

Additional file 1. Bacterial strains and plasmids used in this study

Strain or plasmid	Relevant characteristic(s)	References of sources
Strains		
<i>E. coli</i> W3110	Coli Genetic Stock Center strain(GGSC) No. 4474	CGSC ^a
WL3110	W3110 $\Delta lacI$	Lab stock
TOP10	F ⁻ mcrA $\Delta(mrr-hsdRMS-mcrBC)$ $\phi 80 lacZ \Delta$ M15 $\Delta lacX74$ recA1 araD139 $\Delta(ara-leu)$ 7697 galU galK rpsL (Str ^R) endA1 nupG	Invitrogen ^b
XQ52	WL3110 $\Delta speE \Delta speG \Delta argI \Delta puuPA$ PargECBH::Ptrc PspeF-potE::Ptrc PargD::Ptrc PspeC::Ptrc $\Delta rpoS$	Qian <i>et al.</i> (2009)
XQ52 (p15SpeC)	XQ52 harboring p15SpeC	This study
XQ52 (p15SpeC-Eno)	XQ52 harboring p15SpeC-Eno	This study
XQ52 (p15SpeC-Pgm)	XQ52 harboring p15SpeC-Pgm	This study
XQ52 (p15SpeC-GapA)	XQ52 harboring p15SpeC-GapA	This study
XQ52 (p15SpeC-FbaA)	XQ52 harboring p15SpeC-FbaA	This study
XQ52 (p15SpeC-FbaB)	XQ52 harboring p15SpeC-FbaB	This study
XQ52 (p15SpeC-TpiA)	XQ52 harboring p15SpeC-TpiA	This study
XQ52 (p15SpeC-Pgk)	XQ52 harboring p15SpeC-Pgk	This study
XQ52 (p15SpeC-PykA)	XQ52 harboring p15SpeC-PykA	This study
XQ52 (p15SpeC-PykF)	XQ52 harboring p15SpeC-PykF	This study
XQ52 (p15SpeC-Glk)	XQ52 harboring p15SpeC-Glk	This study
XQ52 (p15SpeC-lcdA)	XQ52 harboring p15SpeC-lcdA	This study
XQ52 (p15SpeC-AcnA)	XQ52 harboring p15SpeC-AcnA	This study
XQ52 (p15SpeC-AcnB)	XQ52 harboring p15SpeC-AcnB	This study
XQ52 (p15SpeC-GltA)	XQ52 harboring p15SpeC-GltA	This study
XQ52 (p15SpeC-AckA)	XQ52 harboring p15SpeC-AckA	This study
XQ52 (p15SpeC-Ppc)	XQ52 harboring p15SpeC-Ppc	This study
Plasmids		
pTac15K	Km ^R , tac promoter, p15A ori, 4.0-kb	Qian <i>et al.</i> (2009)
p15SpeC	Km ^R , <i>E. coli</i> speC gene in EcoRI-SacI site of pTac15K, 6.1-kb	This study
p15SpeC-Eno	Km ^R , <i>E. coli</i> eno gene in SacI-XbaI site of p15SpeC, 7.1-kb	This study

p15SpeC-Pgm	Km ^R , <i>E. coli pgm</i> gene in SacI-XbaI site of p15SpeC, 7.1-kb	This study
p15SpeC-GapA	Km ^R , <i>E. coli gapA</i> gene in SacI-XbaI site of p15SpeC, 7.1-kb	This study
p15SpeC-FbaA	Km ^R , <i>E. coli fbaA</i> gene in SacI-XbaI site of p15SpeC, 7.1-kb	This study
p15SpeC-FbaB	Km ^R , <i>E. coli fbaB</i> gene in SacI-XbaI site of p15SpeC, 7.1-kb	This study
p15SpeC-TpiA	Km ^R , <i>E. coli tpiA</i> gene in SacI-XbaI site of p15SpeC, 7.1-kb	This study
p15SpeC-Pgk	Km ^R , <i>E. coli pgk</i> gene in SacI-XbaI site of p15SpeC, 7.1-kb	This study
p15SpeC-PykA	Km ^R , <i>E. coli pykA</i> gene in SacI-XbaI site of p15SpeC, 7.1-kb	This study
p15SpeC-PykF	Km ^R , <i>E. coli pykF</i> gene in SacI-XbaI site of p15SpeC, 7.1-kb	This study
p15SpeC-Glk	Km ^R , <i>E. coli glk</i> gene in SacI-XbaI site of p15SpeC, 7.1-kb	This study
p15SpeC-IcdA	Km ^R , <i>E. coli icdA</i> gene in SacI-XbaI site of p15SpeC, 7.1-kb	This study
p15SpeC-AcnA	Km ^R , <i>E. coli acnA</i> gene in SacI-XbaI site of p15SpeC, 8.8-kb	This study
p15SpeC-AcnB	Km ^R , <i>E. coli acnB</i> gene in SacI-XbaI site of p15SpeC, 8.7-kb	This study
p15SpeC-GltA	Km ^R , <i>E. coli gltA</i> gene in SacI-XbaI site of p15SpeC, 7.1-kb	This study
p15SpeC-AckA	Km ^R , <i>E. coli ackA</i> gene in SacI-XbaI site of p15SpeC, 7.3-kb	This study
p15SpeC-Ppc	Km ^R , <i>E. coli ppc</i> gene in SacI-XbaI site of p15SpeC, 8.7-kb	This study

^aColi Genetic Stock Center, New Haven, CT.

^bInvitrogen, Corp., Carlsbad, CA

Ap, ampicillin; Km, kanamycin; Str, streptomycin; R, resistance