Supplemental Materials

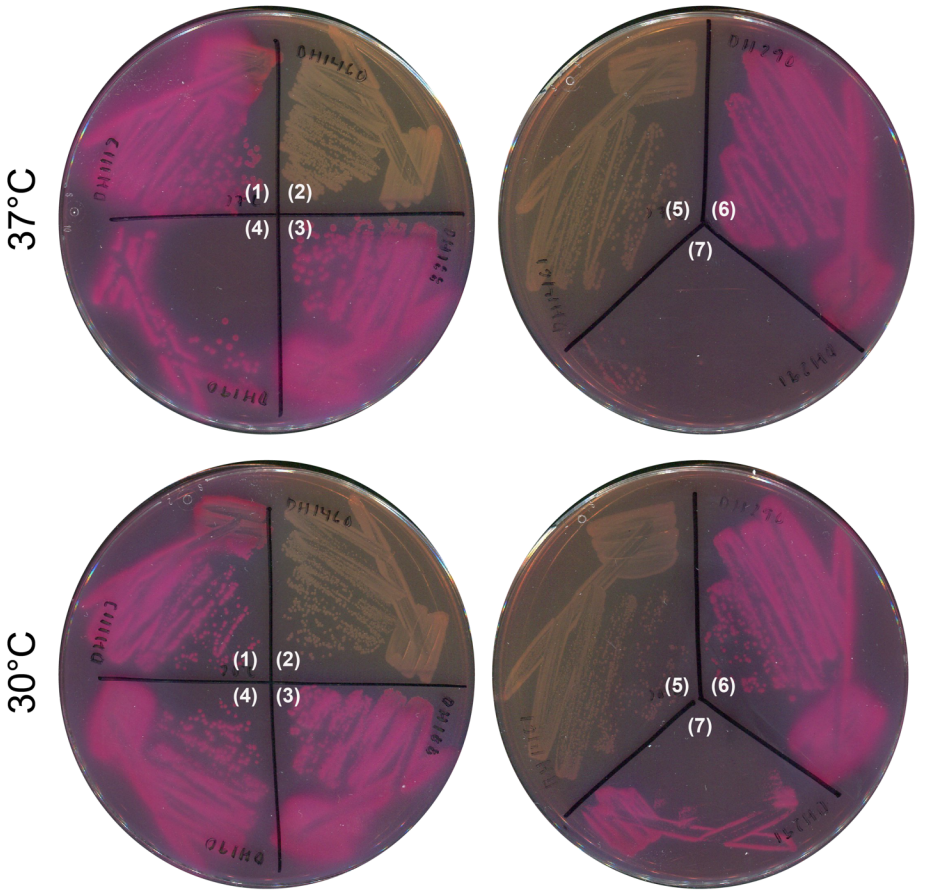
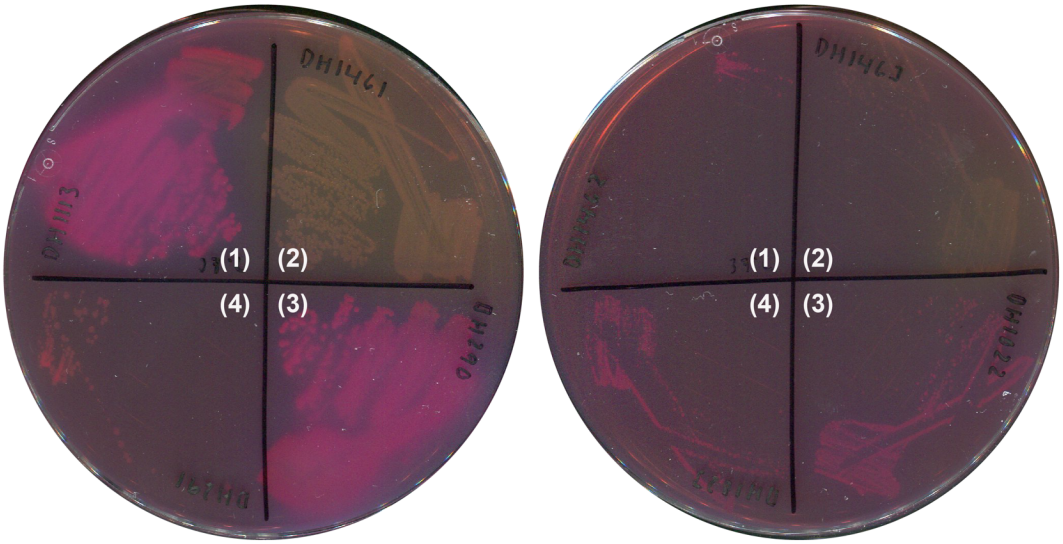


