



# UREA AGAR SLANT

- For in vitro use only -

Catalogue No. TU70

Our Urea Agar Slants can be used to aid in the differentiation between members of the Enterobacteriaceae family based on their ability to hydrolyze the substrate urea.

Urease is an important microbial enzyme concerned with the decomposition of organic compounds. Urease can act on the test substrate, urea, contained in the medium resulting in the release of ammonia. The release of this alkaline end product results in an up shift in the pH that is detected by the color indicator phenol red. A positive urease test results in the medium changing from yellowish-orange to bright pink.

Our formulation is based on the work of Christensen who devised a solid medium for the differentiation of enteric bacilli. This medium can be used to detect urease activity by organisms that display a rapid-urease reaction such as *Proteus* species as well as organisms that exhibit a delayed urease reaction such as *Klebsiella* and *Enterobacter*. On Christensen's Urea Agar, the rate of urea hydrolysis differentiates rapid-urease *Proteae* organisms (*Proteus* species, *Morganella morganii*, and some *Providencia stuartii*) from other urease-positive organisms, since *Proteae* organisms produce a positive reaction within 6 hours of incubation. The extent and rate of color change in the medium is a direct measure of the organism's urease activity.

## Formula per Litre of Medium

Pancreatic digest of gelatin .....	1.0 g
Dextrose .....	1.0 g
Sodium chloride .....	5.0 g
Monopotassium phosphate .....	2.0 g
Phenol red .....	0.012 g
Urea .....	20.0 g
Agar .....	15.0 g

pH 6.8 ± 0.2

## Recommended Procedure

1. Allow medium to reach room temperature prior to inoculation.
2. Using a direct inoculum from a pure, overnight culture, streak the surface of the slant in a fishtail motion.
3. Incubate aerobically at 35°C.
4. Examine tubes at 6 and 24 hours and everyday thereafter for 6 days.

## Interpretation of Results

A positive urease test is indicated by a color change from yellowish-orange to an intense pink-red on the slant of the medium. The pink coloration may penetrate into the agar and change the color of the entire tube. A rapid positive result is defined by a pink color change within 6 hours of incubation, which is characteristic of *Proteae* organisms.

A negative urease test is indicated by no color change (yellowish-orange) or a yellow color change in the medium.

## Quality Control

After checking the medium for correct pH, color, depth, and sterility, the following organisms are used to determine the performance of the completed medium. The tubes are inoculated and examined after 24 hours at 35°C.

Organism	Expected Result
<i>Proteus mirabilis</i> ATCC 12453	Growth, intense pink color change
<i>Escherichia coli</i> ATCC 25922	Growth, no color change or yellow color

## Storage and Shelf Life

Our Urea Agar Slants should be stored away from direct light in an upright position at 4°C to 8°C. Under these conditions, a sealed package of the medium has a shelf life of 12 weeks from the date of manufacture.

## Ordering Information

Cat#	Description	Format
TU70-03	Urea Agar Slant 3-mL [13x100-mm Kim Kap Tube]	10/pkg

## References

1. Christensen WB. Urea decomposition as a means of differentiating *Proteus* and paracolon cultures from each other and from *Salmonella* and *Shigella* types. J Bacteriol 1946; 52:461-6.
2. Ewing WH. Edwards and Ewing's identification of *Enterobacteriaceae*. 4<sup>th</sup> ed. New York: Elsevier, 1986.
3. MacFaddin JF. Media for isolation-cultivation-maintenance of medical bacteria, Vol I. Baltimore: Williams & Wilkins, 1985.
4. MacFaddin, JF. Biochemical Tests for the Identification of Medical Bacteria, 3rd ed. Philadelphia: Lippincott Williams & Wilkins, 2000.

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