



BD™ Endo Agar

INTENDED USE

BD Endo Agar is a slightly selective and differential medium for the isolation and differentiation of *Enterobacteriaceae* and several other Gram negative rods from clinical specimens.

PRINCIPLES AND EXPLANATION OF THE PROCEDURE

Microbiological method.

In 1904, Endo reported the development of a culture medium for the differentiation of lactose fermenters from the non-fermenters.¹ The original formula has been modified extensively since its introduction.² Over the years, Endo Agar has been an important medium in the microbiological examination of potable water and wastewater, dairy products and foods; however, the current compendia of standard methods for the examination of these materials recommend alternative media formulations.³⁻⁵ The medium is still used in clinical microbiology and some other areas for the isolation and differentiation of *Enterobacteriaceae*.⁶ The selectivity of Endo Agar is due to the sodium sulfite/basic fuchsin combination which results in the partial suppression of gram-positive micro-organisms. Coliforms ferment the lactose producing dark pink to rose-red colonies with an iridescent greenish metallic sheen and a similar coloration of the medium. The colonies of organisms which do not ferment lactose are colorless to faint pink against the light pink background of the medium.

REAGENTS

BD Endo Agar

Formula* Per Liter Purified Water	
Peptic Digest of Animal Tissue	10.0
Lactose	10.0
Dipotassium Hydrogen Phosphate	3.5 g
Sodium Sulfite	2.5
Basic Fuchsin	0.5
Agar	15.0

pH 7.4 ± 0.2

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

PRECAUTIONS

IVD . For professional use only.

Do not use plates if they show evidence of microbial contamination, discoloration, drying, cracking or other signs of deterioration.

Consult **GENERAL INSTRUCTIONS FOR USE** document for aseptic handling procedures, biohazards, and disposal of used product.

STORAGE AND SHELF LIFE

On receipt, store plates in the dark at 2 to 8° C, in their original sleeve wrapping until just prior to use. Avoid freezing and overheating. The plates may be inoculated up to the expiration date (see package label) and incubated for the recommended incubation times.

Plates from opened stacks of 10 plates can be used for one week when stored in a clean area at 2 to 8° C.

USER QUALITY CONTROL

Inoculate representative samples with the following strains (for details, see **GENERAL INSTRUCTIONS FOR USE** document). Incubate plates in the dark for 18 to 24 hours at 35 ± 2°C in an aerobic atmosphere.

Strains	Growth Results
<i>Escherichia coli</i> ATCC™ 25922	Colonies dark pink to rose-red with green metallic sheen. Marked reddening of the medium may occur.
<i>Salmonella</i> Typhimurium ATCC 14028	Colonies colorless to faint pink
<i>Shigella flexneri</i> ATCC 12022	Colonies colorless to faint pink and slightly more pink than <i>Salmonella</i> colonies.
<i>Enterococcus faecalis</i> ATCC 29212	Inhibited. Moderate growth acceptable. Colonies small, pink to rose-red. Trace sheen may be evident.
Uninoculated	Light pink, slightly opalescent

PROCEDURE

Materials Provided

BD Endo Agar (90 mm **Stacker™** plates). Microbiologically controlled.

Materials Not Provided

Ancillary culture media, reagents and laboratory equipment as required.

Specimen Types

This is a selective medium for Gram negative rods that can be used for all types of clinical specimens (see also **PERFORMANCE CHARACTERISTICS AND LIMITATIONS OF THE PROCEDURE**).

Test Procedure

Streak the specimen as soon as possible after it is received in the laboratory. The streak plate is used primarily to isolate pure cultures from specimens containing mixed flora. Alternatively, if material is being cultured directly from a swab, roll the swab over a small area of the surface at the edge; then streak from this inoculated area. A nonselective medium such as Columbia Agar with 5% Sheep Blood must also be inoculated to provide an indication of other organisms present in the specimen.

Incubate plates, protected from light, at 35 ± 2°C for 18 to 24 h or.

Results

Typical colonial morphology is as follows:

Organisms	BD Endo Agar
<i>E. coli</i>	Dark pink to rose-red, green metallic sheen
<i>Enterobacter/Klebsiella</i>	Large, mucoid, pink
<i>Proteus</i>	Colorless to very pale pink, swarming
<i>Salmonella</i>	Colorless to very pale pink
<i>Shigella</i>	Colorless to pale pink
<i>Pseudomonas</i>	Irregular, colorless
Gram-positive bacteria	No growth to fair growth

PERFORMANCE CHARACTERISTICS AND LIMITATIONS OF THE PROCEDURE

On this medium, organisms of the family *Enterobacteriaceae* and a variety of other Gram negative rods, such as *Pseudomonas* and *Aeromonas* will grow.⁶

On **BD Endo Agar**, swarming of *Proteus* is not inhibited.

Endo Agar is not completely inhibitory to Gram positive bacteria such as enterococci or staphylococci and does not inhibit yeasts.

Although certain diagnostic tests may be performed directly on this medium, biochemical and, if indicated, immunological testing using pure cultures is necessary for complete identification. Consult appropriate references.³

The medium is very sensitive to light. Extended exposure to light will destroy the indicator system and render the medium unusable.

REFERENCES

1. Endo, S. 1904. Über ein Verfahren zum Nachweis der Typhusbacillen. *Centr. f. Bakt.* 35:109-110.
2. Levin, M., and H.W. Schoenlein. 1930. A compilation of culture media for the cultivation of microorganisms. The Williams & Wilkins Company, Baltimore.
3. Marshall, R.T. (ed.). 1992. Standard methods for the examination of dairy products, 16th ed. American Public Health Association, Washington, D.C.
4. Vanderzant, C., and D.F. Splittstoesser (ed.). 1992. Compendium of methods for the microbiological examination of foods, 3rd ed. American Public Health Association, Washington, D.C.
5. Eaton, A.D., L.S. Clesceri, and A.E. Greenberg (ed.). 1995. Standard methods for the examination of water and wastewater, 19th ed. American Public Health Association, Washington, D.C.
6. Bockemühl, J. 1992. *Enterobacteriaceae*. In: Burkhardt, F. (ed.). *Mikrobiologische Diagnostik*. Thieme Verlag. Stuttgart, New York.

PACKAGING/AVAILABILITY

BD Endo Agar

Cat. No. 254016	Ready-to-use plated media, 20 plates
Cat. No. 254074	Ready-to-use plated media, 120 plates

FURTHER INFORMATION

For further information please contact your local BD representative.



Becton Dickinson GmbH

Tullastrasse 8 – 12
D-69126 Heidelberg/Germany
Phone: +49-62 21-30 50 Fax: +49-62 21-30 52 16
Reception_Germany@europe.bd.com

<http://www.bd.com>

<http://www.bd.com/europe/regulatory/>

ATCC is a trademark of the American Type Culture Collection

BD, BD Logo and all other trademarks are property of Becton, Dickinson and Company. © 2013 BD