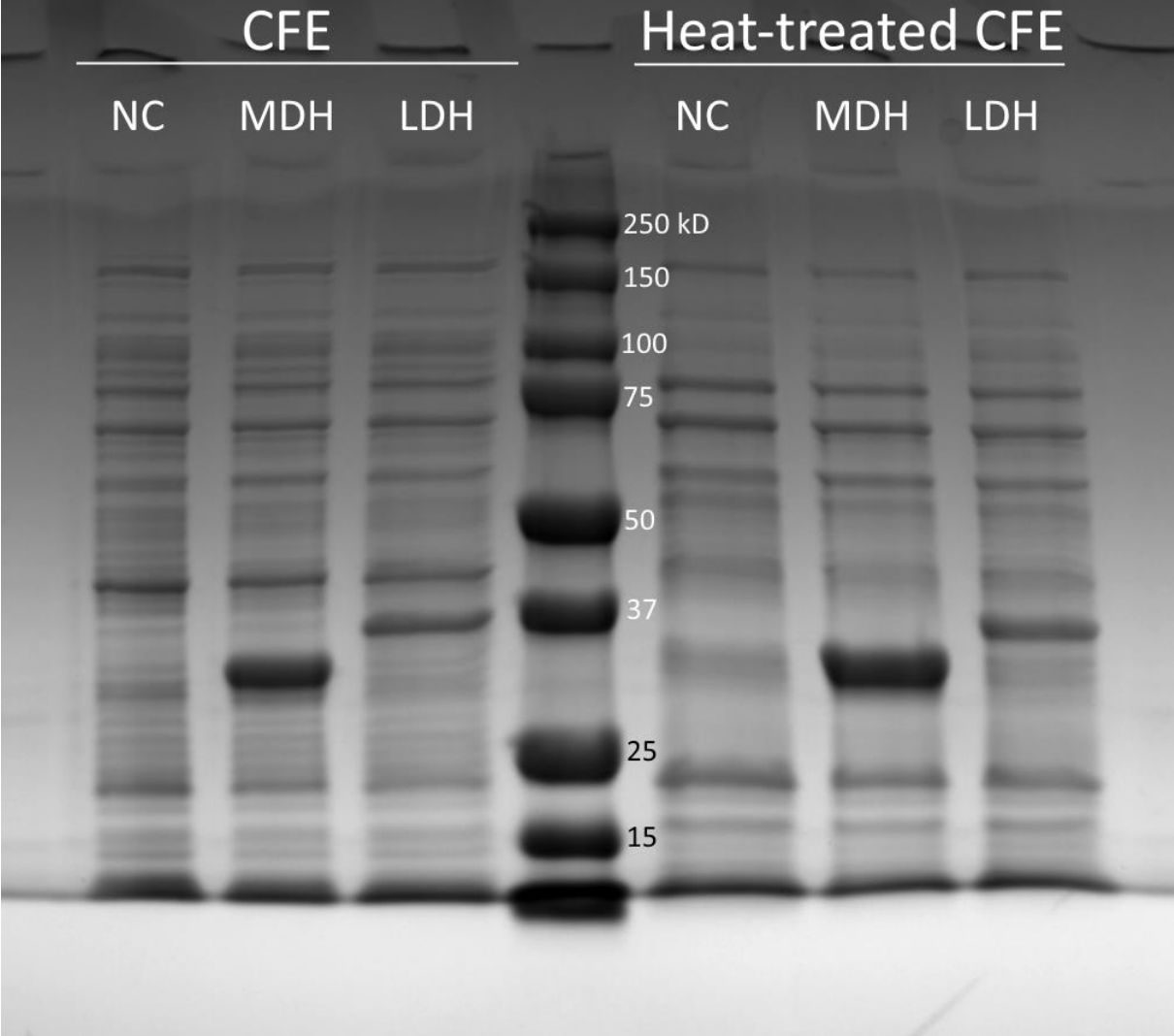


**FIG. S1** SDS-PAGE gel picture of *E. coli* cell free extract (CFE) containing the heterologous expressed malate dehydrogenase (MDH) candidates. NC, empty vector negative control; MDH, the identified malate dehydrogenase (CDQ83\_08825, theoretical pI/Mw: 6.23/34.5 kD); LDH, the identified lactate dehydrogenase (CDQ83\_04860, theoretical pI/Mw: 5.92/35.0 kD).



**TABLE S2** Genes with at least four times higher expression during growth of *C. thermosuccinogenes* on xylose versus glucose, based on RPKM values.

Locus Tag	Function	RPKM on glucose	RPKM on xylose	Differential expression
CDQ83_14310	LacI family transcriptional regulator	4.39	370	84.14
CDQ83_08695	hypothetical protein	4.11	288	70.20
CDQ83_14315	xylulokinase	14.9	772	51.73
CDQ83_14305	fucose isomerase	79.2	3237	40.86
CDQ83_14295	hypothetical protein	0.61	13.1	21.40
CDQ83_02405	hypothetical protein	18.8	355	18.87
CDQ83_13120	hypothetical protein	14.8	214	14.48
CDQ83_09380	peptidase	0.07	0.82	12.06
CDQ83_12280	hypothetical protein	0.91	7.47	8.25
CDQ83_13125	oxidoreductase	26.7	207	7.75
CDQ83_02410	DeoR family transcriptional regulator	40.3	264	6.55
CDQ83_11930	hypothetical protein	0.15	0.95	6.22
CDQ83_02480	peptidase	0.21	1.22	5.84
CDQ83_11920	hypothetical protein	0.13	0.70	5.45
CDQ83_05240	hypothetical protein	0.21	1.00	4.67
CDQ83_12755	holin	0.24	1.05	4.28
CDQ83_02250	hypothetical protein	4.82	20.6	4.26
CDQ83_08065	hypothetical protein	413	1748	4.24
CDQ83_09340	phage tail protein	0.17	0.68	4.08
CDQ83_11905	hypothetical protein	0.64	2.56	4.02