

## PROGRAM Standard Operating Procedure – Laboratory Services

Title: MIC60040 – Culture Media Quality Control	Policy Number:
Program Name: Laboratory Services	
Applicable Domain: Lab, DI and Pharmacy Services	
Additional Domain(s):	
Effective Date:	Next Review Date:
Issuing Authority: Director, Laboratory and Diagnostic Imaging Services	Date Approved:
Accreditation Canada Applicable Standard: N/A	

**Uncontrolled When Printed**

### GUIDING PRINCIPLE:

All prepared media received will be examined visually for colour change, precipitate, lysis of blood, contamination, etc. An order will automatically be generated in TQC when media requiring quality control is received. Any atypical observations should be brought to the attention of the Technical Supervisor, Microbiology who will then notify the supplier.

Performance quality control testing for routine commercially prepared media is not required except for the following media:

MRSASelect II agar	StrepBSelect agar
VRESelect agar	CandiSelect agar
UriSelect 4 agar	LIM broth

Certificate of Analysis are online when needed. See manufacturer website for certificate.

### PURPOSE/RATIONALE:

This standard operating procedure describes the quality control testing that is performed on non-exempt culture media before being used to test patient samples.

### SCOPE/APPLICABILITY:

This standard operating procedure applies to Medical Laboratory Technologists (MLTs) performing quality control for culture media.

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**REAGENTS and/or MEDIA:**

- ATCC organisms
- Media requiring QC testing prior to use

**SUPPLIES:**

- Plastic VITEK tubes and caps
- 0.45% saline
- Sterile swabs
- 1 µL loop

**EQUIPMENT:**

- VITEK DENSICHEK
- 35° ambient air incubator

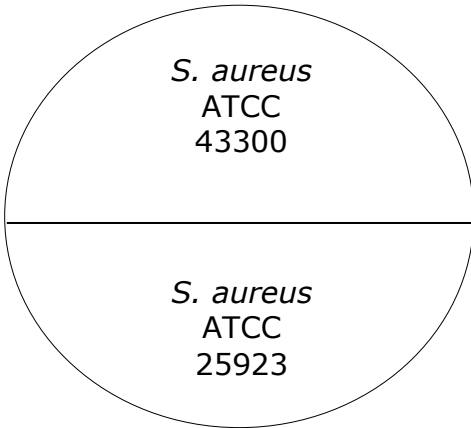
**SPECIAL SAFETY PRECAUTIONS:**

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

- Ensure that appropriate hand hygiene practices be used
- 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. Routine Practices 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.

## PROCEDURE INSTRUCTIONS:

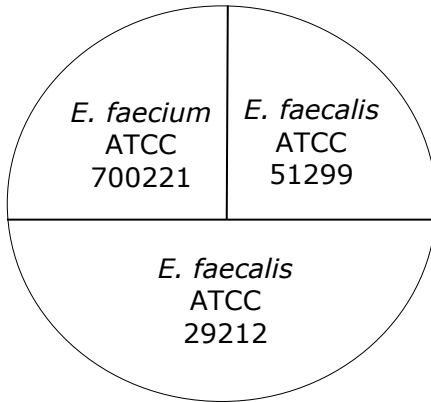
Step	Action
<b>Media quality control for MRSASelect II agar</b>	
<b>1</b>	The following 2 quality control organisms are used to perform QC testing on MRSASelect II agar: 1. <i>Staphylococcus aureus</i> ATCC 43300 2. <i>Staphylococcus aureus</i> ATCC 25923
<b>2</b>	Divide the agar plate into 2 equal sections and label as follows: <div style="text-align: center;">  </div>
<b>3</b>	Label 2 VITEK test tubes with each of the above QC organisms. Dispense 3 mL of saline into each tube.
<b>4</b>	Prepare a 0.5 McFarland standard suspension of the required isolates.
<b>5</b>	Dip a 1 µL loop into the 0.5 McFarland concentration of the QC organism and inoculate the media.
<b>6</b>	Incubate in the O <sub>2</sub> incubator for 16-24 hours.
<b>7</b>	Enter results into TQC. Refer to MIC61030-Entering Microbiology Quality Control Results.