Figure S1: Growth phenotypes of relevant strains on MacConkey media containing maltodextrins. The indicated strains were streaked for single colonies on MacConkey indicator media supplemented with maltodextrins and incubated at 30°C or 37°C. Strains that do not contain plasmid-encoded *lamB* carry an empty vector control.

Table S1: Summary of relevant phenotypes

Genotype	MacConkey maltodextrin phenotype (30°C)	MacConkey maltodextrin phenotype (37°C)	Minimal maltodextrin phenotype (30°C, 37°C)
MC4100 wild-type	Red	Red	+
Δ*lamB*	White	White	-
Δ*lamB* p*lamB*$^{+}$	Red	Red	+
Δ*lamB* p*lamB*$_{G439D}$	Red	Red	+
Δ*lamB*Δ*degP*	White	White	-
Δ*lamB*Δ*degP* p*lamB*$^{+}$	Red	Red	+
Δ*lamB*Δ*degP* p*lamB*$_{G439D}$	Red	Dead	+



(1) MC4100
(2) Δ*lamB* Δ*degP*
(3) Δ*lamB* Δ*degP plamB*
(4) Δ*lamB* Δ*degP* $plamB_{G439D}$

(1) MC4100 *rseA*::kan
(2) Δ*lamB* Δ*degP rseA*::kan
(3) Δ*lamB* Δ*degP plamB rseA*::kan
(4) Δ*lamB* Δ*degP* $plamB_{G439D}$ *rseA*::kan

Figure S2: Deletion of *rseA* prevents growth on MacConkey maltodextrins. The indicated strains were streaked to single colonies on MacConkey media containing maltodextrins at 37°C. Strains that do not carry a plasmid-encoded *lamB* carry an empty vector control.

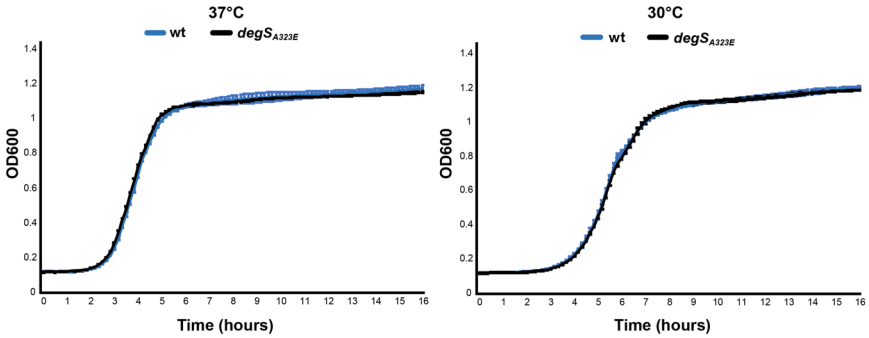


Figure S3: Growth phenotype of *degS$_{A323E}$*. Growth of wild-type and *degS$_{A323E}$* cells were monitored by OD600 at 30°C and 37°C for 16 hours. The OD600 was plotted over time and represents the average of three biological replicates +/- the standard error of the mean (SEM).

