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| Section: Respiratory Tract Culture Manual | Subject Title: Lung Biopsies | |
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Open Lung/Transthoracic Needle/Transbronchial Lung Biopsies/ Lung Aspirates

I. Introduction

There are three major lung biopsy specimen types that may be received in the laboratory.

1. Open lung biopsy

This specimen usually consists of a wedge of lung tissue obtained during surgery and submitted in a clean, sterile container.

2. Transthoracic needle biopsy

These specimens are taken by pushing a small bore needle through the chest wall into the lung and aspirating the contents of the needle into a small amount of fluid.

3. Transbronchial lung biopsy

These specimens are taken using a fiberoptic bronchoscope and removing a portion of lung tissue. A much smaller piece of tissue is obtained than with open lung biopsy.

II. Specimen Collection and Transport

See [Pre-analytical Procedure - Specimen Collection QPCMI02001](#)

III. Reagents / Materials / Media

See [Analytical Process - Bacteriology Reagents_Materials_Media List QPCMI10001](#)

IV. Procedure

A. Processing of Specimens:

See [Specimen Processing Procedure QPCMI06003](#)

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- a) Direct Examination: Prepare 3 smears for:
- i) Gram stain
 - ii) Fungifluor stain
 - iii) Extra smear held in Mycology Section for special stains.

b) Culture:

| <u>Media</u> | <u>Incubation</u> |
|-----------------------------------|------------------------------------|
| Blood Agar (BA) | CO ₂ , 35°C x 48 hours |
| Chocolate Agar (CHOC) | CO ₂ , 35°C x 48 hours |
| MacConkey Agar (MAC) | CO ₂ , 35°C x 48 hours |
| Fastidious Anaerobe Agar (BRUC) | AnO ₂ , 35°C x 48 hours |
| Fastidious Anaerobic Broth (THIO) | O ₂ , 35°C x 48 hours |
| Inhibitory Mold Agar (IMA) * | O ₂ , 28°C x 4 weeks |
| Esculin Base Medium (EBM) * | O ₂ , 28°C x 4 weeks |
| Blood Egg Albumin Agar (BEAA) * | O ₂ , 28°C x 4 weeks |

 If *B. cepacia* is requested or the specimen is from a patient with Cystic Fibrosis,
add:

OF Base, Colistin, Bacitracin & Lactose Agar (OCBL) O₂, 35°C x 5 days
 Keep the BA, HI and MAC plates CO₂, 35°C x 5 days

 If *Nocardia* is requested, **add:**

Sodium Pyruvate Agar (PYRA) O₂, 35°C x 4 weeks

* Forward inoculated fungal cultures to Mycology for incubation and work-up.

B. Interpretation of culture:

Examine aerobic plates after 24 and 48 hours incubation and anaerobic plates after 48 hours incubation for any growth and identify all isolates including yeast. If no growth on aerobic and anaerobic plates, but organisms resembling anaerobic organisms is seen on gram stain, reincubate the BRUC and THIO for an additional 48 hours. Examine the OCBL plate daily for 5 days. If yeast grown, perform Germ Tube test (Refer to Appendix VII) and identify at the Respiratory Tract Culture Bench (i.e. **DO NOT** forward bacterial culture plates to Mycology section for identification). Refer to Appendix VI for yeast identification.

C. Susceptibility Testing:

Refer to Susceptibility Testing Manual.

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VI. Reporting

Direct Examination:

Gram Stain: Report presence or absence of pus cells.
Report presence or absence of organisms.
DO NOT quantitate.

Fungifluor Stain: Refer to Mycology Manual.

Culture:

Negative Report: “No growth.”
“No *B. cepacia* isolated” if *B. cepacia* culture is requested.
“No *Nocardia* isolated” if *Nocardia* culture is requested.

Positive Report: Report all isolates with appropriate sensitivities. Do not quantitate.

Telephone all positive results of direct examination and culture to ward / ordering physician.

VI. References

P.R. Murray, E.J. Baron, M.A. Pfaller, R.H. Tenover, R.M. Tenover. 2003. Manual of Clinical Microbiology, 8th ed. ASM Press, Washington, D.C.

H.D. Izenberg. 2003. Respiratory Tract Cultures, 3.11.1.1 – 3.11.3.1 in Clinical Microbiology Procedures Handbook, 2nd ed. Vol.1 ASM Press, Washington, D.C.