

# Urinary Tract Infections Chromogenic Agar (UTIC)

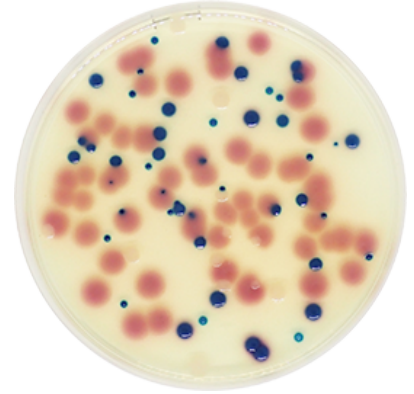
Cat. 1424

For the presumptive detection and differentiation of organisms causing urinary tract infections

## Practical information

| Applications | Categories              |
|--------------|-------------------------|
| Detection    | Urinary tract pathogens |

Industry: Clinical



## Principles and uses

Urinary Tract Infections Chromogenic Agar (UTIC) is a chromogenic medium for the presumptive identification and confirmation of microorganisms causing urinary tract infections. The microorganisms which cause infections in the urinary tract are generally abundant and of only one species: *E. coli* is the organism most frequently isolated.

Peptone mixture provides nitrogen, vitamins, minerals and amino acids essential for growth. The medium includes two chromogenic substrates which are cleaved by enzymes produced by *Enterococcus* spp, *Escherichia coli* and coliforms. It also includes phenylalanine and tryptophane providing a presumptive indication of the tryptophane deaminase activity, which illustrates the presence of *Proteus* spp., *Morganella* spp, and *Providencia* spp. (brown colonies). This is based on CLED Agar. Bacteriological agar is the solidifying agent.

One of the chromogenes is metabolised by  $\beta$ -glucosidase enzyme activity, allowing the specific detection of enterococci which form blue or turquoise colonies. The other chromogen is cleaved  $\beta$ -galactosidase, an enzyme produced by *E. coli* which grows as pink colonies. (In case of unreliable colony results, carry out Indol test).

When bacteria cleaves both chromogenic substrates, it results in dark blue - purple colonies, characteristic of coliforms bacteria as *E. aerogenes*, *K.pneumoniae* and *C. freundii*.

It should be noted that, as with all chromogenic media, microorganisms with atypical enzyme patterns may give anomalous reactions. For example 45% of *Enterobacter cloacae* do not contain  $\beta$ -glucosidase, therefore resulting in pink colonies not distinguishable from *E. coli*. For confirmation, the Indol test must be performed.

## Formula in g/L

|                       |     |                 |    |
|-----------------------|-----|-----------------|----|
| Bacteriological agar  | 16  | Peptone mixture | 16 |
| Tryptophan            | 2   | Growth factors  | 13 |
| Chromogenic Substrate | 0,5 |                 |    |

Typical formula g/L \* Adjusted and/or supplemented as required to meet performance criteria.

## Preparation

Suspend 47,5 grams of the medium in one liter of distilled water. Mix well and dissolve by heating with frequent agitation. Boil for one minute until complete dissolution. Sterilize in autoclave at 121 °C for 15 minutes. Cool to 45-50 °C, mix well and dispense into plates.

## Instructions for use

For clinical diagnosis, the type of sample is urine. Urine from the middle part of urination, from the catheter or collection can be used by suprapubic bladder puncture.

- Inoculate on the surface. Parallel striae with the handle or hyssop.

- Incubate in aerobic conditions at 35±2 °C for 18-24 hours.
- Reading and interpretation of results.

## Quality control

| Solubility | Appearance  | Color of the dehydrated medium | Color of the prepared medium | Final pH (25°C) |
|------------|-------------|--------------------------------|------------------------------|-----------------|
|            | Fine powder | Beige                          | Amber, slightly opalescent   | 7,2±0,2         |

## Microbiological test

Incubation conditions: (35±2 °C / 18-24 h).

| Microorganisms                    | Specification | Characteristic reaction                   |
|-----------------------------------|---------------|---|
| Klebsiella aerogenes ATCC 13048   | Good growth   | Dark Blue colony                          |
| Klebsiella pneumoniae ATCC 13883  | Good growth   | Dark Blue colony                          |
| Salmonella typhimurium ATCC 14028 | Good growth   | Amber colony                              |
| Enterococcus faecalis ATCC 19433  | Good growth   | Light blue colony                         |
| Escherichia coli ATCC 25922       | Good growth   | Pink colony                               |
| Staphylococcus aureus ATCC 25923  | Good growth   | (natural pigmentation) White cream colony |
| Proteus mirabilis ATCC 25933      | Good growth   | Light brown colony                        |
| Pseudomonas aeruginosa ATCC 27853 | Good growth   | Amber colony                              |
| Salmonella typhi ATCC 6539        | Good growth   | Amber colony                              |

## Storage

Temp. Min.: 2 °C  
Temp. Max.: 25 °C

## Bibliography

Samra Z, Heifetz M, Talmor J, Bain E and Bahar J. Evaluation of use of a new chromogenic agar in detection of urinary tract pathogens. J Clin Microbiol. 1998;36(4): 990-4.