Product Specification Sheet

# B. pertussis serotype 2 fimbrial subunit (Fim2) Antibodies and Controls

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| □ **Cat #** FIM25-S | **Rabbit** Anti- B.pertussis Fim 2 antiserum | **SIZE**: 100 ul |
| □ **Cat #** FIM25-C | Purified B.pertussis Fim 2 control for western blot | **SIZE**: 100 ul |

*B.pertussis* is an obligate human pathogen that infects the respiratory tract and is a major cause of severe childhood communicable disease, whooping cough, with over a quarter million deaths worldwide in children attributed to it per year.

*B. pertussis* produces several virulence factors including adhesins, toxins and Lipopolysaccharides. **Fimbriae** are long, filamentous appendages reaching out from the outer membrane of the bacterium. Structurally they consist of two proteins, major and minor subunit, the latter of which is considered an adhesin. Two closely related but serologically distinct fimbriae are produced by B. pertussis. They provide the basis for serotyping of the bacteria into serotypes 2 and 3. The major subunits of the serotype 2 and 3 fimbriae are proteins of 22 and 22.5 kDa, respectively. These proteins are encoded by the fim2 and fim3 genes to form repeating units that are assembled together to make up the body of the long filamentous structure characteristic of fimbriae or pili. Besides serving as serodeterminant factors, fimbriae have been shown to allow the bacteria to adhere to host cells via the major subunit, which binds to sulfated sugars such as heparin, and the minor subunit, which binds to the integrin Vla-5 Transcription of the fimbrial subunit genes (fim) is positively controlled by trans-acting polypeptides encoded by the **bvg** locus produces two serologically distinct fimbriae. Fimbriae elicit protective immune responses and therefore are included in some acellular pertussis vaccines. Generally, B. pertussis Fim2 strains predominate in unvaccinated populations, whereas Fim3 strains are often isolated in vaccinated populations.

B. pertussis vaccine was first developed in 1920 using whole bacterium. In 1942, the whole-cell pertussis vaccine was combined with diphtheria and tetanus toxoid to generate the first DTP combination vaccine. Antibody responses to Fim2-3 have been observed in human samples.

## Source of Antigen and Antibodies

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| **Antigen** | Recombinant B. pertussis Fimbriae 2 protein (Cat#FIM25-R-10) |
| **Ab Host/type** | Rabbit, Polyclonal antiserum (Cat#FIM25-S) supplied in 0.05% azide as preservative. |
| **2-Ab** | Goat Anti-rabbit IgG-HRP cat # 20320 (AP, biotin, FITC conjugates) |
| **-ve control IgG** | #20009-1, Rabbit (non-immune) IgG, purified, suitable for ELISA, Western, IHC as –ve control. |

**Cat # FIM25-C**, Positive Control

Serotype 2 fimbrial subunit from B.pertussis was expressed in E.coli as a his tag fusion protein (full length, >99%, ~26 kda). Purified protein for Western blot +ve control (Cat#FIM25-C) is supplied in SDS-PAGE. Store at –20°C in suitable size aliquots. SDS may crystallize in cold conditions. It should re dissolve by warming before taking it from the stock. It should be heated once prior to loading on gels. If the product has been stored for several weeks, then it may be preferable to add 5 ul of fresh 2x sample buffer per 10 ul of the # FIM25-C solution prior to heating and loading on gels. This preparation is not biologically active. It is not suitable for ELISA or other applications where native protein is required. Do not freeze, thaw, or heat repeatedly.

## Form & Storage of Antibodies/Peptide Control

**Antiserum**

□ 100 ul □ solution □ lyophilized powder

Buffer: PBS+0.05% azide

**Reconstitute powder** 100 ul of PBS.

**Storage**

**Short-term**: unopened, undiluted vials for less than a week at 4oC.

**Long-term**: at –20C or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

**Stability**: 6-12 months at –20oC or below.
**Shipping**: 4oC for solutions and room temp for powder.

**Recommended Usage**

**Western Blotting**: An initial dilution of 1:500-2K is recommended for Western. Users must optimize antibody dilution depending upon the nature of samples and other technical conditions.

**ELISA** (1:10-50K; using 50-100 ng antigen/well).

**Histochemistry & Immunoflourescence**: not tested.

**Specificity & Cross-reactivity:** Antibody is specific for serotype 2 fimbrial subunit (Fim2) protein and recombinant protein. Fim2 and Fim3 are conserved (~54%). Cross reactivity with other proteins has not been established. Recombinant protein is available for control studies.

**References**: Meyers G (1989) Virology 171:555-567; Weiland F (1999) J. Gen. Virol. 80:1157-1165(1999). Ilona R (2004) Virology 322:143–157; Fernandez S (2008) Virology 370:122–129; Risatti GR Virology 364:371–382.

*This product is for In vitro research use only.

**Related material available from ADI**

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| FIM35-C | Purified Bordetella pertussis fimbrial serotype 3 fimbrial subunit (Fim3) control for western blot |
| FIM35-S | Anti-Bordetella pertussis serotype 3 fimbrial subunit (Fim3) antiserum |
| FIM35-R-10 | Recombinant (E.Coli, His tag) Bordetella pertussis serotype 3 fimbrial subunit (Fim3) protein (>95%) |
| FIM25-C | Purified Bordetella pertussis serotype 2 fimbrial subunit (Fim 2) control for western blot |
| FIM25-S | Anti-Bordetella pertussis serotype 2 fimbrial subunit (Fim 2) antiserum |
| FIM25-R-10 | Recombinant (E.Coli, His tag) Bordetella pertussis serotype 2 fimbrial subunit (Fim2) protein (>95%) |



Alpha Diagnostic Intl Inc., 6203 Woodlake Center Dr, San Antonio, TX 78244, USA;

**India Contact**: **Life Technologies (India) Pvt. Ltd.** **Ph: +91-11-42208000, Mobile: +91-9810521400 Email: customerservice@lifetechindia.com**