## Expected Results

After sufficient incubation, the plates should show isolated colonies in streaked areas and confluent growth in areas of heavy inoculation. When culturing for fungi, examine plates for fungal colonies exhibiting typical color and morphology. Biochemical tests and serological procedures should be performed to confirm findings.

Slant cultures may be used as sources of inocula for additional studies or for organism maintenance purposes.

## References

1. Creitz and Puckett. 1954. Am. J. Clin. Pathol. *24*:1318.
2. Chapin and Murray. 1999. *In* Murray, Baron, Pfaller, Tenover and Yolken (ed.), Manual of clinical microbiology, 7th ed. American Society for Microbiology, Washington, D.C.
3. Reisner, Woods, Thompson, Larone, Garcia and Shimizu. 1999. *In* Murray, Baron, Pfaller, Tenover and Yolken (ed.), Manual of clinical microbiology, 7th ed. American Society for Microbiology, Washington, D.C.

## Availability

### Difco™ Brain Heart Infusion Agar

AOAC | BAM | BS10 | CMPH | COMPF | MCM7 | SMD | SMWW | USDA

| | | |
|---|---|---|
| Cat. No. | 241820 | Dehydrated – 100 g |
| | 241830 | Dehydrated – 500 g |
| | 241810 | Dehydrated – 2 kg |

### BBL™ Brain Heart Infusion Agar

AOAC | BAM | BS10 | CMPH | COMPF | MCM7 | SMD | SMWW | USDA

| | | |
|---|---|---|
| Cat. No. | 211065 | Dehydrated – 500 g |
| | 212166 | Dehydrated – 5 lb (2.3 kg) |
| | 212247 | Dehydrated – 25 lb (11.3 kg) |

*United States and Canada*

| | | |
|---|---|---|
| Cat. No. | 221569 | Prepared Plates (Deep Fill) – Pkg. of 20* |
| | 221570 | Prepared Plates (Deep Fill) – Ctn. of 100* |
| | 220838 | Prepared Pour Tubes (20 mL) – Pkg. of 10 |
| | 221610 | Prepared Slants (K Tubes) – Pkg of 10 |
| | 297283 | Prepared Slants (A Tubes) – Pkg. of 10 |

*Europe*

| | | |
|---|---|---|
| Cat. No. | 255003 | Prepared Plates – Pkg. of 20* |

### BBL™ Brain Heart Infusion Agar with 5% Sheep Blood

BS10 | CMPH | MCM7

| | | |
|---|---|---|
| Cat. No. | 297199 | Prepared Slants – Pkg. of 10* |
| | 296067 | Prepared Slants – Ctn. of 100* |

### BBL™ Brain Heart Infusion Agar with 10% Sheep Blood

BS10 | CMPH | MCM7

*United States and Canada*

| | | |
|---|---|---|
| Cat. No. | 296125 | Prepared Slants – Pkg. of 10* |
| | 221843 | Prepared Plates (Deep Fill) – Pkg. of 10* |

*Europe*

| | | |
|---|---|---|
| Cat. No. | 255544 | Prepared Plates – Pkg. of 20* |

### BBL™ Brain Heart Infusion Agar, Modified

| | | |
|---|---|---|
| Cat. No. | 299069 | Dehydrated – 500 g |

**Store at 2-8°C.*

# Bacto™ Brain Heart Infusion, Porcine

## Intended Use

Bacto™ Brain Heart Infusion, Porcine is used for cultivating a wide variety of microorganisms.

## Summary and Explanation

Rosenow[1] devised an excellent medium for culturing streptococci by supplementing Dextrose Broth with brain tissue. Hayden,[2] revising Rosenow's procedure by adding crushed marble to the medium, reported favorable growth of organisms from dental pathogens. Brain Heart Infusion is a modification of the media described by Rosenow[1] and Hayden.[2] Infusion from calf brains has replaced the brain tissue and disodium phosphate has replaced the calcium carbonate buffer.

Brain Heart Infusion, Porcine was developed as an alternative to the Brain Heart Infusion (BHI) formula, and replaces calf brains and beef heart with porcine brains and heart. Brain Heart Infusion, Porcine was developed for pharmaceutical and vaccine production and can replace the traditional BHI depending on organism and production application. BHI, Porcine was formulated with no bovine components to minimize Bovine Spongiform Encephalopathy (BSE) risk.

The nutritionally rich formula of BHI is used to grow a variety of microorganisms. The original Brain Heart Infusion media are specified in standard methods for multiple applications.[3-6]

## User Quality Control

### *Identity Specifications*

**Bacto™ Brain Heart Infusion, Porcine**

| | |
|---|---|
| Dehydrated Appearance: | Light tan, free-flowing, homogeneous. |
| Solution: | 3.7% solution, soluble in purified water. Solution is light to medium amber, clear. |
| Prepared Appearance: | Light to medium amber, clear. |
| Reaction of 3.7% Solution at 25°C: | pH 7.4 ± 0.2 |

### *Cultural Response*

**Bacto™ Brain Heart Infusion, Porcine**

Prepare the medium per label directions. Inoculate and incubate at 35 ± 2°C for 18-48 hours.

| ORGANISM | ATCC™ | INOCULUM CFU | RECOVERY |
|---|---|---|---|
| *Neisseria meningitidis* | 13090 | $10^2$-$10^3$ | Fair |
| *Streptococcus pneumoniae* | 6305 | $10^2$-$10^3$ | Good |
| *Streptococcus pyogenes* | 19615 | $10^2$-$10^3$ | Fair |

## Principles of the Procedure

Infusion from pork brains, infusion from pork heart and Pork Peptone No. 2 provide nitrogen, carbon, sulfur and vitamins in Brain Heart Infusion, Porcine. Dextrose is the carbon energy source to facilitate organism growth. Sodium chloride maintains the osmotic balance of the medium. Disodium phosphate is the buffering agent.

