Micropathology Ltd

Tel 24hrs: +44 (0) 24 - 76 – 323222

Fax / Ans: +44 (0) 24 - 76 - 323333

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

Website: www.micropathology.com E-mail: info@micropathology.com

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M. genitalium testing at Micropathology Ltd.

Mycoplasma genitalium (also known as *Mycoplasmoides genitalium* or Mgen[1,2])* is part of the class Mollicutes and is the smallest free-living bacterium with a genome of only 580 kb. As *Mycoplasma* species lack a cell wall they are not visible using Gram staining and are fastidious so are not easily cultured. *M. genitalium* can be detected from the urinary and genital tract, from the rectum and in the respiratory tract although carriage in the throat appears to be rare. While evidence suggests that the majority of people carrying *M. genitalium* in the genital tract do not develop disease, many go on to develop pathology largely as a result of the host immune response in the presence of this organism[3].

Infection with *M. genitalium* is strongly associated with non-gonococcal urethritis characterised with urethral discharge, dysuria, irritation and inflammation in both men and women, post-coital bleeding, cervicitis, endometritis and pelvic inflammatory disease in women. There is also an association with pre-term birth and spontaneous abortion.

Transmission is primarily by genital-genital contact although transmission can occur to the ano-rectal compartment and the oro-pharynx. The status of *M. genitalium* infection (or Mgen) as a sexually transmitted disease is supported by the observation that sexual partners of infected individuals are more likely to be infected than controls with genetically identical strains. Current recommendations suggest treatment for uncomplicated infections with Doxycycline 100mg bd for seven days followed by azithromycin 1g orally as a single dose then 500mg orally once daily for 2 days where organism is known to be macrolide-sensitive or where resistance status is unknown. Where macrolide resistance is identified, in azithromycin failure or complicated infections treatment should be with Moxifloxacin 400 mg orally once daily for 7 days or 14 days respectively[3].

Patients should be advised to abstain from sexual intercourse until 14 days after the start of treatment, and until symptoms have resolved. Where azithromycin has been used this is especially important because of its long half-life, and is likely to reduce the risk of selecting/inducing macrolide resistance if the patient is re-exposed to *M. genitalium*. Current asymptomatic partners (including non-regular partners where there is likely to be further sexual contact and risk of reinfection) of individuals with disease caused by *M. genitalium* infection should be tested and/or offered treatment (using the same antimicrobial regimen as used in the index patient). This is to reduce the risk of re-infection in the index case. Recommendations state that all patients should attend for a test of cure (TOC) five weeks after treatment (and no sooner than three weeks in order to avoid false negative results) to ensure microbiological cure and to help identify emerging resistance.

Currently, there is no evidence that screening asymptomatic individuals will be of benefit, and indeed is likely to do harm at a population level[3].

Service users may wish to refer samples to us for the detection of *M. genitalium* in people with non-gonococcal urethritis, signs and symptoms suggestive of pelvic inflammatory disease, muco-purulent cervicitis, post-coital bleeding, epididymitis, sexually-acquired proctitis and current sexual partners of persons infected with *M. genitalium.*

Micropathology Ltd uses a probe-based PCR to detect *M. genitalium* DNA and recommends sending a vaginal swab (females) or first catch urine (male only) for testing.

UKAS accredited specimen types for this assay are urines and genital swabs. Unaccredited sample type may be tested and reported along with a caveat stating that the assay is not UKAS accredited for testing of alternative sample types.

We also offer resistance testing looking for macrolide resistance markers in the 23S gene and fluoroquinolone resistance associated mutations in *parC* on *M. genitalium* positive specimens – see alternative information sheet for more information.

*At this time the microbiology/clinical microbiology community has not agreed or defined whether the use of *Mycoplasma* or *Mycoplasmoides* is the most appropriate nomenclature to define the similarities and differences within the former *Mycoplasma* genus. To reduce clinical confusion, we will refer to the organism as its original designation of *Mycoplasma genitalium* but acknowledge that either classification conforms with current practices.

[1]Munson, E and Carroll, K.C. (2021) Summary of Novel Bacterial Isolates Derived from Human Clinical Specimens and Nomenclature Revisions Published in 2018 and 2019. *Clinical Microbiology,* 59:2

[2]Mitchell Balish, Assunta Bertaccini, Alain Blanchard, Daniel Brown, Glenn Browning, Victoria Chalker, Joachim Frey, Gail Gasparich, Ludwig Hoelzle, Tom Knight Jr, Christine Knox, Chih-Horng Kuo, Lucia Manso-Silván, Meghan May, J. Dennis Pollack, Ana S. Ramírez, Joachim Spergser, David Taylor-Robinson, Dmitriy Volokhov, Yan Zhao (2019) Recommended rejection of the names Malacoplasma gen. nov., Mesomycoplasma gen. nov., Metamycoplasma gen. nov., Metamycoplasmataceae fam. nov., Mycoplasmoidaceae fam. nov., Mycoplasmoidales ord. nov., Mycoplasmoides gen. nov., Mycoplasmopsis gen. nov. [Gupta, Sawnani, Adeolu, Alnajar and Oren 2018] and all proposed species comb. nov. placed therein. *International journal of systematic and evolutionary microbiology*. 69:11

[3]BASHH, British Association for Sexual Health and HIV national guideline for the management of infection with *Mycoplasma genitalium* (2018) *Internationals journal of STD & AIDS* Vol 3(10)938-950 https://www.bashhguidelines.org/media/1198/mg-2018.pdf

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