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**Lab Dept:** Microbiology

**Test Name:** KOH PREP

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***General Information***

**Lab Order Codes:** KOH

**Synonyms:** Fungal smear

**Related information:** Refer to [Fungal Culture](#), [Yeast Culture](#) or [Gram Stain](#).

**CPT Codes:** 87220 - Tissue examination by KOH slide of samples from skin, hair, or nails for fungi

**Test Includes:** Direct examination of specimen for fungal elements.

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***Logistics***

**Lab Testing Sections:** Microbiology

**Phone Numbers:** MIN Lab: 612-813-5866

STP Lab: 651-220-6555

**Test Availability:** Daily, 24 hours

**Turnaround Time:** 4 hours; upon receipt in the laboratory

**Special Instructions:** **Specimen site** and **date/time of collection** are required for processing.

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***Specimen***

**Specimen Type:** Bronchial aspirate, hair, nails, pus, skin, sputum, or tissue

**Container:** Sterile container

**Volume:** Visible material

**Collection:** **Bronchoscopy:**

1. Specimen obtained by physician through the biopsy channel of the bronchoscope.
2. Transfer specimen into a luki tube.

**Hair:**

1. With forceps, collect at least 10 - 12 affected hairs with the base of the shaft intact.
2. Place in sterile container.

**Nails:**

1. Remove nail polish.
2. Wipe nail with 70% alcohol using gauze (not cotton).
3. Clip a generous portion of the affected area and collect scrapings of the excess keratin produced under the nail.
4. Place in sterile container.

**Skin:**

1. Gently scrape the surface of the skin at the active margin of the lesion. **Do not** draw blood.
2. Place scrapings between two clean glass slides.

**Pus, Exudate or Drainage:**

1. Using a sterile needle and syringe, aspirate material from undrained abscesses.
2. Place in a sterile container.

**Sputum (Expectorate):**

1. Collect early morning specimen under the direct supervision of a nurse or a physician.
2. Have patient rinse or gargle with water to remove superficial flora.
3. Instruct patient to cough deeply to produce a lower respiratory specimen.
4. **Do not** submit saliva.
5. Place in a sterile container.

**Sputum (Induced):**

1. Have patient rinse mouth with water after brushing gums and tongue.
2. With the aid of a nebulizer, have patients inhale ~25 mL of 3 to 10% sterile saline.
3. Collect the induced sputum in a sterile container.

**Tissue:**

1. Submit in sterile container.
2. For small samples, add a few drops of sterile saline to keep moist.
3. **Do not** allow tissue to dry out.
4. The portion of the biopsy specimen submitted for culture should be separated from the portion submitted for histopathology by the surgeon or pathologist.

<b>Transport/Storage:</b>	<p><b>Onsite collections:</b> Transport to the Microbiology Laboratory immediately.</p> <p><b>Offsite collections: Do not refrigerate,</b> store at room temperature. Specimens must be promptly transported to the laboratory, with the next available courier, not to exceed 24 hours from the time of collection.</p>
<b>Patient Preparation:</b>	Sterile preparation of collection site.
<b>Sample Rejection:</b>	Improperly labeled specimen; specimens with prolonged transit time (see Transport/Storage for requirements); specimen not submitted in appropriate transport container; insufficient volume; external contamination; specimen in fixative. If an unacceptable specimen is received, the physician or nursing station will be notified and another specimen will be requested before the specimen is discarded.

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### ***Interpretive***

<b>Reference Range:</b>	No fungal elements seen.
<b>Critical Values:</b>	Spherules consistent with <i>Coccidioides immitis</i> or broad-based, budding yeast consistent with the tissue phase of <i>Blastomyces dermatitidis</i> . Physician will be notified.
<b>Limitations:</b>	<p>The sensitivity of a KOH prep is relatively low (20-75%). If the specimen is from the mucous membranes, bronchial aspirate, or sputum, a Gram Stain may be more sensitive.</p> <p>Cultures are usually more sensitive than KOH preparations or gram stains. Refer to <a href="#">Fungal Culture</a> or <a href="#">Yeast Culture</a>. The test may require overnight incubation for complete disintegration of hair, nail, or skin debris.</p>
<b>Methodology:</b>	Direct microscopic exam of proteinaceous material after hydrolysis with 10% KOH.
<b>References:</b>	<p>Cook, JH, and M Pezzlo (1992). Specimen receipt and accessioning. Section 1. Aerobic bacteriology, 1.2.1-4. In HD Isenberg (ed) Clinical Microbiology Procedures Handbook. American Society for Microbiology, Washington DC</p> <p>Miller, J Michael (1999) A Guide To Specimen Management in Clinical Microbiology, American Society for Microbiology, Washington DC</p> <p>Miller, J Michael, and HT Holmes (1999) Specimen Collection, Transport, and Storage In PR Murray et al, (ed), Manual of Clinical Microbiology, 7<sup>th</sup> edition, American Society for Microbiology, Washington DC, pp 33-104</p>

**Updates:**

3/9/2011: Added references to Gram Stain.  
11/20/2014: Offsite information added.