# Rectal Swab for Group A Strep Culture

## Purpose

This procedure provides instruction for Rectal Swab for Group A Strep Culture for the Microbiology laboratory.

## Principal and Clinical Significance

*Streptococcus pyogenes* (group A beta-hemolytic streptococcus) can be isolated from rectal swabs from self-inoculation of pathogenic oral flora and can cause peri-rectal cellulitis.

The primary cause is *Streptococcus pyogenes* (group A beta-hemolytic streptococcus). Treatment is important because infections with *S. pyogenes* can lead to post-streptococcal sequelae such as acute rheumatic fever, glomerulonephritis, and toxic shock syndrome.

Selective Streptococcus Agar incorporates neomycin and polymixin B that suppresses normal flora for improved recovery of *S. pyogenes.*

## Policy Statements

This procedure applies to Microbiologists who perform culture set-up and plate reading.

## Test Code

RGAS

## Materials

| Reagents | Supplies | Equipment | Media |
|---|---|---|---|
| • 3% hydrogen peroxide<br>• Gram Stain reagents<br>• PathoDx™ strep grouping | • Glass slides | • $CO_2$ incubator<br>• Incinerator<br>• Inoculating loop<br>• Microscope<br>• MALDI | Refer to the Sunquest specimen label for media information.<br><br>• Selective streptococcus agar (SSBA)<br>• CNA agar (CNA) |

## Specimen

A. Acceptable specimens
   - Dacron or rayon tipped rectal swab

B. SDES codes/Specimen type
   - RS –rectal swab

C. Refer to the *Lab Test Directory – Rectal Swab for Group A Strep Culture* for Specimen Collection, Transport and Assessment

## Special Safety Precautions

Microbiologists are subject to occupational risks associated with specimen handling. Refer to the safety policies located in the safety section of the *Microbiology Procedure Manual***.**

- *Biohazard Containment*
- *Biohazardous Spills*
- *Safety in the Microbiology Laboratory*

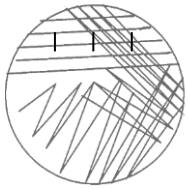
## Procedure

### A. Inoculation

1. Allow SSBA and CNA to come to room temperature before inoculation.
2. Label plate properly with the patient's name, accession number and date.

### B. Specimen processing

1. Roll swab across the upper quadrant of the agars, (in the same order as the Sunquest label), touching all surfaces of the swab.
2. Streak plates semi-quantitatively for primary isolation.
   a. Sterilize the inoculating loop in the incinerator for 5 s to 10 s. Allow the loop to cool.
   b. Pass the loop through the edge of the first quadrant approximately 4 times while streaking into the second quadrant. Continue streaking in the second quadrant without going back into the first quadrant 3-4 times.
   c. Flame loop again, turn the plate another quarter of a turn, and pass the loop through the edge of the second quadrant approximately four times while streaking into the third quadrant. Continue streaking in the third quadrant without going back into the second quadrant 3-4 times.
   d. Make small cuts in the primary area of the SSBA and CNA for hemolysis.



### C. Incubation

1. Incubate SSBA and CNA in 4-10% $CO_2$ at 35ºC

### D. Culture examination

1. Day 1
   a. After 18-24 hours of incubation, examine plates for colonies showing beta-hemolysis. *S. pyogenes* will appear as white to gray colonies surrounded by a zone of beta hemolysis.
   b. If beta-hemolytic colonies are present, gram stain each suspicious colony type and perform catalase testing.
   c. If large colony size >0.5 mm, catalase negative and a Gram positive cocci, perform Patho DX™ Strep Latex Typing or MALDI for identification.
   d. If colony size is <0.5 mm, catalase negative and a Gram positive cocci, subculture to SB and perform MALDI for identification the next day.
   e. Subculture organisms that are not well isolated to appropriate media for further work-up.
   f. Report preliminary results.
   g. Re-incubate primary plates and subcultures for an additional day.

