MAYO CLINIC LABORATORIES

Nerve Biopsy Specimen Preparation Instructions

Patient Information

To prevent delays and enhance accuracy of the interpretation, complete the Nerve Biopsy Patient Information (T458). Include any pertinent information such as the **suspected clinical diagnosis, name of nerve biopsied, date of biopsy, and indication for nerve biopsy**. Copies of the neurology clinical notes, electromyogram, and specific neurologic test results should also be included.

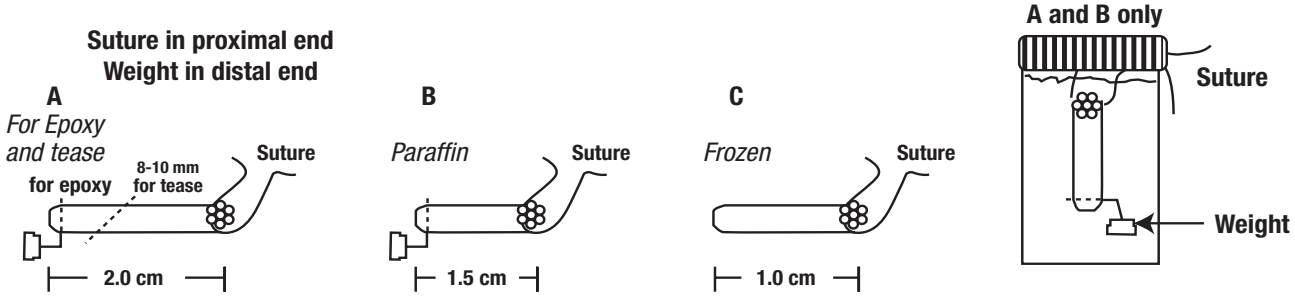
Indicate the address where results should be sent. Place this information in the shipping box with the specimen. **Biopsies received without this information will be held until the appropriate information is obtained.**

Kit Information: Nerve Biopsy Collection Kit (T457) can be ordered online through the Supply Catalog at mayocliniclabs.com or call 800-533-1710.

Preparing Nerve Biopsy Specimens

1. Remove a segment of nerve approximately 5 cm long.
2. Divide into 3 levels (segments A, B, and C)
3. Fix and process as described below.

Note: To prevent autolysis and/or drying artifacts, the nerve segments **must be placed** in their respective fixatives immediately after their removal in the operating room. Transfix the proximal end of each nerve specimen with a curved needle, to which a 5-0 silk or other suture material is attached. Do not tie the nerve with the suture; instead use the 2 loose ends of the suture to hang the specimen in the fixative solution. Hook a small weight to the distal end of segments A and B (see diagram below). A small bent syringe needle works well as a weight.



Nerve Segments

Segment A: 2-cm segment is to be used for teased fiber analysis and epoxy embedding.

1. Place this segment directly into a 2.5% glutaraldehyde solution in 0.025 M sodium cacodylate buffer (pH 7.37–7.39) (3% glutaraldehyde in phosphate buffer is also acceptable) for **45 minutes**.
2. **After 45 minutes**, remove segment A from the glutaraldehyde, cut an 8 mm to 1 cm segment (this should be the proximal end of segment A with the suture attached). Place in 0.15 M cacodylate buffer for shipment. This is the teased fibers segment.
3. The remaining distal segment should be returned to the 2.5% glutaraldehyde for a total of 24 hours. This is the epoxy segment.
4. After 24 hours, the epoxy segment should be placed in 0.15 M cacodylate or equivalent buffer for shipment.

Segment B: 1.5-cm segment is to be used for paraffin embedding.

1. Place this segment directly into 4% paraformaldehyde solution in 0.025 M phosphate buffer (pH 7.37–7.39) for 24 hours (alternatively, use buffered 10% formalin).
2. After 24 hours, this segment should be placed in 0.025 M phosphate or equivalent buffer for shipment.

Segment C: Package and ship separately from segments A and B.

1. Freeze segment C immediately in melting isopentane.
2. Place the segment in a metal container of isopentane suspended over liquid nitrogen. If isopentane and liquid nitrogen are not available, freeze on dry ice.
3. Wrap the frozen nerve segment in aluminum foil, place in an unbreakable container, and ship on dry ice.

If there is difficulty in obtaining the requested length of nerve for segments A and B, segment C may be omitted.

Shipping Instructions

To avoid prolonged storage of the specimen in transit, it is best to send it at the beginning of the week rather than near the weekend. Ship segments A and B refrigerated. Ship segment C frozen on dry ice.

Note: Segments A and B must be shipped separately from segment C. If the specimens are sent together, freezing artifact will preclude adequate interpretation.

If not sent via MCL courier service, send specimen with paperwork using Priority overnight delivery:

Mayo Clinic Laboratories
Attn: Peripheral Nerve Biopsy Enclosed
3050 Superior Drive NW
Rochester, MN 55905

Questions: For questions or assistance with specimen preparation, call the Peripheral Nerve Laboratory at 800-533-1710 or 507-284-8065.