HealthLink
800-638-2625



# PRODUCT INFORMATION AND QUALITY CONTROL SHEET

# JEMBEC - STREP SELECT AGAR

### I. INTENDED USE

Strep Select Agar is a selective media for use in the isolation of *Streptococci sp.* from clinical specimens; especially beta hemolytic Strep group A.

### II. SUMMARY AND EXPLANATION

Although viruses are the most common causative agents of pharyngitis, streptococcal pharyngitis is by far the most common type of upper respiratory tract pathogen that can be effectively treated. Diagnosis and treatment of streptococcal pharyngitis is important to prevent the occurrence of rheumatic fever and limit epidemiological spread.[1] This medium was described by Roantree et al for the isolation of Group A streptococci; however, other species of streptococci will grown on the medium and must be differentiated from Group A streptococci. Differentiation may be accomplished by characteristics such as β hemolysis, inhibition by 0.04 unit bacitracin discs and/or serological tests. Sheep blood is incorporated for determination of hemolytic activity.

### III. PRINCIPLES OF THE PROCEDURE

Growth support characteristics of Strep Select Agar are derived from the presence of peptones prepared from pancreatic digest of casein and soybean meal. Sheep blood provides both X factor (hemin) and a visualization of hemolytic reactions. Neomycin and Polymyxin B, antimicrobial agents, create a selective environment for gram positive organisms by either disrupting the cell membrane or blocking DNA replication of susceptible gram negative organisms.

### IV. TYPICAL FORMULA AND APPEARANCE

(Approximate formula* per liter of processed water)
Appearance = opaque, cherry red

| | |
|---|---|
| Casein Peptone | 10.0g |
| Beef Extract | 6.7 |
| Nucleic Acid | 6.0 |
| Sodium Chloride | 5.0 |
| Agar | 15.0 |
| Maltose | 0.25 |
| Neomycin | 0.002 |
| Polymyxin B | 200,000 units |
| Defibrinated Sheep Blood | 50 ml |

*adjusted and/or supplemented to meet performance criteria.

### V. PRECAUTIONS

This product is for IN VITRO diagnostic use only. Culture specimens may contain microorganisms which can be potentially infectious to the user. Strict adherence to aseptic techniques and established precautions against microbiological hazards should be followed throughout the procedure. Carefully dispose of all items which contact patient specimens or isolated bacteria.

### VI. STORAGE/SHELF LIFE

Plated media should be stored at 2-8$^0$C (36-46$^0$F), media side up, in the unopened or resealed package protected from light. DO NOT FREEZE OR EXPOSE TO HIGH TEMPERATURES. Allow unopened plates to warm to room temperature prior to inoculation. Prior to and during inoculation procedures, plates should be handled in a manner that minimizes product exposure to the environment. Product which has exceeded the assigned expiration date noted on the label should not be used.

Do not use plates that exhibit evidence of drying, cracking, discoloration, microbial contamination or any other signs of deterioration. The presence of excessive condensate may indicate plates which have been damaged by exposure to temperature extremes.

### VII. SPECIMEN COLLECTION

The quality of culture results depends primarily on the adequacy and condition of the specimen submitted for examination. Proper specimen collection and procedural techniques must be followed to ensure the most accurate culture results possible. Specimens should be collected prior to the initiation of antiinfective therapy. Sterile collection containers should be used.

A properly collected throat swab is essential. Under adequate lighting, depress the tongue and rub a sterile swab vigorously over each tonsillar area and posterior pharynx. Any exudate should be touched, and care should be taken to avoid areas containing large amounts of normal respiratory flora (i.e., tongue, uvula, cheeks, lips, etc.).

Plates should be inoculated promptly after specimen collection. If a delay in inoculation of more than 1-2 hours is unavoidable, transport medium such as Stuart's or Amies should be used. Every effort should be made at prompt specimen inoculation. Extended delays in processing permit overgrowth of potential pathogens by normal respiratory flora.

### VIII. MATERIALS PROVIDED

JEMBEC - Strep Select Agar Plates
10 $CO_2$ Tablets
10 zip lock bags

### IX. MATERIALS REQUIRED BUT NOT PROVIDED

Incubator maintaining 33-37$^0$C.
Bacitracin (0.04 unit) differentiation discs
Ancillary culture media, reagents and laboratory equipment as required.

### X. PROCEDURE

DAY ONE

1. Remove JEMBEC Plate from refrigerated storage and allow to warm to room temperature. Agar surface should be free of excessive moisture which could cause confluent organism growth. Label plate with specimen identification number and inoculation date.

2. Roll the specimen swab, or swab immersed in purulent material, over the initial one to two thirds of the plate to ensure contact with all swab surfaces.

Note: If additional test procedures are to be performed (i.e., Gram stain, etc.), it is recommended that multiple specimen swabs be collected.

3. Using a sterile inoculating loop, streak in a zig-zag fashion over swabbed area and continue over the entire plate surface for isolation of colonies. Avoid applying excess pressure to the agar surface during inoculation to prevent gouging and splitting of the agar medium (see Diagram 1).

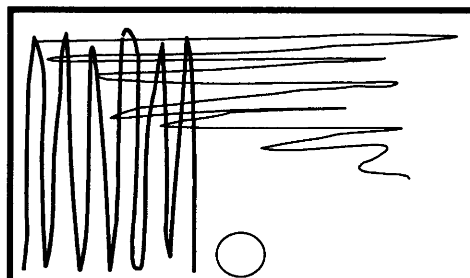

Diagram 1

4. If testing with Bacitracin 0.04 differentiation discs is desired on primary inoculum, aseptically place a disc onto the initial inoculum area ensuring complete contact with the agar surface (see Diagram 2). (See also Section XIII. LIMITATIONS)

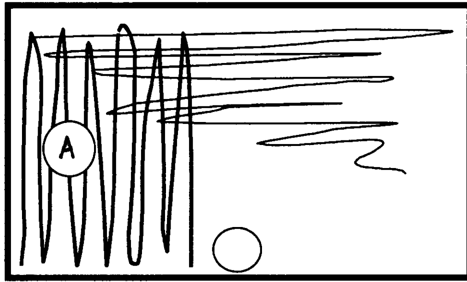


Diagram 2

5. Place one $CO_2$ generating tablet into the JEMBEC plate well. Close the plate and place into a zip lock bag and seal. Note: Do NOT add water to the tablet.

