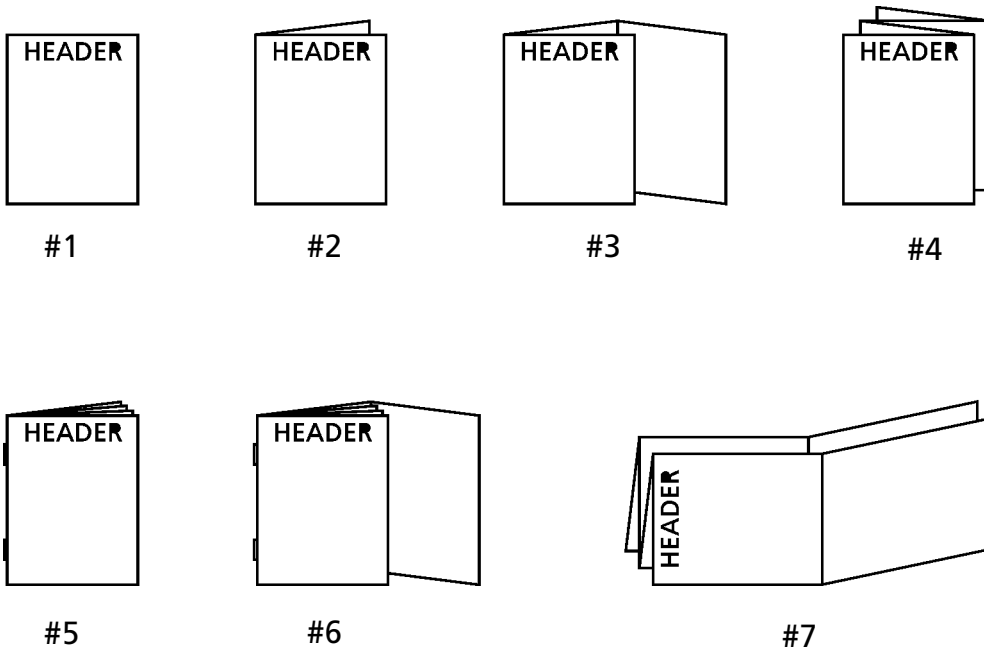


Revisions

Rev from	Rev to	ECO #
0903	2010/07	5430-10

Notes:

- BD Cat. Number 296125, 295757
- Blank (Sheet) Size: Length: 11" Width: 8.5"
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Part Number: 8806371JAA		Category and Description Package Insert, BHI with 10% Sheep Blood	Sheet: 1 of 3 Scale: N/A	A

BD BBL™ Prepared Tubed and Bottled Media for Cultivation of Fungi

Brain Heart Infusion Agar with 5% Sheep Blood / Brain Heart Infusion Agar with 10% Sheep Blood / Brain Heart Infusion Agar with 6% Sheep Blood, Chloramphenicol and Gentamicin / Brain Heart Infusion Agar with 10% Sheep Blood, Chloramphenicol and Gentamicin / Brain Heart CC Agar / Brain Heart CC Agar with 10% Sheep Blood and Gentamicin / Brain Heart Infusion Agar with 5% Sheep Blood, Penicillin and Streptomycin

8806371JAA
2010/07

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INTENDED USE

These media are used in qualitative procedures for the isolation and cultivation of pathogenic and nonpathogenic fungi from clinical and nonclinical specimens.

SUMMARY AND EXPLANATION

Brain Heart Infusion (BHI) Agar is a general-purpose medium suitable for the primary recovery of fungi.¹ The addition of sheep blood is recommended to improve the recovery of pathogenic dimorphic fungi.¹

Antimicrobial agents, including chloramphenicol, chloramphenicol in combination with cycloheximide (CC), gentamicin, and penicillin in combination with streptomycin are incorporated to improve the recovery of pathogenic fungi from specimens heavily contaminated with bacteria and saprophytic fungi.¹

PRINCIPLES OF THE PROCEDURE

BHI Agar consists of infusions of brain and heart tissue peptones and dextrose to supply the nutrients necessary to support the growth of fungi. Defibrinated sheep blood supplies additional nutrients to support the isolation and cultivation of dimorphic species.

Supplementing BHI Agar with antimicrobial agents increases the recovery of pathogenic fungi from clinical specimens by inhibiting bacteria. Penicillin primarily inhibits gram-positive bacteria. Streptomycin and gentamicin inhibit gram-negative bacteria. Chloramphenicol is a broad-spectrum antibiotic that inhibits both gram-positive and gram-negative bacteria. Cycloheximide is an antifungal agent that is primarily active against saprophytic fungi and does not inhibit yeasts or dermatophytes.

