MEDICAL DIAGNOSTIC LABORATORIES, L.L.C.

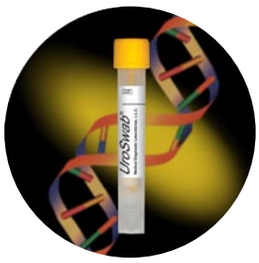
2439 Kuser Road • Hamilton, NJ 08690 • Phone: 609.570.1000 • Fax: 609.570.1050

Testing Update - March 2008

As part of a continual effort to enhance our test offering, MDL is delighted to offer the following testing on our specimen collection and transport platforms:

Now Available on *OneSwab*®

Test #	New Test
149	*Actinomyces turicensis* by Real-Time PCR
150	*Actinomyces europaeus* by Real-Time PCR
151	*Staphylococcus saprophyticus* by Real-Time PCR
579	*Candida glabrata* azole resistance *(CDR1)* by Quantitative Real-Time PCR
1112	Group A Streptococcus by Real-Time PCR
1203	Huntington's disease by PCR

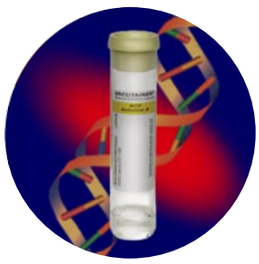


Now Available on *UroSwab*®

Test #	New Test
150	*Actinomyces europaeus* by Real-Time PCR
151	*Staphylococcus saprophyticus* by Real-Time PCR

Now Available on *NasoSwab*™

Test #	New Test
1117	*Haemophilus influenzae* by Real-Time PCR



Now Available on Yellow Top ACD Solution A

Test #	New Test
149	*Actinomyces turicensis* by Real-Time PCR
269	Eastern Equine Encephalitis virus by Real-Time PCR
579	*Candida glabrata* azole resistance *(CDR1)* by Quantitative Real-Time PCR
151	*Staphylococcus saprophyticus* by Real-Time PCR

Specimen Requirements & Collection Procedures

***OneSwab*®:** stable at room temperature for up to five (5) days.
***UroSwab*®:** stable at room temperature for up to five (5) days.
***NasoSwab*™:** stable at room temperature for up to five (5) days.
Yellow Top ACD Solution A tube of whole blood: stable at room temperature for 24-48 hours.

The proper specimen collection technique is very important in identifying pathogens from DNA. Therefore, please refer to MDL's collection procedures to assist you in obtaining the best results.

As a premiere infectious disease laboratory, MDL continually strives to improve our services by offering the most current, accurate and informative diagnostic tools available.

If you should have any questions, please contact your sales representative or call MDL toll free at

877.269.0090 • www.mdlab.com

Actinomyces turicensis by Real-Time PCR

Actinomyces turicensis is a gram positive, facultative anaerobe that is a commensal part of the oropharynx, gastrointestinal tract and female genital tract. Although Actinomyces species are not considered to be pathogenic by nature, but rather part of the normal flora, they are capable of colonizing and establishing pathogenic infections within neighboring tissues upon a breach in the integrity of the mucosal membranes that typically sequester them resulting in the chronic condition Actinomycosis. *A. turicensis* is one of the more commonly isolated species of the genus Actinomyces known to induce the Actinomycosis, a condition is characterized by abscess formation, tissue fibrosis and draining sinuses. While, clinically, infections of the oral and cervicofacial region are the most common, Actinomycosis also frequently occurs within the thoracic, abdominopelvic and central nervous system compartments.

Eastern Equine Encephalitis virus by Real-Time PCR

Eastern Equine Encephalitis virus (EEE) is an arthropod-borne virus (arbovirus) transmitted by mosquitoes. It is found mainly along the eastern seaboard of the United States and on the eastern Gulf coast. EEE can affect the central nervous system and cause severe complications, including death. The symptoms may also include fever, headache, drowsiness, irritability, nausea, and vomiting, followed by confusion, weakness, and coma. Young infants often suffer seizures. Since 1964, there have been 163 confirmed cases in the United States. There is no treatment or vaccine for EEE. Prevention centers on public health action to control mosquitoes, and on individual action to avoid mosquito bites. A Real-Time polymerase chain reaction (PCR) test provides a rapid, specific, and sensitive approach to detection of this virus.

Group A Streptococcus by Real-Time PCR

Streptococcus pyogenes (**Group A Streptococcus**) is a gram positive extracellular bacteria that colonizes the throat and skin. It is the cause of many human diseases which range from mild skin infections to invasive life threatening disease. Group A Streptococcus is the most common cause of bacterial pharyngitis (Strep throat) and is also associated with scarlet fever, impetigo, Streptococcal toxic shock syndrome and necrotizing fasciitis. Autoimmune mediated post infection sequelae such as rheumatic fever, rheumatic heart disease, glomerulonephritis and reactive arthritis can potentially result in disability or death. Group A Streptococcus has been shown to infect the vaginal mucosa and uterus leading to severe disease or septicemia. In this assay, DNA is extracted from the specimen and subjected to PCR amplification.

