


### For the SURGEON in the Operating Room

1. **Muscle biopsy site:**
  - Preferred muscle: **Quadriceps**. Vastus lateralis, biceps, deltoid may be used.
  - Muscle biopsies must be specified by the referring physician. Dr. John Shoffner will be glad to help with this decision.
  - Any other site **MUST** be approved by Dr. John Shoffner. Some muscles are not optimal for biochemical testing.
  - Call MNG technical staff at 678-225-0220 with any questions.
2. **Muscle biopsy size: approximately 2.0 cm<sup>3</sup>. Optimally this should be about the size of the last digit on your little finger (5th finger).**
3. **Special considerations:**
  - **Do NOT cauterize the specimen being sent for testing**
  - Avoid gastrocnemius biopsies since neurogenic changes associated with S1 radiculopathies are common and may obscure pathological findings.
  - If proximal muscle is severely affected, consider a more mildly affected muscle such as tibialis anterior for biopsy. In patients with severe proximal muscle disease, fibrosis and fatty infiltration may obscure the diagnosis. This consideration should be addressed with Dr. John Shoffner.
4. **Handling the muscle biopsy in the operating room:**
  - Place the specimen on a sterile gauze pad moistened with normal saline in a securely closed container (such as petri dish or screw top specimen jar). It is very important **NOT** to submerge the specimen in saline and **NOT** to excessively wet the gauze pad. **PLACE THE SPECIMEN CONTAINER ON ICE.**
  - Label specimen container clearly with identifying information for the patient including: patient's name, hospital number, site of the biopsy and the time of surgery.
  - **IMMEDIATELY** transport the specimen on ice to the pathology laboratory for processing. Timing is critical; get specimen to the lab ASAP for transport.
  - **DO NOT PLACE SPECIMEN IN ANY TYPE OF FIXATIVE. DO NOT FREEZE.**

### For the Pathology Laboratory

1. **Process specimen immediately upon arrival to pathology. Timing is critical for best results.**
2. Divide muscle specimen using scalpel into two sections (90% of specimen for snap freeze and remaining 10% of specimen for formalin).
  - a. **SNAP FREEZE (90%) Section:**

Divide the section for snap freeze into two equal pieces and place in screw top sealed vials. Drop vials into liquid nitrogen to snap freeze. If frozen muscle cannot be kept in Liquid Nitrogen storage tank until shipping, place it in -80°C freezer until it is ready to be shipped on dry ice. **MAINTAIN SPECIMEN AT -80°C OR BELOW UNTIL SHIPPING.**


  - b. **FORMALIN (10%) Section:** Place this section in 10% formalin solution in small disposable screw top jar. Store at room temperature. **AT NO TIME MAY THIS SPECIMEN BE FROZEN.**
3. Label each of the specimen containers with
  - a. Patient name and patient Identification Number
  - b. Muscle that was biopsied
  - c. Time of surgery





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COLLECTION, PROCESSING  
AND TRANSPORT OF FROZEN  
MUSCLE BIOPSY

*John M Shoffner MD, Medical Director CLIA License # 11D0703390 State of Georgia License # 044-146*

### Preparation of Sample for Transport

1. Fill out MNG Test Requisition form (located at [www.mnglab.com](http://www.mnglab.com)). It is imperative that the name and phone number (email also if available) for the referring physician are on the test requisition. This information is critical for communication between Dr. John Shoffner and the patient's physician during testing and interpretation.
4. Notify Medical Neurogenetics of intent to send specimen at the following number 678-225-0222 ext 109. This will allow us to verify shipping arrangements as well as to track specimens to ensure they are delivered as intended.
5. **Send samples for OVERNIGHT Delivery, Monday-Thursday only. Do not send specimens on a Friday since there is NO WEEKEND DELIVERY.**
6. Packaging for Transport:
  - a. Place deep frozen muscle tissue in a Styrofoam cooler with a lid using approximately 10 lbs of dry ice. It is important that there be sufficient dry ice to keep the specimen frozen if there are delays in shipping. If thawed, testing may not be performed. Place orders or copy of orders in box with specimens and seal well with tape.
  - b. Room Temperature formalin specimen is to be shipped overnight at room temperature in a separate box. It may be shipped cold, but the specimen must never freeze. Place orders or copy of orders in box with specimens and seal well with tape.
  - c. If fibroblasts have been cultured from a skin biopsy, please send two T-25 flasks filled with 13% FBS/DMEM media (90% confluency) in well-insulated container. **Cells MUST BE certified free from Mycoplasma** – send confirmatory test results with flasks. Before shipping, call Tissue Culture Lab at 678-225-0222 Ext. 110 to schedule an appointment for testing. Ship flasks at room temperature filled with media in well-insulated container. Place orders or copy of orders in box with specimens and seal well with tape.
2. Shipping Address: Medical Neurogenetics, LLC  
5424 Glenridge Drive NE  
Atlanta, GA 30342
3. Useful Numbers: Main Phone: 678-225-0222  
Fax: 678-225-0212  
Specimen/Clinical Questions: 678-225-0220  
Technical Questions: 678-225-0222 ext 109, ext 122
4. **Please note that we do not bill patients directly, nor do we bill insurance companies. All testing is billed to the ordering/referring institution.** Please contact our Billing Department at ext.100 for CPT codes/charges for testing requested and/or to set up an institutional account. Visit our website at [www.mnglab.com](http://www.mnglab.com) to obtain CPT code and pricing information and the New Account Set-Up Form.