 Recommended for detection of motility, urease and indole production

**MIU Medium Base**

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| REF: V.1/MI01.100.0100 100 gram REF: V.1/MI01.250.0250 250 gram |  REF: V.1/MI01.500.0500 500 gram  |

# CLINICAL SIGNIFICANCE

# MIU Medium Base is formulated to detect motility, urease and indole production in single tube. Tryptone provide amino acids and other nitrogenous substances. Sodium chloride maintains osmotic equilibrium. Dextrose is fermentable carbohydrate. Phenol red is the pH indicator which turns pink red in alkaline conditions. The test cultures are stab-inoculated

# METHOD PRINCIPLE

# Motility and urease reactions are read before testing Indole production. Motile organisms show either diffused growth or turbidity extending away from stab inoculation line while nonmotile organisms grow along the stabline. Organisms that utilize urea, produce ammonia which makes the medium alkaline, showing pinkred colour by change in the phenol red indicator (5). Indole is produced from tryptophan present in tryptone (1,4). The indole produced combines with the aldehyde present in the Kovac's reagent to form a red complex.

# MEDIA COMPOSITION

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| --- | --- |
| **Item**  | **Formula in g/L**  |
| Tryptone Dextrose Sodium chloride Phenol redAgar  | 10150.0115 |

## pH 6.8 ± 0.2 at 25°C

# PRECAUTIONS AND WARNINGS

Media to be handled by entitled and professionally educated person.

Good Laboratories practices using appropriate precautions should be followed in:

* Wearing personnel protective equipment (overall, gloves, glasses,..).
* Do not pipette by mouth.
* In case of contact with eyes or skin; rinse immediately with plenty of soap and water. In case of severe injuries, seek medical advice immediately.
* Handle specimens and inoculated culture bottles as though capable of transmitting infectious agents. All inoculated culture bottles, specimen collection needles, and blood drawing devices should be decontaminated according to country requirement for waste disposal.

S56: dispose of this material and its container at hazardous or special waste collection point.

S57: use appropriate container to avoid environmental contamination.

S61: avoid release in environment.

For further information, refer to the MIU Medium Base material safety data sheet.

# MEDIA PREPARATION, STORAGE AND STABILITY

**Lab.Vie**. MIU medium base should be stored between 10-30°C in a firmly closed container and the prepared medium at 2-8°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to avoid lump development due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in a dry ventilated area protected from extremes of temperature and sources of ignition. Seal the container tightly after use. Product performance is best if used within stated expiry period.

##  PROCEDURE

## Suspend 18 grams in 950 ml purified / distilled water.

## Adjust pH to 6.8 ± 0.2 at 25°C

## Heat to boiling to dissolve the medium completely.

## Dispense in 95 ml amounts into flasks and sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.

##  Cool to about 50-55°C and add aseptically 5 ml sterile 40% Urea solution per 95 ml basal medium.

## Mix well and dispense into sterile test tubes. Allow to cool in an upright position.

## Deterioration

**Lab.Vie**. MIU Medium Base is Light orange to light pink coloured homogeneous free flowing powder. If there are any physical changes, discard the medium.

The hydrated medium is Yellowish orange coloured clear to slightly opalescent gel is obtained in tubes as butts afteraddition of urea solution, media should not be used if there are any signs of deterioration (shrinking, cracking, or discoloration), and contaminations.

**SPECIMEN COLLECTION AND PRESERVATION**

# For clinical samples follow appropriate techniques for handling specimens as per established guidelines (11,12). For food and dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (9,10,13). After use, contaminated materials must be sterilized by autoclaving before discarding.

# TYPE OF SPECIMEN

# Pure isolate

# EQUIPMENT REQUIRED NOT PROVIDED

# Sterile cups

# Sterile tubes

# Incubator

# Autoclave

# QUALITY CONTROL

To ensure adequate quality control, it is recommended that positive and negative control included in each run. If control values are found outside the defined range, check the system performance. If control still out of range please contact the technical support.

# PERFORMANCE CHARACTERISTICS

The following organisms are used by us as part of the quality assurance of the product. The total inoculum challenge for each test organism per bottle is 10 to 50 colony forming units (CFU’s).

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| --- | --- | --- | --- | --- |
| **Organism** | **Growth** | **Indole** | **Motility** | **Urease****activity** |
| *Escherichia* *coli ATCC* *25922*  | luxuriant | Positive reaction, red ring at the interface of the medium | Positive, growth away from stabline causing turbidity  | Negative reaction, no change  |
| *Klebsiella* *pneumoniae ATCC 13883*  | luxuriant | Negative reaction no colour development / cloudy ring | Negative growth along the stabline,sur rounding medium remains clear  | Weakly positive  |
| *Proteus* *mirabilis* *ATCC 25933*  | luxuriant | Negative reaction no colour development / cloudy ring  | Positive, growth away from stabline causing turbidity  | Positive reaction, cerise colour  |
| *Proteus vulgaris* *ATCC* *13315*  | luxuriant | Positive reaction, red ring at the interface of the medium  | Positive, growth away from stabline causing turbidity  | Positive reaction, cerise colour  |
| *Salmonella Typhimuriu m ATCC 14028*  | luxuriant | Negative reaction no colour development / cloudy ring  | Positive, growth away from stabline causing turbidity  | Negative reaction, no change  |

# REFERENCES

1. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
2. Ewing (1986) Edwards and Ewings 'Identification of

Enterobacteriaceae', 4th ed. Elsevier Science Publishing Co., Inc., New York

1. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.
2. McFaddin J.F. (1985) Media for Isolation-Cultivation-

Identification-Maintenance of Medical Bacteria, Vol. 1, Williams and Wilkins, Baltimore

1. Rustigian and Stuart (1941) Proc. Soc. Exp. Biol. Med., 47:108

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| **SYMBOLS IN PRODUCT LABELLING**  |
|   IVD For in-vitro diagnostic use  |   Number of <n> test in the pack  |
|  LOT Batch Code/Lot number  | A black and white triangle with a exclamation mark  Description automatically generated Caution  |
|  REF Catalogue Number  | Do not use if package is damaged   |
|   Temperature Limitation   Expiration Date   Manufactured by  |  Consult Instruction for use      |

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