References

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3.Weese, J. Scott: Antimicrobial Use Guidelines for Treatment of Urinary Tract Disease in Dogs and Cats. Veterinary Medicine International, Volume 2011:

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Ordering Information:

CultiPlate®-U Urine Culture System; Product No. MCR-CLPU10
CultiPlate®-U Laminated Interpretation Chart MCR-CLPUChart

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CultiPlate®-U Urine Culture System

Application

CultiPlate®-U is a compact dual chamber culture plate used for quantitative bacterial count (QBC) and presumptive identification of common uropathogens in animals. CultiPlate®-U is intended for veterinary use only.

Product Features

The dual media CultiPlate®-U contains Spectrum™ chromogenic and Eosin Methylene Blue (EMB) agars. Spectrum™ agar has been formulated to produce uniquely pigmented colonies when inoculated with those organisms for which the product has been validated. Each organism can then be visually differentiated based on color and colony morphology facilitating presumptive identification. Depending upon the organism, color reactions may be either genus- or species-specific. Eosin Methylene blue agar is a selective culture medium typically used for isolation of Gram-negative enteric bacteria.

Storage and Handling

CultiPlate®-U plates are individually wrapped for extended shelf life. Do not use beyond expiration date. Upon arrival, inspect plates for contamination, drying, or excessive liquid within the envelope. A small amount of fluid or fine droplets inside the plate is a normal occurrence caused by temperature fluctuation during shipping. Occasionally a small amount of moisture will form within the sealed envelope. This is normal however contact with the media can be avoided by storing the plates inverted allowing any moisture to accumulate in the cover. Plates should be stored at 4°-8° C (36°-42° F) and protected from light. Do not allow plates to freeze. As a preventative measure, plates should not be stored in the bottom or back of the refrigerator. A refrigerator thermometer (Prod. #FSHS14155) is recommended for monitoring temperature.

Precautions

CultiPlate®-U is for in vitro diagnostic use only. Culture specimens may contain microorganisms that can be potentially infectious to personnel. Strict adherence to aseptic techniques and established precautions against biohazards should be followed throughout the procedure. Properly dispose of isolates and all items that contact patient specimens in accordance with your local ordinances.

Specimen Requirements

To obtain reliable results, proper collection techniques and prompt inoculation are essential with this as with all procedures for detection of urinary tract infection. Use only sterile collection devices and containers. As the distal portions of the urogenital tract are normally colonized by numerous commensal organisms, it is advisable that a method of aseptically collecting the specimen (i.e. cystocentesis, catheterization) be used. A midstream “free catch” sample may be acceptable in some instances but not recommended. (See notes under

Colony Count.) For optimum results, plates should be inoculated and incubated as soon as possible after specimen collection. If not possible, specimens can be refrigerated (4°-8° C) until testing can be performed. Do not process specimens that have been refrigerated for more than 8 hrs.[1]

Quantitative Inoculation Procedure (Recommended)

1. Remove the CultiPlate®-U from the refrigerator and allow to warm to room temperature inverted (media side up). Any substantial moisture that has accumulated in the cover can be removed by gently tapping during the inoculation step.
2. Remove one disposable inoculation loop from the included packet and dip it into the specimen being sure that a small amount of sample remains within the 10 ul calibrated loop.
3. Streak one section of the plate using a technique designed to maximize colony separation. Dip the loop into the specimen a second time and repeat the streaking process on the opposite section.
4. Place the plate with media inverted in a 35°-37° C incubator. At 18-24 hours post inoculation, inspect the plate for bacterial growth noting the color and morphology of the resulting colonies. For accurate results, *plates should be read at 18 to 24 hours* as prolonged incubation may alter the unique color reactions.

Qualitative Inoculation Procedure (Identification Only)

1. Do not use this procedure when colony count is required. Remove the CultiPlate®-U from the refrigerator and allow to warm to room temperature inverted (media side up). Any substantial moisture that has accumulated in the cover can be removed by gently tapping during the inoculation step.
2. Apply several drops of aseptically collected specimen directly to the surface of agar in each chamber using a sterile pipet or syringe.
3. Cover plate and allow specimen to absorb for 5 minutes.
4. Place the plate with media inverted in a 35°-37° C incubator. At 18-24 hours post inoculation, inspect the plate for bacterial growth noting the color and morphology of the resulting colonies. For accurate results, *plates should be read at 18 to 24 hours* as prolonged incubation may alter the unique color reactions.

Colony Count

Colony count can be a useful tool for supporting a diagnosis of urinary tract infection. Interpretive data is based on inoculation of each section with a standardized volume of specimen (10 ul). Following incubation, perform the colony count using the side of the plate with the greatest number of colonies noting that most Gram-positive organisms will not grow on EMB agar. For samples collected by cystocentesis, multiply the number of observed colonies by 100. As a rule, colony counts from cystocentesis samples that exceed 1000 CFU/ml (colony forming units) should be considered significant and supportive of a diagnosis of UTI. Colony counts of 100-1000 CFU/ml should be viewed as suspicious. Samples collected via catheter should be multiplied by 1000 in cats and male dogs and 10,000 in female dogs.[1] The appearance of a single colony on either side of the plate is most likely a contaminant. “Free catch” samples are not appropriate for colony count and will yield equivocal results.

Interpretation

For presumptive identification of uropathogens, refer to the provided color chart and table below. Mixed cultures; i.e. more than one organism are most frequently seen with complicated and/or recurrent infections[2]. If only a few secondary colonies are noted, it is more likely that the original specimen was contaminated. When re-testing, use special care to follow the recommendations under Specimen Requirements.

	Spectrum™ Chromogenic Agar	EMB Agar
E. coli	Deep pink to red colonies often with purple center.	Deep blue to black centered colonies often with green metallic sheen.
Klebsiella Spp.	Large dark blue to greenish blue mucoid colonies.	Large, pink mucoid colonies.
Enterobacter, Citrobacter Spp.	Large blue to greenish-blue non-mucoid colonies. Pink halo occasionally seen.	Large pink colonies similar to Klebsiella but less mucoid.
Staphylococcus aureus	Opaque white colonies. Some species may appear slightly mauve-tinged.	No growth or occasional pink pinpoint growth.
Streptococcus Group B	Pinpoint blue colonies. (Cannot differentiate from other Streptococci.)	No growth.
Enterococcus faecalis	Small, turquoise to blue colonies.	No growth or occasional pink pinpoint growth.
Proteus mirabilis	Swarming beige to orange colonies with diffusion of brown pigment into agar.	Pink swarming confluent growth.
Pseudomonas aeruginosa	White to light green, flat colonies with serrated edge. Diffusing green pigment.	Pink-tinged, flat spreading colonies with rough edges.
Yeast	White, creamy, convex colonies. Budding cells seen microscopically.	Deep pink to purple spreading colonies.

Positive cultures meeting quantitation criteria for UTI should be sent to an outside reference laboratory for confirmation and susceptibility testing. Samples for submission should be obtained by harvesting colonies from the chromogenic section of the plate with a sterile Transport device. Alternatively, the entire plate can be sealed and submitted. (Consult your laboratory for instructions.)

Limitations

CultiPlate®-U is intended for the isolation and presumptive identification of aerobic species only. The color images shown and descriptions were obtained using pure cultures of the most commonly isolated subspecies of each organism. Some less common subspecies and species for which the product has not been validated may produce equivocal color reactions. If a definitive identification is required for proper patient management, a specimen should be sent to a qualified reference laboratory. CultiPlate-U is for veterinary use only.