

**TABLE S1** Bacterial strains used in this study

Strain	Description	Source
<b><i>S. pneumoniae</i> wild-type strains</b>		
P34	serotype 1	ATCC 33400
P35	serotype 2	NCTC 7466
P37	serotype 35A	NCTC 10319
P39	serotype 3	ATCC 6303
P41	serotype 5	ATCC 6305
P51	serotype 2	ATCC 11733
P52	serotype 1	ATCC 12213
P53	serotype 1	Statens Serum Institute
P54	serotype 3	Statens Serum Institute
P55	serotype 4	Statens Serum Institute
P56	serotype 6A	Statens Serum Institute
P57	serotype 6B	Statens Serum Institute
P58	serotype 8	Statens Serum Institute
P59	serotype 7F	Statens Serum Institute
P60	serotype 9V	Statens Serum Institute
P63	serotype 19F	Statens Serum Institute
P64	serotype 23F	Statens Serum Institute
P139	R6, nonencapsulated	Tomasz and Hotchkiss, 1964 (1)
P173	R800, nonencapsulated, derived from R36A	Holmes <i>et al.</i> , 2001 (2)
P257	D39, serotype 2	NCTC 7466
P261	TIGR4, serotype 4	Tettelin <i>et al.</i> , 2001 (3)
P309	G54, serotype 19F	Dopazo <i>et al.</i> , 2001 (4)
<b><i>S. pneumoniae</i> mutant strains</b>		
PN111	D39 $\Delta$ <i>cps</i> ::Km <sup>r</sup>	Jensch <i>et al.</i> , 2010 (5)
PN259	TIGR4 $\Delta$ <i>cps</i> ::Km <sup>r</sup>	This study
PN315	TIGR4 <i>lux</i>	This study
PN321	D39 $\Delta$ <i>cps</i> $\Delta$ <i>arcA-T</i> ::Erm <sup>r</sup>	This study
PN322	TIGR4 $\Delta$ <i>cps</i> $\Delta$ <i>arcA-T</i> ::Erm <sup>r</sup>	This study
PN323	D39 $\Delta$ <i>cps</i> $\Delta$ <i>argR2</i> ::Erm <sup>r</sup>	This study
PN324	TIGR4 $\Delta$ <i>cps</i> $\Delta$ <i>argR2</i> ::Erm <sup>r</sup>	This study
PN325	D39 $\Delta$ <i>cps</i> $\Delta$ <i>argR1</i> ::Erm <sup>r</sup>	This study
PN326	TIGR4 $\Delta$ <i>cps</i> $\Delta$ <i>argR1</i> ::Erm <sup>r</sup>	This study
PN327	D39 $\Delta$ <i>cps</i> $\Delta$ <i>ahrC</i> ::Erm <sup>r</sup>	This study
PN328	TIGR4 $\Delta$ <i>cps</i> $\Delta$ <i>ahrC</i> ::Erm <sup>r</sup>	This study
PN363	D39 $\Delta$ <i>cps</i> $\Delta$ <i>arcA-C</i> ::Erm <sup>r</sup>	This study
PN364	TIGR4 $\Delta$ <i>cps</i> $\Delta$ <i>arcA-C</i> ::Erm <sup>r</sup>	This study
PN376	TIGR4 <i>lux</i> $\Delta$ <i>arcA-T</i> ::Erm <sup>r</sup>	This study
PN377	TIGR4 <i>lux</i> $\Delta$ <i>argR2</i> ::Erm <sup>r</sup>	This study
PN378	D39 <i>lux</i> $\Delta$ <i>arcA-T</i> ::Erm <sup>r</sup>	This study
PN379	D39 <i>lux</i> $\Delta$ <i>argR2</i> ::Erm <sup>r</sup>	This study
PN421	TIGR4 $\Delta$ <i>cps</i> $\Delta$ <i>ply</i> ::Cm <sup>r</sup>	This study
PN422	TIGR4 $\Delta$ <i>cps</i> $\Delta$ <i>ply</i> $\Delta$ <i>arcA-C</i> ::Erm <sup>r</sup>	This study
PN423	TIGR4 $\Delta$ <i>cps</i> $\Delta$ <i>ply</i> $\Delta$ <i>arcA-T</i> ::Erm <sup>r</sup>	This study
PN424	TIGR4 $\Delta$ <i>cps</i> $\Delta$ <i>ply</i> $\Delta$ <i>argR2</i> ::Erm <sup>r</sup>	This study
PN498	TIGR4 <i>lux</i> $\Delta$ <i>arcA-C</i> ::Erm <sup>r</sup>	This study
PN499	D39 <i>lux</i> $\Delta$ <i>arcA-C</i> ::Erm <sup>r</sup>	This study
<b><i>E. coli</i> strains</b>		
DH5 $\alpha$	$\Delta$ ( <i>lac</i> )U169 <i>endA1 gyrA46 hsdR17 <math>\phi</math>80<math>\Delta</math>(<i>lacZ</i>)M15 recA1 relA1 supE44 thi-1</i>	Novagen
BL21(DE3)	<i>E. coli</i> host for protein expression	Invitrogen
Cm, chloramphenicol; Km, kanamycin; Erm, erythromycin; Spe, spectinomycin; r, resistant		

**SUPPLEMENTAL REFERENCES**

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