MacConkey HiVeg™ Agar w/o CV w/ 0.003% NR and 1.2% Agar

**Intended use**
Recommended for selective isolation and differentiation of lactose non-fermenting from lactose fermenting enteric bacteria.

**Composition**

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Gms / Litre</th>
</tr>
</thead>
<tbody>
<tr>
<td>HiVeg™ peptone</td>
<td>17.000</td>
</tr>
<tr>
<td>HiVeg™ peptone No. 3</td>
<td>3.000</td>
</tr>
<tr>
<td>Lactose</td>
<td>10.000</td>
</tr>
<tr>
<td>Synthetic detergent</td>
<td>1.500</td>
</tr>
<tr>
<td>Sodium chloride</td>
<td>5.000</td>
</tr>
<tr>
<td>Neutral red</td>
<td>0.030</td>
</tr>
<tr>
<td>Agar</td>
<td>12.000</td>
</tr>
<tr>
<td>Final pH (at 25°C)</td>
<td>7.1±0.2</td>
</tr>
</tbody>
</table>

**Directions**

Suspend 48.53 grams in 1000 ml purified/distilled water. Heat to boiling with gentle swirling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Avoid overheating. Cool to 45-50°C. Mix well and pour into sterile Petri plates. The medium should be dry when inoculated.

**Principle And Interpretation**

MacConkey Agar Medium is the earliest selective and differential medium for cultivation of enteric microorganisms from a variety of clinical specimens (6,7). MacConkey agars are slightly selective and differential plating media mainly used for the detection and isolation of gram-negative organisms from clinical (8), dairy (11), food (3,9), water (1), pharmaceutical (2,10) and industrial sources (12). It is also recommended for the selection and recovery of the *Enterobacteriaceae* and related enteric gram-negative bacilli. MacConkey HiVeg™ Agar w/o CV w/ 0.003% NR and 1.2% Agar is prepared by completely replacing animal based peptone with vegetable peptones to avoid BSE/TSE risks associate with animal peptones. This medium has HiVeg™ peptone and HiVeg™ peptone no. 3 which provides necessary nitrogen sources for growth of organisms. The selective action is due to synthetic detergent in the medium. Lactose fermenting strains grow as pink to red colonies and may be surrounded by a zone of acid precipitated bile. The pink to red colour is due to production of acid from lactose, absorption of neutral red and a subsequent colour change of the dye due to pH drop of medium. Lactose non-fermenting strains, such as *Shigella* and *Salmonella* are colorless and transparent and typically do not alter appearance of the medium. Sodium chloride in the medium helps to maintain osmotic balance of the cells.

**Type of specimen**
Clinical samples - Blood, urine; Food and dairy samples; Water samples.

**Specimen Collection and Handling**
For clinical samples follow appropriate techniques for handling specimens as per established guidelines (4,5).
For food and dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (1,12).
For water samples, follow appropriate techniques for sample collection, processing as per guidelines and local standards.(1)
After use, contaminated materials must be sterilized by autoclaving before discarding.

**Warning and Precautions**

In Vitro diagnostic use. Read the label before opening the container. Wear protective gloves/protective clothing/eye protection/face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling clinical specimens. Safety guidelines may be referred in individual safety data sheets.
**Limitations**

1. Although this medium is selective for gram negative organisms, biochemical identification and serological testing using pure cultures is recommended for complete identification.
2. It is advised to incubate for recommended period and temperature to avoid misinterpretation of results.
3. It is advised to read the results immediately after incubation, as overgrowth of *Proteus* species may mask other colonies.

**Performance and Evaluation**

Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

**Quality Control**

**Appearance**
Light yellow to pink homogeneous free flowing powder

**Gelling**
Firm, comparable with 1.2% Agar gel.

**Colour and Clarity of prepared medium**
Orange red coloured clear to slightly opalescent gel forms in Petri plates

**Reaction**
Reaction of 4.85% w/v aqueous solution at 25°C. pH : 7.1±0.2

**pH**
6.90-7.30

**Cultural Response**
Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

<table>
<thead>
<tr>
<th>Organism</th>
<th>Inoculum (CFU)</th>
<th>Growth</th>
<th>Recovery</th>
<th>Colour of Colony</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Escherichia coli</em> ATCC 25922 (00034*)</td>
<td>50-100</td>
<td>luxuriant</td>
<td>&gt;=50%</td>
<td>pink to red with bile precipitate</td>
</tr>
<tr>
<td># <em>Klebsiella aerogenes</em> ATCC 13048 (00175*)</td>
<td>50-100</td>
<td>luxuriant</td>
<td>&gt;=50%</td>
<td>pink to red</td>
</tr>
<tr>
<td><em>Enterococcus faecalis</em> ATCC 29212 (00087*)</td>
<td>50-100</td>
<td>fair</td>
<td>30-40%</td>
<td>pale pink to red</td>
</tr>
<tr>
<td><em>Proteus vulgaris</em> ATCC 13315</td>
<td>50-100</td>
<td>luxuriant</td>
<td>&gt;=50%</td>
<td>colourless</td>
</tr>
<tr>
<td><em>Salmonella Paratyphi A</em> ATCC 9150</td>
<td>50-100</td>
<td>luxuriant</td>
<td>&gt;=50%</td>
<td>colourless</td>
</tr>
<tr>
<td><em>Shigella flexneri</em> ATCC 12022 (00126*)</td>
<td>50-100</td>
<td>luxuriant</td>
<td>&gt;=50%</td>
<td>colourless</td>
</tr>
<tr>
<td><em>Salmonella Paratyphi B</em> ATCC 8759</td>
<td>50-100</td>
<td>luxuriant</td>
<td>&gt;=50%</td>
<td>colourless</td>
</tr>
<tr>
<td><em>Salmonella Enteritidis</em> ATCC 50-100</td>
<td>50-100</td>
<td>luxuriant</td>
<td>&gt;=50%</td>
<td>colourless</td>
</tr>
<tr>
<td><em>Salmonella Typhi</em> ATCC 13076 (00030*)</td>
<td>50-100</td>
<td>luxuriant</td>
<td>&gt;=50%</td>
<td>colourless</td>
</tr>
<tr>
<td><em>Staphylococcus aureus</em> susp.aureus ATCC 25923 (00034*)</td>
<td>&gt;=10⁴</td>
<td>inhibited</td>
<td>0%</td>
<td></td>
</tr>
</tbody>
</table>

**Key:** *Corresponding WDCM numbers

# - Formerly known as *Enterobacter aerogenes.*

**Storage and Shelf Life**

Store between 10-30°C in a tightly closed container and the prepared medium at 2°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition. Seal the container tightly after use. Use before expiry date on the label. Product performance is best if used within stated expiry period.
Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with clinical sample must be decontaminated and disposed of in accordance with current laboratory techniques (4,5).

Reference

Disclaimer:
User must ensure suitability of the product(s) in their application prior to use. Products conform solely to the information contained in this and other related HiMedia™ publications. The information contained in this publication is based on our research and development work and is to the best of our knowledge true and accurate. HiMedia™ Laboratories Pvt Ltd reserves the right to make changes to specifications and information related to the products at any time. Products are not intended for human or animal or therapeutic use but for laboratory, diagnostic, research or further manufacturing use only, unless otherwise specified. Statements contained herein should not be considered as a warranty of any kind, expressed or implied, and no liability is accepted for infringement of any patents.