Haemophilus influenzae by Real-Time PCR

Haemophilus influenzae is a small, nonmotile Gram-negative bacterium. *H. influenzae* most commonly causes ear, eye and sinus infections as well as pneumonia. A more serious strain of the bacteria called *H. influenzae* type b has been nearly abolished in the United States due to effective vaccine development, which has been available since 1988. The more serious strain can be found in cerebrospinal fluid and is responsible for causing meningitis (infection of the membranes that surround the brain) and a life-threatening infection called epiglottitis (infection of the area of the throat that covers and protects the voice box and trachea during swallowing). In rare cases, children may still develop *H. influenzae* type b infections. This can occur if the child has not completed their series of immunizations or in older children who did not receive the vaccine as an infant. A Real-Time polymerase chain reaction (PCR) provides a rapid, specific, and sensitive approach to detection of this bacterium.

Candida glabrata azole resistance *(CDR1)* by Quantitative Real-Time PCR

C. glabrata has emerged as the primary non-albicans species in Candida Vaginitis (CV), accounting for up to 20% of infections in immune-competent women. It is thought that the widespread use of topical antifungals, especially in short courses, may contribute to the selection of non-*albicans* yeasts, which are less susceptible to these agents. *C. glabrata* has also been shown to intrinsically exhibit low level resistance (MIC = 16 to 32 µg/mL) requiring increased drug regimen dosages for eradication. *C. glabrata* also acquires true azole-resistance, as defined by MIC levels of ≥64 µg/mL, resulting in failed drug treatment even at higher drug regimen. Resistance to antifungals is conferred through the over-expression of the drug efflux pump, *CDR1*; this dysregulated expression allows the resistant yeast to survive and proliferate. This assay is performed only after a positive result from *Candida glabrata* by Real-Time PCR, is obtained as a means to aid physicians in determining the proper course of treatment for their patients. This assay requires the extraction of RNA from the clinical specimen for analysis of *CDR1* gene expression by quantitative reverse transcriptase PCR.

Huntington's disease by PCR

Huntington's disease (HD) is an inherited neurodegenerative disorder characterized by clinically progressive motor impairment, reduction in cognitive abilities and psychopathologic deficits. HD typically manifests in an affected individual during the third to fourth decade of life with the progression of symptoms over a period of 10 to 25 years. It is estimated that 1 in every 10,000 people in the United States has HD. Although HD is found in every country it is more prevalent in people of Western European descent affecting 1 per 10,000 people whereas it affects 1 per 1,000,000 people of Asian or African descent. In HD, there is a trinucleotide repeat in which the CAG triplet (cytosine-adenine-guanine) repeats itself. The series of CAG triplets codes for the amino acid glutamine, therefore a series of repeats forms what is referred to as polyglutamine, also known as polyQ. When the polyQ length is less than 26 glutamines, the HD protein Huntingtin is produced. Repeats of the amino acid glutamine beyond 40, results in mutant Huntingtin. The presence of this abnormal form of the protein results in Huntington's disease. The MDL Huntington's disease test provides a simple, non-invasive diagnostic test for the trinucleotide repeat expansion status in the Huntington's disease gene *IT-15*. This test uses conventional polymerase chain reaction (PCR) in conjunction with capillary electrophoresis to determine PCR amplification fragment lengths and assign the number of allelic CAG repeats in the *IT-15* gene. In this assay, DNA is extracted from a cervicovaginal swab and subjected to PCR amplification.

Actinomyces europaeus by Real-Time PCR

Although **Actinomyces** species can be found as normal flora of the mouth they are also considered opportunistic pathogens in infections associated with human bite wounds, abscesses, infections of the eye and mouth, as well as the gastrointestinal, genital and urinary tracts. *A. europaeus* has been associated with cystitis and is often recovered from abscesses of various body sites most commonly of the back and genital area.

Staphylococcus saprophyticus by Real-Time PCR

Staphylococcus saprophyticus is a coagulase-negative Staphylococcus species which is commonly associated with urinary tract infections. While other species of coagulase-negative Staphylococcus can often be found as contaminants in a laboratory specimen, *S. saprophyticus* is a true urinary tract pathogen and causes infection in both the upper and lower urinary tracts. It is the second most common cause of UTIs in young sexually active women. *S. saprophyticus* can cause UTI in men often as a complication of bacterial infections of the prostate gland or kidney.