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**Lab Dept:** Microbiology/Virology

**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:** **Offsite collections:** Do not refrigerate, 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. However, delayed transport causes a delay of test results.

**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>	<b>Onsite collections:</b> Transport to the Microbiology Laboratory immediately.  <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. However, delayed transport causes a delay of test results.
<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>	Sperules 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 <a href="#">Gram Stain</a> 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.