REAGENTS

BHI Agar

Approximate Formula* Per Liter Purified Water

Brain Heart, Infusion from (solids)	8.0 g
Peptic Digest of Animal Tissue	5.0 g
Pancreatic Digest of Casein	16.0 g
Dextrose	2.0 g
Sodium Chloride	5.0 g
Dipotassium Phosphate	2.5 g
Agar	13.5 g

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

BHI Sheep Blood Agar consists of the above ingredients with 5% or 10% defibrinated sheep blood per liter.

BHI Sheep Blood Agar with Chloramphenicol and Gentamicin consists of BHI Agar with 0.05 g/L chloramphenicol, 0.05 g/L gentamicin and 6% or 10% defibrinated sheep blood per liter.

Brain Heart CC Agar consists of BHI Agar with 0.05 g/L chloramphenicol and 0.5 g/L cycloheximide.

Brain Heart CC Sheep Blood Agar with Gentamicin consists of BHI Agar with 0.05 g/L chloramphenicol, 0.5 g/L cycloheximide, 0.05 g/L gentamicin and 10% sheep blood per liter.

BHI Sheep Blood Agar with Penicillin and Streptomycin consists of BHI Agar with 20,000 units/L penicillin and 0.25 g/L streptomycin and 5% defibrinated sheep blood per liter.

Warnings and Precautions:

For *in vitro* Diagnostic Use.

Tubes and bottles with tight caps should be opened carefully to avoid injury due to breakage of glass.

Pathogenic microorganisms, including hepatitis viruses and Human Immunodeficiency Virus, may be present in clinical specimens. "Standard Precautions"²⁻⁵ and institutional guidelines should be followed in handling all items contaminated with blood and other body fluids. Prior to discarding, sterilize specimen containers and other contaminated materials by autoclaving.

Storage Instructions: On receipt, store tubes and bottles in the dark according to label directions. Avoid freezing and overheating. Do not open until ready to use. Minimize exposure to light. Tubed and bottled media stored as labelled until just prior to use may be inoculated up to the expiration date and incubated for up to 6 weeks. Allow the medium to warm to room temperature before inoculation.

Product Deterioration: Do not use tubes or bottles if they show evidence of microbial contamination, discoloration, precipitation, evaporation or other signs of deterioration.

SPECIMEN COLLECTION AND HANDLING

Refer to appropriate texts for details of specimen collection and handling procedures.^{1,6-8}

PROCEDURE

Material Provided: Depending upon which product is ordered, one of the prepared tubed or bottled media listed below is provided.

Brain Heart Infusion Agar with 5% Sheep Blood

Brain Heart Infusion Agar with 10% Sheep Blood

Brain Heart Infusion Agar with 6% Sheep Blood, Chloramphenicol and Gentamicin

Brain Heart Infusion Agar with 10% Sheep Blood, Chloramphenicol and Gentamicin

Brain Heart CC Agar

Brain Heart CC Agar with 10% Sheep Blood and Gentamicin

Brain Heart Infusion Agar with 5% Sheep Blood, Penicillin and Streptomycin

Materials Required But Not Provided: Ancillary culture media, reagents, quality control organisms and laboratory equipment as required for this procedure.

Test Procedure:

Observe aseptic techniques. Inoculate the medium as soon as possible after the specimen arrives at the laboratory. Streak the specimen onto the medium with a sterile inoculating loop to obtain isolated colonies. Consult appropriate texts for information about the processing and inoculation of specimens such as tissues, skin scrapings, hair, nail clippings, etc.^{1,6-9}

For isolation of fungi that cause cutaneous mycoses, a general-purpose, nonselective medium should be inoculated along with a selective medium. Incubate one set of tubes at 25 to 30°C and a duplicate set at 35 to 37°C. Examine all cultures at least weekly for growth and hold cultures for 4 to 6 weeks before reporting them as negative.

User Quality Control:

1. Examine the tubes and bottles for signs of deterioration as described under "Product Deterioration".
2. Check performance by inoculating a representative sample of tubes and bottles with pure cultures of stable control organisms that give known, desired reactions. The following test strains are recommended:

MEDIUM	TEST STRAIN	EXPECTED RESULTS
BHI SB Agar	<i>Candida albicans</i> ATCC™ 60193	Growth
	<i>Trichophyton mentagrophytes</i> ATCC 9533	Growth
BHI SB w/Chlor. & Gent., BHI SB w/Pen. & Strep.	<i>Candida albicans</i> ATCC 10231	Growth
	<i>Trichophyton mentagrophytes</i> ATCC 9533	Growth
	<i>Escherichia coli</i> ATCC 25922	Inhibition (complete)
	<i>Staphylococcus aureus</i> ATCC 25923	Inhibition (complete)
BHI CC Agar	<i>Candida albicans</i> ATCC 10231	Growth
	<i>Trichophyton mentagrophytes</i> ATCC 9533	Growth
	<i>Escherichia coli</i> ATCC 25922	Inhibition (complete)
	<i>Aspergillus niger</i> ATCC 16404	Inhibition (partial to complete)
BHI CC SB w/Gent.	<i>Candida albicans</i> ATCC 10231	Growth
	<i>Trichophyton mentagrophytes</i> ATCC 9533	Growth
	<i>Escherichia coli</i> ATCC 25922	Inhibition (complete)
	<i>Blastomyces dermatitidis</i> ATCC 56218	Growth

Quality control requirements must be performed in accordance with applicable local state and/or federal regulations or accreditation requirements and your laboratory's standard Quality Control procedures. It is recommended that the user refer to pertinent NCCLS guidance and CLIA regulations for appropriate Quality Control practices.

