

LISTERIA SP./LISTERIA MONOCYTOGENES CHROMOGENIC DETECTION SYSTEM

A Selective & Differential Medium For Detecting Nonpathogenic & Pathogenic Listeria On A Single Plate



Listeria sp.
L. monocytogenes

Presumptively positive colonies of nonpathogenic *Listeria sp.* appear pink, whereas *Listeria monocytogenes* and *Listeria ivanovii* appear as blue-green to blue-violet colonies with or without a precipitate after 42-48 hours at 35°C.

LISTERIA SP./LISTERIA MONOCYTOGENES

CHROMOGENIC DETECTION SYSTEM

at 35°C for 42-48 hours ...

| Bacteria | Number of Strains | Colonial Morphology |
|--|-------------------|--|
| <i>Listeria monocytogenes</i> | 39 | Convex, 1-2 mm, blue-green to blue-violet, + precipitate |
| <i>Listeria ivanovii</i> | 4 | Convex, 1-1.5 mm, dark blue-green, large ppt. |
| <i>Listeria innocua</i> | 6 | Convex, 1-2 mm, pink, no ppt. |
| <i>Listeria welshimeri</i> | 2 | Convex, 1-2 mm, pink, no ppt. |
| <i>Listeria seeligeri</i> | 1 | Convex, 1-2 mm, pink, no ppt. |
| <i>Listeria grayi</i> | 1 | Convex, 1-2 mm, pink, no ppt. |
| <i>Bacillus cereus</i> / <i>B. thuringiensis</i> | 3 | No Growth |
| <i>Enterococcus</i> sp.* | | Scant Growth; pinpoint; clear |
| Gram positive sp.** | | No Growth |
| Gram negative sp.*** | | No Growth |
| Yeasts sp.**** | 3 | No Growth |

* *Enterococcus faecalis*, *E. faecium*, and *E. avium*

** Includes: *Bacillus circulans*, and *B. subtilis*; *Staphylococcus aureus*, *S. epidermidis*, and *S. saprolyticus*; *Lactobacillus acidophilus* and *L. plantarum*; and *Pediococcus cerevisiae*

*** Includes: *E. coli* (2 strains) and *E. coli* 0157:H7 (1 strain); *Enterobacter aerogenes*; *Citrobacter freundii*; *Shigella sonnei*; *Morganella morganii*; *Providencia alcalifaciens*; *Pantoea agglomerans*; *Enterobacter sakazakii*, *Klebsiella pneumoniae* and *K. ozaenae*

**** *Zygosaccharomyces bailii* and *Z. rouxii*; *Candida albicans*

LISTERIA SP./LISTERIA MONOCYTOGENES CHROMOGENIC DETECTION SYSTEM

key advantages...

- This highly differential system is based on specific chromogenic substrates in the plating medium that simultaneously differentiate both nonpathogenic *Listeria* species (*L. innocua*, *L. seeligeri*, *L. welshimeri*, and *L. grayi*) as pink colonies and the pathogenic *Listeria* species (*L. monocytogenes* and *L. ivanovii*) as blue-green to blue-violet colonies on a single plate in 42-48 h at 35°C.
- Unlike selective/differential agar for *Listeria* species that depend on the detection of only β -glucosidase activity and produce a single color for colonies for all *Listeria* species, the differentiation mechanism in this system works by the combination of indoxyl derivative chromogenic substrates that produce positive color reactions for colonies of nonpathogenic *Listeria* sp. that are pink due to their β -glucosidase activity, and blue-green to blue-violet for the pathogenic species depending on the strain-specific balance of β -glucosidase (pink) and phosphatidylinositol-specific-phospholipase C (blue) activities.
- The agar surface of the plates have an opaque white background that facilitates differentiation of colored colonies of both groups of *Listeria* organisms growing on the surface of the plate.
- A rapid and convenient fluorogenic test and acid from rhamnose are provided in the system that differentiates *Listeria monocytogenes* from *Listeria ivanovii* within 6 hours.

References...

1. Restaino, L., E.W. Frampton, W.C. Lionberg, and A.L. Restaino. 2006. A multi-chromogenic agar for the dual detection of nonpathogenic and pathogenic *Listeria* species. Poster No. P3-64, IAFP 2006.
2. Restaino, L., E.W. Frampton, W.C. Lionberg, and A.L. Restaino. 2007. Detection of non pathogenic and pathogenic *Listeria* species by use of a chromogenic agar. *Food Prot. Trends*. 27:592-596.
3. Swiech, R. et al. 2008. Efficacy of a chromogenic plating medium for detecting *Listeria* species from environmental samples. Poster No. P3-16, IAFP 2008.