

Table S1. Functional traits determined for species shown in phylogenetic tree (see Fig. 1a in the main text). KEGG annotations for the genomes of each species were examined for the genes needed for a functional pathway.

*Used *C. thiooxydans* CNB-1 genome in KEGG database

**Used *C. testosteroni* TK102 for KEGG identifiers and MetaCyc to confirm for *C. testosteroni* KF-1

Species	Glycolytic EMP	Oxidative PP			ED pathway		C4-carboxylate transporters	Carbohydrate transport systems				Glucose utilization
	PFK	G6PD	6PGL	6PGD	Edd	Eda	DctA	Glucose/mannose	Ribose	Arabinose	Fructose PTS system	Example in literature
<i>Zymomonas mobilis</i> ZM4	NF	K00036	K01057	NF	K01690	K01625	NF	NF	NF	NF	NF	Positive (1)
<i>Gluconobacter oxydans</i> 621H	NF	K00036	K07404	K00033	K01690	K01625	NF	NF	K10439, K10440, K10441	NF	NF	Positive (2)
<i>Sphingobium</i> sp. SYK-6	K16370	K00036	NF	NF	K01690	K01625	K11103	NF	NF	NF	NF	Negative (3)
<i>Rhodobacter sphaeroides</i> ATCC 17029	K16370	K00036	K01057	NF	K01690	K01625	K11103	K10112	K10439, K10440, K10441	NF	Present	Positive (4)
<i>Comamonas thiooxydans</i> S23 *	K21071	NF	NF	NF	K01690	K01625	K11103	NF	NF	NF	NF	NF
<i>Comamonas testosteroni</i> KF-1 **	K21071	NF	NF	NF	K01690	K01625	K11103	NF	NF	NF	NF	Negative (this study)
<i>Comamonas serinivorans</i> SP-35	K21071	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	Negative (5)
<i>Comamonas kerstersii</i> J29	K21071	NF	NF	NF	NF	NF	K11103	NF	K10439, K10440, K10441	NF	NF	NF
<i>Delftia acidovorans</i> SPH-1	NF	K00036	K07404	NF	K01690	K01625	K11103	NF	K10439, K10440, K10441	NF	NF	Negative (6)
<i>Cupriavidus necator</i> H16 (<i>Ralstonia eutropha</i> H16)	NF	K00036	K01057	NF	K01690	K01625	K11103	NF	K10439, K10440, K10441	NF	NF	Negative (7)
<i>Pseudomonas fluorescens</i> F113	NF	K00036	K01057	K00033	K01690	K01625	K11103	K17315, K17316, K17317, K10112	K10439, K10440, K10441	K10537, K10538, K10539	K02770, K00882	Positive (8)
<i>Pseudomonas alkylphenolica</i> KL28	NF	K00036	K01057	K00033	K01690	K01625	K11103	K17315, K17316, K17317, K10112	K10439, K10440, K10441	NF	K02770, K00882	Positive (9)
<i>Pseudomonas protegens</i> Pf-5	NF	K00036	K01057	K00033	K01690	K01625	K11103	K17315, K17316, K17317, K10112	K10439, K10440, K10441	NF	K02770, K00882	Positive (10)
<i>Pseudomonas putida</i> KT2440	NF	K00036	K01057	K00033	K01690	K01625	K11103	K17315, K17316, K17317, K10112	K10439, K10440, K10441	NF	K02770, K00882	Positive (11)
<i>Escherichia coli</i> K12 MG1655	K16370	K00036	K07404	K00033	K01690	K01625	K11103	NF	K10439, K10440, K10441	K10537, K10538, K10539	K02770, K00882	Positive (12)
<i>Acinetobacter baylyi</i> ADP1	NF	NF	NF	NF	K01690	K01625	K11103	NF	NF	NF	K02770, K00882	Positive (13)

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