Table S2. Stoichiometric reaction summaries with theoretical net ATP yields for different aerobic routes to degrade benzoate and *p* -hydroxybenzoate.[e] [f]

Substrate	Pathway	Expected Taxonomic Range[a]	Reactants	Key Intermediate(s)	Products	ATP Yield[d]
Benzoate	**Benzoyl-CoA (*box*)**	***Actinobacteria* , *Proteobacteria***	**1 Benzoate + 2 CoA + 1 ATP + 1 O_2 + 3 H_2O**	**1 Acetyl-CoA + 1 Formate[b] + 1 Succinyl-CoA**	**1 AMP + 1 H^+ + 1 PPi + 1 NADH**	**23**
Benzoate	β-Ketoadipate, Catechol (*cat*) Branch (*ortho* -cleavage)	Fungi, *Proteobacteria*	1 Benzoate + 1 CoA + 2 O_2 + 1 H_2O	1 Acetyl-CoA + 1 Succinate	1 CO_2 + 1 H^+	17
Benzoate	β-Ketoadipate, Protocatechuate (*pca*) Branch (*ortho* -cleavage)	*Bacteria*	1 Benzoate + 1 CoA + 3 O_2 + 2 NADPH	1 Acetyl-CoA + 1 Succinate	2 $NADP^+$ + 1 H_2O	11
Benzoate	Catechol I (*meta* -cleavage)	*Actinobacteria* , *Proteobacteria*	1 Benzoate + 1 CoA + 2 O_2 + 2 H_2O + 1 NAD^+	1 Acetyl-CoA + 1 Formate + 1 Pyruvate[c]	1 CO_2 + 2 H^+ + 1 NADH	33
Benzoate	Catechol II *(meta* -cleavage)	*Actinobacteria* , *Proteobacteria*	1 Benzoate + 1 CoA + 2 O_2 + 2 H_2O + 2 NAD^+	1 Acetyl-CoA + 1 Pyruvate	2 CO_2 + 2 H^+ + 2 NADH	33
Benzoate	Protocatechuate (*meta* -cleavage)	*Proteobacteria*	1 Benzoate + 3 O_2 + 1 NADPH	2 Pyruvate	1 CO_2 + 1 $NADP^+$	27
***p* -Hydroxybenzoate**	**β-Ketoadipate, Protocatechuate (*pca*) Branch (*ortho* -cleavage)**	***Bacteria***	**1 POB + 1 CoA + 2 O_2 + 1 NADPH**	**1 Acetyl-CoA + 1 Succinate**	**2 CO_2 + 1 H^+ + 1 $NADP^+$ + 1 H_2O + 2 $FADH_2$ + 4 NADH + 1 GTP**	**14**
p -Hydroxybenzoate	Protocatechuate (*meta* -cleavage)	*Proteobacteria*	1 POB + 2 O_2 + 1 H_2O + 1 NADPH	2 Acetyl-CoA + 2 Pyruvate	7 CO_2 + 3 H^+ + 2 $FADH_2$ + 8 NADH + 2 GTP	30
p -Hydroxybenzoate	Protocatechuate (*para* -cleavage)	Bacilli	1 POB + 1 CoA + 2 O_2 + 1 H_2O + 1 NADPH + 2 NAD^+	2 Acetyl-CoA + 1 Pyruvate	7 CO_2 + 2 H^+ + 2 $FADH_2$ + 9 NADH + 2 GTP	33

a. Retrieved from http://www.biocyc.org

b. Formate dehydrogenation yields 1 NADH.

c. Pyruvate dehydrogenation yields 1 Acetyl-CoA and 1 NADH.

d. Net ATP yields per molecule of substrate were calculated from the underlined products going through the TCA cycle using 3 ATP/NAD(P)H, 2 ATP/$FADH_2$, 1 ATP/GTP.

e. *box* and *pca* pathways present in E-37 are bolded.

f. Underlined compounds were used for energy calculations.