

**Table S2.** Molecular biology materials. Bacterial strains and primers used in this study. Primers for cloning of OafA and OafB constructs and creation of OafA point mutant variants on the pBADcLIC\_WT-OafA plasmid. Amp = Ampicillin 100 µg/ml, Kan = Kanamycin 50 µg/ml.

Strain Name	Strain Number	Genotype	Plasmids	Source	Antibiotic
Escherichia coli Strains					
XL1 Blue				Agilent	
Origami2		<i>Δ(ara-leu)7697 ΔlacX74</i> <i>ΔphoA PvuII phoR</i> <i>araD139 ahpC galE galk</i> <i>rpsL F'[lac<sup>+</sup> lacI<sup>q</sup> pro]</i> (DE3) <i>gor522::Tn10 trxB</i> (Str <sup>R</sup> , Tet <sup>R</sup> )		Novagen	
Origami2 + pETFPP_2-OafA <sub>STM</sub> <sup>C-long</sup>	-	Origami2	JP327	This study	Kan
Origami2 + pETFPP_2-OafB <sub>STM</sub> <sup>C-long</sup>	-	Origami2	JP331	This study	Kan
Origami2 + pETFPP_2-OafA <sub>STM</sub> <sup>C-short</sup>	-	Origami2	JP329	This study	Kan
Origami2 + pETFPP_2-OafB <sub>STM</sub> <sup>C-short</sup>	-	Origami2	JP333	This study	Kan
Salmonella ser. Typhimurium Strains					
LT2	346	STM LT2 (ATCC strain number 19585, Lot number 215096)	-	ATCC	
LT2 Basal O-ag	293	STM LT2 $\Delta$ Gtr all, $\Delta$ OafA	-	Davies <i>et al.</i> 2013	
LT2 Basal O-ag + pBADcLIC	993	STM LT2 $\Delta$ Gtr all, $\Delta$ OafA	432	This study	Amp
LT2 Basal O-ag + pBADcLIC_WT-OafA	932	STM LT2 $\Delta$ Gtr all, $\Delta$ OafA	433	This study	Amp
LT2 Basal O-ag + pBADcLIC_R14A-OafA	1023	STM LT2 $\Delta$ Gtr all, $\Delta$ OafA	509	This study	Amp
LT2 Basal O-ag + pBADcLIC_H25A-OafA	1022	STM LT2 $\Delta$ Gtr all, $\Delta$ OafA	508	This study	Amp
LT2 Basal O-ag + pBADcLIC_S32A-OafA	1009	STM LT2 $\Delta$ Gtr all, $\Delta$ OafA	501	This study	Amp
LT2 Basal O-ag + pBADcLIC_G33A-OafA	1024	STM LT2 $\Delta$ Gtr all, $\Delta$ OafA	510	This study	Amp
LT2 Basal O-ag + pBADcLIC_G34A-OafA	1014	STM LT2 $\Delta$ Gtr all, $\Delta$ OafA	506	This study	Amp
LT2 Basal O-ag + pBADcLIC_F35A-OafA	1025	STM LT2 $\Delta$ Gtr all, $\Delta$ OafA	511	This study	Amp