RESULTS

Examine medium for growth of fungal species, noting color and morphology.

LIMITATION OF THE PROCEDURE

For identification of microorganisms, the organism must be in pure culture. Morphological, nutritional, biochemical and/or serological tests should be performed for final identification. Consult appropriate texts for detailed information and recommended procedures.⁶⁻¹¹

A single medium is rarely adequate for detecting all organisms of potential significance in a specimen. The agents in selective media may inhibit some strains of the desired species or permit growth of a species they were designed to inhibit, especially if the species is present in large numbers in the specimen. Specimens cultured on selective media should, therefore, also be cultured on nonselective media to obtain additional information and help ensure recovery of potential pathogens.

PERFORMANCE CHARACTERISTICS

Brain Heart Infusion Agar with 10% Sheep Blood

Prior to release, all lots of Brain Heart Infusion Agar with 10% Sheep Blood are tested for specific product characteristics. Samples of the lot are inoculated by streaking the agar slant with a cell suspension of *Candida albicans* ATCC 60193, diluted in normal saline to yield 10³ to 10⁴ CFU, and directly with a fresh culture of *Trichophyton mentagrophytes* ATCC 9533 grown on BBL Sabouraud Dextrose Agar. Tubes are inoculated with loose caps at 20 – 27°C for up to seven days. Fair to heavy growth is observed with both organisms.

Brain Heart CC Agar with 10% Sheep Blood and Gentamicin

Prior to release, all lots of Brain Heart CC Agar with 10% Sheep Blood and Gentamicin are tested for specific product characteristics. Samples of the lot are tested with *Blastomyces dermatitidis* ATCC 56218, *Candida albicans* ATCC 10231, *Escherichia coli* ATCC 25922 and *Trichophyton mentagrophytes* ATCC 9533, inoculated directly by streaking the surface of the medium (for *C. albicans* and *E. coli*, normal saline suspensions diluted to yield 10³ to 10⁴ CFU are used). Tubes are inoculated with loose caps at 20 – 27°C for up to seven days. Fair to heavy growth is observed with *B. dermatitidis*, *C. albicans* and *T. mentagrophytes*. Partial to complete inhibition is observed with *E. coli*.

AVAILABILITY

Cat. No.	Description
297199	BBL™ Brain Heart Infusion Agar with 5% Sheep Blood Slants Pkg. of 10 size C tubes
296067	BBL™ Brain Heart Infusion Agar with 5% Sheep Blood Slants Ctn. of 100 size C tubes
296125	BBL™ Brain Heart Infusion Agar with 10% Sheep Blood Slants Pkg. of 10 size K tubes CE
297655	BBL™ Brain Heart Infusion Agar with 10% Sheep Blood Pkg. of 10 plastic flasks
297748	BBL™ Brain Heart Infusion Agar with 6% Sheep Blood, Chloramphenicol and Gentamicin, Ctn. of 100 1 oz. bottles
296343	BBL™ Brain Heart Infusion Agar with 10% Sheep Blood, Chloramphenicol and Gentamicin Slants, Pkg. of 10 size C tubes
295756	BBL™ Brain Heart Infusion Agar with 10% Sheep Blood, Chloramphenicol and Gentamicin Slants, Ctn. of 100 size C tubes
297182	BBL™ Brain Heart Infusion Agar with 10% Sheep Blood, Chloramphenicol and Gentamicin, Pkg. of 10 Mycoflask™ bottles
296106	BBL™ Brain Heart CC Agar Slants, Ctn. of 100 size C tubes
297650	BBL™ Brain Heart CC Agar Slants, Pkg. of 10 size A tubesA
296358	BBL™ Brain Heart CC Agar with 10% Sheep Blood and Gentamicin Slants Pkg. of 10 size C tubes
295757	BBL™ Brain Heart CC Agar with 10% Sheep Blood and Gentamicin Slants Ctn. of 100 size C tubes CE
297645	BBL™ Brain Heart CC Agar with 10% Sheep Blood and Gentamicin Pkg. of 10 Mycoflask™ bottles
297335	BBL™ Brain Heart Infusion Agar with 5% Sheep Blood, Penicillin and Streptomycin Slants, Pkg. of 10 size A tubes

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