

## TODD HEWITT BROTH (7161)

### Intended Use

**Todd Hewitt Broth** is used for the cultivation of streptococci and other fastidious microorganisms.

### Product Summary and Explanation

Todd Hewitt Broth was originally developed for the production of antigenic streptococcal hemolysin.<sup>1</sup> Todd Hewitt Broth is prepared according to the formula described by Updyke and Nickle, who compared media for type specific extract production of group A streptococci.<sup>2</sup> This study was performed using Todd Hewitt Broth prepared with infusion of fresh beef heart as a control. Results showed Todd Hewitt Broth was particularly satisfactory for growth of group A streptococci for serological typing.

Moody et al. used Todd Hewitt Broth in the fluorescent-antibody identification of group A streptococci from throat cultures.<sup>3</sup> Todd Hewitt Broth is recommended as an enrichment medium for growth of streptococcal cells in the identification of groups A and B by IF staining.<sup>4</sup> Todd Hewitt Broth was used as an enrichment broth for group A streptococci in a comparison study of a rapid antigen test.<sup>5</sup>

### Principles of the Procedure

The nitrogen source is provided by Heart Infusion in Todd Hewitt Broth. Yeast Enriched Peptone supplies vitamins and essential minerals. Dextrose is a carbon source and a stimulant for hemolysin production.<sup>6</sup> Sodium Chloride maintains the osmotic balance of the medium. Disodium Phosphate and Sodium Carbonate act as buffers to aid in neutralizing acid production from dextrose fermentation and protect hemolysin from inactivation.<sup>6</sup>

### Formula / Liter

Heart Infusion (dehydrated) .....	3.1 g
Yeast Enriched Peptone .....	20 g
Dextrose.....	2 g
Sodium Chloride .....	2 g
Disodium Phosphate.....	0.4 g
Sodium Carbonate .....	2.5 g

Final pH: 7.8 ± 0.2 at 25°C

Formula may be adjusted and/or supplemented as required to meet performance specifications.

### Precautions

1. For Laboratory Use.
2. IRRITANT. Irritating to eyes, respiratory system, and skin.

### Directions

1. Dissolve 30 g of the medium in one liter of purified water.
2. Heat with frequent agitation to completely dissolve the medium.
3. Autoclave at 121°C for 15 minutes.

### Quality Control Specifications

**Dehydrated Appearance:** Powder is homogeneous, free flowing, and beige.

**Prepared Appearance:** Prepared medium is gold to amber, and clear to trace hazy, with none to light precipitate.

**Expected Cultural Response:** Cultural response in Todd Hewitt Broth incubated aerobically at 35 ± 2°C and examined for growth after 18 - 24 hours.

Microorganism	Approx. Inoculum (CFU)	Expected Growth
<i>Enterococcus faecalis</i> ATCC® 29212	10 - 300	Good to excellent
<i>Staphylococcus aureus</i> ATCC® 25923	10 - 300	Good to excellent
<i>Streptococcus pneumoniae</i> ATCC® 6305	10 - 300	Good to excellent
<i>Streptococcus pyogenes</i> ATCC® 19615	10 - 300	Good to excellent

The organisms listed are the minimum that should be used for quality control testing.

### **Test Procedure**

For a complete discussion on the isolation, identification, and serological procedures of streptococci and other fastidious microorganisms, refer to the procedures described in appropriate references.<sup>3,4,7</sup>

### **Results**

Refer to appropriate references and procedures for results.

### **Storage**

Store sealed bottle containing the dehydrated medium at 2-30°C. Once opened and recapped, place container in a low humidity environment at the same storage temperature. Protect from moisture and light by keeping container tightly closed.

### **Expiration**

Refer to the expiration date stamped on container. The dehydrated medium should be discarded if not free flowing, or if the appearance has changed from the original color. Expiry applies to medium in its intact container when stored as directed.

### **Limitations of the Procedure**

1. Due to nutritional variation, some strains may be encountered that grow poorly or fail to grow on this medium.
2. Todd Hewitt Broth cannot be used unbuffered for bile solubility testing.<sup>6</sup>

### **Packaging**

<b>Todd Hewitt Broth</b>	<b>Code No.</b>	<b>7161A</b>	<b>500 g</b>
		<b>7161B</b>	<b>2 kg</b>
		<b>7161C</b>	<b>10 kg</b>

### **References**

1. **Todd, E. W., and L. F. Hewitt.** 1932. A new culture medium for the production of antigenic streptococcal haemolysin. J. Pathol. Bacteriol. **35**:973.
2. **Updyke, E. L., and M. I. Nickle.** 1954. A dehydrated medium for the preparation of type specific extracts of group A streptococci. Appl. Microbiol. **2**:117.
3. **Moody, M. D., A. C. Siegel, B. Pittman, and C. C. Winter.** 1963. Fluorescent-antibody identification of group A streptococci from throat swabs. Am. J. Public Health. **53**:1083.
4. **Facklam, R. R., and R. B. Carey.** 1985. *Streptococci and Aerococci*, p. 154-175. In E. H. Lennette, A. Balows, W. J. Hausler, Jr., and H. J. Shadomy (eds.). Manual of clinical microbiology, 4<sup>th</sup> ed. American Society for Microbiology, Washington, D.C.
5. **Bourbeau, P. P., B. J. Heiter, J. P. Anhalt, and D. W. Naumovitz.** 1993. Comparison of direct specimen testing utilizing testpack strep A with testing of specimens following a two-hour broth enrichment. Diagn. Microbiol. Infect. Dis. **17**:93-96.
6. **MacFaddin, J. F.** 1985. Media for isolation-cultivation-identification maintenance of medical bacteria, vol.1, p. 755-762. Williams & Wilkins, Baltimore, MD.
7. **Isenberg, H. D. (ed.).** 1992. Clinical microbiology procedures handbook, vol. 1, American Society for Microbiology, Washington, D.C.

### **Technical Information**

Contact Acumedia Manufacturers, Inc. for Technical Service or questions involving dehydrated culture media preparation or performance at (517)372-9200 or fax us at (517)372-2006.