6. Incubate the plates at 33-37$^0$C for 18-48 hours. Note: Pathogens may be detected as early as 18 hours however, it is recommended that inoculated plates be incubated for a total of 48 hours before reporting a culture as "normal flora".

DAY TWO

1. Remove the JEMBEC plate from the incubator. (Note: The $CO_2$ atmosphere within the zip lock bag will dissipate upon opening the bag. Examination of culture results prior to detection of organism growth or 48 hours of incubation may be accomplished by; 1) examining the plate through the unopened bag or 2) using an additional $CO_2$ tablet upon reincubating the opened and examined culture plate.

2. Presumptively identify the suspected pathogenic organism(s) present by observing the plate for growth of beta hemolytic Streptococci.

3. Interpretation of Bacitracin 0.04 unit Zones of Inhibition
   3.1 Observe the agar plate for growth of beta hemolytic streptococci. Any zone of inhibition of beta hemolytic Streptococci around the disc should be interpreted as positive.[4] Interpretation is as follows:
   Zone present = "beta hemolytic *Streptococci*, presumptive group A by bacitracin"
   Zone absent = "beta hemolytic *Streptococci* species, presumptively not group A by bacitracin.

**XI. EXPECTED RESULTS**

NCCLS Control Organisms (ATCC Strains)

| *Streptococcus pyogenes* (ATCC 19615) | Growth, beta hemolysis |
|---|---|
| *Staphylococcus aureus* (ATCC 25923) | Inhibition (partial) |
| *Streptococcus mitis* (ATCC 6249) | Inhibition (partial to complete) |
| *Neisseria sicca* (ATCC 9913) | Inhibition (partial to complete) |
| *Proteus mirabilis* (ATCC 12453) | Inhibition (partial) |
| *Escherichia coli* (ATCC 25922) | Inhibition (partial to complete) |

**XII. LABORATORY RESULTS**

Growth should be evident after 18-48 hours of incubation. Beta hemolytic Streptococci may be presumptively identified as small, translucent to opaque colonies surrounded by zones of beta hemolysis. The presence of a zone of inhibition surrounding the Bacitracin 0.04 unit disc is a presumptive identification of beta hemolytic Strep group A. Definitive identification of beta hemolytic Strep group A requires further testing using serologic or antigen based test procedures.

Most *Neisseria* sp., viridans *Streptococci*, and non group A *Streptococci* are inhibited on this medium. Small colonies of alpha hemolytic streptococci and non-hemolytic streptococci may grow but should not interfere with interpretation of culture results. Some Staphylococci and *Pseudomonas* species may not be inhibited.

**XIII. LIMITATIONS**

The ability to detect microorganisms by culture techniques can be affected by the following factors: improper specimen collection, storage and inoculation, initiation of antiinfective therapy prior to specimen collection, improper culture incubation temperatures and atmospheres, improper length of culture incubation, and improper storage and handling of culture media.

**XIV. REFERENCES**


1. Bannatyne, R.M., C. Clausen, L.R. McCarthy. 1979. Cumitech 10. Laboratory Diagnosis of Upper Respiratory Tract Infections. Coordinating ed., I.B.R. Duncan. American Society for Microbiology, Washington, D.C.

2. Roantree, R.J., Rantz, L.A. and E.J. Haines, 1958. A medium containing nucleic acid, maltose and antibiotics for isolation of Group A streptococci. J. Lab. Clin. Med 52: 496.


## USER QUALITY ASSURANCE/ QUALITY CONTROL PROCEDURES AND INFORMATION

HealthLink recommends that the following quality assurance and quality control procedures be performed on each batch of product.

**I. QUALITY ASSURANCE**

1. Daily, document that product storage refrigerator maintains temperature within the recommended range: 2-8$^0$C.
2. Daily, document that laboratory incubator maintains temperature within the recommended range: 35- 37$^0$C.

**II. QUALITY CONTROL**

The following incoming inspection procedures must be performed for each batch (batch = same lot, same shipment) of culture media received in the laboratory :

1. Inspect plates according to instructions contained on the "Quality Control Log Sheet." (See also Section VI "STORAGE/SHELF LIFE")
2. Peel off the lower portion of a product bag label (Quality Control Certificate) for the lot being accepted into the laboratory and affix it to the Quality Control Log Sheet.
3. Initial and date the Quality Control Log Sheet.

Note: Notify Technical Service immediately if media does not meet the inspection criteria.

End users performing differential disc method procedures (i.e. Bactiracin 0.04 for differentiation of group A beta Streptococcus) must document and complete appropriate quality control procedures for these discs. HealthLink recommends our catalog number 3137 (Bacitracin 0.04 QC kit) for this purpose. These procedures must be performed weekly according to the *Federal Register Vol 57, No. 40, February 28, 1992, Section 493.1227 a), 2. p. 7167.* (Quality Control Kit cat. no. 3137 can be ordered by contacting our customer service department.)

## TECHNICAL SERVICE

HealthLink provides a toll free technical service line (1-800-638-2625) to assist with product usage. To have technical questions answered; please call between the hours of 9:00 am to 5:00 pm EST.


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