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## ***Listeria monocytogenes***

*Listeria monocytogenes* is a Gram-positive facultative anaerobe and is the main pathogen in the genus *Listeria*. It can cause listeriosis during pregnancy, in neonates, the immunocompromised (especially if impaired cell mediated immunity), and the elderly. In addition, *L. ivanovii* occasionally causes human disease whereas: *L. innocua*, *L. welshimeri*, and *L. seeligeri* are considered largely non-pathogenic.

*Listeriosis* disease is mild and self-limiting in healthy individuals and up to 5% of adults carry this organism in their gut as a commensal. However, it can infect the central nervous system leading to sequelae such as meningitis and bacteraemia in susceptible individuals. Transmission is mainly sporadic via contaminated food products (especially in chilled pre-packaged food, pate, soft cheese etc) or contact with animals as *L. monocytogenes* is commonly found in soil and water.

Infection during pregnancy may cause miscarriages, stillbirths, premature labour and severe infection of the newborn and other birth complications via vertical transmission. In early neonatal disease (<5 days post-delivery) symptoms present with septicaemia, have a mortality of 30-60% and result in prominent sequelae, e.g. lung disease or CNS defects in 20-40% of survivors. Late neonatal disease (>5 days post-delivery) often presents as meningitis with a lower mortality rate (~10%) and may be hospital acquired.

In adult infections the main syndromes are meningitis, septicaemia, and endocarditis. Rarer manifestations include encephalitis, CNS abscess, arthritis, hepatitis, endophthalmitis, peritonitis, gastroenteritis, and pneumonia. Intervention and treatment of acute disease may require continuous ambulatory peritoneal dialysis CAPD. The main risk factors include age, immunosuppression due to steroids, cytotoxic therapy, and HIV. Mortality is high, particularly in endocarditis and in CNS disease where up to 75% of survivors have some sort of sequelae such as hemiplegia or CNS defects. Thus, invasive listeriosis is a notifiable condition.

Service users may wish to refer samples such as CSF and blood/blood cultures for the detection of *L. monocytogenes* when dealing with high-risk patients, particularly those that have been given prior antibiotics.

### **Our assay:**

At Micropathology Ltd, a real time probe-based assay is employed for the qualitative detection of *Listeria monocytogenes* DNA. The limit of detection of this assay is 198 copies/mL. Amplification has been demonstrated in CSF and EDTA whole blood. Turnaround times are stated in the user manual with results usually available in practice much sooner than the given time frame. Where there is a delay, we are usually confirming a result and addressing clinical data given with the specimen.