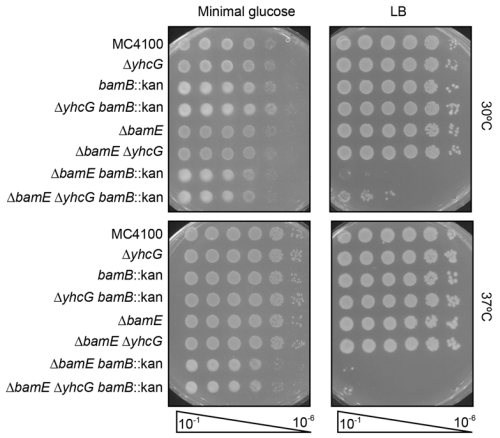


Figure S4: Deletion of *yhcG* in *bamB*, *bamE,* and Δ*bamB*Δ*bamE* null backgrounds does not alter growth phenotypes. The indicated strains were serially diluted and spotted onto minimal glucose and LB media at the indicated temperatures.

Table S2: Strains, Plasmids, and Oligonucleotides

***E. coli* K-12 strains**	**Genotype and relevant features**	**Reference**
MC4100	F-*araD139* (*argF-lac*)*U169 rpsL150 relA1 flb5301 deoC1 ptsF25 thi*	(1)
JCM158	MC4100 $ara^{r/-}$	(2)
NR669	λ_{att} *rpoH*P3-*lacZ*	(3)
MG2930	Δ*lamB*	This study
MG2967	Δ*lamB* pZS21cam::*lamB*	This study
MG2968	Δ*lamB* pZS21cam::$lamB_{G439A}$	This study
MG2969	Δ*lamB* pZS21cam::$lamB_{G439D}$	This study
KT26	Δ*lamB* Δ*degP* $degS_{A323E}$ pZS21cam::$lamB_{G439D}$	This study
BH17	Δ*lptD* pET23-42::$lptD_{Y721D}$	This study

BH26	Δ*lptD* pET23-42::*lptD*	This study
BH92	*bamB::*Tn5KAN-I-SceI (*bamB*::kan)	(4)
BH273	Δ*lamB* Δ*degP*	This study
BH290	Δ*lamB* Δ*degP* pZS21cam::*lamB*	This study
BH291	Δ*lamB* Δ*degP* pZS21cam::$lamB_{G439D}$	This study
BH1016	MC4100 λ_{att} *rpoH-P3-lacZ*	This study
BH1017	Δ*surA* λ_{att} *rpoH-P3-lacZ*	This study
BH1022	Δ*lamB* Δ*degP rseA*::kan pZS21cam::*lamB*	This study
BH1023	Δ*lamB* Δ*degP rseA*::kan pZS21cam::$lamB_{G439D}$	This study
BH1113	MC4100 pZS21cam (empty)	This study
BH1162	Δ*rseA* λ_{att} *rpoH-P3-lacZ*	This study
BH1190	MC4100 *yhcG*::kan	This study
BH1321	*degP*::kan *yadC*::Tn10	This study
BH1326	MC4100 *yhcG*::kan λ_{att} *rpoH-P3-lacZ*	This study
BH1327	Δ*surA yhcG*::kan λ_{att} *rpoH-P3-lacZ*	This study
BH1346	Δ*lamB* Δ*degP yhcG*::kan pZS21cam::*lamB*	This study
BH1347a	Δ*lamB* Δ*degP yhcG*::kan pZS21cam::$lamB_{G439D}$	This study
BH1347b	Δ*lamB* Δ*degP* $degS_{A323E}$ *yhcG*::kan pZS21cam::$lamB_{G439D}$	This study
BH1350	MC4100 $degS_{A323E}$ *yhcG*::kan	This study
BH1363	Δ*bamE* $degS_{A323E}$ *yhcG*::kan	This study
BH1366	MC4100 Δ*yhcG*	This study
BH1367	MC4100 $degS_{A323E}$ Δ*yhcG*	This study
BH1368	Δ*bamE* $degS_{A323E}$ Δ*yhcG*	This study