LT2 Basal O-ag + pBADcLIC_I36A-OafA	1026	STM LT2 $\Delta$ Gtr all, $\Delta$ OafA	512	This study	Amp
LT2 Basal O-ag + pBADcLIC_G37A-OafA	1010	STM LT2 $\Delta$ Gtr all, $\Delta$ OafA	502	This study	Amp
LT2 Basal O-ag + pBADcLIC_V38A-OafA	1011	STM LT2 $\Delta$ Gtr all, $\Delta$ OafA	503	This study	Amp
LT2 Basal O-ag + pBADcLIC_D39A-OafA	1012	STM LT2 $\Delta$ Gtr all, $\Delta$ OafA	504	This study	Amp
LT2 Basal O-ag + pBADcLIC_V40A-OafA	1015	STM LT2 $\Delta$ Gtr all, $\Delta$ OafA	507	This study	Amp
LT2 Basal O-ag + pBADcLIC_S45A-OafA	1035	STM LT2 $\Delta$ Gtr all, $\Delta$ OafA	521	This study	Amp
LT2 Basal O-ag + pBADcLIC_G46A-OafA	1013	STM LT2 $\Delta$ Gtr all, $\Delta$ OafA	505	This study	Amp
LT2 Basal O-ag + pBADcLIC_R69A-OafA	1085	STM LT2 $\Delta$ Gtr all, $\Delta$ OafA	540	This study	Amp
LT2 Basal O-ag + pBADcLIC_R72A-OafA	1086	STM LT2 $\Delta$ Gtr all, $\Delta$ OafA	541	This study	Amp
LT2 Basal O-ag + pBADcLIC_S112A-OafA	1036	STM LT2 $\Delta$ Gtr all, $\Delta$ OafA	522	This study	Amp
LT2 Basal O-ag + pBADcLIC_N113A-OafA	1078	STM LT2 $\Delta$ Gtr all, $\Delta$ OafA	539	This study	Amp
LT2 Basal O-ag + pBADcLIC_Y122A-OafA	1037	STM LT2 $\Delta$ Gtr all, $\Delta$ OafA	523	This study	Amp
LT2 Basal O-ag + pBADcLIC_G202A-OafA	1027	STM LT2 $\Delta$ Gtr all, $\Delta$ OafA	513	This study	Amp
LT2 Basal O-ag + pBADcLIC_E325A-OafA	1028	STM LT2 $\Delta$ Gtr all, $\Delta$ OafA	514	This study	Amp
LT2 Basal O-ag + pBADcLIC_R379A-OafA	1033	STM LT2 $\Delta$ Gtr all, $\Delta$ OafA	519	This study	Amp
LT2 Basal O-ag + pBADcLIC_C383,397A-OafA	1001	STM LT2 $\Delta$ Gtr all, $\Delta$ OafA	497	This study	Amp
LT2 Basal O-ag + pBADcLIC_C439,453A-OafA	1007	STM LT2 $\Delta$ Gtr all, $\Delta$ OafA	499	This study	Amp
LT2 Basal O-ag + pBADcLIC_C567,572A-OafA	1002	STM LT2 $\Delta$ Gtr all, $\Delta$ OafA	498	This study	Amp
LT2 Basal O-ag + pBADcLIC_S437A-OafA	1032	STM LT2 $\Delta$ Gtr all, $\Delta$ OafA	518	This study	Amp
LT2 Basal O-ag + pBADcLIC_E569A-OafA	1030	STM LT2 $\Delta$ Gtr all, $\Delta$ OafA	516	This study	Amp
LT2 Basal O-ag + pBADcLIC_S412A-OafA	933	STM LT2 $\Delta$ Gtr all, $\Delta$ OafA	452	This study	Amp
LT2 Basal O-ag + pBADcLIC_D587A-OafA	934	STM LT2 $\Delta$ Gtr all, $\Delta$ OafA	453	This study	Amp

LT2 Basal O-ag + pBADcLIC\_H590A-OafA 1055 STM LT2 ΔGtr all, ΔOafA 527 This study Amp

OafA Mutants	Forward Primer		Reverse Primer	
	Primer code	Sequence 5'-3'	Primer code	Sequence 5'-3'
R14A	oMV1403	AAT GGG CTA GCG GCT TTT G	oMV1404	TAT ATC GAG TCT GAA TTT CTT GTA GAT CAT AGC
H25A	oMV1407	GTG CTG TAT GCG TTC GGT GT	oMV1408	AAC ACT TAT CAA TGC AAA AGC TCT TAG CC
S32A	oMV1399	CT TAT GTG GCG GGT GG	oMV1400	GTACACCGAAGTGATACAGCA
G33A	oMV1409	CT TAT GTG TCA GCG GGC TTT	oMV1410	G TAC ACC GAA GTG ATA CAG CAC
G34A	oMV1382	GTG TCA GGT GCG TTT ATA GGT	oMV1383	ATA AGG TAC ACC GAA GTG ATA CAG
F35A	oMV1411	G TCA GGT GGC GCG ATA GG TG	oMV1412	ACA TAA GGT ACA CCG AAG TGA TAC AGC AC
I36A	oMV1413	GGT GGC TTT GCG GGT GTA G	oMV1414	TGA CAC ATA AGG TAC ACC GAA GTG ATA CAG
G37A	oMV1388	GGC TTT ATA GCG GTA GAT GTT TTC	oMV1389	ACC TGA CAC ATA AGG TAC ACC
V38A	oMV1390	C TTT ATA GGT GCG GAT GTT TTC TTT	oMV1391	CCACCTGACACATAAAGGTACA
D39A	oMV1392	C TTT ATA GGT GTA GCG GTT TTC TTT GTA	oMV1391	CCACCTGACACATAAAGGTACA
V40A	oMV1393	GGT GTA GAT GCG TTC TTT GTA ATT TCT	oMV1394	TAT AAA GCC ACC TGA CAC ATA AGG TA
S45A	omv1505	CTTTGTAATTGCGGGTTTTCTTATGAC	oMV1506	AAAACATCTACACCTATAAAGCCACCT
G46A	oMV1395	GTA ATT TCT GCG TTT CTT ATG ACT G	oMV1396	AAA GAA AAC ATC TAC ACC TAT AAA GCC
R69A	oMV1553	GAT TTT TAT ATT GCA GCG TTC CTA AG	oMV1554	AAG TAC TCC TTT GTG GTC TAC
R72A	oMV1555	TAT TGC AAG ATT CCT AGC GAT TGT A	oMV1556	TAA AAA TCA AGT ACT CCT TTG TGG TC
S112A	oMV1507	GTCTTTACTTTTTTATGCGAATAATTA	oMV1508	GATATTGCGTTCCTTGCTAAGTG
N113A	oMV1533	ACTTTTTTATTCAGCGAATTATTACG	oMV1534	AAGACGATATTGCGTTCCTTGC
Y122A	oMV1509	CACTCTAGTGCGTTCGACTCA	oMV1510	AATTGCGTAATAATTATTTGAATAAAAAAGTA
G202A	oMV1415	GAA ATG CTG GCT GCG GGC	oMV1416	CCA TGC CCT GGT AGG GAT AAG ATA GA
E325A	oMV1475	C AGA ACA ATT GCG AAC ACG CT	oMV1476	TATGAAATATCCCCAAGCGCAAAG

