

# RAPID TRIBUTYRIN

## INTENDED USE

Remel Rapid Tributyrin is a semisolid medium recommended for use in qualitative procedures for presumptive identification of *Moraxella catarrhalis*.

## SUMMARY AND EXPLANATION

*Moraxella (Branhamella) catarrhalis* is now recognized as a significant pathogen. In 1989, investigators reported the results of a case-control study which concluded isolation of *M. catarrhalis* from sputum cultures was associated with clinical infection.<sup>1</sup> Rapid identification of *M. catarrhalis* is important, since most strains produce  $\beta$ -lactamase and are resistant to penicillin and ampicillin.<sup>2</sup> Conventional methods of identification are based on the organism's failure to utilize carbohydrates.<sup>3</sup> In 1962, Berger described tributyrin hydrolysis for differentiating *M. catarrhalis* from *Neisseria* spp.<sup>4</sup>

## PRINCIPLE

Casein peptone provides nitrogen, amino acids, and peptides necessary for bacterial growth. Sodium chloride is a source of essential electrolytes and maintains osmotic equilibrium. The enzyme butyrate esterase, produced by *M. catarrhalis*, hydrolyzes tributyrin in the medium. This reaction yields butyric acid which lowers the pH of the medium resulting in a yellow color. The decreased volume of medium in the tube allows for a heavy inoculum resulting in a rapid color reaction.

## REAGENTS (CLASSICAL FORMULA)\*

Casein Peptone.....	20.0 g	Phenol Red.....	17.0 mg
Sodium Chloride.....	5.0 g	Tributyrin.....	20.0 ml
L-Cystine .....	0.5 g	Agar .....	3.5 g
Sodium Sulfite.....	0.5 g	Demineralized Water.....	980.0 ml

pH 7.4  $\pm$  0.2 @ 25°C

\*Adjusted as required to meet performance standards.

## PROCEDURE

1. The performance of Rapid Tributyrin is dependent on a properly prepared inoculum. Test only oxidase-positive, gram-negative diplococci grown on nonselective medium. Inoculate each tube heavily with a 3 mm loopful of the test isolate from a pure, 18-24 hour culture. Mix thoroughly.
2. Incubate tube aerobically with tightened cap at 33-37°C in an incubator or water bath for 2-4 hours. Continue incubation of nonreactive tests up to 24 hours.
3. Observe for yellow color development.

## INTERPRETATION OF THE TEST

Positive Test - Yellow color development

Negative Test - No color change

## QUALITY CONTROL

All lot numbers of Rapid Tributyrin have been tested using the following quality control organisms and have been found to be acceptable. Testing of control organisms should be performed in accordance with established laboratory quality control procedures. If aberrant quality control results are noted, patient results should not be reported.

## CONTROL

*Moraxella catarrhalis* ATCC® 25238

*Neisseria lactamica* ATCC® 23970

## INCUBATION

Aerobic, 2-4 h @ 33-37°C

Aerobic, 2-4 h @ 33-37°C

## RESULTS

Positive

Negative

## LIMITATIONS

1. A heavy inoculum is necessary to ensure a rapid reaction.
2. Organisms other than *M. catarrhalis* (i.e., *Pseudomonas*) have been reported to hydrolyze tributyrin.
3. This product is only part of the overall scheme for identification of *M. catarrhalis*. Additional testing may be required for definitive identification. Consult appropriate references for further instructions.<sup>5,6</sup>

## PERFORMANCE CHARACTERISTICS

1. In a study of 23 clinical *M. catarrhalis* isolates, all were found to hydrolyze tributyrin in the Rapid Tributyrin test.<sup>7</sup>

## BIBLIOGRAPHY

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Refer to the front of Remel *Technical Manual of Microbiological Media* for **General Information** regarding precautions, product storage and deterioration, specimen collection, storage and transportation, materials required, quality control, and limitations.

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