## INTERPRETATION OF RESULTS:

<i>Staphylococcus aureus</i> ATCC 43300	Pink colonies
<i>Staphylococcus aureus</i> ATCC 25923	No growth

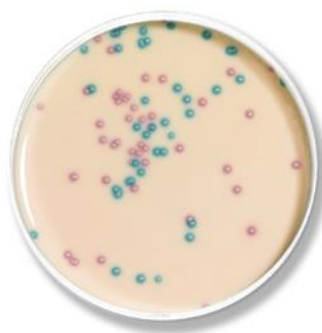


## PROCEDURE INSTRUCTIONS:

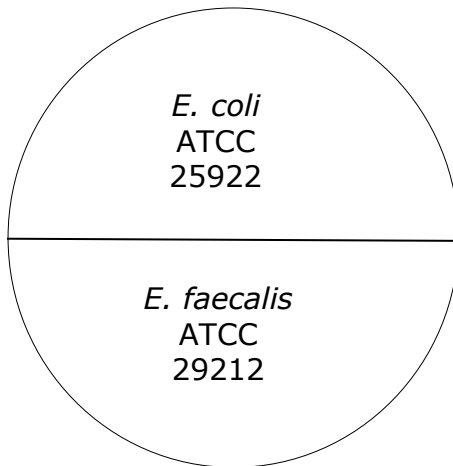
Step	Action
<b>Media quality control for VRESelect agar</b>	
<b>1</b>	The following 3 quality control organisms are used to perform QC testing on VRESelect agar: 1. <i>Enterococcus faecium</i> ATCC 700221 2. <i>Enterococcus faecalis</i> ATCC 51299 3. <i>Enterococcus faecalis</i> ATCC 29212
<b>2</b>	Divide the agar plate into 3 equal sections and label as follows: <div style="text-align: center;">  </div>
<b>3</b>	Label 3 VITEK test tubes with each of the above QC organisms. Dispense 3 mL of saline into each tube.
<b>4</b>	Prepare a 0.5 McFarland standard suspension of the required isolates.
<b>5</b>	Dip a 1 µL loop into the 0.5 McFarland concentration of the QC organism and inoculate the media.
<b>6</b>	Incubate in the O <sub>2</sub> incubator for 16-24 hours.
<b>7</b>	Enter results into TQC. Refer to MIC61030-Entering Microbiology Quality Control Results.

## INTERPRETATION OF RESULTS:

<i>Enterococcus faecium</i> ATCC 700221	Pink colonies
<i>Enterococcus faecalis</i> ATCC 51299	Blue colonies
<i>Enterococcus faecalis</i> ATCC 29212	No growth

