

Supplementary table 1 Primers used in this study

Primers	Sequence (5' to 3')	Reference or source
swrI-KO-S	CGGGGTACCGCCAGATAACAGATCGAAAGA ACTGT	This study
swrI-KO-AS	CGGAGTACTATTTTGGTGGCGTGTTGATTGAT G	This study
KR-S	GTGACTCTGGTAGTATAATGAGAACAAATG	This study
KR-AS	GAAGTAAGTTGGCCGCAGTG	This study
16S rRNA RT-S	GCCCAGGTAAGGTTCTTC	This study
16S rRNA RT-AS	GGTGTAGCGGTGAAATGC	This study
ACS RT-S	ATCAAACCCTATACCAAAGTCAA	This study
ACS RT-AS	GTGCCGTCTTCAAACCAA	This study
ADH RT-S	ACTCAAGAGCAAGTGGATA	This study
ADH RT-AS	GTTGTAGATGTACTCGGAAG	This study
ALDC RT-S	TGGAAGCGATAGAAGAGC	This study
ALDC RT-AS	GAAGTGTTCTGTGATAGCC	This study
ALS RT-S	CAGGCAATGACTGGCAAT	This study
ALS RT-AS	CCACCACCGTTTCAATCG	This study
BDH RT-S	GCCAAAGAGGCGGTAGATAA	This study
BDH RT-AS	CGCCACCTCGTTCATCATTTT	This study
CS RT-S	ACAAGAAGGACGACAACC	This study
CS RT-AS	GAACATGGAAGAAGGAATGC	This study
LDH RT-S	TATCGTCATCGTCAGCAC	This study
LDH RT-AS	CCGTAGGGTTTGAGCAAT	This study
LYSR RT-S	TCGTCAACCCGCAGCCAGAGTA	This study
LYSR RT-AS	ACCAGCGAAGAGGGCACCAT	This study
SDH RT-S	AAGTACCACCAGTTCTCC	This study
SDH RT-AS	GGTTGTCCAGGTTATAGC	This study
SDH-P-S	ACGGTTTATTTAATTCGCCTCTGCG	This study
SDH-P-AS	GGCCGAGCTGAAAGAGCGCTTCAAG CCTTTTATCACTACGGTTTATTTAATTCGCCTC TG	This study
ACS-P-S	CCGGTCACCTCCAATAAGGATTTAT	This study
CS-P-S	GGTGGAGGTAAAGCCGGGATCAAATG	This study
CS-P-AS	TATGCAACAGTGTATTTGGCGAACC	This study
LDH-P-S	CGCCTGGCCTTCGCCGAGCGGAAG	This study
LDH-P-AS	GGCATGGCGCTGCAGGAAGGCATGG	This study
BDH-P-S	CTGCTGGTTGTTCCATCGAGAAAA	Rao <i>et al.</i>
BDH-P	CGGCAGCGAAGCGGCGACCTTGTC	Rao <i>et al.</i>
ADH-P-S	CATCGATCACAGTTATTGATAACCACTCTCAA C	This study
ADH-P-AS	TTTTGGCCAACGGGATACGGGCATC	This study
ALDC-P-S	AATGGTGGTTTCACCCTCGTAGACC	This study
LYSR-P-AS	CAGCGTGGCGCCGAGCGCGCTTCC	This study