2. Day 2
   a. Examine primary plates from the previous day for colonies showing beta-hemolysis.
   b. Examine subculture plates for colonies showing beta-hemolysis.
   c. Perform MALDI for identification or PathoDX™ Strep grouping on large colony >0.5 mm.
   d. Send updated report and finalize.
   e. Save primary plate if positive at room temperature for 7 days in case a physician calls for further studies.

## Limitations

1. Some strains of group A streptococci are inhibited on SSBA.

1. **Culture Results**: Record culture results and culture work-ups in Sunquest MRE *Culture Entry* tab in Observations or Workups by using customized keyboards or by entering a code in the result box**.** Report results semi-quantitatively, i.e., 1+, 2+, 3+ or 4+.

## Result Reporting

| Quantity | 1st quadrant # colonies | 2nd quadrant # colonies | 3rd quadrant # colonies |
|---|---|---|---|
| 1+ | <10 | | |
| 2+ | >10 | <5 | |
| 3+ | >10 | >5 | <5 |
| 4+ | >10 | >5 | >5 |

2. **Negative culture**: Report "NO BETA STREPTOCOCCI, GROUP A ISOLATED", Sunquest code **NBS.**

3. **Positive culture:** Sunquest MO code **BSA**

   Observations: 1. 4+ STREPTOCOCCUS PYOGENES, GROUP A

   Workups: Wkup # 1 — Med: SB; Desc: BH; Id: BHS
   Workup Components — MSID: 1; GMS : STR; CAT : NEG

4. When positive, add Sunquest code **BHSS** to report: Beta hemolytic streptococci are susceptible to penicillin, cephalosporins and vancomycin. Some strains may be resistant to erythromycin.

5. When positive, add Sunquest code **SNP** to report: Susceptibilities not performed. *Streptococcus pyogenes* (group A beta-hemolytic strep) is generally susceptible to penicillin and its derivatives; therefore, susceptibility need not be routinely performed

6. Review **Culture Summary** for accuracy before filing report.

7. If a culture requires a correction, the code **CORR** (corrected report) must be reported on an observation line in the *Culture Entry* tab. Refer to policy MCVI 5.1 Mislabeled / Unlabeled Specimens and Correcting Patient Data for Sunquest report entry information.
8. If growth should occur or additional testing should be requested after the culture has been finalized, remove the final status and send out a supplementary report. The code SRPT (supplementary report) must be used in SREQ or *Culture Observations* as follows:
9. Updated or new culture information: In the *Culture Entry* tab, enter SRPT on an observation line followed by new results.
10. Requests for additional testing: In the *Misc. Updates* tab, enter **SRPT** in SREQ followed by the request.
11. Re-final the culture when identifications and/or testing are complete.

## References

1. Versalovic, James., et al, *Manual of Clinical Microbiology*, 2011, ASM press, American Society for Microbiology, Washington, D.C., pg. 318-319.
2. Leber, A *Clinical Microbiology Procedures Handbook*, 4th edition, 2016, Vol. 1, American Society for Microbiology, Washington, D.C.

## Appendices

WORKLABEL MEDIA DEFINITION

| BATTERY | SPEC | FORM | MEDIA |
|---|---|---|---|
| RGAS | ALL UNDF | MCSTDMCL-WLB | SSBA, CNA, CUT3 |
| | RS | MCSTDMCL-WLB | SSBA, CNA, CUT3 |

## Training Plan/ Competency Assessment

| Training Plan | Initial Competency Assessment |
|---|---|
| 1. Employee must read the procedure.<br>2. Employee will observe trainer performing the procedure.<br>3. Employee will demonstrate the ability to perform procedure, record results and document corrective action after instruction by the trainer. | 1. Direct observation. |

## Historical Record

| Version | Written/Revised by: | Effective Date: | Summary of Revisions |
|---|---|---|---|

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|---|---|---|---|---|
| | 1.0 | Susan DeMeyere | 10/1/2024 | Initial Version |
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