

Table S1: List of strains and plasmids used in this study.

Strain/plasmid	Description	Source
<i>S. pneumoniae</i>		
D39	Serotype 2 strain. <i>cps 2</i>	Laboratory of P. Hermans.
MA1200	D39 Δ <i>rex</i> null mutant	This study
MA1301	D39 Δ <i>bgaA</i> :: <i>PniaX-lacZ</i> ; Tet ^R	(Afzal et al., 2017)
MA1302	D39 Δ <i>bgaA</i> :: <i>PpnuC-lacZ</i> ; Tet ^R	(Afzal et al., 2017)
MA1303	D39 Δ <i>bgaA</i> :: <i>PnadC-lacZ</i> ; Tet ^R	(Afzal et al., 2017)
MA1311	D39 Δ <i>bgaA</i> :: <i>Pfba-lacZ</i> ; Tet ^R	(Afzal et al., 2017)
MA1313	D39 Δ <i>bgaA</i> :: <i>PgapN-lacZ</i> ; Tet ^R	(Afzal et al., 2017)
MA1314	D39 Δ <i>bgaA</i> :: <i>PpncB-lacZ</i> ; Tet ^R	(Afzal et al., 2017)
MA1315	D39 Δ <i>bgaA</i> :: <i>Pgap-lacZ</i> ; Tet ^R	(Afzal et al., 2017)
MA1316	D39 Δ <i>bgaA</i> :: <i>PadhE-lacZ</i> ; Tet ^R	(Afzal et al., 2017)
MA1317	D39 Δ <i>bgaA</i> :: <i>PadhB2-lacZ</i> ; Tet ^R	(Afzal et al., 2017)
MA1201	MA1200 Δ <i>bgaA</i> :: <i>Pfba-lacZ</i> ; Tet ^R	This study
MA1202	MA1200 Δ <i>bgaA</i> :: <i>PgapN-lacZ</i> ; Tet ^R	This study
MA1203	MA1200 Δ <i>bgaA</i> :: <i>PpncB-lacZ</i> ; Tet ^R	This study
MA1204	MA1200 Δ <i>bgaA</i> :: <i>Pgap-lacZ</i> ; Tet ^R	This study
MA1205	MA1200 Δ <i>bgaA</i> :: <i>PadhE-lacZ</i> ; Tet ^R	This study
MA1206	MA1200 Δ <i>bgaA</i> :: <i>PadhB2-lacZ</i> ; Tet ^R	This study
MA1207	D39 Δ <i>bgaA</i> :: <i>Pfba-M-lacZ</i> ; Tet ^R	This study
MA1208	D39 Δ <i>bgaA</i> :: <i>PpncB-M-lacZ</i> ; Tet ^R	This study
MA1209	D39 Δ <i>bgaA</i> :: <i>Pgap-M-lacZ</i> ; Tet ^R	This study
MA1210	D39 Δ <i>bgaA</i> :: <i>PadhE1-M-lacZ</i> ; Tet ^R	This study
MA1211	D39 Δ <i>bgaA</i> :: <i>PadhE2-M-lacZ</i> ; Tet ^R	This study
MA1212	D39 Δ <i>bgaA</i> :: <i>PgapN-M-lacZ</i> ; Tet ^R	This study
<i>E. coli</i>		
EC1000	Km ^R ; MC1000 derivative carrying a single copy of the <i>pWV1 repA</i> gene in <i>glgB</i>	Laboratory collection
Plasmids		
pPP2	Amp ^R Tet ^R ; promoter-less <i>lacZ</i> . For replacement of <i>bgaA</i> with promoter <i>lacZ</i> fusion. Derivative of pPP1	(Halfmann et al., 2007)
pORI280	Erm ^R ; <i>ori</i> ⁺ <i>repA</i> ⁺ ; deletion derivative of pWV01; constitutive <i>lacZ</i> expression from P32 promoter	(Leenhouts et al., 1998)
pMA1301	pPP2 <i>PniaX</i>	(Afzal et al., 2017)
pMA1302	pPP2 <i>PpnuC</i>	(Afzal et al., 2017)
pMA1303	pPP2 <i>PnadC</i>	(Afzal et al., 2017)
pMA1308	pPP2 <i>Pfba</i>	(Afzal et al., 2017)
pMA1309	pPP2 <i>Prex</i>	(Afzal et al., 2017)
pMA1310	pPP2 <i>PgapN</i>	(Afzal et al., 2017)
pMA1311	pPP2 <i>PpncB</i>	(Afzal et al., 2017)
pMA1312	pPP2 <i>Pgap</i>	(Afzal et al., 2017)

pMA1313	pPP2 <i>PadhE</i>	(Afzal et al., 2017)
pMA1314	pPP2 <i>PadhB2</i>	(Afzal et al., 2017)
pMA1200	pORI280 carrying <i>rex</i> deletion	This study
pMA1201	pPP2 <i>Pfba-M</i>	This study
pMA1202	pPP2 <i>PpncB-M</i>	This study
pMA1203	pPP2 <i>Pgap-M</i>	This study
pMA1204	pPP2 <i>PadhER1-M</i>	This study
pMA1205	pPP2 <i>PadhER2-M</i>	This study
pMA1206	pPP2 <i>PgapN-M</i>	This study
