

Supplementary Table 8. Standard Gibbs free energy of reaction and standard error based on component contribution method.

Reaction	Mammalian iBMK cells		Yeast		<i>E. coli</i>	
	ΔG° (kJ/mol)	s.e.	ΔG° (kJ/mol)	s.e.	ΔG° (kJ/mol)	s.e.
G6P => F6P	2.50	0.59	2.50	0.58	2.47	0.55
F6P + ATP => FBP + ADP + H	-18.48	4.62	-17.27	4.59	-22.11	4.35
FBP => DHAP + GAP	20.85	0.81	20.52	0.81	22.07	0.77
DHAP => GAP	5.40	0.84	5.40	0.84	5.43	0.79
GAP + NAD + Pi -> 13BPG + NADH + H	3.14	4.55	4.59	4.52	-1.62	4.28
13BPG + ADP => 3PG + ATP	-18.59	0.68	-18.59	0.67	-18.77	0.64
3PG => 2PG	4.15	0.55	4.15	0.55	4.11	0.52
2PG => PEP + H2O	-4.11	0.47	-4.11	0.47	-4.11	0.44
PEP + ADP + H => Pyr + ATP	-24.78	4.55	-25.83	4.52	-21.78	4.28
Pyr + NAD + CoA => AcCoA + NADH + CO2	-35.19	4.95	-35.36	4.92	-35.50	4.66
6PG + NADP => Ru5P + NADPH + CO2	11.04	4.90	11.12	4.87	10.82	4.62
Ru5P => Xu5P	-3.52	1.77	-3.52	1.76	-3.52	1.67
Ru5P => R5P	-2.01	1.17	-2.01	1.17	-2.062	1.106
Xu5P + R5P => GAP + S7P	-3.98	2.95	-3.98	2.93	-4.15	2.78
S7P + GAP => E4P + F6P	-0.82	2.17	-0.82	2.16	-0.68	2.04
Xu5P + E4P => GAP + F6P	-10.25	2.95	-10.24	2.93	-10.35	2.78
AcCoA + OAA + H2O => Cit + CoA + H	-43.26	4.55	-38.79	4.52	-42.12	4.29
Cit => Icit	7.62	0.51	7.63	0.50	7.63	2.32
Icit + NAD => aKG + NADH + CO2	5.61	4.92	5.52	4.88	-	-
Icit + NADP => aKG + NADPH + CO2	-	-	-	-	5.92	4.63
aKG + NAD + CoA => SuccCoA + NADH + CO2	-28.41	5.97	-29.66	8.76	-29.42	5.62
SuccCoA + ADP + Pi => Succ + CoA + ATP	0.95	2.05	1.36	2.04	1.34	1.93
Fum + H2O => Mal	-3.45	0.43	-3.45	0.42	-3.45	0.40
Mal + NAD => OAA + NADH + H	22.28	4.53	26.42	4.50	23.59	4.26
Mal + NAD => Pyr + NADH + CO2	13.05	4.81	13.04	4.78	13.04	4.53
Ser + thf => Gly + mlthf + H2O	-6.64	1.91	-6.66	1.90	-6.58	1.80