

Table S1: Normalized functional centralities for the metabolic function of biomass production under conditions of aerobic respiration (sample size 200,000).

Rank	Reaction ID	FC	Error	Rank	Reaction ID	FC	Error
1	atp	0.15472830	0.00062984	20	pntAB	0.01014734	0.00007768
2	nuo	0.04850746	0.00020154	21	ack	0.00957259	0.00011898
3	fba	0.03301666	0.00023341		aceA	0.00957086	0.00014885
	pfk	0.03266578	0.00023206		pta	0.00952720	0.00011861
	eda	0.03221566	0.00025301		aceB	0.00942610	0.00014783
	edd	0.03211489	0.00025231	22	sdhABCD	0.00825935	0.00013359
4	cyoABCD	0.02946609	0.00014196	23	cydAB	0.00782560	0.00009347
5	tkr	0.02499892	0.00018511		pyk	0.00781245	0.00005939
	tal	0.02497128	0.00018470	24	pyr	0.00712105	0.00005069
6	o2	0.02350761	0.00020785	25	succ	0.00680080	0.00010812
7	tpiA	0.02230088	0.00016156	26	ndh	0.00654181	0.00005627
8	co2	0.01989963	0.00012298	27	glk	0.00544727	0.00004088
9	fumA	0.01873015	0.00018359		mglABC	0.00541617	0.00004085
10	gnd	0.01824617	0.00013532	28	poxB	0.00486919	0.00006726
11	pgl	0.01776700	0.00012986	29	mdh	0.00401846	0.00006774
	zwf	0.01761148	0.00012860	30	mgsA	0.00378270	0.00008826
12	gapA	0.01728920	0.00010215	31	sdhABCD_r2	0.00347875	0.00008736
	eno	0.01725905	0.00010311	32	frdABCD	0.00315032	0.00008184
	pgk	0.01722994	0.00010329	33	ldhA	0.00259160	0.00006784
	gpm	0.01718744	0.00010247		narGHI	0.00248946	0.00010776
13	ac	0.01522833	0.00014525		no2	0.00243732	0.00010569
14	rpe	0.01454131	0.00005381		no3	0.00242533	0.00010595
	tkr_r2	0.01447099	0.00005115	34	mqr	0.00219826	0.00006227
	pgi	0.01439366	0.00004857	35	maeB	0.00189227	0.00005634
15	aceEF	0.01386067	0.00003963	36	pck	0.00163297	0.00002380
	ppc	0.01381703	0.00002155	37	pflB	0.00155995	0.00002461
	acnA	0.01381444	0.00002102	38	maint	0.00149959	0.00001618
	acnA_r2	0.01381444	0.00002102	39	fdhF	0.00095790	0.00002079
	biomass	0.01381444	0.00002102		dld	0.00095250	0.00005075
	gltA	0.01381444	0.00002102		focA	0.00091891	0.00001237
	icd	0.01381444	0.00002102	40	maeA	0.00085520	0.00004354
	rpiA	0.01381444	0.00002102	41	adhE	0.00046945	0.00000457
16	ptsGHI	0.01370178	0.00002513		eth	0.00046924	0.00000455
17	udhA	0.01304183	0.00007760		adhE_r2	0.00046908	0.00000446
18	sucAB	0.01274552	0.00016867	42	acs	0.00044245	0.00000776
	sucCD	0.01268103	0.00016723	43	fbp	0.00025007	0.00001788
19	pps	0.01149624	0.00004291	44	lac	0.00014180	0.00000422