

Bordet Gengou Agar Base • Bordet Gengou Blood Agar

Intended Use

Bordet Gengou Agar Base, with the addition of glycerol and sterile blood, is used in qualitative procedures for the detection and isolation of *Bordetella pertussis* from clinical specimens.

Summary and Explanation

Bordet Gengou Blood Agar is used in clinical laboratories as a method of diagnosing whooping cough. *Bordetella pertussis*, the etiologic agent of this disease, may be isolated from aspirated bronchial or nasopharyngeal secretions, perinasal swabs or, perhaps with greater difficulty due to the diversity of flora, from throat swabs.¹

Bordet and Gengou introduced the medium in 1906 as a method of maintaining stock cultures.² In 1934, Kendrick and Eldering replaced the 50% human or rabbit blood recommended in the original formulation with 15% sheep blood to make the medium more practical for laboratories to produce for routine clinical procedures.³

Principles of the Procedure

Bordet Gengou Blood Agar contains potato infusion and glycerol to supply the nutrients necessary to support the growth of *B. pertussis*. Defibrinated animal blood supplies additional nutrients and enables the detection of hemolytic reactions, which aid in the identification of *B. pertussis*.

Formula

Difco™ Bordet Gengou Agar Base

Approximate Formula* Per Liter

| | | |
|-----------------------------------|------|---|
| Potato, Infusion from 125 g | 4.5 | g |
| Sodium Chloride | 5.5 | g |
| Agar | 20.0 | g |

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

Directions for Preparation from Dehydrated Product

1. Suspend 30 g of the powder in 1 L of purified water containing 10 g of glycerol. 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. Aseptically add 15% sterile, defibrinated blood to the medium at 45-50°C. Mix well.
5. Test samples of the finished product for performance using stable, typical control cultures.

Procedure

Use standard procedures to obtain isolated colonies from specimens. Incubate plates in an inverted position (agar side up) in a moist chamber at $35 \pm 2^\circ\text{C}$ for 7 days. Examine the plates daily with and without a dissecting microscope (oblique illumination) to detect the presence of *Bordetella pertussis* and spreading colonies or molds that could mask the presence of this

User Quality Control

Identity Specifications

Difco™ Bordet Gengou Agar Base

Dehydrated Appearance: Beige, free-flowing, homogeneous.

Solution: 3.0% solution, soluble upon boiling in purified water containing 1% glycerol. Solution is light to medium amber, opalescent, may have a slight precipitate.

Prepared Appearance: Plain – Light to medium amber, opalescent, may have a precipitate.

With 15% blood – Cherry red, opaque.

Reaction of 3.0%

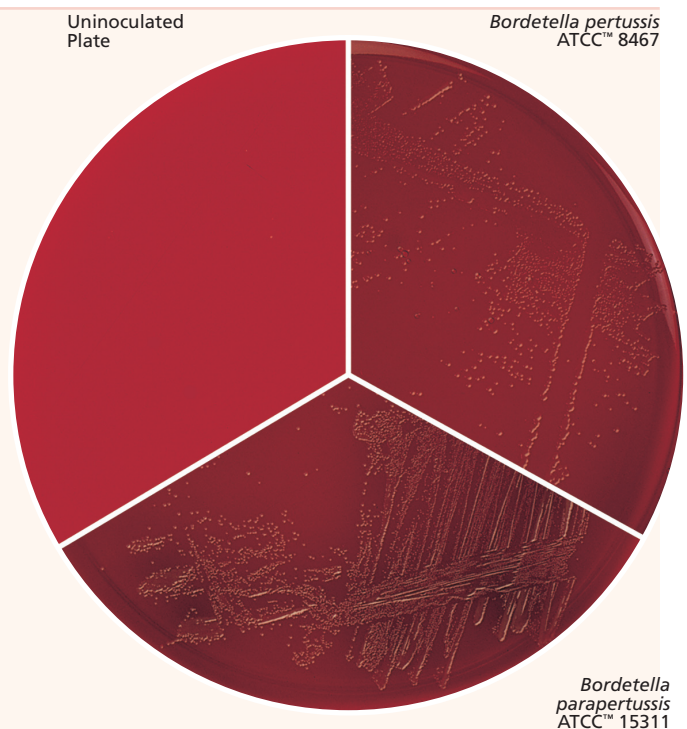
Solution at 25°C: pH 6.7 ± 0.2

Cultural Response

Difco™ Bordet Gengou Agar Base

Prepare the medium per label directions. Inoculate and incubate at $35 \pm 2^\circ\text{C}$ for 48-72 hours.

| ORGANISM | ATCC™ | INOCULUM CFU | RECOVERY WITH 15% RABBIT BLOOD |
|----------------------------------|-------|-----------------|-----------------------------------|
| <i>Bordetella bronchiseptica</i> | 4617 | 30-300 | Good |
| <i>Bordetella parapertussis</i> | 15311 | 30-300 | Good |
| <i>Bordetella pertussis</i> | 8467 | 30-300 | Good |



species. Use a sterile scalpel or needle to remove the portions of the agar that contain spreading colonies or molds. Colonies of *B. pertussis* may not be visible without the aid of a microscope for 2-4 days. Plates may be discarded as negative after incubation for 7 days.

Expected Results

Bordetella pertussis produces small, domed, glistening colonies that resemble bisected pearls. The colonies are usually surrounded by a zone of hemolysis; however, some strains of *B. pertussis* are not hemolytic. Gram stains, biochemical tests and serological procedures should be performed to confirm findings.

Limitation of the Procedure

Some *Haemophilus* spp. will grow on *Bordetella* isolation media and cross-react with *B. pertussis* antisera. It may be prudent to rule out X and V factor dependence.

References

1. Loeffelholz and Sanden. 2007. *In* Murray, Baron, Jorgensen, Landry and Pfaller (ed.), Manual of clinical microbiology 9th ed. American Society for Microbiology, Washington, D.C.
2. Bordet and Gengou. 1906. Ann. Inst. Pasteur 20:731.
3. Kendrick and Eldering. 1934. Am. J. Public Health 24:309

Availability

Difco™ Bordet Gengou Agar Base

CMPH2 **MCM9**

Cat. No. 248200 Dehydrated – 500 g

Difco™ Glycerol

Cat. No. 228210 Bottle – 100 g

228220 Bottle – 500 g

BBL™ Bordet Gengou Blood Agar

CMPH2 **MCM9**

Cat. No. 297876 Prepared Plates with Glycerol and 15% Sheep Blood – Pkg. of 10*

*Store at 2-8°C.