McCLUNG-TOABE AGAR
(ANAEROBIC LECITHIN-LIPASE AGAR)

INTENDED USE
Remel McClung-Toabe Agar (Anaerobic Lecithin-Lipase Agar) is a solid medium recommended for use in qualitative procedures for the isolation and differentiation of *Clostridium* spp.

SUMMARY AND EXPLANATION
In 1947, McClung and Toabe developed a differential plating medium for detection of lecithinase and lipase production by *Clostridium* spp.[1] Dowell and Hawkins modified McClung-Toabe Agar by addition of neomycin to selectively isolate and differentiate certain obligately anaerobic bacteria such as *Clostridium perfringens*.[2]

PRINCIPLE
Gelatin peptone supplies amino acids and other nitrogenous compounds necessary for the growth of anaerobic bacteria. Dextrose is an energy source. Egg yolk suspension serves as the substrate for detection of lecithinase and lipase activity.[3] Lecithinase degrades lecithin, producing an insoluble, opaque precipitate in the medium surrounding growth.[4] Lipase breaks down free fats in the egg yolk resulting in an iridescent sheen on the colony surface. Egg yolk also serves to reduce the toxic effect of organic peroxides which may accumulate in the medium. Neomycin is a selective agent which inhibits many gram-positive and gram-negative organisms.

REAGENTS (CLASSICAL FORMULA)*

Gelatin Peptone	40.0 g	Magnesium Sulfate	0.1 g
Disodium Phosphate	5.0 g	Neomycin	100.0 mg
Dextrose	2.0 g	Egg Yolk Suspension (50%)	100.0 ml
Sodium Chloride	2.0 g	Agar	25.0 g
Monopotassium Phosphate	1.0 g	Demineralized Water	900.0 ml

pH 7.6 ± 0.2 @ 25°C

*Adjusted as required to meet performance standards.

PROCEDURE
1. Prior to use, reduce the plates for a minimum of 24 hours by placing them in an anaerobic environment at room temperature.
2. Inoculate specimens for anaerobic culture on both selective and nonselective media as soon as possible after receipt in the laboratory; streak plates for isolation.
3. Incubate anaerobically at 33-37°C for 48-72 hours. Hold up to 7 days for lipase reaction.
4. Examine after a minimum of 48 hours for lecithinase and lipase activity.
5. Confirm anaerobic growth by subculture to an aerobic blood agar plate.

INTERPRETATION OF THE TEST
Lecithinase Production:
Positive Test - An opaque precipitate in the medium surrounding the colonies
Negative Test - No opaque precipitate

Lipase Production:
Positive Test - An iridescent sheen or “oil on water” appearance on the surface of growth and the surrounding medium
Negative Test - No iridescent sheen

QUALITY CONTROL
All lot numbers of McClung-Toabe Agar (Anaerobic Lecithin-Lipase Agar) 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	INCUBATION	RESULTS
Clostridium perfringens ATCC® 13124	Anaerobic, up to 48 h @ 33-37°C	Growth, Lipase (-), Lecithinase (+)
Clostridium sporogenes ATCC® 3584	Anaerobic, up to 48 h @ 33-37°C	Growth, Lipase (+), Lecithinase (-)
Bacteroides fragilis ATCC® 25285	Anaerobic, up to 48 h @ 33-37°C	Inhibition (partial to complete)
Escherichia coli ATCC® 25922	Aerobic, 18-24 h @ 33-37°C	Inhibition (complete)

LIMITATIONS
1. Because the lipase reaction may be delayed, hold plates one week before discarding as negative.[5]

(Continued on back)

BIBLIOGRAPHY

1. McClung, L.S. and R. Toabe. 1947. J. Bacteriol. 53:139-147.
2. Dowell, V.R. and T.M. Hawkins. 1977. Laboratory Methods in Anaerobic Microbiology. CDC, Atlanta, GA.
3. Murray, P.R., E.J. Baron, J.H. Jorgensen, M.L. Landry, and M.A. Pfaller. 2007. Manual of Clinical Microbiology. 9th ed. ASM Press, Washington, D.C.
4. Dowell, V.R., G.L. Lombard, F.S. Thompson, and A.Y. Armfield. 1987. Media for the Isolation, Characterization, and Identification of Obligately Anaerobic Bacteria. CDC, Atlanta, GA.
5. MacFaddin, J.F. 1985. Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria. Vol. 1. Williams & Wilkins, Baltimore, MD.

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.

IFU 1056, Revised August 13, 2008 Printed in U.S.A.

remel

12076 Santa Fe Drive, Lenexa, KS 66215, USA
General Information: (800) 255-6730 Technical Service: (800) 447-3641 Order Entry: (800) 447-3635
Local/International Phone: (913) 888-0939 International Fax: (913) 895-4128
Website: www.remel.com Email: remel@remel.com