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 addition of 0.1% agar results in a medium with improved ability to support the growth of certain microorganisms (e.g., anaerobes and microaerophiles).

Principles of the Procedure

Unsupplemented BHI broth supports the growth of a broad spectrum of microorganisms, including bacteria and fungi, due to its content of nutritive ingredients, including brain heart infusion, peptones and dextrose. Sodium chloride maintains osmotic equilibrium. PAB(A) neutralizes, by competitive inhibition, the effect of sulfonamides in the inoculum. The inclusion of agar minimizes oxygen distribution by restricting convection currents.

Formulae

Difco[™] Brain Heart Infusion with PAB and Agar

Calf Brains, Infusion from 200 g7.7	g
Beef Heart, Infusion from 250 g	g
Proteose Peptone 10.0	g
Dextrose	g
Sodium Chloride	g
Disodium Phosphate	g
p-Aminobenzoic Acid0.05	g
Agar	g

BBL[™] Brain Heart Infusion with PABA

Approximate Formula* Per Liter		
Brain Heart, Infusion from (solids)	6.0	q
Peptic Digest of Animal Tissue	6.0	g
Pancreatic Digest of Gelatin	14.5	g
Dextrose	3.0	g
Sodium Chloride	5.0	g
Disodium Phosphate	2.5	g
<i>p</i> -Aminobenzo [.] c Acid	0.05	g
*Adjusted and/or supplemented as required to meet performance criteria		-

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

Directions for Preparation from Dehydrated Product

 Suspend the powder in 1 L of purified water: Difco[™] Brain Heart Infusion with PAB and Agar – 38 g; BBL[™] Brain Heart Infusion with PABA – 37 g (for blood culture work, add 0.5 to 1.0 g of agar). Mix thoroughly.

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

Dehvdrated Appearance: Light tan free-flowing homogeneous

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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:	рН 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 $35 \pm 2^{\circ}$ 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	b 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 $35 \pm 2^{\circ}$ 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	≤ 10 ⁴	Good	Good

- 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

With liquid specimens, tubed media should be inoculated with 1-2 drops of the specimen using a sterile pipette. Swab specimens may be inserted into broth after inoculation of plated media.

Liquid tubed media for anaerobic incubation should be reduced prior to incubation by placing the tubes, with caps loosened, under anaerobic conditions for 18-24 hours prior to use. An efficient and easy way to obtain suitable anaerobic conditions is through the use of **BD GasPak**^M EZ anaerobic system or an alternative anaerobic system. Alternatively, liquid media may be reduced immediately prior to use by boiling with caps loosened and cooling with tightened caps to room temperature before inoculation.

Expected Results

Examine tubes at intervals for up to 7 days for growth, which is indicated by the presence of turbidity compared to an uninoculated control.

If growth appears, cultures should be examined by Gram stain and subcultured onto appropriate media; e.g., a **Trypticase**[™] Soy Agar with 5% Sheep Blood and/or Chocolate II Agar plate, Eosin Methylene Blue Agar, Levine, or MacConkey II Agar plates. If anaerobes are suspected, subcultures should be incubated anaerobically, as in a **BD GasPak**[™] EZ anaerobic system.

Availability

Difco[™] Brain Heart Infusion with PAB and Agar Cat. No. 249910 Dehydrated – 500 g

BBL[™] Brain Heart Infusion with PABA

Cat. No. 211069 Dehydrated – 500 g 220842 Prepared Tubes with 0.1% Agar, 20 mL (A Tubes) – Pkg. of 10

