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BIO-BAG™ Type Cfj
Environmental Chamber

DESCRIPTION

BIO-BAG Type Cfj is a disposable, individual environmental chamber and a gas generator, consisting of one tablet of potassium borohydride-sodium bicarbonate and an ampule of hydrochloric acid, which when activated in the sealed **BIO-BAG** chamber provides a microaerophilic atmosphere.

INTENDED USE

BIO-BAG Type Cfj is designed to provide a microaerophilic environment suitable for the isolation of *Campylobacter jejuni,* formerly known as *C. fetus* subsp. *jejuni* (Cfj), from clinical specimens or subcultures from selective media. When used as directed, **BIO-BAG** Type Cfj will provide an atmosphere that has been shown to provide optimum growth of *C. jejuni.* [1,2]

SUMMARY AND EXPLANATION

Campylobacter jejuni has been recognized as a common enteric pathogen.[2,4,7,8] This organism is a true microaerophile and a capnophilic atmosphere has been shown to enhance growth.[5] Use of a selective medium containing 5% sheep blood and a combination of antimicrobial agents and incubation at 42ºC provides conditions favorable for the selective isolation of *C. jejuni* from intestinal flora.[3,6] Under ideal conditions, characteristic colonies may be observed in 24 to 48 h,[1,2,5] Each **BIO-BAG** Type Cfj system allows cultures to be set up and observed for growth individually, so that appropriate atmospheric conditions are not interrupted. Exposure to atmospheric oxygen may interfere with the growth of more oxygen-sensitive strains.[5]

PRINCIPLE OF THE PROCEDURE

A microaerophilic-capnophilic atmosphere is provided in each sealed **BIO-BAG** Type Cfj system. A self-contained generator consists of an ampule of a weak hydrochloric acid solution and a gas generator tablet. When the ampule is crushed, the tablet is then activated. A portion of atmospheric oxygen in the chamber is utilized in the reaction. The resulting atmosphere is conducive to the isolation and cultivation of *C. jejuni*. [1,2] Each **BIO-BAG** Type Cfj system is disposable and designed to be used only once.

CONTENTS

Each **BIO-BAG** Type Cfj system consists of:

1 Gas Impermeable Environmental Chamber,

1 Gas Generator consisting of one tablet of potassium borohydride-sodium bicarbonate and an ampule of hydrochloric acid.

Precautions: *in vitro* Diagnostic

WARNING: HYDROGEN IS GENERATED, THIS GAS IS FLAMMABLE AND MAY BE EXPLOSIVE. AVOID EXPOSURE TO SPARKS OR FLAME.

Do not use generator if it appears damaged or previously activated.

Do not allow generator to come in contact with water prior to use. Store in tightly closed bag with desiccant to assure integrity of the generator tablet.

Do not activate generator until **BIO-BAG** chamber has been properly sealed.

Storage: Store at room temperature 15 – 30ºC (59 – 86ºC F). Store in tightly closed pouch with desiccant.

Materials Provided: BIO-BAG Type Cfj, 100 sets per carton or **BIO-BAG** Type Cfj, 25 sets per carton (See “Availability”).

Materials Required But Not Provided: Campy-BAP or other selective medium, heat sealer and 42ºC incubator.

PROCEDURE

1. Place inoculated plate into **BIO-BAG** chamber. (Two 100-mm petri dishes may be placed in a single chamber.)
2. Place one microaerophilic generator into chamber. (Position perpendicular to the bottom of the chamber with the arrows pointing toward the open end of the chamber.)
3. Insert the open end of the **BIO-BAG** chamber into heat sealer and seal closed.
4. Hold sealed **BIO-BAG** system in upright position (heat-sealed end up). Crush generator ampule at label position (using thumb and forefinger). Tap middle of generator tube with forefinger, allowing tablet to drop into generating solution. Observe for bubbling of gas.
5. Hold or stand **BIO-BAG** system upright until bubbling action has ceased (about 60 sec).
6. Place sealed **BIO-BAG** system in 42ºC incubator.

7. Observe plates in individual environmental chambers for typical growth at 24 and 48 h. (Longer incubation may be required for certain strains.)

When desired, **BIO-BAG** systems may be opened by tearing or cutting at notches. **BIO-BAG** chamber and components are not reusable. Follow normal biohazard procedures for disposal of potentially contaminated materials.

LIMITATIONS

Although the antimicrobials in the medium and 42ºC incubation are inhibitory to normal intestinal flora, growth of these organisms may occur in heavily inoculated areas. Overgrowth of contaminating bacteria may cause oxygen levels to vary to limits below those required for optimum growth of Campylobacter. Light inoculation is, therefore, suggested. (Prereduction of the media is not required.)

Tablets in the generator may deteriorate if exposed to moisture. Care must be taken to store unused generators in closed storage bag with desiccant supplied.

PERFORMANCE CHARACTERISTICS

In vitro and *in vivo* studies have shown **BIO-BAG** Type Cfj to provide a suitable atmosphere for the cultivation of *Campylobacter jejuni.*[1,9]

Quality Control:

A stock strain of *C. jejuni* should be tested in the **BIO-BAG** Type Cfj system periodically to assure adequate conditions for recovery and for typical morphology.

AVAILABILITY

Cat. No.	Description
261211	**BIO-BAG**™ Environmental Chamber Type Cfj, 100 sets per carton.
261212	**BIO-BAG**™ Environmental Chamber Type Cfj, 25 sets per carton.

REFERENCES

1. Kaplan, R.L., Kwiatkowski, J.E., Landau, W., 1980, Isolation of *Campylobacter fetus* sp. *jejuni* from stool using the "**BIO-BAG**" environmental chamber. **Abs. Ann. Mtg. Am. Soc. Microbiol.**
2. Kaplan, R.L., Barrett, J., 1981. Monograph; Campylobacter.
3. Blaser, M.J. Berkowitz, I.D., LaForce, F.M., Cravens, F.M., Reller, L.B., Wang, W.L., 1979, *Campylobacter* enteritis: Clinical and epidermiologic features. **Ann. Inter. Med.** *91:*179-185.
4. Butzler, J.P., Dekeyser, P., Detrain, M., Dahaen, F., 1973, Related vibrios in stools. **J. Pediatr.** *82:*493-495.
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6. Skirrow, M.B., 1977. *Campylobacter* enteritis: A "new" disease. **Br. Med. J.** *2*:9-11.
7. Smith, J.P., Durfee, K., Marymount, J.H.. 1980, Incidence of *Campylobacter* enteritis in the midwestern United States. **Am. J. Med. Tech.** *2*:81-84
8. Torphy, D.E., Bond, W.W., 1979, *Campylobacter fetus* infections in children. **Pediatrics** *64:*898-903.
9. Data on file at Becton Dickinson Microbiology Systems, Sparks, MD 21152 USA.

TECHNICAL INFORMATION: In the United States, telephone Technical Services, toll free (800) 638-8663.

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