



Ureaplasma

Ureaplasma was first described as a human pathogen implicated in non-gonococcal urethritis in 1954; there were reports of a possible association of this organism in adverse pregnancy outcomes and low birth weight in neonates. Since then, additional evidence has accumulated implicating *Ureaplasmas* in infertility, postpartum endometritis, chorioamnionitis, spontaneous abortion, stillbirth, premature birth, perinatal morbidity and mortality, pneumonia, bacteraemia, meningitis, and chronic lung disease of prematurity, also known as bronchopulmonary dysplasia (1).

Bacteria belonging to the *Ureaplasma* genus lack a cell wall. Nutrient requirements include cholesterol and characteristically these bacteria perform urea hydrolysis. The complex and fastidious nutritional requirements of these bacteria, which require vigorously quality-controlled medium for cultivation and several days of incubation, define the *Ureaplasma* genus as a good target for detection via molecular amplification techniques.

***Ureaplasma* infections**

Non-specific urethritis

Non-specific urethritis is an inflammation of the urethra which is not caused by gonorrhoeal infection; this may also be referred to as non-gonococcal urethritis. *Ureaplasma* species can be found on the mucosal surfaces of the cervix or vagina of 40% to 80% of sexually mature asymptomatic women. Some authors believe that *U. urealyticum* is a causative agent of non-gonococcal urethritis (2). However, other studies have found that other microorganisms such as *Chlamydia trachomatis* (20%), *Mycoplasma genitalium* (9%), adenoviruses (4%), and HSV1 (2%) are more common in cases of non-gonococcal urethritis than *U. urealyticum* or *U. parvum* (3).

Neonatal Respiratory Disease

Respiratory disease remains the most common cause of perinatal morbidity and mortality, especially in preterm infants, despite the many advances in neonatal intensive care and resuscitation and the introduction of artificial surfactant in the early 1990s (4). *U. urealyticum* may be perinatally transmitted to the newborn. Among premature infants, respiratory tract colonization has been associated with the development of pneumonia, precocious dysplastic changes, chronic lung disease, infant wheezing, acute respiratory insufficiency, and even death (4). Older children may present with wheezing, pneumonitis, pertussis-like syndrome and different forms of arthritis (5). The prevalence of *Ureaplasma* in disease is probably underestimated due to the limitations of laboratory diagnosis (6).

Micropathology assay

Micropathology Ltd's accredited specimen types for the *Ureaplasma urealyticum/ parvum* assay are urine, genital swabs, NPAs and ET secretions for testing. Thin preps and semen have also been validated but are awaiting UKAS accreditation.

In recent years other *Ureaplasma* species have been discovered causing disease in animals eg. *U. diversum* found in cows and pigs, *U. cati*, *U. felinum* and *C. canigenitalium* (found in cats and dogs) and *U. microunguentium* and *U. zalophigenitalium* found in seals and sea lions. While there is a theoretic risk that our assay may amplify these species if present, no record of these species in humans currently exist therefore detection of these species presents a theoretically small risk to diagnosis when analysing clinical specimens.

References

1. Waites KB et al. Mycoplasmas and Ureaplasmas as Neonatal Pathogens. Clin. Microbiol. Rev. 2005;18(4):757-789.
2. Zeighami H et al. Prevalence of Ureaplasma urealyticum and Ureaplasma parvum in semen of infertile and healthy men. Int J STD AIDS. 2009;20(6):387-390.
3. Bradshaw C et al. Etiologies of Nongonococcal Urethritis: Bacteria, Viruses, and the Association with Orogenital Exposure. J Infect Dis. 2006;193(3):336-345.
4. Kafetzis D et al. Maternal Genital Colonization with Ureaplasma urealyticum Promotes Preterm Delivery: Association of the Respiratory Colonization of Premature Infants with Chronic Lung Disease and Increased Mortality. Clin Infect Dis. 2004;39(8):1113-1122.
5. Pinna GS et al. The significance of Ureaplasma urealyticum as a pathogenic agent in the paediatric population. Curr Op Infect Dis. 2006 ;19(3):283-289.
6. Nelson S et al. Detection of Ureaplasma urealyticum in Endotracheal Tube Aspirates from Neonates by PCR. J. Clin. Microbiol. 1998;36(5):1236-1239.