C383S	oMV1332	AGG CCT GAT ATT AGC TTC CTC AAT CCA	oMV1333	CCA GGG AGA GTT GTC CAT ACG ATA
C397S	oMV1351	GCA TTC TCA AAA AGC CAG GAT AAA TAG	oMV1352	TGA ATA ATC TTG ATC TGG ATT GAG GAA
C439S	oMV1336	GCA AGC TTG AGC CAA CCA AT	oMV1337	AGT TCT CTG CGT AAT GTT AAG TGA ATT TCC
C453S	oMV1334	GAC AGG CCG TAT AGC AAA GAC ATC AAT	oMV1378	ATC TTT TTG AAG CCC AAT GAT TGG TGG
C567S	oMV1353	CTT GAG ACT ATG AGC ACA GAA AGT TAT	oMV1366	TGG TGA AAT ATA AGT AAG GGA ATG CTC
C572S	oMV1355	GT ACA GAA AGT TAT AGC AAA GCA ATA ATA	oMV1356	CAT AGT CTC AAG TGG TGA AAT ATA AG
S437A	oMV1491	CAGAGAACTGCAGCGTTGTGC	oMV1492	CGTAATGTTAAGTGAATTTCCAAATACCGATTTTC
E569A	oMV1473	CT ATG TGT ACA GCG AGT TAT TGC	oMV1474	TCT CAA GTG GTG AAA TAT AAG TAA GGG
S412A	oMV1152	ATG GGG TGA CGC GCA TGC CGC	oMV1153	ACA ACA AAA GAC TTT TCA GTC ATT TTA TCC TGA CAT TTT G
D587A	oMV1150	ATA CAA TAT GCC AAT GCG CAC C	oMV1151	AGG GTA AGC AAT TCT ATT CC
H590A	oMV1148	TGA CAA TGC GGC CCT AAC ACC AGA AG	oMV1149	TAT TGT ATA GGG TAA GCA ATT C
*OafA <sub>SPA</sub> <sup>long</sup>	-	TCC AGG GAC CAG CAA TGA AGC AAG TCG TTG AGT ATC G	-	TGA GGA GAA GGC GCG TCA TTA TTT TGA AAT CTG CTT TTT CAC
*OafB <sub>SPA</sub> <sup>long</sup>	-	TCC AGG GAC CAG CAA TGA AAA GCG CCG GTG AAT AC	-	TGA GGA GAA GGC GCG TCA TTT AAT GAT TTT ATT GCC AAT CTT G
*OafA <sub>SPA</sub> <sup>short</sup>	-	TCC AGG GAC CAG CAA TGA GGC CTG ATA TTT GC	-	TGA GGA GAA GGC GCG TCA TTA TTT TGA AAT CTG CTT TTT CAC
*OafB <sub>SPA</sub> <sup>short</sup>	-	TCC AGG GAC CAG CAA TGC GCG GCG GCA TTT GC	-	TGA GGA GAA GGC GCG TCA TTT AAT GAT TTT ATT GCC AAT CTT G

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