

Document Name:
Throat Culture

Approved By:

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Status: **APPROVED**

PURPOSE: To determine the presence or absence of bacterial pathogens in throat specimens.

SAMPLE INFORMATION:

Type	Swab <ul style="list-style-type: none"> Amie's with or without charcoal
Source	<ul style="list-style-type: none"> Throat swab
Stability	If the sample is received in the laboratory and processed greater than 48 hours from collection: <ul style="list-style-type: none"> Add specimen quality comment: "Delayed transport may adversely affect pathogen recovery"
Storage Requirements	Room temperature
Criteria for rejection and follow up action	<ol style="list-style-type: none"> Unlabeled/mislabeled swabs Dry swabs

Pathogens	Normal Flora
<ul style="list-style-type: none"> <i>Streptococcus pyogenes</i> <i>Arcanobacterium haemolyticum</i> <i>Neisseria gonorrhoeae</i> – See MIC30450 Yeast – See MIC32200 <p>NOTE: If gonorrhoeae culture is ordered on throat specimen, full throat culture along with gonorrhoeae culture will be performed.</p>	<ul style="list-style-type: none"> Viridans streptococci Non-hemolytic streptococci <i>Streptococcus agalactiae</i> <i>Staphylococcus spp.</i> <i>Neisseria spp.</i> <i>Moraxella catarrhalis</i> Anaerobes <i>Haemophilus spp.</i> <i>Corynebacterium spp.</i> Aerobic gram-negative bacilli

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REAGENTS and/or MEDIA:

- Blood agar (BAP)
- Identification reagents: catalase, PYR, MedicoDx Streptococcal-Select Grouping Kit

SUPPLIES:

- Wooden sticks, sterile pipettes
- Disposable inoculation needles
- Biosafety cabinet
- Glass test tubes
- Anaerobic jar, pack and indicator
- 35° ambient air incubator
- Vitek 2 and supplies

SPECIAL SAFETY PRECAUTIONS:

Containment Level 2 facilities, equipment, and operational practices for work involving infectious or potential infectious materials or cultures.


- Lab gown must be worn when performing activities with potential pathogens.
- Gloves must be worn when direct skin contact with infected materials is unavoidable.
- Eye protection must be used when there is a known or potential risk of exposure of splashes.
- All procedures that may produce aerosols, or involve high concentrations or large volumes should be conducted in a biological safety cabinet (BSC).
- The use of needles, syringes and other sharp objects should be strictly limited.

All patient specimens are assumed to be potentially infectious. Universal precautions must be followed. Since viable micro-organisms are used, all cultures must be handled with appropriate precautions. All equipment in contact with cultures should be decontaminated by appropriate methods.

QUALITY CONTROL:

- Refer to Quality Control manual for reagent quality control procedures.

PROCEDURE INSTRUCTIONS:

Step	Action
Processing Swabs for Throat Culture	
1	In the biosafety cabinet, inoculate Blood agar from the swab.
2	<p>Streak for isolated growth using a disposable inoculation needle.</p>  <p>Streak out to cover the whole plate.</p>
3	Place plate in anaerobic rack in CO ₂ incubator to be set up in anaerobic jar by evening technologist.
4	Examine culture plates after 18-24 hour incubation. Record observations in LIS.
5	If no beta-hemolytic colonies are observed at 24 hours, re-incubate plates anaerobically for an additional 24 hours.
6	At 48 hours, record observations for re-incubated plate.
7	Perform susceptibility testing on positive Group A streptococcus if clinical history indicates history of penicillin allergy, recurrent pharyngitis, treatment failure, current therapy with erythromycin/clarithromycin/azithromycin/clindamycin or if requested by physician.
8	Perform work up for <i>Arcanobacterium haemolyticum</i> if specimen is negative for Group A streptococcus and clinical history provided is sore throat or pharyngitis accompanied by a rash, history of treatment failure or history of recurrent/persistent pharyngitis.

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INTERPRETATION OF RESULTS:

If:	Then:
No beta-hemolytic colonies present at 24 hours.	<ul style="list-style-type: none"> Re-incubate plates anaerobically for an additional 24 hours.
No beta-hemolytic colonies present at 48 hours.	<ul style="list-style-type: none"> No work up required.
Beta-hemolytic colonies present at 24 or 48 hours.	<ul style="list-style-type: none"> Isolate for purity if necessary. Perform Group A Streptococcus latex testing.

If:	Then:
Group A Streptococcus latex testing is positive and susceptibility testing is not required.	<ul style="list-style-type: none"> No further work up performed.
Group A Streptococcus latex testing is positive and susceptibility testing is required.	<ul style="list-style-type: none"> Perform susceptibility testing as per ASTM.
Group A Streptococcus latex testing is negative and significant clinical history is <u>not</u> provided (sore throat or pharyngitis accompanied by a rash, history of treatment failure or history of recurrent/persistent pharyngitis).	<ul style="list-style-type: none"> No further work up performed.
Group A Streptococcus latex testing is negative and significant clinical history is provided (sore throat or pharyngitis accompanied by a rash, history of treatment failure or history of recurrent/persistent pharyngitis).	<ul style="list-style-type: none"> Perform gram stain on beta hemolytic colony. If gram-stain results are Gram-positive bacilli, perform Vitek GP card to screen for <i>Arcanobacterium haemolyticum</i>.

Please Note:

Each test should be tested with at least one extra grouping latex suspension as a negative control.

REPORTING RESULTS:

No beta hemolytic colonies isolated at 48 hours and significant clinical history is <u>not</u> provided.	<ul style="list-style-type: none"> Report: “No Group A streptococcus isolated.”
No beta hemolytic colonies isolated at 48 hours and significant clinical history is provided.	<ul style="list-style-type: none"> Report: “No Group A streptococcus isolated.”
Streptococcus latex testing positive for Group A and susceptibility testing not required.	<ul style="list-style-type: none"> Choose key A on STRA keypad to add isolate: “Streptococcus pyogenes (Group A)” List quantitation. Susceptibility comment: “This organism is predictably susceptible to penicillin and resistant to TMP-SMX. Susceptibility to erythromycin and clindamycin is variable” will be added.
Streptococcus latex testing positive for Group A and susceptibility testing is required.	<ul style="list-style-type: none"> Choose key B on STRA keypad to add isolate: “Streptococcus pyogenes (Group A)” List quantitation. KB susceptibility panel for Streptococcus pyogenes is ordered. Report AST as per ASTM.
Streptococcus latex testing negative for Group A and <i>Arcanobacterium haemolyticum</i> isolated.	<ul style="list-style-type: none"> Report: “No Group A streptococcus isolated.” Report: “Arcanobacterium haemolyticum” List quantitation. Report AST as per ASTM.

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LIMITATIONS:

- A negative throat culture does not eliminate the possibility of a throat infection. Inadequate specimen collection, improper specimen handling, low organism levels in the specimen or overgrowth with normal oral microorganisms may yield a false negative result.
- A throat culture positive for *Streptococcus pyogenes* does not distinguish between infection and colonization.

REFERENCES:

- Clinical Microbiology Procedures Handbook, 4th edition, ASM Press, 2016
- Jorgensen J.H., Pfaller M.A., Carroll K.C., Funke G., Landry M.L., Richter S.S., Warnock D.W. 2015. Manual of Clinical Microbiology, 11th edition, ASM Press, Washington, D.C.

REVISION HISTORY:

REVISION	DATE	Description of Change	REQUESTED BY
1.0	22 Nov 2017	Initial Release	L. Steven