
BRAIN HEART INFUSION BROTH w/ X and V FACTORS

INTENDED USE

Remel Brain Heart Infusion Broth w/ X and V Factors is a liquid medium recommended for use in qualitative procedures for the cultivation of *Haemophilus* species.

SUMMARY AND EXPLANATION

Rosenow developed a medium for culturing streptococci by adding pieces of brain tissue to dextrose broth.¹ Haden added crushed marble to this medium for the isolation of organisms from dental infections.² Winslow et al. defined the growth requirements of *Haemophilus* spp.³⁻⁵ These growth factors (X and V) are used to speciate the genus *Haemophilus*.

PRINCIPLE

This medium contains peptones and infusions of brain and heart tissue which supply protein and other nutrients necessary for bacterial growth. Sodium chloride maintains osmotic equilibrium and disodium phosphate acts as a buffer. Dextrose is an energy source. Members of the genus *Haemophilus* require the X factor (hemin) and/or the V factor (nicotinamide adenine dinucleotide) (NAD) for growth. BHI Broth w/ X and V Factors is an enriched medium containing both factors.

REAGENTS (CLASSICAL FORMULA)*

| | | | |
|----------------------------------|--------|---------------------------|-----------|
| Casein Peptone..... | 14.5 g | Hemin | 4.0 g |
| Meat Peptone..... | 7.0 g | Disodium Phosphate | 2.5 g |
| Brain Heart Infusion Solids..... | 6.0 g | Dextrose | 2.0 g |
| Sodium Chloride..... | 5.0 g | NAD | 10.0 ml |
| | | Demineralized Water | 1000.0 ml |

pH 7.4 ± 0.2 @ 25°C

*Adjusted as required to meet performance standards.

PROCEDURE

1. Inoculate the medium as soon as possible after the specimen is received in the laboratory.
2. If material is being cultured directly from a swab, insert the swab into the medium after inoculation of plated media.
3. For liquid specimens, aseptically transfer a loopful of the specimen into the broth medium using a sterile loop or aseptically pipette specimen onto plated media and into broth.
4. Incubate tube with cap loosened in 5-10% CO₂ at 33-37°C for up to 72 hours.
5. Examine for growth.

QUALITY CONTROL

All lot numbers of Brain Heart Infusion Broth w/ X and V Factors 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

Haemophilus influenzae ATCC® 10211
Haemophilus parainfluenzae ATCC® 7901

INCUBATION

CO₂, 18-24 h @ 33-37°C
CO₂, 18-24 h @ 33-37°C

RESULTS

Growth
Growth

BIBLIOGRAPHY

1. Rosenow, E.C. 1919. J. Dent. Res. 1:205-215.
2. Haden, R.L. 1923. Arch. Intern. Med. 32:828-837.
3. Winslow, C.E., J. Broadhurst, R.E. Buchanan, C. Krumwiede, L.A. Rogers, and G.H. Smith. 1917. J. Bacteriol. 2:505-561.
4. Thjotta, T. and O.T. Avery. 1921. J. Exp. Med. 34:97.
5. Lwoff, A. and M. Lwoff. 1937. Proc. R. Soc. (London). 122:352.

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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