Metabolic engineering of *Escherichia coli* for the *de novo* stereospecific biosynthesis of 1,2-propanediol through lactic acid

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Table S1. Primers used in the study.

Primers	Sequences (5' -> 3')
PflB-SacB-F	tcgaagtacgcagtaaataaaaaatccacttaagaaggtaggtgttacatgtagtctgcaaatccttttatg
PflB-SacB-R	gagcctttattgtacgctttttactgtacgatttcagtcaaatctaattatgatctgatccttcaactcag
PflB-F-del	gatatcgcatgcggtaccatgtggctttccggcgagtatatg
PflB-R-del-internal	aggtgttactaattagatttgactgaaatc
PflB-F-del-internal	tctaattagtaacacctaccttcttaag
PflB-R-del	gttggtgtccagacaggtatg
FrdA-SacB-F	accctgaagtacgtggctgtgggataaaaacaatctggaggaatgtcgtg tagtctgcaaatccttttatg
FrdA-SacB-R	cgacttccgggttatagcgcaccacctcaattttcaggtttttcatctca tgatctgatccttcaactcag
FrdA-F-del	gaaacgtgtctcaaacgggac
FrdA-R-del-internal	caggtttttgacattcctccagattgtttttatc
FrdA-F-del-internal	gaatgtcaaaaacctgaaaattgaggtggtg
FrdA-R-internal	catacgctccttcttaccgtg
AldA-SacB-F	aacaatgtattcaccgaaaacaaacatataaatcacaggagtcgcccatg tagtctgcaaatccttttatg
AldA-SacB-R	ctctgacgcgcacaggcggaggaaaaaacctccgcctctttcactcatta tgatctgatccttcaactcag
AldA-F-del	tatgactggggacaatcccgatg
AldA-R-del-internal	ttcactcagggcgactcctgtgatttatatg
AldA-F-del-internal	agtcgccctgagtgaaagaggcggaggtttttc
AldA-R-del	gcacccagtcactggtggatg
MgsA-SacB-F	taagtgcttacagtaatctgtaggaaagttaactacggatgtacattatgtagtctgcaaatccttttatg
MgsA-SacB-R	ggcgagaaaaccgtaagaaacaggtggcgtttgccacctgtgcaatatta tgatctgatccttcaactcag
MgsA-F-del	ctggtggtcagttttaatacccag
MgsA-R-del-internal	ctgtgcaatattaaatgtacatccgtagttaac
MgsA-F-del-internal	gtacatttaatattgcacaggtggcaaacg
MgsA-R-del	ctaaacagcttaaccaatggagac
ArcA-SacB-F	cttttgtacttcctgtttcgatttagttggcaatttaggtagcaaacatgtagtctgcaaatccttttatg
ArcA-SacB-R	aaaacggcgctaaaaagcgccgttttttttgacggtggtaaagccgattatgatctgatccttcaactcag
ArcA-F-del	tcgttagtcaacccggaatcttc

ArcA-R-del-internal	taaagccgagtttgctacctaaattgccaac
ArcA-F-del-internal	gtagcaaactcggctttaccaccgtcaaaaaaaac
ArcA-R-del	taggcaagccatttattgtgattag
ldhA-SacB-F	tatttttagtagcttaaatgtgattcaacatcactggagaaagtcttatgtagtctgcaaatccttttatg
ldhA-SacB-R	ggggattatctgaatcagctcccctggaatgcaggggagcggcaagattatgatctgatccttcaactcag
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ldhA-UP-R-lldh	aagactttctccagtgatgttgaatc
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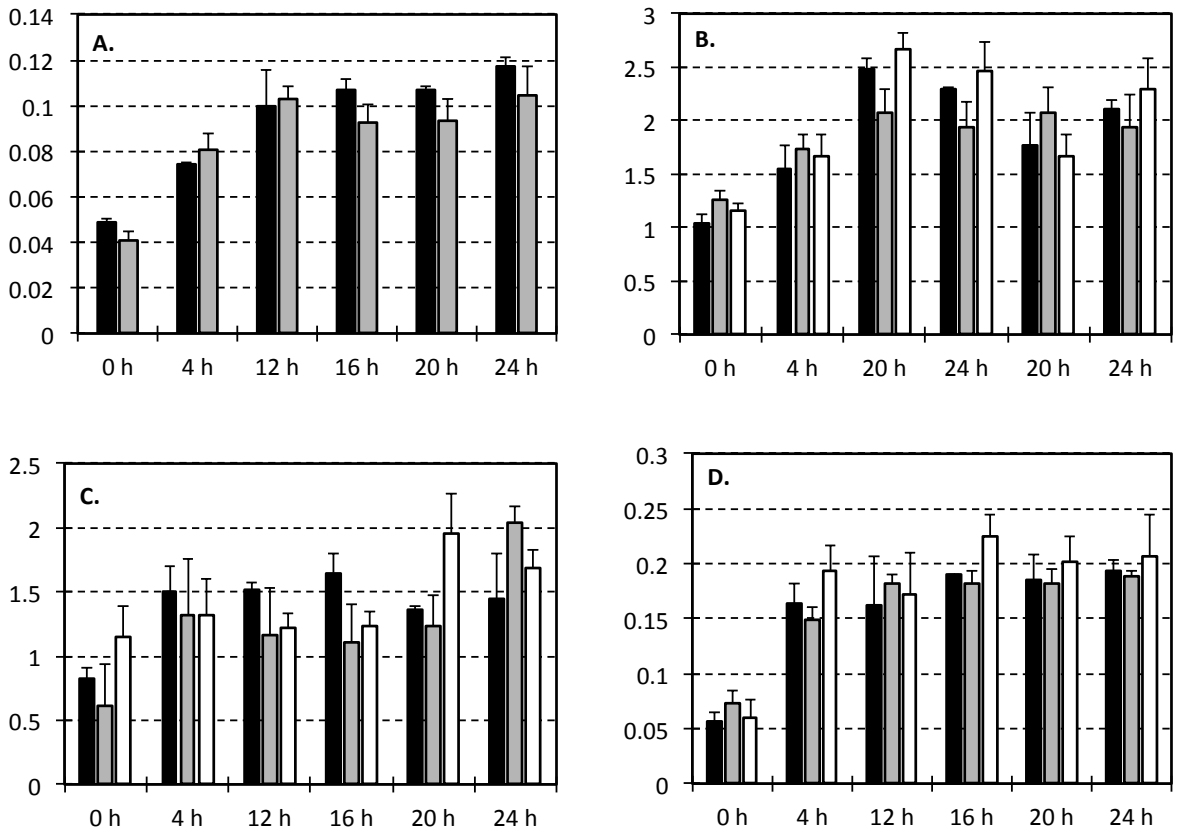