Supplementary table 2 Relevant gene promoter region sequences

<p><i>LDH</i> promoter sequence, localization: -352 to +1 (+1 represents the translation start site)</p> <p>CGGCAGCGGCATGGCGCTGCAGGAAGGCATGGGATTAACCATCGAGCCGATGCTCAAC  CAGGGCGACCGCCGCATCAAGCAGAAGAAAGACGGCTGGACGGTGGTGACGCGGA  CAAAAACTGTCGGCGCAGTGGGAGCACACCGTGGCGGTCACCGCCGACGGCGTGG  AGATCCTGACGCTGCGCGACGAAGAGCGCCAGGCCGGCTACGCCGAGCGCTACTAAA  CCCGCAAGCCATTAGCCCACCAAGCTGATAGCTTAATAAGTTATTTAATTGATAACCTCT  TAGCTTATTGCGCGGCACCCCGCGCCGCGGTTAAGGCGACGGGGATGACAGGGAGA  CAGGCAGC</p>
<p><i>ACS</i> promoter sequence, localization: -351 to +1 (+1 represents the translation start site)</p> <p>CCTTTTACTACTACGGTTTATTTAATTTGCCTCTGCGTTGTAATGTATAAATACCGGTGGG  GAATAATGTGATCCAGATGCGTTTTATTCTATTGAATTAATAAATTCGTCGAATTAATCG  TCATTGTTAGAAGAATTTTATAAATGATTTTCTCACGTCTGGATTAATAATATTGACAC  GATTAAGTTATTTTTCTAACAATGAATAAAGTGTGACCGCACTCACCTCTGGGCGTGA  TTTTAATTTGTAGCTTGATAATTAACCTTTTCGCTGGATTCAATGCATCGCCGCGCCGCC  GGTGCGGGAAATATTGCCGATATTATTAATGCTGTCGTAAGGATATCACC</p>
<p><i>CS</i> promoter sequence, localization: -350 to +1 (+1 represents the translation start site)</p> <p>TTATGCAACCCAGGTATTTGGCGAACCTATCCAATAGCCGTTGTTTCCCGCTCGATTTT  GCCGGCGTCAAAAAGCAAATAAAGCAAATAAAAACAGATTATTGGGATAGGTTACAT  CTCTTCGAACAGCTCATAGGTAAGATTAACAGACTATAACGAATTACTATGAATCGTTAA  CAACTGGTCACCCGTCTCGTTCGCTGGTCAGCACTCTGTACCCTACCCGCGCACAGT  TGCGCAGTCGCTCACAGAGTTAGCGTCCGCACCATTTTTTGCGGGCAACCTGCAGAGA  TTAAGGTATTTAGTTGTTAGTGGTTTTTAAAATAAGGCGCTAAGGAGACAGTAA</p>
<p><i>SDH</i> promoter sequence, localization: -351 to +1 (+1 represents the translation start site)</p> <p>TGGCCGAGCTGAAAGAGCGCTTCAAGCGCGTCAAATCACCGACAACACCAGCGTGT  TCAATACCGATCTGCTGTACACCATCGAGCTGGGCTACGGCCTGGACGTGCCGAATGC  ATGGCGCACTCCGCATTTAACCGCAAAGAGTCGCGCGGCGCCACCAGCGCCTGGAC  GAAGGCTGCACCGAGCGTGACGACGTCAACTTCTCAAGCATAACGCTGGCGTTCCACA  ACCCGCAGGGCGCACCGCGTCTCGAATACAGCGACGTGAAAATCACCAAGCTGCCGC  CGGCCAAACGCGTCTACGGCGCAGAAGCCGAAGCGCAGGAGAAAAAGAATAAGGAG  CAGGCAA</p>
<p><i>ADH</i> promoter sequence, localization: -348 to +1 (+1 represents the translation start site)</p> <p>GTCATTGATGACAGTTATTGATACACACTGTCAACACCAGCGAGCTGAAAGGTGTCAG  CTTGCAAGTTTTCATGATTTAGATCACAATCAACTACCCAACAGTAGGTAAGCTCTTAG  TGGTAGTCAGGGAGTAGAACAATAATCGGCAGCAGCATCGCCGTTTCTTTCTTCAT  TGCCTGCCCTCCGTTGGGGTAGGGTGAAGCTCTTTAAGCAAATCAGCAGCATGCGC  AGAAATAGCGCGGGAAAGCCCGGTATTGGAATCCCCGTGTATCCCCGCCACGACTATA  TTAGCGTCGCGCACGGGAGTTTGCGGAAAGAGTGTAACATTATCGGGAGAGCATC</p>
<p>Space region between <i>LYSR</i> and <i>ALDC</i></p> <p>GACTGACTCCTCCACCAGCGCGGAACCGCGGTTCCGCGCGTTCAAAGACCCACCGA  CGGTGGGCCAAGATGCCCCCAAGGCGCGTTCATCAGTTGGAACGATTGACCTGAGG  CGACAAAAAACCAGGACGGCTGGCCGGCAGATATCCAGAGTCAACAGCATGATGATT  GAAAGTAAAGACTTACTAATCATTAATGCTGACTCGAATATCAAATTGAACGGTTAATC  TGGTGTGGAGCGACAATCAACTCCGCAGGCGGCTCGCGCGGCTGGGAAAAACATC</p>

TGTTATTTAGAACTAAGCGCCGCGAGGTTTATGCGTTTTCTCTCTATGCGGCCGGGATG  
AGACGGCGCTGAGGCGCGTCGTCAACCCGCAGCCAGAGTAGCCGCCGCGCCGTCGGC  
AGAGAAGCAGGTATTCATAAGAAACGCTTTTGCATATAATGCAAAA

*BDH* promoter sequence, localization: -339 to +1 (+1 represents the translation start site)  
GTTTGTCCCATCGAGAAAAAATAGTTGCGGCCGCCTGCGGGCGGCTGCCGTTTTTCATT  
CACATCGTTTATCTCTGTGTGGCCATAACTGCACACCTGCAATAGTCTCGCCCACTGAC  
AATCCGCCTGACAAATAGTGGCTCTCCGTAATTTTATTTTATCCATCAGTATGTTGGCCA  
AAATCCGATAAAGGTTAATCCAGCGCATTGAAATCACTGACATACCTCCTTTTGGTTAAT  
AAACCGCACGTTTTGACTGGCTCTCAGGGGTGGGGCGTCTTATCCTCGGGGTAATGAG  
ATTTGTATGACTTATATAAATACGTTACATGGAGGAGGTCTC