

Instructions for Use

REF - BM4290

Brain Heart Infusion Broth with 10% Horse Serum

Bottled Media

1. Intended Use

For *in vitro* diagnostic use only. BM4290 Brain Heart Infusion Broth with 10% Horse Serum is a nutrient-rich liquid medium primarily used for the enrichment of fastidious microorganisms.

2. Composition*

<u>Ingredient</u>	<u>g/L</u>
Brain heart infusion solids	17.5
Enzymatic digest of casein	10.0
Glucose	2.0
Sodium chloride	5.0
Disodium hydrogen phosphate	2.5
Sterile horse serum	100.0ml

*Adjusted/supplemented as needed to meet performance requirements

3. Summary and Explanation

Rosenow ⁽¹⁾ developed a medium that could be used to cultivate streptococci species using a dextrose broth and brain tissue in 1919. Hayden ⁽²⁾ modified Rosenow's formula while working with dental pathogens. Modern Brain Heart Infusion Broth typically uses an infusion from porcine brains and hearts rather than calf brain tissue, and uses disodium phosphate as a buffer, rather than the calcium carbonate used by Rosenow and Haden ^(1,2). It is a nutrient-rich medium and can therefore be used to culture a variety of fastidious organisms, including streptococci and *Neisseria spp.*, which can be challenging to grow.

4. Principle

The nitrogen, vitamin and carbon sources are supplied by the brain heart infusion solids and peptone. Glucose serves as the carbohydrate source and sodium chloride aids in maintaining the osmotic balance. A phosphate buffer, disodium hydrogen phosphate, is incorporated to help neutralize any acids produced because of glucose utilization and thus maintain viability of the organisms. Serum has been added to provide additional nutrients for more luxurious growth of fastidious organisms.

5. Physical Characteristics

	<u>Appearance and Colour</u>	<u>pH</u>
Medium	Light brown liquid	7.4 ± 0.2

6. Materials Provided

BM4290 Brain Heart Infusion Broth with 10% Horse Serum can be provided in 50 x 10ml in Thin Wall Universals (product code: BM4290-M002-10). Each bottle is ink-jet printed or labelled with (abbreviated) product name, product code, lot number and expiry date.

7. Materials Needed but not Provided

Standard microbiological laboratory materials e.g., sterile loops or swabs, collection containers, incubators, media for isolation and quality control organisms.

8. Specimens

BM4290 Brain Heart Infusion Broth with 10% Horse Serum is suitable for the testing of the following specimens:

- Clinical: specimens for testing are often oral but may include swabs from other infected areas, biopsy material and blood.

Sampling and transport equipment must be used in accordance with the end user's suppliers' recommendations. Refer to appropriate standard method or local guidance on sample collection and subsequent processing.

9. Test Procedures and Interpretation of results

Clinical Specimens

- Process the clinical specimen as required by local guidelines.
- Inoculate specimen directly into the medium. Swabs may be used to inoculate the medium after inoculation of agar media such as blood agar, Sabouraud Dextrose Agar or Fastidious anaerobe agar.
- Incubate at 36 ± 1°C for 24-48 hours. Some fastidious organisms such as *Haemophilus* or *Neisseria spp.* may require a 5% CO₂ atmosphere, in which case ensure that the container lid is loosened slightly to allow gas exchange.
- After incubation examine broth for turbidity, and subculture onto a suitable agar medium and incubate appropriately.

After incubation, examine agar for colonies. Perform further biochemical or mass spectroscopy testing to confirm identity of presumptive positive isolates. Refer to relevant local guidelines.

10. Quality Control

Organism	Incubation	Result (Specificity)
<i>S. pneumoniae</i> (NCTC 12977) <i>H. influenzae</i> (NCTC 11931) <i>N. gonorrhoeae</i> (NCTC 8375)	37 ± 1°C in 5% CO ₂ for 24-48 hours 37 ± 1°C in 5% CO ₂ for 24-48 hours 37 ± 1°C in 5% CO ₂ for 24-48 hours Subcultured onto E&O PP0100 Chocolate Agar with 5% Horse Blood and incubated in 37 ± 1°C in 5% CO ₂ for 24-48 hours.	Broth: Turbid. Subplate: Green colonies with α-haemolysis Broth: Turbid. Subplate: Grey colonies Broth: Turbid. Subplate: Grey colonies
<i>C. albicans</i> (NCPF 3179)	37 ± 1°C in 5% CO ₂ for 24-48 hours Subcultured onto Sabouraud Dextrose agar and incubated at 25 ± 1°C for 48 hours.	Broth: Turbid. Subplate: White colonies

It is the responsibility of the user to perform Quality Control testing taking into consideration the intended use of the medium and in agreement with any local relevant guidelines (e.g., frequency, strains used, atmosphere, incubation temperature).

11. Performance

To fully verify BM4290 Brain Heart Infusion Broth with 10% Horse Serum performance, samples were tested to assess colour change and turbidity/colony morphology and recovery level when incubated at 37 ± 1°C in 5% CO₂ for 24-48 hours, before being subcultured onto the relevant plate and incubated as described in the Quality Control table above. All samples grew and showed good recovery and the correct morphology of the required test organisms: *Streptococcus pneumoniae* (NCTC 12977), *Haemophilus influenzae* (NCTC 11931), *Neisseria gonorrhoeae* (NCTC 8375) and *Candida albicans* (NCPF 3179). Therefore, it can be concluded that BM4290 Brain Heart Infusion Broth with 10% Horse Serum, meets performance criteria when used according to the instructions outlined above.

12. Limitations of the Media

- Acid producing organisms may overwhelm the buffering system, resulting in turbid but non-viable cultures.
- Due to natural variation, some strains may grow poorly on this medium.

13. Precautions and Warnings

This product is considered non-hazardous under CLP regulations. Wear such PPE as recommended by laboratory COSHH assessment. During and after use, always handle all materials in a manner conforming to Good Laboratory Practices and consider that material under test should be regarded as a potential biohazard if mishandled.

Refer to E&O Bottled Media Material Safety Data Sheet.

14. Storage conditions and Shelf life

Store BM4290 in the original bottle with the lid tightly closed at between 2 and 8°C. Kept under these conditions it may be used up to date of expiry shown on product label.

Dispose of in accordance with local and national authority requirements. Do not use media if it is contaminated, discoloured or out of date. Additionally, do not use medium if it has been stored inappropriately or the packaging has been damaged.

15. References

1. Rosenow, E. (1919) Studies on Elective Localization Focal Infection with Special Reference to Oral Sepsis'. J. Dent. Research, 1, pp.205-249.
2. Hayden, R. (1923) Elective localization in the eye of bacteria from infected teeth. Arch. Int. Med., 32, pp. 828-849.

Version History*

001 18/05/23 - New Document Created

*Note: minor typographical, grammatical, and formatting changes are not included in the revision history.



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TABLE OF APPLICABLE SYMBOLS

 REF Catalogue number	 LOT Batch code	 IVD In vitro Diagnostic Medical Device	 Manufacturer	 Use by
 Temperature limitation	 Contents sufficient for <n> tests	 Consult Instructions for Use	 Keep away from direct light	 Store in a dry place