

MIU Medium Base

Recommended for detection of motility, urease and indole production.

REF: BS.1/MI01.100.0100	100 Gram	REF: BS.1/MI01.250.0250	250 Gram
REF: BS.1/MI01.500.0500	500 Gram		

CLINICAL SIGNIFICANCE ⁽¹⁾

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 ⁽²⁻³⁾

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 pink-red 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

Item	Formula per liter of medium
- Tryptone 10.000	10.00 gm
- Dextrose (Glucose) 1.000	1.00 gm
- Sodium chloride 5.000	5.00 gm
- Phenol red 0.010	0.010 gm
- Agar	2.00 gm

PRECAUTIONS AND WARNINGS

Media to be handled by entitled and professionally educated person. Do not ingest or inhale.

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.
- Respect 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.

STORAGE AND STABILITY ⁽²⁾

BioScien MIU Medium Base is stable until expiration date stated on label when properly stored 10-30°C. The prepared medium should be stored 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.

Final pH 6.8 ± 0.2 at 25°C

MEDIA PREPARATION

Suspend 18 grams in 950 ml purified / distilled water. 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

The color of **BioScien** 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 after addition 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 ⁽¹⁻³⁾

Isolated Microorganism.

EQUIPMENT REQUIRED NOT PROVIDED

- Sterile cups
- Sterile petri-dishes or tubes
- Incubator

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 **BioScien** technical support.











PERFORMANCE CHARACTERISTICS

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

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, surrounding 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 Typhimurium 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
3. 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.
4. McFaddin J.F. (1985) Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. 1, Williams and Wilkins, Baltimore
5. Rustigian and Stuart (1941) Proc. Soc. Exp. Biol. Med., 47:108

SYMBOLS IN PRODUCT LABELLING	
 For in-vitro diagnostic use	 Number of <n> test in the pack
 Batch Code/Lot number	 Caution
 Catalogue Number	 Do not use if package is damaged
 Temperature Limitation	 Consult Instruction for use
 Expiration Date	
 Manufactured by	