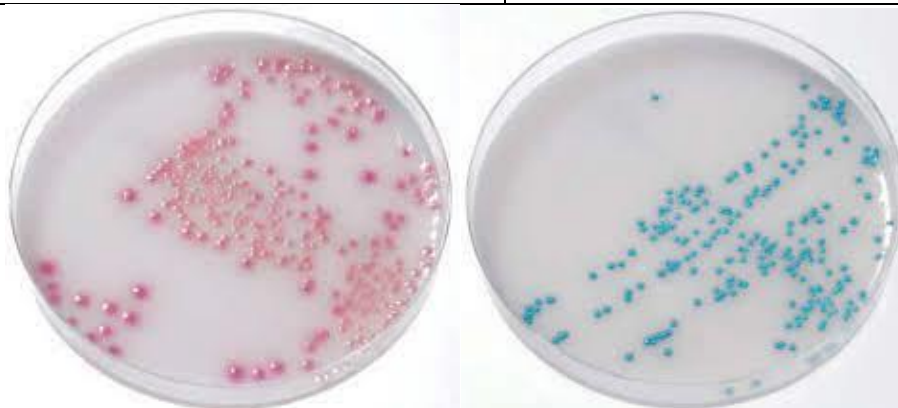


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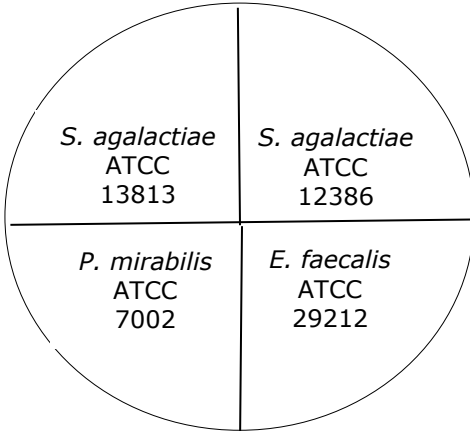
Step	Action
<b>Media quality control for URISelect 4 agar</b>	
<b>1</b>	The following 2 quality control organisms are used to perform QC testing on URISelect 4 agar: 1. <i>Escherichia coli</i> ATCC 25922 2. <i>Enterococcus faecalis</i> ATCC 29212
<b>2</b>	Divide the agar plate into 2 equal sections and label as follows: <div style="text-align: center;">  </div>
<b>3</b>	Label 2 VITEK test tubes with each of the above QC organisms. Dispense 3 mL of saline into each tube.
<b>4</b>	Prepare a 0.5 McFarland standard suspension of the required isolates.
<b>5</b>	Dip a 1 µL loop into the 0.5 McFarland concentration of the QC organism and inoculate the media.
<b>6</b>	Incubate in the O <sub>2</sub> incubator for 16-24 hours.
<b>7</b>	Enter results into TQC. Refer to MIC61030-Entering Microbiology Quality Control Results.

#### INTERPRETATION OF RESULTS:

<i>Escherichia coli</i> ATCC 25922	Pink colonies
<i>Enterococcus faecalis</i> ATCC 29212	Turquoise colonies

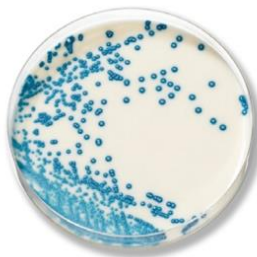


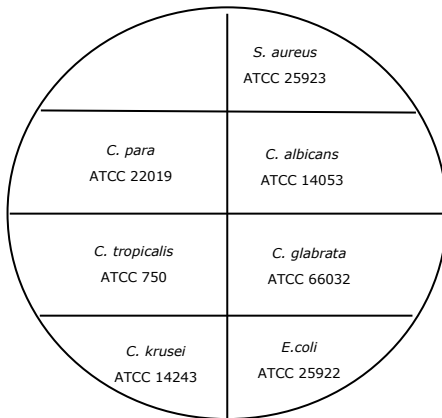
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Step	Action
<b>Media quality control for StrepBSelect agar</b>	
<b>1</b>	The following 4 quality control organisms are used to perform QC testing on StrepBSelect agar: 1. <i>Streptococcus agalactiae</i> ATCC 13813 2. <i>Streptococcus agalactiae</i> ATCC 12386 3. <i>Proteus mirabilis</i> ATCC 7002 4. <i>Enterococcus faecalis</i> ATCC 29212
<b>2</b>	Divide the agar plate into 4 equal sections and label as follows: <div style="text-align: center;">  </div>
<b>3</b>	Label 4 VITEK test tubes with each of the above QC organisms. Dispense 3 mL of saline into each tube.
<b>4</b>	Prepare a 0.5 McFarland standard suspension of the required isolates.
<b>5</b>	Dip a 1 µL loop into the 0.5 McFarland concentration of the QC organism and inoculate the media.
<b>6</b>	Incubate in the O <sub>2</sub> incubator for 16-24 hours.
<b>7</b>	Enter results into TQC. Refer to MIC61030-Entering Microbiology Quality Control Results.

### INTERPRETATION OF RESULTS:

<i>Streptococcus agalactiae</i> ATCC 13813	Turquoise colonies
<i>Streptococcus agalactiae</i> ATCC 12386	Turquoise colonies
<i>Enterococcus faecalis</i> ATCC 29212	Pink colonies
<i>Proteus mirabilis</i> ATCC 25933	No growth



