Supplementary information: Cooperative growth of *Geobacter sulfurreducens* and *Clostridium pasteurianum* with subsequent metabolic shift in glycerol fermentation

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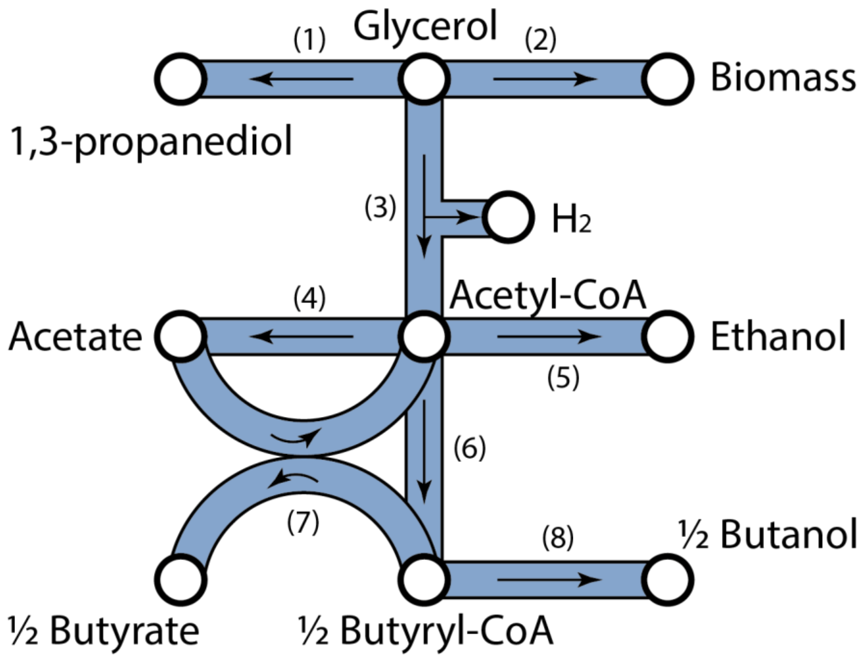

Figure S1: Simplified catabolic pathways of glycerol fermentation by *Clostridium pasteurianum*.

Table S1: Condensed metabolic pathways of glycerol fermentation

Reaction	**Legend**	**Ref**
Glycerol + NADH → PDO + H_2O	(1)	1,2
Glycerol + ¾ NH_3 + 7.5 ATP + 6 H_2O → ¾ $C_4H_7O_2N$ + NADH	(2)	1
Glycerol + CoA → Acetyl-CoA + CO_2 + H_2 + ATP + H_2O + 2 NADH	(3)	1,2
Acetyl-CoA → Acetate + ATP + CoA + H_2O	(4)	1–3
Acetyl-CoA + 2 NADH → Ethanol + CoA	(5)	1–3
2 Acetyl-CoA + 2 NADH → Butyryl-CoA + CoA + H_2O	(6)	3–5
Butyryl-CoA + Acetate → Butyrate + Acetyl-CoA	(7)	3–5
Butyryl-CoA + 2 NADH → Butanol	(8)	6,7

For more readability, NAD^+, H^+ and ADP are omitted in the presented equations. $C_4H_7O_2N$ correspond to the mean raw formula of bacterial biomass[1].

Table S2: Redox and ATP balanced reactions of glycerol metabolism

Global reaction	**ΔrG°'** **($kJ.mol_{glycerol}^{-1}$)**
53 Glycerol + 3 NH_3 → 3 $C_4H_7O_2N$ + 15 Acetate + 15 CO_2 + 15 H_2 + 34 PDO + 25 H_2O	-52.2
38 Glycerol + 3 NH_3 → 3 $C_4H_7O_2N$ + 30 Ethanol + 30 CO_2 + 30 H_2 + 4 PDO + 10 H_2O	-50.1
48 Glycerol + 3 NH_3 → 3 $C_4H_7O_2N$ + 10 Butyrate + 20 CO_2 + 20 H_2 + 24 PDO + 40 H_2O	-109.1
38 Glycerol + 3 NH_3 → 3 $C_4H_7O_2N$ + 15 Butanol + 30 CO_2 + 30 H_2 + 4 PDO + 25 H_2O	-92.3

Equations were balanced using equations from Table S1. Standard Gibbs free energy of reaction (ΔrG°', for pH 7 and T = 25 °C) were calculated using Gibbs free energy of formation from Kleerebezem and Van Loosdrecht (2010)[8].

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