

Instructions for Use

PYRUVATE BROTH

Cat. no. Y130	Pyruvate Broth, 13x100mm Tube, 5ml	20 tubes/box
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INTENDED USE

Hardy Diagnostics Pyruvate Broth is recommended for the differentiation of microorganisms based on pyruvate utilization.

SUMMARY

The ability of bacteria to form organic compounds by metabolizing certain carbohydrates and related compounds is a widely used method for the identification of microorganisms. Acid is produced as a metabolic waste when Pyruvate Broth is inoculated with bacteria that are capable of metabolizing pyruvate. Acid production causes a decrease in pH which results in a color shift in the medium. Bromothymol blue is the acid-base indicator in the media. It is greenish-blue at an alkaline pH, and shifts to yellow when acid is produced during fermentation of the pyruvate. After incubation, yellow media is indicative of a positive fermentation reaction.

Pyruvate Broth contains casein peptone, sodium chloride, yeast extract, dipotassium pyruvate, and bromothymol blue. Casein peptone and yeast extract provide the nutrients and growth factors necessary for growth and the sodium chloride maintains osmotic balance. Sodium pyruvate is added as the fermentable ingredient and bromothymol blue is the acid-base indicator. Dipotassium phosphate is added as a buffering system.

FORMULA

Ingredients per liter of deionized water:*

Pancreatic Digest of Casein	10.0gm
Sodium Pyruvate	10.0gm
Yeast Extract	5.0gm
Dipotassium Phosphate	5.0gm
Sodium Chloride	5.0gm
Bromothymol Blue	0.04gm

Final pH 7.3 +/- 0.2 at 25°C.

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

STORAGE AND SHELF LIFE

Storage: Upon receipt store at 2-8°C. away from direct light. Media should not be used if there are any signs of deterioration (shrinking, cracking, or discoloration), contamination, or if the expiration date has passed. Product is light and temperature sensitive; protect from light, excessive heat, moisture, and freezing.

The expiration date on the product label applies to the product in its intact packaging when stored as directed. The product may be used and tested up to the expiration date on the product label and incubated for the recommended incubation times as stated below.

Refer to the document "[Storage](#)" for more information.

PRECAUTIONS

This product may contain components of animal origin. Certified knowledge of the origin and/or sanitary state of the animals does not guarantee the absence of transmissible pathogenic agents. Therefore, it is recommended that these products be treated as potentially infectious, and handle observing the usual Universal Precautions for blood. Do not ingest, inhale, or allow to come into contact with skin.

This product is for *in vitro* diagnostic use only. It is to be used only by adequately trained and qualified laboratory personnel. Observe approved biohazard precautions and aseptic techniques. All laboratory specimens should be considered infectious and handled according to "standard precautions." Refer to the document "[Guidelines for Isolation Precautions](#)" from the Centers for Disease Control and Prevention.

For additional information regarding specific precautions for the prevention of the transmission of all infectious agents from laboratory instruments and materials, and for recommendations for the management of exposure to infectious disease, refer to CLSI document M29: *Protection of Laboratory Workers from Occupationally Acquired Infections*.

Sterilize all biohazard waste before disposal.

Refer to the document "[Precautions When Using Media](#)" for more information.

PROCEDURE

1. Inoculate with 2-3 colonies from a 18-24 hour culture.
2. Incubate aerobically at 35°C. for up to 5 days.
3. Examine daily for a yellow reaction.

INTERPRETATION OF RESULTS

Pyruvate fermentation, and thus, acid production, is indicated by the appearance of a yellow color in the broth within 5 days following inoculation. A negative result is noted when the medium remains greenish-blue.

LIMITATIONS

It is recommended that biochemical, immunological, molecular, or mass spectrometry testing be performed on colonies from pure culture for complete identification of bacteria and/or fungi.

Refer to the document "[Limitations of Procedures and Warranty](#)" for more information.

MATERIALS REQUIRED BUT NOT PROVIDED

Standard microbiological supplies and equipment such as loops, other culture media, swabs, applicator sticks, incinerator, and incubators, etc., are not provided.

QUALITY CONTROL

Hardy Diagnostics tests each lot of commercially manufactured media using appropriate quality control microorganisms and quality specifications as outlined on the Certificate of Analysis (CofA) and the CLSI document M22-A3 *Quality Assurance for Commercially Prepared Microbiological Culture Media*. The following microorganisms are routinely used for testing at Hardy Diagnostics:

Test Organisms	Inoculation Method*	Incubation			Results
		Time	Temperature	Atmosphere	
<i>Enterococcus faecalis</i> ATCC® 29212	A	24hr	35°C	Aerobic	Growth; media turns yellow
<i>Enterococcus faecium</i> ATCC® 700221	A	24hr	35°C	Aerobic	Growth; no color change or turns blue

* Refer to the document "[Inoculation Procedures for Media QC](#)" for more information.

USER QUALITY CONTROL

End users of commercially prepared culture media should perform QC testing in accordance with applicable government regulatory agencies, and in compliance with accreditation requirements. Hardy Diagnostics recommends end users check for signs of contamination and deterioration and, if dictated by laboratory quality control procedures or regulation, perform quality control testing to demonstrate growth or a positive reaction and to demonstrate inhibition or a negative reaction, if applicable. Hardy Diagnostics quality control testing is documented on the certificate of analysis (CofA) available from Hardy Diagnostics [Certificate of Analysis](#) website. Also refer to the document "[Finished Product Quality Control Procedures](#)," and the CLSI document M22-A3 *Quality Assurance for Commercially Prepared Microbiological Culture Media* for more information on the appropriate QC procedures. See the references below.

PHYSICAL APPEARANCE

Pyruvate Broth should appear slightly hazy, and blue to blue-green in color.



Enterococcus faecalis (ATCC® 29212) growing in Pyruvate Broth (Cat. no. Y130). The yellow color development was indicative as positive for pyruvate utilization. Incubated aerobically for 24 hours at 35°C.



Enterococcus faecium (ATCC® 700221) growing in Pyruvate Broth (Cat. no. Y130). No yellow color development was indicative as negative for pyruvate utilization. Incubated aerobically for 24 hours at 35°C.

REFERENCES

1. Anderson, N.L., et al. *Cumitech 3B; Quality Systems in the Clinical Microbiology Laboratory*, Coordinating ed., A.S. Weissfeld. American Society for Microbiology, Washington, D.C.
2. Jorgensen., et al. *Manual of Clinical Microbiology*, American Society for Microbiology, Washington, D.C.

3. Tille, P., et al. *Bailey and Scott's Diagnostic Microbiology*, C.V. Mosby Company, St. Louis, MO.
4. Isenberg, H.D. *Clinical Microbiology Procedures Handbook*, Vol. I, II & III. American Society for Microbiology, Washington, D.C.
5. Schleifer, K.H. 1986. *Bergey's Manual of Systematic Bacteriology*. Vol. II. Williams & Wilkins, Baltimore, MD.

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[Ordering Information](#)

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