## Biopsy techniques

### by Jen Seyffert, DO, and Puja Kathrotiya, MD

<table>
<thead>
<tr>
<th>Disease</th>
<th>H&amp;E Transport: Formalin</th>
<th>DIF Transport: Normal saline, Michel, Zeus, or LN2</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autoimmune bullous disease</td>
<td>Saucerized intact bulla, OR Broad saucerization of peripheral bulla</td>
<td>Perilesional skin &lt;1cm from bulla</td>
<td>Avoid lower extremities. Trunk skin is preferred. Saline is superior to other DIF transport mediums if delivered to lab within 48 hours.</td>
</tr>
<tr>
<td>Epidermolysis bullosa</td>
<td>Saucerized intact bulla, OR Broad saucerization of peripheral bulla</td>
<td></td>
<td>Avoid blisters &gt;12hrs old. Can induce fresh blister on nearby clinically uninvolved skin</td>
</tr>
<tr>
<td>Vasculitis</td>
<td>Punch or deep shave of lesion &gt;72hrs old</td>
<td>Punch or deep shave of acute lesion &lt;24hrs old</td>
<td>Specimens should show both post capillary venule and deep plexus</td>
</tr>
<tr>
<td>Panniculitis</td>
<td>Deep incisional biopsy at edge of necrotic focus</td>
<td></td>
<td>6mm punch is the smallest size that can be divided for culture and H&amp;E.</td>
</tr>
<tr>
<td>Lupus</td>
<td>&gt;4mm Punch biopsy of lesion &gt;6 months old that is still active</td>
<td>Punch biopsy of lesion &gt;6 months old that is still active</td>
<td></td>
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<tr>
<td>Dermatomyositis</td>
<td>&gt;4mm Punch biopsy of lesion &gt;6 months old that is still active</td>
<td>Punch biopsy of lesion &gt;6 months old that is still active</td>
<td></td>
</tr>
<tr>
<td>SJS/TEN/SSSS</td>
<td>Shave or punch biopsy of acute lesion including full thickness of epidermis</td>
<td></td>
<td>Can submit desquamating sheets</td>
</tr>
<tr>
<td>Scarring Alopecia</td>
<td>Two &gt;4mm punch biopsies of a lesions &gt;6 months old that are still active</td>
<td>&gt;4mm punch biopsy of a lesion &gt;6 months old that is still active</td>
<td>Two biopsies: 1 for vertical and one for horizontal sectioning. Avoid active advancing border. Place punch at same angle as emerging hairs</td>
</tr>
<tr>
<td>Pattern Alopecia or Telogen Effluvium</td>
<td>Two &gt;4mm punch biopsies from an established area of alopecia</td>
<td></td>
<td>Two biopsies: 1 for vertical and one for horizontal sectioning. Submit transverse section or intact specimen for lab to section with HoVert or Tyler techniques</td>
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### Disease Management Details

- **Disease H&E Transport**
  - Formalin
  - Normal saline, Michel, Zeus, or LN2

- **DIF Transport**
  - Normal saline, Michel, Zeus, or LN2

- **Comments**
  - Culture: Non-bacteriostatic saline
  - EM: 2.5% glutaraldehyde solution
  - Flow cytometry: fresh specimen on saline soaked gauze or RPMI medium

### Procedures

- **Autoimmune Bullous Disease**
  - Saucerized intact bulla, or
  - Broad saucerization of peripheral bulla
  - Perilesional skin <1cm from bulla
  - Avoid lower extremities. Trunk skin is preferred. Saline is superior to other DIF transport mediums if delivered to lab within 48 hours.

- **Epidermolysis Bullosa**
  - Saucerized intact bulla, or
  - Broad saucerization of peripheral bulla
  - Avoid blisters >12hrs old. Can induce fresh blister on nearby clinically uninvolved skin

- **Vasculitis**
  - Punch or deep shave of lesion >72hrs old
  - Punch or deep shave of acute lesion <24hrs old
  - Specimens should show both post capillary venule and deep plexus

- **Panniculitis**
  - Deep incisional biopsy at edge of necrotic focus
  - 6mm punch is the smallest size that can be divided for culture and H&E.

- **Lupus**
  - >4mm Punch biopsy of lesion >6 months old that is still active
  - Punch biopsy of lesion >6 months old that is still active

- **Dermatomyositis**
  - >4mm Punch biopsy of lesion >6 months old that is still active
  - Punch biopsy of lesion >6 months old that is still active

- **SJS/TEN/SSSS**
  - Shave or punch biopsy of acute lesion including full thickness of epidermis
  - Can submit desquamating sheets

- **Scarring Alopecia**
  - Two >4mm punch biopsies of a lesions >6 months old that are still active
  - >4mm punch biopsy of a lesion >6 months old that is still active
  - Two biopsies: 1 for vertical and one for horizontal sectioning. Avoid active advancing border. Place punch at same angle as emerging hairs.

- **Pattern Alopecia or Telogen Effluvium**
  - Two >4mm punch biopsies from an established area of alopecia
  - Two biopsies: 1 for vertical and one for horizontal sectioning. Submit transverse section or intact specimen for lab to section with HoVert or Tyler techniques.
**Biopsy techniques (continued)**

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<tr>
<td>Alopecia Areata or Syphilis</td>
<td>Two &gt;4mm punch biopsies of active lesions with recent onset</td>
<td>Two biopsies: 1 for vertical and one for horizontal sectioning. Submit intact</td>
<td></td>
</tr>
<tr>
<td>NMSC</td>
<td>Shave or punch biopsy with enough depth to demonstrate invasive pattern and detect perineural invasion</td>
<td>Use more superficial shave techniques on convex sites or thin facial skin</td>
<td></td>
</tr>
<tr>
<td>Suspected Melanoma</td>
<td>Complete excisional removal</td>
<td>Saucerization is acceptable Consider scoring or tagging at 12 o’clock for orientation</td>
<td></td>
</tr>
<tr>
<td>DFSP</td>
<td>Deep incisional biopsy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CTCL</td>
<td>Broad shave biopsy below the depth of BEJ</td>
<td>Broad shaves are superior to punch biopsies Consider sending specimens from multiple anatomic sites</td>
<td></td>
</tr>
<tr>
<td>Primary Cutaneous B-Cell Lymphoma</td>
<td>Deep incisional biopsy</td>
<td>Punch biopsy or saucerization are superior to shave biopsies</td>
<td></td>
</tr>
<tr>
<td>Nail Matrix</td>
<td>Punch biopsy or horizontal distal matrix elliptical excision with Vicryl closure</td>
<td>Total or partial nail plate avulsion is usually done prior to nail matrix biopsy. Punch biopsy &lt;3mm does not need sutured closure</td>
<td></td>
</tr>
<tr>
<td>Nail Bed</td>
<td>Punch biopsy or longitudinal elliptical excision with Vicryl closure</td>
<td>Nail plate avulsion is usually done prior to nail bed biopsy, but is not necessary</td>
<td></td>
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</table>


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