_59g81M		No	10.74%
ICB925	<i>Clostridium beijerinckii</i>	Bacteria	Milne et al.	BMC Syst Biol	2011	No	No	2	No	R_biomass		Yes	47.23%
UO1366	<i>Escherichia coli</i>	Bacteria	Orth et al.	Mol Syst Biol	2011	Yes	No	2	Yes	R_EC_biomass_UO1366_core_59g81M	R_EC_biomass_UO1366_WT_5_39g9M	Yes	9.10%
KF1028	<i>Burkholderia cenocepacia</i>	Bacteria	Fang et al.	BMC Syst Biol	2011	No	No	2	No	EX_C9323		No	22.98%
IMB745	<i>Methanococcus acetivorans</i>	Archaea	Benedict et al.	J Bacteriol	2011	No	No	2	No	R_Overall		Yes	23.69%
IC1080	<i>Chlamydomonas reinhardtii</i>	Eukaryota	Chang et al.	Mol Syst Biol	2011	No	No	2	No	R_Biomass_Chlamy_hetero	R_Biomass_Chlamy_auto	No	26.14%
RS1563	<i>Zea mays</i>	Eukaryota	Saha et al.	PLoS One	2011	No	No	2	No	R_EX_Biomass	R_Biomass_Chlamy_mivo	No	72.56%
RS1567	<i>Arabidopsis thaliana</i>	Eukaryota	Saha et al.	PLoS One	2011	No	No	2	No	R_EX_Biomass		No	77.56%
IRap1095	<i>Rhodospirillum rubrum</i>	Bacteria	Sahsed Imam et al.	BMC Syst Biol	2011	No	No	2	No	RXN1306		No	13.04%
IVS441_fixed	<i>Methanococcus acetivorans</i>	Archaea	Wray Satish Kumar et al.	BMC Syst Biol	2011	No	No	2	No	R_Biomass		No	27.51%
YL1228	<i>Klebsiella pneumoniae</i>	Bacteria	Liao et al.	No	2011	No	No	2	Yes	R_Biomass		Yes	21.97%
STM_v1.0	<i>Salmonella enterica</i>	Bacteria	Thiele et al.	BMC Syst Biol	2011	Yes	No	2	Yes	R_biomass_IRR1083_metals	R_biomass_IRR1083 R_EC_biomass_IRR1083_core_59g81M	No	11.00%
VuAMEL1943	<i>Nitrospira helveticus</i>	Bacteria	Hyun Uk Kim et al.	Mol Syst Biol	2011	No	No	2	No	R08		No	33.44%
Coe806	<i>Cyanospora sp. AFCC 51142</i>	Bacteria	Yu et al.	PLoS Comput Biol	2012	Yes	No	2	Yes	R_CYANOBM		No	27.44%
UN878	<i>Synechocystis sp. PCC6803</i>	Bacteria	Nogales et al.	Proc Natl Acad Sci U S A	2012	No	No	2	No	R_EC_biomass_SynHetero	R_EC_biomass_SynAuto	Yes	15.01%
LC915	<i>Pichia pastoris</i>	Eukaryota	Caspeta et al.	BMC Syst Biol	2012	No	No	2	No	R_r1187		No	27.62%
ISS84	<i>Pichia stipitis</i>	Eukaryota	Caspeta et al.	BMC Syst Biol	2012	No	No	2	No	R_biomass		No	32.97%
ISyn731	<i>Synechocystis sp. PCC6803</i>	Bacteria	Saha et al.	PLoS One	2012	Yes	No	2	No	Biomass_Auto	Biomass_Hetero Biomass_Mivo	No	22.95%
RECON 2	<i>Homo sapiens</i>	Eukaryota	Thiele et al.	Nature Biotechnology	2012	No	No	2	Yes	R_biomass_reaction		No	30.88%
SPMBEL1983	<i>Schizosaccharomyces pombe</i>	Eukaryota	Sohn et al.	BMC Syst Biol	2012	No	No	1	No	RN1Biomass		No	59.50%
RECON 2.04	<i>Homo sapiens</i>	Eukaryota	MATLAB data obtained from Virtual Metabolic Human (voh.huh.lu)	N/A	2013	No	Yes	N/A	Yes	biomass_reaction		No	30.48%
ICa802	<i>Clostridium acetobutylicum</i>	Bacteria	Dash et al.	Biotech for Biofuels	2014	No	No	2	No	R_SO_BIOMASSMACRO_D_M_NCATP2		No	55.89%
IMR1_799	<i>Shewanella oneidensis</i>	Bacteria	Ong et al.	BMC Systems Biology	2014	Yes	No	2	Yes			Yes	18.12%