BH1372	Δ*lptD yhcG*::kan pET23/42::*lptD*	This study
BH1373	Δ*lptD* $degS_{A323E}$ *yhcG*::kan pET23/42::*lptD*	This study
BH1374	Δ*lptD yhcG*::kan pET23/42::$lptD_{Y721D}$	This study
BH1375	Δ*lptD* $degS_{A323E}$ *yhcG*::kan pET23/42::$lptD_{Y721D}$	This study
BH1378	Δ*bamE* Δ*yhcG*	This study
BH1380	MC4100 $degS_{A323E}$ *yhcG*::kan λ_{att} *rpoH-P3-lacZ*	This study
BH1381	Δ*surA* $degS_{A323E}$ *yhcG*::kan λ_{att} *rpoH-P3-lacZ*	This study
BH1387	Δ*rseA yhcG*::kan λ_{att} *rpoH-P3-lacZ*	This study
BH1388	Δ*rseA* $degS_{A323E}$ *yhcG*::kan λ_{att} *rpoH-P3-lacZ*	This study
BH1392	*bamB::*kan Δ*yhcG*	This study
BH1393	$degS_{A323E}$ Δ*yhcG bamB::*kan	This study
BH1394	Δ*bamE bamB*::kan Δ*yhcG*	This study
BH1395	Δ*bamE* $degS_{A323E}$ Δ*yhcG bamB*::kan	This study
BH1455a	MC4100 *yadC*::Tn10	This study
BH1456a	Δ*lamB yadC*::Tn10	This study
BH1457a	Δ*lamB yadC*::Tn10 pZS21cam::*lamB*	This study
BH1458a	Δ*lamB yadC*::Tn10 pZS21cam::$lamB_{G439D}$	This study
BH1459a	MC4100 $degP_{S210A}$ *yadC*::Tn10	(5)
BH1460a	Δ*lamB* $degP_{S210A}$ *yadC*::Tn10	This study
BH1460b	Δ*lamB* pZS21cam (empty)	This study
BH1461a	Δ*lamB* $degP_{S210A}$ *yadC*::Tn10 pZS21cam::*lamB*	This study
BH1461b	Δ*lamB* Δ*degP* pZS21cam (empty)	This study
BH1462a	Δ*lamB* $degP_{S210A}$ *yadC*::Tn10 pZS21cam::$lamB_{G439D}$	This study

BH1462b	MC4100 *rseA*::kan pZS21cam (empty)	This study
BH1463b	Δ*lamB* Δ*degP rseA*::kan pZS21cam (empty)	This study
BH1464	MC4100 *yhcG*::kan pZS21cam (empty)	This study
BH1467	MC4100 $degS_{A323E}$ *yhcG*::kan pZS21cam (empty)	This study
BH1466	Δ*lamB* Δ*degP yhcG*::kan pZS21cam (empty)	This study
BH1469	Δ*lamB* Δ*degP* $degS_{A323E}$*yhcG*::kan pZS21cam (empty)	This study
BH1470	Δ*lamB* Δ*degP* $degS_{A323E}$*yhcG*::kan pZS21cam::*lamB*	This study
Plasmids	**Description**	**Reference**
pZS21	Low-copy expression vector, $P_{LtetO-1}$ -driven vector	(6)
pET23/42	pET23a(+) with multiple cloning site of pET42a(+), P_{T7}-dependent expression vector	(7)
pBAD33	Cam^R cloning vector	(8)
pZS21::*lamB*	*lamB* cloned into pZS21 vector backbone	This study
p*lamB*	pZS21(cam^R)::*lamB,* pZS21::*lamB* made to be Cam^R	This study
p$lamB_{G439A}$	pZS21(cam^R)::$lamB_{G439A}$	This study
p$lamB_{G439D}$	pZS21(cam^R)::$lamB_{G439D}$	This study
p*lptD*	pET23/42::*lptD*	(9)
p$lptD_{Y721D}$	pET23/42::$lptD_{Y721D}$	(10)
pCH13	pET24b-ns-lamB-His (V26-W446)	This study
pCH86	pET22b-bamD-His6 (S21-T245)	(11)
pJW384	pET24b-lamB-His (G439A)	This study
pJW387	pET24b-lamB-His (G439D)	This study
pCH167	pET22b-FLAG-bamA 4^{th} quarter β-barrel (S715-W810)	(12)
pJW392	pET24b-nsFLAG-lamB-His	This study

