



University of Warwick Science Park, Venture Centre, Sir William Lyons Road, Coventry CV4 7EZ

Website: [www.micropathology.com](http://www.micropathology.com) E-mail: [info@micropathology.com](mailto:info@micropathology.com)

## **Streptococcus pneumoniae DNA Testing at Micropathology Ltd**

*Streptococcus pneumoniae* is a Gram-positive coccoid pathogen that grows in pairs (diplococci), often with visible capsule; and is typically distinguished by the identification of 'draughtsmen' colonies formed due to autolysis; alpha haemolysis of blood agar caused by the breakdown of haemoglobin and by its sensitivity to optochin.

Although, *S. pneumoniae* seasonally colonises the nasopharynx of 5-10% of adults and 20-40% of healthy children, *S. pneumoniae* is an important bacterial pathogen of humans. Pathology includes meningitis, sepsis, pneumonia, sinusitis, otitis media, endocarditis, septic arthritis, peritonitis and eye infections amongst others. Invasive pneumococcal disease is much more prevalent in certain populations such as extremes in age (particularly >65 years) and may be up to 10 x higher in African Americans, Alaskans and Australian aboriginals than in some other populations and may have a mortality rate up to 35%. Additional risk factors include antibody deficiencies, complement deficiencies, neutropenia, asplenia, corticosteroids, malnutrition, chronic disease and alcoholism.

In the UK, those considered most vulnerable to invasive disease are offered a vaccine against pneumococcus. A 13-valent pneumococcal conjugate vaccine (PCV13) is scheduled for children at 12 weeks and at one year and for at risk adults. Adults aged 65 years and over are offered the 23-valent pneumococcal polysaccharide vaccine (PPV23).

Although *S. pneumoniae* may be straightforward to identify in the laboratory, its somewhat fastidious nature and its ability to autolyse may mean that cultures may fail to grow (eg. blood culture bottles flag positive but growth of an organism is not achieved). Certain atypical strains may also be tricky to identify if they do not fit the strict biochemical profile used for identification criteria. PCR can be a sensitive and specific method of detection that does not rely on the presence of viable organism. Clients may wish to send us specimens where *S. pneumoniae* is suspected but has failed to grow, where antibiotics have been administered prior to sample collection or where a *S. pneumoniae* identification is sought.

At Micropathology Ltd, we use a nested Real-time PCR assay to detect *S. pneumoniae* DNA. Accredited specimen types for this assay are CSF, whole blood and pleural fluid. Other samples may be tested and reported along with an appropriate caveat stating that the sample provided is not validated.