

## MacConkey Broth (NCM0060)

### Intended Use

MacConkey Broth is used for the detection of coliform bacteria in milk and water. Conforms to Harmonized USP/EP/JP Requirements and is not intended for use in the diagnosis of disease or other conditions in humans.

### Description

A medium recommended by the Harmonized USP/EP/JP for the selective enrichment of *Escherichia coli* from non-sterile samples. Conforms to Harmonized USP/EP/JP performance specification. Gelatin peptone provides a source of nitrogen, while lactose is a fermentable carbohydrate. Ox bile acts a selective agent inhibiting most Gram-positive organisms and bromocresol purple acts as a pH indicator. A color change from purple to yellow indicates growth of a bile tolerant, lactose fermenting organism such as *Escherichia coli*. According to the Harmonized USP/EP/JP, MacConkey Broth is used as a selective enrichment broth, with subculture performed onto MacConkey Agar.

### Typical Formulation

Pancreatic Digest of Gelatin	20.0 g/L
Lactose Monohydrate	10.0 g/L
Dehydrated Ox Bile	5.0 g/L
Bromocresol Purple	0.01 g/L

pH: 7.3 ± 0.2 at 25°C

Formula may be adjusted and/or supplemented as required to meet performance specifications.

### Precaution

Refer to SDS

### Preparation

1. Dissolve 35 grams of the medium in one liter of purified water.
2. Mix thoroughly.
3. Dispense into tubes containing Durham tubes.
4. Autoclave at 121°C for 15 minutes.

### Test Procedure

According to the Harmonized USP/EP/JP, 1mL of casein soya bean digest broth pre-enrichment is transferred to 100mL of MacConkey broth. Incubate at 42-44°C for 24-48 hours.

### Quality Control Specifications

**Dehydrated Appearance:** Powder is homogeneous, free-flowing, and light beige.

**Prepared Appearance:** Prepared purple and clear to slightly hazy.

**Expected Cultural Response and Harmonized USP/EP/JP Growth Promotion Testing:** Cultural response in MacConkey Broth tested at Harmonized USP/EP/JP specified temperatures and incubation times.

# Technical Specification Sheet



Microorganism	Approx. Inoculum (CFU/mL)	Expected Reactions		
		Growth	Acid	Gas
<i>Enterobacter aerogenes</i> ATCC® 13048	10-100	Growth	+	+
<i>Escherichia coli</i> ATCC® 8739	10-100	Growth	+	+
<i>Escherichia coli</i> ATCC® 29522	10-100	Growth	+	+
<i>Salmonella enterica</i> ATCC® 14028	10-100	Growth	-	-
<i>Staphylococcus aureus</i> ATCC® 6538	>1000	Inhibited	-	-
<i>Staphylococcus aureus</i> ATCC® 25923	>1000	Inhibited	-	-

The organisms listed are the minimum that should be used for quality control testing.

## **Results**

Lactose-fermenting organisms grow well in MacConkey Broth and produce acid, causing the medium to turn yellow. Gas is also produced, collecting in the Durham tubes. Non-fermenting organisms produce good growth but will not produce acid or gas.

## **Expiration**

Refer to expiration date stamped on the container. The dehydrated medium should be discarded if not free flowing, or if appearance has changed from the original color. Expiry applies to medium in its intact container when stored as directed.

## **Limitation of the Procedure**

Due to nutritional variation, some strains may be encountered that grow poorly or fail to grow on this medium.

## **Storage**

Store dehydrated culture media at 2 – 30°C away from direct sunlight. Once opened and recapped, place the container in a low humidity environment at the same storage temperature. Protect from moisture and light by keeping container tightly closed.

## **References**

1. European Pharmacopoeia 10<sup>th</sup> Edition (2020)
2. United States Pharmacopeia National Formulary 2018: USP 41 NF 36
3. Japanese Pharmacopoeia 17<sup>th</sup> Edition (2017)