pJW397	pET24b-nsFLAG-lamB	This study
pJW410	pET24b-ns-lamB (353-446)	This study
pJW411	pET24b-ns-lamB (353-446) (G439A)	This study
pJW412	pET24b-ns-lamB (353-446) (G439D)	This study
pJW413	pET24b-ns-lamB (26-121)	This study
Oligonucleotides	**Sequence (5' to 3')**	**Description**
pZS21CamR Gibson F	CGTTCTGAACAAATCCAGATGGAGTTCTGAGGTC AAATTTGCTTTCGAATTTCTGC	Amplifies Cam^R cassette from pBAD33
pZS21 CamR Gibson R	AGGTTAATGTCATGATAATAATGGTTTCTTAGGG GGAATAAATACCTGTGACGGAAG	Amplifies Cam^R cassette from pBAD33
pZS21 backbone F	CCCCTAAGAAACCATTATTATC	Amplifies pZS21 backbone
pZS21 backbone R	TGACCTCAGAACTCCATCTG	Amplifies pZS21 backbone
lamB_G439A_F	GCAGCCCAGATGGAAATCTGGTG	Site directed mutagenesis of p*lamB*
lamB_G439D_F	GATGCCCAGATGGAAATCTGGTG	Site directed mutagenesis of p*lamB*
lamB_G439_R	GAAGGTCCACTCGTCGCTGT	Site directed mutagenesis of p*lamB*
BH84-lamB-Fwd	GTCGACTGCATAAGGAGCCG	Amplify chromosomal *lamB*
BH85-lamB-Rev	ATTTGACAGCCGTTGTAGGCC	Amplify chromosomal *lamB*
BH241-degP-Fwd	GTTCGGAACTTCAGGCTATA	Amplify chromosomal *degP*
BH242-degP-Rev	TTGTGGTGAAGTTCACAGAT	Amplify chromosomal *degP*
LamB-His (G439A)	CGTGGCGACAGCGACGAGTGGACCTTCGCTGCC CAGATGGAAATCTGGTGG	
LamB-His (G439A)-rc	CCACCAGATTTCCATCTGGGCAGCGAAGGTCCA CTCGTCGCTGTCGCCACG	
LamB-His (G439D)	CGTGGCGACAGCGACGAGTGGACCTTCGATGCC CAGATGGAAATCTGGTGG	

LamB-His (G439D)-rc	CCACCAGATTTCCATCTGGGCATCGAAGGTCCA CTCGTCGCTGTCGCCACG	
FLAG-nsLamB-His	GTTTACTTTAAGAAGGAGATATACATATGGAC TACAAAGACGATGACGACAAGGCTAGC	
FLAG-nsLamB-His-rc	CGTGCATAGCCGTGGAAATCAACGCTAGCCTT GTCGTCATCGTCTTTGTAGTCCATATG	
nsFLAG-LamB	CTTCGGTGCCCAGATGGAAATCTGGTGGTGAGAT CCGGCTGCTACAAGCCCG	
FLAG-bamAΔ422-616-rc	CGGGCTTGTAGCAGCCGGATCTCACCACCAGAT TTCCATCTGGGCACCGAAG	
nsLamB(353-446)	GTTTACTTTAAGAAGGAGATATACATATGTAC GACAACGTCGAATCCCAGCGCACCGGC	
nsLamB(353-446)-rc	GCCGGTGCGCTGGGATTCGACGTTGTCGTACATA TGTATATCTCCTTCTTAAAGTAAAC	
nsLamB(26-121)	GGTAAAAACCTGATCGAATGGCTGCCATGAGAT CCGGCTGCTACAAGCCCGAAAGAAGC	
nsLamB(26-121)-rc	GCTTCTTTCGGGCTTGTAGCAGCCGGATCTCA TGGCAGCCATTCGATCAGGTTTTTACC	

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