

# Brain Heart CC Agar

## Selective Brain Heart Infusion Agars

### Intended Use

Brain Heart CC Agar is a selective medium used for the isolation of pathogenic fungi from specimens heavily contaminated with bacteria and saprophytic fungi.<sup>1</sup> It also serves as the base for enriched and more selective media supplemented with sheep blood and antibiotics.

### Summary and Explanation

Brain Heart Infusion (BHI) Agar is recommended as a general-purpose medium for aerobic bacteriology and for the primary recovery of fungi from clinical specimens.<sup>2,3</sup> With 10% sheep blood, it is used to isolate systemic fungi that may grow poorly on the nonenriched medium. The presence of the antimicrobial agents, cycloheximide and/or chloramphenicol and, in modified formulations, gentamicin, penicillin and streptomycin, inhibits the growth of a wide variety of bacteria and fungi and enhances the isolation of pathogenic fungal species.

### Principles of the Procedure

BHI Agar derives its nutrients from the brain heart infusion, peptone and dextrose components. The peptones and infusion are sources of organic nitrogen, carbon, sulfur, vitamins and trace substances. Dextrose is the carbohydrate source that microorganisms utilize by fermentative action. The medium is buffered through the use of disodium phosphate. The addition of defibrinated sheep blood provides essential growth factors for the more fastidious fungal organisms. Chloramphenicol is a broad-spectrum antibiotic which inhibits a wide range of gram-positive and gram-negative bacteria. Cycloheximide

inhibits most saprophytic molds. Gentamicin is an aminoglycoside antibiotic that inhibits the growth of gram-negative and some gram-positive bacteria. Penicillin primarily inhibits gram-positive bacteria. Streptomycin inhibits gram-negative organisms.

### Formula

#### BBL™ Brain Heart CC Agar

Approximate Formula* Per Liter	
Pancreatic Digest of Casein .....	16.0 g
Brain Heart, Infusion from (solids) .....	8.0 g
Peptic Digest of Animal Tissue .....	5.0 g
Sodium Chloride .....	5.0 g
Dextrose .....	2.0 g
Disodium Phosphate .....	2.5 g
Cycloheximide .....	0.5 g
Chloramphenicol .....	0.05 g
Agar .....	13.5 g

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

### Directions for Preparation from Dehydrated Product

1. Suspend 52 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 118°C for 15 minutes.
4. Test samples of the finished product for performance using stable, typical control cultures.

### User Quality Control

#### Identity Specifications

##### BBL™ Brain Heart CC Agar

Dehydrated Appearance: Fine, homogeneous, free of extraneous material.

Solution: 5.2% solution, soluble in purified water upon boiling. Solution is light to medium, yellow to tan, clear to moderately hazy.

Prepared Appearance: Light to medium, yellow to tan, clear to moderately hazy.

Reaction of 5.2%

Solution at 25°C: pH 7.4 ± 0.2

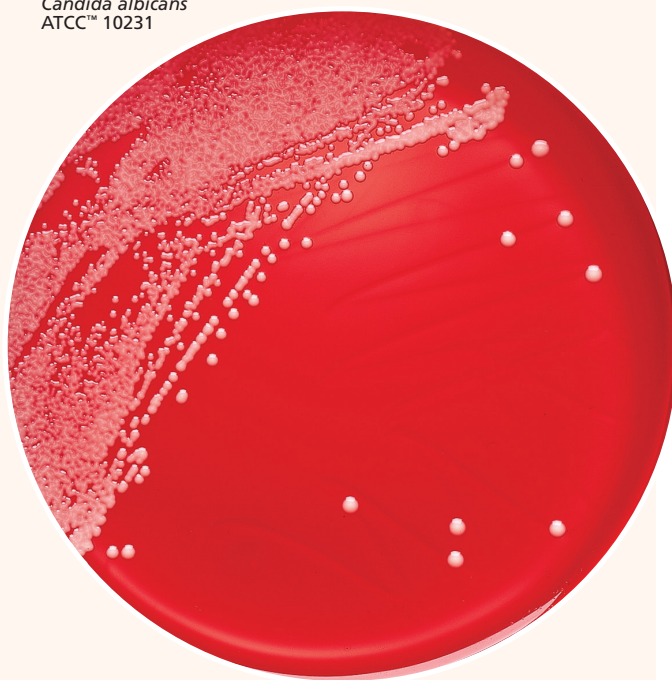
#### Cultural Response

##### BBL™ Brain Heart CC Agar

Prepare the medium per label directions. Inoculate with fresh cultures and incubate at 25 ± 2°C under appropriate atmospheric conditions for 7 days.

