

SUPPLEMENTARY MATERIAL

Table S1. Strains and plasmids used in this study.

Name	Description	Reference
<i>Bordetella</i> strains		
Bp536	Wild type <i>B. pertussis</i>	(Relman <i>et al.</i> , 1989)
Bpe138	Bp536 containing a gene conferring Cm <sup>r</sup> in place of <i>fhaB</i>	(Inatsuka <i>et al.</i> , 2005)
Bpe138::pSJ63	Bp138 with plasmid pSJ63 integrated at the 5' region of <i>fhaB</i> ; this strain expresses <i>fhaB</i> <sub>Bb</sub>	This study
Bpe129	Bp536 containing nucleotide substitutions in <i>fhaB</i> that result in the production of FHA with alanine substituted for glycine at amino acid position 1098 (i.e., RGD -> RAD)	(Ishibashi <i>et al.</i> , 2001)
RB50	Wild type <i>B. bronchiseptica</i>	(Cotter & Miller, 1994)
RBX9	$\Delta fhaB$ derivative of RB50	(Cotter <i>et al.</i> , 1998)
RBX11	$\Delta fhaS$ derivative of RB50	(Julio & Cotter, 2005)
RBX20	$\Delta fhaB \Delta fhaS$ derivative of RB50	(Julio & Cotter, 2005)
RBX20::pSJ61	RBX20 with pSJ61 integrated at the 5' region of <i>fhaB</i> ; this strain expresses <i>fhaB</i> <sub>Bb</sub>	This study
RB50gap	RB50 containing an in-frame deletion of nucleotides 1449 – 1788 of <i>fhaB</i>	This study
RB50CRD <sub>Bp</sub>	RB50 in which nucleotides 3764-4178 of <i>fhaB</i> <sub>Bb</sub> were replaced with nucleotides 3422-3836 from <i>fhaB</i> <sub>Bp</sub>	This study
RB50NMCD <sub>Bp</sub>	RB50 in which nucleotides 5305-6366 of <i>fhaB</i> <sub>Bb</sub> were replaced with nucleotides 4961-6036 from <i>fhaB</i> <sub>Bp</sub>	This study
RBX11-T-E	RBX11 containing a stop codon immediately following codon 3371 of <i>fhaB</i>	(Mazar & Cotter, 2006)
RBFS4	RB50 in which <i>fhaB</i> <sub>Bb</sub> was replaced with <i>fhaB</i> <sub>Bp</sub> . This <i>fhaB</i> <sub>Bp</sub> allele contains an additional thymidine at position 7127, resulting in 42 different codons (compared with wild type <i>fhaB</i> <sub>Bp</sub> ) followed by a stop codon.	(Inatsuka <i>et al.</i> , 2005) and this study
RBFS10	RB50 in which <i>fhaB</i> <sub>Bb</sub> was replaced with <i>fhaB</i> <sub>Bp</sub> ; constructed by repairing the frame-shift mutation in RBFS4	This study
RB50RAE	RB50 containing nucleotide substitutions in <i>fhaB</i> that result in alanine and glutamic acid replacing glycine and aspartic acid at amino	This study

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	acid positions 1213 and 1214, respectively, i.e., RGD -> RAE	
RBX11Δ28	RBX11 containing a deletion of nucleotides 7287 – 7368 in <i>fhaB</i>	This study
<i>E. coli</i> strains		
DH5α	Molecular cloning strain	BRL; Gaithersburg, MD
SM10λpir	Conjugation strain	(Miller & Mekalanos, 1988)
Plasmid name		
pSJ61	pBR322-based <i>Bordetella</i> suicide vector containing the <i>fhaB</i> gene and promoter from <i>B. bronchiseptica</i>	This study
pSJ63	pSJ61 in which the <i>fhaB</i> <sub>Bb</sub> promoter and first 70 codons were replaced with the corresponding region from <i>fhaB</i> <sub>Bp</sub> .	This study

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