

**Product Specification Sheet**

**Filamentous Hemagglutinin (FHA) (B. pertussis)**

**Cat. #** FHA15-N-10 Filamentous Hemagglutinin (FHA) (B. pertussis), purified

**SIZE:** 10 ug

*Bordetella pertussis* is a Gram-negative, aerobic coccobacillus of the genus *Bordetella*, and the causative agent of pertussis or whooping cough. Unlike *B. bronchiseptica*, *B. pertussis* is non-motile. There does not appear to be a zoonotic reservoir for *B. pertussis*—humans are its only host. The bacterium is spread by coughing and by nasal dripping. The incubation period is 7-14 days. Pertussis (or whooping cough) is an infection of the respiratory system and characterized by a “whooping” sound when the person breathes in. In the US it killed 5,000 to 10,000 people per year before a vaccine was available. Worldwide in 2000, according to the WHO, around 39 million people were infected annually and about 297,000 died. *Bordetella pertussis* infects its host by colonizing lung epithelial cells. The bacterium contains a surface protein, **filamentous hemagglutinin (FHA)**, which binds to sulfatides that are found on cilia of epithelial cells. Once anchored, the bacterium produces tracheal cytotoxin, which stops the cilia from beating. This prevents the cilia from clearing debris from the lungs, so the body responds by sending the host into a coughing fit. These coughs expel some bacteria into the air, which are free to infect other hosts.

Filamentous hemagglutinin (fimbrial hemagglutinin or FHA) is one of two hemagglutinins produced by phase I strains of *Bordetella pertussis*. The use of FHA as one component of a new acellular vaccine is currently under investigation. FHA is named for its rod-like shape and its ability to agglutinate erythrocytes from a variety of species. On a weight basis, FHA is five to seven times more active in hemagglutination (HA) assays than is pertussis toxin. Moreover, the HA-activity of FHA, but not that of pertussis toxin, is abolished in the presence of low levels of cholesterol. FHA is a protein with an approximate molecular weight of 200,000 daltons. However, some preparations of this protein contain varying amounts of two lower molecular weight components in the 90,000 to 130,000 dalton range. Although monoclonal and polyclonal antibodies prepared against FHA also react with these faster migrating components, it is not known whether the latter represent degradation products or subunits of FHA.

Pertussis vaccine is part of the DTaP (diphtheria, tetanus, acellular pertussis) immunization. Acellular pertussis vaccines contain antigen components of *B. pertussis*, usually lymphocytosis promoting factor (LPF) which is also called pertussis-toxin (PT) or pertussigen, filamentous hemagglutinin (FH) and, eventually, agglutinogens 2 and 3.

**Source of Antigen and Antibodies**

FHA is provided in a buffer (PBS, pH 8, 1.25% Trehalose) or lyophilized in the same buffer. as a lyophilized powder. Store powder or protein solutions at -20oC or lower. Lyophilized protein should be dissolved in PBS at a desired protein concentration but no less than 10 ug/100 ul. Store liquid or lyophilized protein at -20oC in suitable size aliquots. Do not freeze and thaw.

**Stability:** 6-12 months at -20oC or below.

**Shipping:** 4oC for solutions and room temp for lyophilized items.

**General References:** Sato Y (1983) *Infect. Immunity*. 41, 313-320, Irosh LI (1983) *J. Genet. Microbiol.* 129, 2769-2778;

\*This product is for in vitro research use only.

**Related items from ADI...**

Catalog#	ProdDescription
960-100-PHA	Human Anti-B. pertussis IgA ELISA kit
960-110-PHG	Human Anti-B. pertussis IgG ELISA kit
960-120-PHM	Human Anti-B. pertussis IgM ELISA kit
960-130-PMG	Mouse Anti-B. pertussis IgG ELISA kit
960-140-PHM	cat# changed to #960-140-PMM; Mouse Anti-B. pertussis IgM ELISA kit
960-140-PMM	Mouse Anti-B. pertussis IgM ELISA kit
960-150-PRG	Rabbit Anti-B. pertussis IgG ELISA kit
960-160-PRM	Rabbit Anti-B. pertussis IgM ELISA kit
960-170-PMG	G. pig Anti-B. pertussis IgG ELISA kit
960-180-PMM	G. pig Anti-B. pertussis IgM ELISA kit
960-200-PHA	Monkey Anti-B. pertussis IgA ELISA kit
960-210-PHG	Monkey Anti-B. pertussis IgG ELISA kit
960-220-PHM	Monkey Anti-B. pertussis IgM ELISA kit
PTOX35-N-10	Pertussis Toxin A promoter ( <i>B. pertussis</i> ), purified
PTOX36-N-10	Pertussis Toxin B promoter ( <i>B. pertussis</i> ), purified
PTOX41-F	Monoclonal Anti-B. pertussis LPS (Los-A) IgG-FITC
PTOX41-M	Monoclonal Anti-B. pertussis/ <i>B. bronchiseptica</i> LPS (Los-A) IgG unlabeled
PTOX42-M	Monoclonal Anti-B. pertussis Toxin IgG unlabeled
PTOX43-M	Monoclonal Anti-B. pertussis Toxin subunit S1, IgG
PTOX44-M	Monoclonal Anti-B. pertussis Toxin subunit S2, IgG
PTOX45-M	Monoclonal Anti-B. pertussis Toxin subunit S3, IgG
610-410-MLC	Rat a-1-Acid Glycoprotein ELISA kit

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