66304 Lysine Decarboxylase Broth (LD Broth)

Lysine Decarboxylase Broth is used for distinguishing the *Salmonella arizonae* from the Bethesda Bellerup Group of Enterobacteriaceae.

Composition:

Ingredients	Grams/Litre
Peptic digest of animal tissue	5.0
Yeast extract	3.0
Dextrose	1.0
L-Lysine hydrochloride	5.0
Bromo cresol purple	0.02
Final pH 6.8 +/- 0.2 at 25°C	

Store prepared media below 8°C, protected from direct light. Store dehydrated powder, in a dry place, in tightly-sealed containers at 2-25°C.

Appearance: Greenish yellow coloured, homogeneous, free flowing powder.
Colour and Clarity: Purple coloured, clear solution without any precipitate.

Directions:
Suspend 14g in 1000ml distilled water. Boil to dissolve the medium completely. Dispense in 5 ml amount into screw capped test tubes. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool the tubed medium in an upright position. Inoculate the tubes and overlay with 2-3 ml of sterile mineral oil.

Principle and Interpretation:
Lysine Decarboxylase Broth was originally developed by Falkow(1). During the first time of incubation dextrose is fermented, which casue acid production and change the color of the indicator bromo cresol purple to yellow. On further incubation, in presence of lysine decarboxylase, L-Lysine is decarboxylated to cadaverine, what change the pH to an alkaline condition and change the color of indicator to purple. Negative samples remain yellow.
Peptic digest of animal tissue and yeast extract act as a source of nitrogen, carbon, amino acids and vitamin B complex. Dextrose is the fermentable sugar and L-Lysine is the substrate for lysine decarboxylase. Bromo cresol purple is the indicator.
Use a light inocula and check sample after 24 hours incubation. Some organisms need up to 4 days for the lysine decarboxylase reaction.

Cultural characteristics after 24 hours at 35-37°C.

Organisms (ATCC)	Growth	Lysine decarboxylase*
Escherichia coIi (25922) (including late lactose variants Alkalescence – Dispar)	+++	+/-
Citrobacter freundii (8090) (including Bethesda Bellerup Group)	+++	- (negative but shows false positive reaction)
Enterobacter aerogenes (13048)	+++	+
Klebsiella pneumoniae (13883)	+++	+
S. seotype Paratyphi A	+++	-
S. seotype Typhi (6539)	+++	+

S. seotype Arizonae (13314)	+++	+
Serratia marcescens (8100)	+++	+
Proteus vulgaris (13315)	+++	-
Proteus mirabilis (25933)	+++	-
Shigella dysenteriae (13313)	+++	-

* Key: + = positive reaction (purple)
- = negative reaction (yellow)
+/- = variable

References:

1. S. Falkow, Activity of lysine decarboxylase as an aid in the identification of Salmonellae and Shigellae, Am. J. Clin. Path. 29, 598-600 (1958)
2. W.I. Taylor, D. Schelhart, Isolation of Shigellae VI. Performance of Media with Stool Specimens, Appl. Microbiol., 16(9), 1387–1393 (1968)
3. International Organisation for Standardisation (ISO), Draft ISO/DIS 6579 (1993)

Precautions and Disclaimer
This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.