

# Whooping cough

## General:

*Bordetella* is a genus of small (0.2 - 0.7  $\mu\text{m}$ ), Gram-negative coccobacilli of the phylum proteobacteria. *Bordetella* species, with the exception of *B. pertussis*, are obligate aerobes as well as highly fastidious and difficult to culture. Three species are human pathogens (*B. pertussis*, *B. parapertussis*, *B. bronchiseptica*).

Transmission occurs by direct contact, or via respiratory aerosol droplets, or fomites. Bacteria initially adhere to ciliated epithelial cells in the nasopharynx and this interaction with epithelial cells is mediated by a series of protein adhesins. These include filamentous hemagglutinin, pertactin, fimbriae, and pertussis toxin (though expression of pertussis toxin is unique to *B. pertussis*). As well as assisting in adherence to epithelial cells, some of these are also involved in attachment to immune effector cells.

*B. pertussis* and occasionally *B. parapertussis* cause pertussis or whooping cough in humans, and some *B. parapertussis* strains can colonize sheep. *B. bronchiseptica* rarely infects healthy humans though disease in immunocompromised patients has been reported. *B. bronchiseptica* causes several diseases in other mammals, including kennel cough and atrophic rhinitis in dogs and pigs, respectively. Other members of the genus cause similar diseases in other mammals, and in birds (*B. hinzii*, *B. avium*).

The initial catarrhal phase of infection produces symptoms similar to those of the common cold and during this period, large numbers of bacteria can be recovered from the pharynx. Thereafter the bacteria proliferate and spread further into the respiratory tract, where the secretion of toxins causes ciliostasis and facilitates the entry of bacteria to tracheal/bronchial ciliated cells.

The following tests are available:

- ***Bordetella pertussis*-IgA antibodies**

Material: 1 ml serum

TAT: 5-7 days\*

Method: EIA

Units: IU/ml

Ref.- range: see report

- ***Bordetella pertussis*-IgG antibodies**

Material: 1 ml serum

TAT: 5-7 days\*

Method: EIA

Units: IU/ml

Ref.- range: see report

- **Bordetella pertussis-IgM antibodies**

Note: Not recommended, please request for IgA

- **Bordetella pertussis DNA**

Material: dry swab in PCR tube

Method: PCR

TAT: 5-7 days\*

Ref.- range: see report

- **Bordetella parapertussis DNA**

Material: dry swab in PCR tube

Method: PCR

TAT: 5-7 days\*

Ref.- range: see report

For complete list of laboratory test offered at Freiburg Medical Laboratory, please visit  
<http://www.fml-dubai.com/parameter-listings/>