INSTRUCTIONS FOR OBTAINING AND SENDING MUSCLE BIOPSIES

1. Obtain the following (2-4) pieces of muscle from a clinically-affected (but not end-stage) muscle group (usually quadriceps, biceps, or deltoid) that has not been recently subjected to EMG/NCS or other invasive procedures:

   a. **One fresh piece of muscle tissue (up to 1 cm³)**, for histology and enzyme histochemistry. Wrap this fresh tissue in saline-dampened gauze or telfa pad and place in a water-tight, dry container; then place the container on wet ice or in a fridge. Do not place the muscle tissue directly on wet ice. The gauze/pad must **NOT be soaking wet**: wring out fully before letting it touch the tissue, and **NEVER immerse fresh muscle in liquid of any kind**: we may be unable to make a diagnosis because of swelling artifact. Do not let it dry out, either, or enzyme activity will be lost.

   b. **One 3-5 mm thick piece of muscle**, clamped prior to resection to prevent retraction artifact. Place in cold glutaraldehyde immediately, keeping it in the clamp until fixed, for possible electron microscopic (EM) studies. You may prefer to keep this glutaraldehyde-fixed tissue at your own facility until needed. If you send it to us, we will Epon-embed it and examine semi-thin pilot sections; full EM will be done only if necessary.

   c. **For pediatric patients**, and adults who may have a metabolic/mitochondrial or other disorder that might require molecular/biochemical analysis, **obtain two more pieces of muscle (each up to 1 cm³)**, and **freeze them right away** in liquid nitrogen, on dry ice, or in a non-frost-free freezer (do not embed them in gum or other embedding medium; freeze them in foil in a dry container). These will be held frozen for additional molecular/biochemical tests that might be requested by the treating physician. You may prefer to keep these at your own facility until needed.

2. Obtain detailed clinical information (recent complete history and physical, medication list, lab values, EMG/NCS reports, brain/spine/muscle MRI reports, and any neurology or rheumatology clinic notes). You may send a copy of the complete patient record if you are not sure what to send. The case will not be signed out without this information! Please provide a **phone number for the physician who requested the biopsy** and who will be treating the patient, so that we may call with results.
3. Fill out a Duke patient information form, or use your own. Include the patient’s name, date of birth, social security number, home address, and home phone number. Please indicate how the case is to be billed - patient or hospital. If the patient is to be billed, his/her insurance information will also be needed.

4. Sending muscle biopsies to Duke:
   
a. Deliveries can only be accepted Monday through Friday during business hours. Please do not ship specimens to arrive over the weekend or on holidays: no one will be available to receive them. If in doubt, please call us before you prepare the shipment.

b. If the fresh biopsy can be delivered to us within a few hours or by the next day, it should be kept in saline-dampened gauze in a water-tight container, with the container on wet ice or in the fridge, until ready to go. Put the container with cold-packs in a Styrofoam box, and send it to us by courier/overnight shipping. During the summer months, be sure to use extra cold-packs. The glutaraldehyde specimen may be sent in the same chilled container. DO NOT FREEZE; keep chilled only.

c. If fresh muscle tissue has to be held over the weekend before sending it to us, it may be snap-frozen in liquid nitrogen, on dry ice, or frozen in a NON-frost-free freezer. Do not embed it in gum or other embedding medium; freeze it in a dry container. Keep it frozen from that point on; do not thaw it for shipping.

d. If you are sending any frozen muscle, ship it on abundant dry ice, separately from any fresh or glutaraldehyde-fixed tissue.

e. Send to: DUHS Clinical Laboratories / Immunochemistry lab
   4055 Duke South Clinics Yellow Zone
   40 Duke Medicine Circle, Trent Drive
   Durham, NC 27710
   Phone: 919-684-8431

5. If you have any questions at all, please contact Anne Buckley, the pathologist in charge of the Duke Muscle Service: anne.buckley@duke.edu (919) 684-2533

[Updated December 2016]