GN BROTH

INTENDED USE
Remel GN Broth is a liquid medium recommended for use in qualitative procedures for selective enrichment of enteric gram-negative bacilli.

SUMMARY AND EXPLANATION
GN Broth was developed by Hajna as an enrichment medium for the isolation of enteric gram-negative bacilli.[1] GN Broth has been shown to be superior to direct inoculation of media for recovery of *Salmonella* and *Shigella* spp. Taylor and Schelhart found GN Broth to be more effective than selenite broth for recovery of *Shigella* spp.[2]

PRINCIPLE
Casein and meat peptones supply amino acids and other nitrogenous compounds which support bacterial growth. Dextrose and mannitol are the energy sources and their concentrations are balanced to limit the growth of *Proteus* and encourage the growth of *Salmonella* and *Shigella*. Phosphate buffers maintain the pH of the medium and sodium chloride maintains osmotic equilibrium. Sodium deoxycholate and sodium citrate inhibit gram-positive organisms.

REAGENTS (CLASSICAL FORMULA)*

Casein Peptone	10.0 g	Mannitol	2.0 g
Meat Peptone	10.0 g	Monopotassium Phosphate	1.5 g
Sodium Chloride	5.0 g	Dextrose	1.0 g
Sodium Citrate	5.0 g	Sodium Deoxycholate	0.5 g
Dipotassium Phosphate	4.0 g	Demineralized Water	1000.0 ml

pH 7.0 ± 0.2 @ 25°C

*Adjusted as required to meet performance standards.

PROCEDURE
1. Inoculate GN Broth as soon as possible after specimen is received in the laboratory. Swab specimens may be inserted directly into the broth.
2. If a stool specimen is received, emulsify 1 g of feces or 1 ml of liquid stool into each tube of GN Broth.
3. Incubate the tube in ambient air at 33-37°C with cap loosened.
4. After 6-8 hours incubation, subculture onto selective and differential media. Reincubate GN Broth and subculture again after 24 hours.[4]
5. Incubate the plated medium in ambient air at 33-37°C for 18-24 hours.
6. Examine subcultures for the presence of colonies typical of enteric gram-negative bacilli.

QUALITY CONTROL
All lot numbers of GN Broth have been tested using the following quality control organisms and have been found to be acceptable. This quality control testing conforms with or exceeds CLSI standards.[3] 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
**Salmonella enterica* serovar Typhimurium ATCC® 14028	Ambient, 18-24 h @ 33-37°C	Growth on subculture
**Shigella sonnei* ATCC® 9290	Ambient, 18-24 h @ 33-37°C	Growth on subculture
**Escherichia coli* ATCC® 25922	Ambient, 6-8 h @ 33-37°C	Inhibition (partial to complete) on subculture

*CLSI recommended organism

LIMITATIONS
1. An enrichment broth should not be used alone as an isolation medium. It is to be used in conjunction with selective and nonselective plating media to isolate pathogens present in small numbers.
2. Some saprophytes (nonpathogens) may exhibit heavy growth on extended incubation, therefore, 6-8 hours is the recommended time period for initial subculturing.[4]

BIBLIOGRAPHY

1. Hajna, A.A. 1955. Publ. Health Lab. 13:83-90.
2. Taylor, W.I. and D. Schelhart. 1968. Appl. Microbiol. 16:1383-1386.
3. Clinical and Laboratory Standards Institute (CLSI). 2004. Quality Control for Commercially Prepared Microbiological Culture Media; Approved Standard, 3rd ed. M22-A3. CLSI, Wayne, PA.
4. 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.

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