ORGANISM	ATCC™	RECOVERY
<i>Aspergillus brasiliensis</i> (niger)	16404	Partial to complete inhibition
<i>Candida albicans</i>	10231	Good
<i>Escherichia coli</i>	25922	Partial to complete inhibition
<i>Trichophyton mentagrophytes</i>	9533	Good

*Candida albicans*  
ATCC™ 10231



## Procedure

Consult appropriate references for information about the processing and inoculation of specimens.<sup>1,4</sup>

For isolation of fungi from potentially contaminated specimens, a nonselective medium should be inoculated along with the selective medium. Incubate at 25-30°C (plates in an inverted position, agar side up, with increased humidity). For isolation of fungi causing systemic mycoses, two sets of media should be inoculated, with one set incubated at 25-30°C and a duplicate set at 35 ± 2°C.

All cultures should be examined at least weekly for fungal growth and should be held for 4-6 weeks before being reported as negative.

## Expected Results

After sufficient incubation, examine cultures for fungal colonies exhibiting typical color and morphology. Biochemical tests and serological procedures should be performed to confirm findings.

## Limitation of the Procedure

Some fungi may be inhibited by antibiotics in this medium.<sup>5</sup>

## References

1. Reisner, Woods, Thomson, Larone, Garcia and Shimizu. 1999. *In* Murray, Baron, Pfaller, Tenover and Tenover (ed.), Manual of clinical microbiology, 7th ed. American Society for Microbiology, Washington, D.C.
2. Kwon-Chung and Bennett. 1992. Medical mycology. Lea & Febiger, Philadelphia, Pa.
3. Murray, Baron, Jorgensen, Landry and Pfaller (ed.). 2007. Manual of clinical microbiology, 9th ed. American Society for Microbiology, Washington, D.C.
4. Merz and Roberts. 1995. *In* Murray, Baron, Pfaller, Tenover and Tenover (ed.), Manual of clinical microbiology, 6th ed. American Society for Microbiology, Washington, D.C.
5. Ajello, Georg, Kaplan and Kaufman. 1963. CDC laboratory manual for medical mycology. PHS Publication No. 994, U.S. Government Printing Office, Washington, D.C.

## Availability

### BBL™ Brain Heart (Infusion) CC Agar

Cat No.	211057	Dehydrated – 500 g
	296261	Prepared Plates (Deep Fill) – Pkg. of 20*
	297650	Prepared Slants (A Tubes) – Pkg. of 10*
	296106	Prepared Slants (C Tubes) – Ctn. of 100*
	221834	<b>Mycoflask™</b> Bottles – Pkg. of 10*

### BBL™ Brain Heart Infusion CC Agar with Sheep Blood

Cat. No.	296178	Prepared Plates (Deep Fill) – Pkg. of 20*
----------	--------	---

### BBL™ Brain Heart CC Agar with 10% Sheep Blood and Gentamicin

Cat. No.	221842	Prepared Plates (Deep Fill) – Pkg. of 10*
	296358	Prepared Slants (C Tubes) – Pkg. of 10*
	295757	Prepared Slants (C Tubes) – Ctn. of 100*

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

**BS12** **CMPH2** **MCM9**

Cat. No.	221841	Prepared Plates (Deep Fill) – Pkg. of 20*
	296343	Prepared Slants (C Tubes) – Pkg. of 10*
	295756	Prepared Slants (C Tubes) – Ctn. of 100*

### BBL™ Brain Heart Infusion (Sheep) Blood Agar with Penicillin and Streptomycin

Cat. No.	296097	Prepared Plates (Deep Fill) – Pkg. of 20*
	297335	Prepared Slants (A Tubes) – Pkg. of 10*

\*Store at 2-8°C.