UCL Institute of Neurology

THE NATIONAL HOSPITAL FOR NEUROLOGY AND NEUROSURGERY

BOX 126

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LONDON

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|  | Contact details see website <https://www.ucl.ac.uk/ion/clinical-divisions/division-neuropathology> |

**PROTOCOL FOR EXTERNAL MUSCLE BIOPSY REQUEST**

To ensure that you obtain the best results possible from the muscle biopsy, please follow the protocol below as closely as possible.

Please telephone the Neuropathology lab 020 344 84236 as far in advance as possible when planning to send a muscle biopsy. A biopsy must be taken early enough in the day to arrive in our laboratory no later than 3pm Monday – Friday.

When muscle has been excised the quality of the histochemistry results rapidly deteriorate after 30 minutes and therefore rapid transport is essential.

**Three** samples of muscle are required. (The first piece for electron microscopy and 2 for histochemistry).

* Anaesthetise skin and subcutaneous tissue only; do **not** inject local anaesthetic into the muscle.
* Open the fascia overlying the muscle and excise muscle tissue from beneath the fascia. Fascia should **not** be included in the biopsy.

# 1. Electron Microscopy

The **FIRST** piece of muscle removed should be that for electron microscopy. The first specimen for electron microscopy should measure 0.2x1.0cm (similar in width to a match stick). The long axis of the specimen should be in the direction of muscle fibre axis.

1 cm

 0.2cm

 0.2cm

This specimen must be pinned at each end to the cork provided and immersed immediately in the glutaraldehyde fixative provided. Very gently extend the piece of muscle slightly before pinning.

* **Immediately** immerse the sample in the fixative (3% EM grade glutaraldehyde in 0.1M sodium cacodylate buffer with 5mM CaCl2 pH 7.4).
* Put the sample into a leak-proof container eg small soda glass vial commonly used in electron microscope departments for processing specimens, or a 20ml universal. Fill the container to the top, label it, and wrap well in parafilm to seal.
* You may use a fixative routinely used in a local Electron Microscopy Unit instead of our formula but please send us details of the formula used where possible.

**2. Histochemistry**

* For histochemistry on frozen sections **TWO** samples of muscle must be taken
* 2 identical pieces of muscle measuring 1x1.5cm (similar in width to a biro). The long axis of the specimen should be in the direction of muscle fibre axis. Smaller samples than this may prove to be insufficient for a definite result.

 1cm

1.5 cm (longitudinal axis)

* The samples should be loosely wrapped in gauze which has been only slightly soaked in saline, and placed in a labelled plastic Petri dish. Please note that too much saline will cause artifact.
* Pack the Petri dish in an insulated container of wet ice in order to keep the muscle at refrigeration temperature.
* General points:
	+ Always handle muscle tissue with great care and in particular never squeeze with forceps as this produces artefacts.
	+ Never immerse the fresh muscle specimen in any liquid such as saline.
	+ Muscle biopsies must be transported to the lab immediately.
	+ Always include the request form with the biopsy.

Pack the samples for histochemistry and electron microscopy in a box. Enclose the patient details, **including clinical information**, your contact details, time the biopsy was taken, and any other relevant information you think would be helpful.

### PLEASE INFORM US IF THERE IS ANY RISK OF INFECTION

Please mark this package **URGENT** and send it by courier **IMMEDIATELY** to:

**Neuropathology Laboratory**

**Division of Neuropathology**

## UCL Institute of Neurology

**Queen Square**

**London WC1N 3BG**

If you contact

Dr Ashirwad Merve 020 344 84239 or amerve@nhs.net,

Andrew Theodoulou 020 344 84236 or andrew.theodoulou@nhs.net

or Mike Groves on 020 344 84220 or michael.groves1@nhs.net

we can arrange for a small vial of fixative and a pinning kit to be sent to you. If you are arranging this at very short notice, and you do not have access to a local Electron Microscopy Unit, we can courier the kit to you at your expense.

Please state whether the patient is an NHS or private case.

If you have any further queries, please do not hesitate to contact us.

Specimens need to be prepared carefully – please telephone the laboratory well in advance of the biopsy to arrange for a Biomedical Scientist to attend the procedure and deal with the biopsy, specimens not handled in the correct way could render them useless for diagnosis.