Figure S1. Specific activity of 1,2-PDO pathway enzymes in fed-batch fermentations. All numbers are reported as units of enzyme activity per mg of soluble cell lysate. A. Lactate dehydrogenase (LdhA). One unit of LdhA was defined as the oxidation of 1 µmol of NADH per min at 37 °C; B. Lactoyl-CoA transferase (Pct). One unit of Pct was defined as the formation of 1 µmol of lactoyl-CoA per min at 37 °C; C. Lactoyl-CoA reductase (PduP). One unit of PduP was defined as the oxidation of 1 µmol of NADH per min at 37 °C; D, Lactaldehyde reductase (YahK). One unit of YahK was defined as the oxidation of 1 µmol of NADPH per min at 37 °C. In each plot, filled bars in black, Δ^7/2.094/2.096; filled bars in grey, Δ^8/2.094/2.096; open bars, Δ^8 lldh/2.094/2.096.

Table S2. Cell growth at the aerobic stage of fermentations.

	Δ^7/2.094/2.098	Δ^8/2.094/2.098	Δ^8lldh/2.094/2.098	Δ^8/2.094/2.098	Δ^8lldh/2.094/2.098
time[a]	560 rpm	560 rpm	560 rpm	280 rpm	280 rpm
-8 h	0.33±0.01	0.33±0.02	0.34±0.01	0.32±0.03	0.33±0.01
-2 h	7.1±0.5	6.8±0.7	7.4±0.4	7.1±0.9	7.1±0.4
-1 h	14.7±0.8	14.3±0.6	14.8±0.7	15.0±0.7	16.2±0.6
0 h	23.8±0.4	24.0±0.5	24.7±1.0	23.8±0.3	24.5±0.5

[a] t = -8h, time of inoculation; t = -1 h, time of induction with IPTG; t = 0 h, initiation of the micro-aerobic stage.

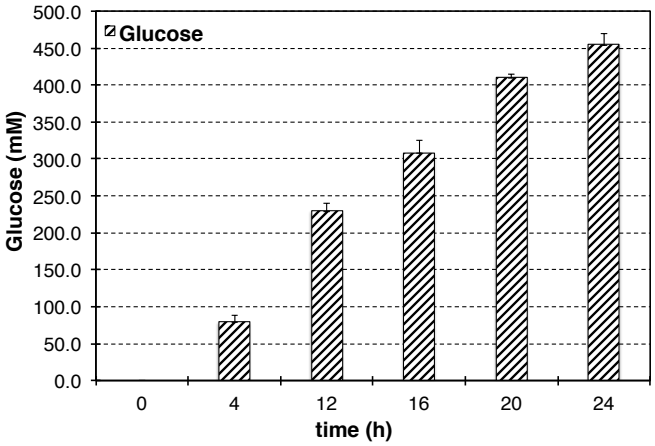

Figure S2. Glucose accumulation by strain Δ^8Ildh/2.094/2.096 (280 rpm stirring rate).