## Formula

**Bacto™ Brain Heart Infusion, Porcine**

| Approximate Formula* Per Liter | | |
|---|---|---|
| Pork Brains, Infusion from 200 g | 7.7 | g |
| Pork Heart, Infusion from 250 g | 9.8 | g |
| Pork Peptone No. 2 | 10.0 | g |
| Dextrose | 2.0 | g |
| Sodium Chloride | 5.0 | g |
| Disodium Phosphate | 2.5 | g |

**Adjusted and/or supplemented as required to meet performance criteria.*

## Directions for Preparation from Dehydrated Product

1. Suspend 37 g of the powder in 1 L of purified water. Mix thoroughly.
2. Heat with frequent agitation and boil for 1 minute to completely dissolve the powder.
3. Autoclave at 121°C for 15 minutes.
4. Test samples of the finished product for performance using stable, typical control cultures.

## Procedure

See appropriate references for specific procedures using Brain Heart Infusion.

## Expected Results

Refer to appropriate references and procedures for results.

## References


1. Rosenow. 1919. J. Dent. Res. *1*:205.
2. Hayden. 1923. Arch. Int. Med. *32*:828.
3. Downes and Ito (ed.). 2001. Compendium of methods for the microbiological examination of foods, 4th ed. American Public Health Association, Washington, D.C.
4. U.S. Food and Drug Administration. 1995. Bacteriological analytical manual, 8th ed. AOAC International, Gaithersburg, Md.
5. Clesceri, Greenberg and Eaton (ed.). 1998. Standard methods for the examination of water and wastewater, 20th ed. American Public Health Association, Washington, D.C.
6. Horwitz (ed). 2000. Official methods of analysis, AOAC International, 17th ed. AOAC International, Gaithersburg, Md.


## Availability

**Bacto™ Brain Heart Infusion, Porcine**

| | | |
|---|---|---|
| Cat. No. | 256120 | Dehydrated – 500 g |
| | 256110 | Dehydrated – 10 kg |

# Brain Heart Infusion with PABA
# Brain Heart Infusion with PAB and Agar

## Intended Use

Brain Heart Infusion (BHI) with *para*-aminobenzoic acid (PAB or PABA) is a medium used for the examination of blood from patients who have received sulfonamide therapy. The addition of agar has been found to improve growth of anaerobes.

## Summary and Explanation

PAB(A) has been incorporated into the formulation for BHI to enable the detection of microorganisms in the blood of patients who are undergoing sulfonamide therapy. The addi-

## User Quality Control

NOTE: Differences in the Identity Specifications and Cultural Response testing for media offered as both **Difco**™ and **BBL**™ brands may reflect differences in the development and testing of media for industrial and clinical applications, per the referenced publications.

### *Identity Specifications*

**Difco™ Brain Heart Infusion with PAB and Agar**

| | |
|---|---|
| Dehydrated Appearance: | Light tan, free-flowing, homogeneous. |
| Solution: | 3.8% solution, soluble in purified water upon boiling. Solution is light to medium amber, slightly opalescent. |
| Prepared Appearance: | Light to medium amber, slightly opalescent. |
| Reaction of 3.8% Solution at 25°C: | pH 7.4 ± 0.2 |

### *Cultural Response*

**Difco™ Brain Heart Infusion with PAB and Agar**

Prepare the medium per label direction without and with 0.5 g/L of sulfadiazine. Inoculate and incubate at 35 ± 2°C under appropriate atmospheric conditions for 18-48 hours.

| ORGANISM | ATCC™ | INOCULUM CFU | RECOVERY WITHOUT SULFADIAZINE | RECOVERY WITH SULFDIAZINE |
|---|---|---|---|---|
| *Bacteroides fragilis* | 25285 | 30-300 | Good | Good |
| *Neisseria meningitidis* | 13090 | 30-300 | Good | Good |
| *Streptococcus pneumoniae* | 6305 | 30-300 | Good | Good |
| *Streptococcus pyogenes* | 19615 | 30-300 | Good | Good |

### *Identity Specifications*

**BBL™ Brain Heart Infusion with PABA**

| | |
|---|---|
| Dehydrated Appearance: | Fine, homogeneous, free of extraneous material. |
| Solution: | 3.7% solution, soluble in purified water upon boiling. Solution is light to medium, yellow to tan, clear to slightly hazy. |
| Prepared Appearance: | Light to medium, yellow to tan, clear to slightly hazy. |
| Reaction of 3.7% Solution at 25°C: | pH 7.4 ± 0.2 |

### *Cultural Response*

**BBL™ Brain Heart Infusion with PABA**

Prepare the medium per label directions without and with 0.5 g/L of sulfadiazine (do not add agar). Inoculate and incubate at 35 ± 2°C under appropriate atmospheric conditions for 7 days (incubate *C. albicans* at 20-27°C).

| ORGANISM | ATCC™ | INOCULUM CFU | RECOVERY WITHOUT SULFADIAZINE | RECOVERY WITH SULFDIAZINE |
|---|---|---|---|---|
| *Bacteroides fragilis* | 25285 | $\leq 10^4$ | Good | Good |
| *Candida albicans* | 10231 | $\leq 10^4$ | Good | Good |
| *Streptococcus pyogenes* | 19615 | $\leq 10^4$ | Good | Good |