Step	Action
<b>Media quality control for CandiSelect agar</b>	
<b>1</b>	The following 7 quality control organisms are used to perform QC testing on CandiSelect agar: 1. <i>Candida albicans</i> ATCC 14053 2. <i>Candida glabrata</i> ATCC 66032 3. <i>Candida tropicalis</i> ATCC 750 4. <i>Candida krusei</i> ATCC 14243 5. <i>Candida parapsilosis</i> ATCC 22019 6. <i>Staphylococcus aureus</i> ATCC 25923 7. <i>Escherichia coli</i> ATCC 25922
<b>2</b>	Divide the agar plate into 7 equal sections and label as follows: 
<b>3</b>	Label 7 VITEK test tubes with each of the above QC organisms. Dispense 3 mL of saline into each tube.
<b>4</b>	Prepare a 0.5 McFarland standard suspension of the required isolates.
<b>5</b>	Dip a 1 µL loop into the 0.5 McFarland concentration of the QC organism and inoculate the media.
<b>6</b>	Incubate in the O <sub>2</sub> incubator for 16-24 hours.
<b>7</b>	Enter results into TQC. Refer to MIC61030-Entering Microbiology Quality Control Results.

### INTERPRETATION OF RESULTS:

<i>Candida albicans</i> ATCC 14053	Pink/purple	<i>Candida parapsilosis</i> ATCC 22019	White/blue
<i>Candida glabrata</i> ATCC 66032	Pale turq.	<i>Staphylococcus aureus</i> ATCC 25923	No growth
<i>Candida tropicalis</i> ATCC 750	Bright turq.	<i>Escherichia coli</i> ATCC 25922	No growth
<i>Candida krusei</i> ATCC 14243	Turq/blue		



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Step	Action
<b>Media quality control for LIM broth</b>	
<b>1</b>	The following 2 quality control organisms are used to perform QC testing on Lim broth: 1. <i>Streptococcus agalactiae</i> ATCC 12386 2. <i>Escherichia coli</i> ATCC 25922
<b>2</b>	Label the LIM broth with the LIM QC BROTH label in the Microbiology QC Stickers binder.
<b>3</b>	Label a BA plate with the LIM QC BA Plate label in the Microbiology QC Stickers binder for the next day inoculation.
<b>4</b>	Label 2 VITEK test tubes with each of the above QC organisms. Dispense 3 mL of saline into each tube.
<b>5</b>	Prepare a 0.5 McFarland standard suspension of all required isolates.
<b>6</b>	Dip a 1 µL loop into the <i>S. agalactiae</i> 0.5 McFarland suspension and then dip into the LIM broth and mix. Using a new 1 µL loop, repeat with the <i>E. coli</i> 0.5 McFarland suspension.
<b>7</b>	Loosely cap the LIM broth and incubate in the CO <sub>2</sub> incubator for 18-24 hours.
<b>8</b>	After overnight incubation, using a sterile swab, inoculate the labelled Blood agar with the LIM broth. Streak for isolated growth using the whole plate.
<b>9</b>	Incubate in the O <sub>2</sub> incubator for 24 hours.
<b>10</b>	Enter results into TQC. Refer to MIC61030-Entering Microbiology Quality Control Results.

#### INTERPRETATION OF RESULTS:

<i>S.agalactiae</i> ATCC 12386	Growth of <i>S. agalactiae</i> on Blood agar subculture plate
<i>E.coli</i> ATCC 25922	No growth of <i>E. coli</i> on Blood agar subculture plate

#### CROSS-REFERENCES:

- MIC61030-Entering Microbiology Quality Control Results

#### REFERENCES:

1. CLSI. *Quality Control for Commercially Prepared Microbiological Culture Media; Approved Standard—Third Edition*. CLSI document M22-A3. Wayne, PA: Clinical and Laboratory Standards Institute; 2004
2. Bio-Rad MRSASelect II agar package insert, 2016/03
3. Bio-Rad VRESelect agar package insert, 2015/02
4. Bio-Rad UriSelect 4 agar package insert, 2013/11
5. Bio-Rad StrepBSelect agar package insert, 2009/08
6. Bio-Rad CandiSelect 4 agar package insert, 2008/04

**APPROVAL:**

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Date

**REVISION HISTORY:**

REVISION	DATE	Description of Change	REQUESTED BY
1.0	15 Sep 17	Initial Release	L. Steven
2.0	06 Oct 19	Procedure reviewed	L. Steven
3.0	05 Jul 21	Procedure reviewed and added to NTHSSA policy template	L. Steven
4.0	03 Jul 23	Procedure reviewed	L. Steven
5.0	12 Feb 24	Procedure reviewed	L. Steven
6.0	25 Mar 25	Updated to add CandiSelect agar	L. Steven

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