LOWENSTEIN-JENSEN (L-J) BASE

INTENDED USE
Remel Lowenstein-Jensen (L-J) Base is a solid medium recommended for use in qualitative procedures for the isolation and cultivation of *Mycobacterium* species.

SUMMARY AND EXPLANATION
In 1931, Lowenstein formulated a medium for the cultivation of mycobacteria using congo-red and malachite-green dyes to partially inhibit a number of bacterial species.[1] In 1932, Jensen modified the medium by altering the citrate and phosphate contents, eliminating congo-red dye, and increasing the concentration of malachite-green dye.[2] In comparison studies of media for recovery of pathogenic *Mycobacterium* spp., L-J Medium was found to be superior to other media tested, including ATS (American Trudeau Society) Medium.[3,4] In 1960, Boisvert successfully used L-J Medium for niacin testing to identify *M. tuberculosis*.[5]

PRINCIPLE
L-J Medium is a glycerated egg-potato medium. The glycerol and egg mixture provide fatty acids and protein essential for the metabolism of mycobacterium. Malachite-green dye is added to inhibit nonmycobacterial organisms and as a pH indicator.[6]

REAGENTS (CLASSICAL FORMULA)*
Potato Flour	30.0 g	Magnesium Citrate	0.6 g
Asparagine	3.6 g	Malachite Green	0.4 g
Monopotassium Phosphate	2.4 g	Magnesium Sulfate	0.24 g
		Demineralized Water	600.0 ml

*Adjusted as required to meet performance standards.

PRECAUTIONS
This product is for Laboratory Use only. It is not intended for use in the diagnosis of disease.

PREPARATION OF DEHYDRATED CULTURE MEDIUM
1. Suspend 37.2 g of medium in 600 ml of demineralized water, to which 12 ml of glycerol has been added.
2. Heat to boiling with agitation to completely dissolve.
3. Sterilize by autoclaving at 121°C for 15 minutes or following established laboratory procedures.
4. Cool to 50°C and add 1000 ml of homogenized whole egg and optional ingredients if desired. Mix until uniform.
5. Dispense into appropriate containers.
6. Inspissate or autoclave at 85°C for 45 minutes.

PROCEDURE
1. Consult current editions of appropriate references for the recommended procedure for sample preparation, inoculation, incubation and testing.

QUALITY CONTROL
Each lot number of L-J Medium has been manufactured, packaged, and processed in accordance with current Good Manufacturing Practice regulations. All lot numbers have been tested using the following quality control organisms and have been found to be acceptable. Testing of control organisms should be performed in accordance with established laboratory quality control procedures. If aberrant quality control results are noted, sample results should not be reported.

CONTROL	INCUBATION	RESULTS
Mycobacterium fortuitum ATCC® 6841	CO_2, up to 21 days @ 35-37°C	Growth
Mycobacterium intracellulare ATCC® 13950	CO_2, up to 21 days @ 35-37°C	Growth
Mycobacterium kansasii ATCC® 12478	CO_2, up to 21 days @ 35-37°C	Growth
Mycobacterium scrofulaceum ATCC® 19981	CO_2, up to 21 days @ 35-37°C	Growth
Mycobacterium tuberculosis ATCC® 25177	CO_2, up to 21 days @ 35-37°C	Growth

LIMITATIONS
1. Media containing malachite green, such as L-J Medium, is photosensitive and should not be exposed to light during storage.[6]
2. Mycobacteria require moisture for growth. L-J tubes should be kept tightly sealed prior to inoculation to avoid dehydration of media.[6]
3. Lowenstein-Jensen Medium may display some variation in the light green color throughout the tube. This does not interfere with the growth of mycobacteria; however, color changes showing bright yellow or dark blue zones may indicate contamination.[6]
4. *Mycobacterium bovis* is inhibited by glycerol and will not grow on L-J Medium.[6]

BIBLIOGRAPHY

1. Lowenstein, E. 1931. Zentralbl. Bakteriol. Parasitenkd. Infektionskr. Hyg. Abt. 1 Orig. 120:127-129.
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5. Boisvert, H. 1960. Ann. Inst. Pasteur. 99:600-607.
6. MacFaddin, J.F. 1985. Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria. Vol. 1. Williams & Wilkins, Baltimore, MD.

Refer to the front of Remel *Technical Manual of Microbiological Media* for **General Information** regarding precautions, product storage and deterioration, sample collection, storage and transportation, materials required, quality control, and limitations.

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