MUSCLE BIOPSY – SPECIMEN AND TRANSPORTATION GUIDELINES

1. PURPOSES AND SCOPE

The purpose of this protocol is to define sample and transport requirements for muscle biopsies, which are to be examined by a Neuropathologist in Southampton General Hospital.

2. RESPONSIBILITY

2.1 MEDICAL STAFF

2.1.1 CONSULTANT

Consultants are responsible for the provision of the diagnostic service in Cellular Pathology. They are responsible for the microscopic examination and reporting of stained preparations of muscle biopsy specimens. In making the diagnosis they may also request extra preparations, additional staining techniques and immunohistochemistry.

Consultants should be available to answer queries particularly relating to the clinical aspects of muscle disease, and the need for electron microscopy and other specialist techniques. They should also offer advice on the muscle to be biopsied.

2.1.2 SPECIALIST REGISTRARS

Specialist Registrars may also perform the microscopic examination and diagnosis of muscle biopsy specimens under the supervision of a Consultant Pathologist. In the absence of a Consultant, they may also offer advice regarding the clinical aspects of muscle biopsy and the choice of muscle for biopsy.

2.1.3 SENIOR HOUSE OFFICERS

Senior House Officers may perform the microscopic examination of muscle biopsy specimens under the supervision of a Consultant Pathologist.

2.2 TECHNICAL STAFF

2.2.1 BIOMEDICAL SCIENTIST – SECTION LEAD

The Section Lead Biomedical Scientist is responsible for ensuring that the preparation and staining of muscle biopsy specimens is performed in accordance with the relevant protocol. They may offer advice relating to the packaging and transportation of muscle biopsy specimens to Southampton General Hospital. They are the first point of contact for queries regarding any particular case.

2.2.2 BIOMEDICAL SCIENTISTS
Other Biomedical Scientists in the team may carry out the procedure as per para 2.2.1 and will deputise for the Section Lead, in their absence, after a period of training.

2.2.3 TRAINEE BIOMEDICAL SCIENTISTS
Trainee Biomedical scientists would not normally be expected to advise on the packaging and transportation of muscle biopsy specimens although they may do so if requested by the Section Lead or other Biomedical Scientist.

2.2.4 BIOMEDICAL SUPPORT WORKERS
Biomedical Support Workers may not advise on packaging and transportation of muscle biopsies.

3. REFERENCES

Dubowitz V and S Caroline. A. Muscle Biopsy. A Practical Approach
3rd Edition Saunders Elsevier 2007

4. DEFINITIONS

Not applicable

5. DOCUMENTATION

Risk assessments – 003 located in QPulse

6. ACTIONS AND METHODS

6.1 PRINCIPLE OF THE METHOD

To ensure that specimens of muscle for neuropathological examination are suitable for the techniques to be performed, and that cases which require other specialist techniques, for example electron microscopy, have adequate tissue available for accurate diagnosis.

6.2 SPECIMEN REQUIREMENTS

Samples of muscle biopsy should be submitted unfixed as soon as possible after excision. Samples should be placed on a piece of card and submitted in a **damp** environment – usually a plastic universal container with a piece of **damp** gauze or paper tissue. To achieve the damp environment the gauze or paper tissue should be made wet and then wrung out. Too much fluid on the gauze or paper tissue causes ice crystal artefact during the freezing process. No fixative or

additives should be introduced into the container. Transit time should be kept to a minimum. Transit times of up to four hours are acceptable for samples originating outside Southampton General Hospital. The specimen container must be labelled with the patient details, and a clinical history provided.

6.3 DATA ACQUISITION

Not applicable

6.4 EQUIPMENT REQUIRED

Plastic or glass specimen container
Damp gauze or paper tissue
Small piece of thin card
Request card with clinical details
Suitable packaging for samples from outside Southampton General Hospital

6.5 CALIBRATION

Not applicable

6.6 STEPWISE DESCRIPTION OF THE PROCEDURE

6.6.1 **Consultation:** An initial notification should be made either to a Consultant Neuropathologist or a member of the Neuropathology laboratory staff by telephone prior to the biopsy. If the initial notification is to the laboratory staff, they will recommend a consultation with a Consultant Neuropathologist. Consultation should be made ideally by telephone with Dr Mark Walker or Dr Mark Fabian at least 24 hours prior to the biopsy. Special instructions for more complex investigations, for example electron microscopy, can be identified at this stage. A copy of the specimen and transportation of muscle biopsies guidelines will be emailed to clinicians enquiring about muscle biopsies with a request that they acknowledge receipt of email.

Telephone numbers:

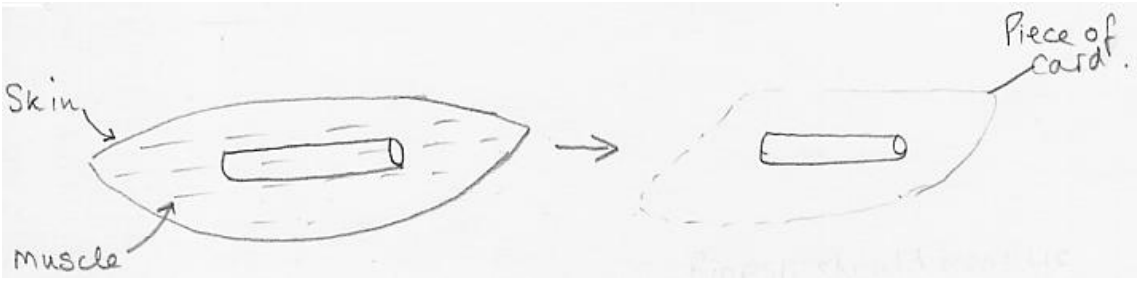
Dr Mark Walker	023 8120 6051
Dr Mark Fabian	023 8120 3108
Neuropathology Laboratory	023 8120 4882

6.6.2 **Advising the laboratory:** Inform the Neuropathology Laboratory of the muscle biopsy, giving information if possible about the date and time of arrival in the Neuropathology Laboratory.

6.6.3 **Collection of the muscle biopsy:** This may be performed as an open biopsy under local anaesthetic or as a needle biopsy. In either case the muscle should not be infiltrated with local anaesthetic as this interferes with the enzyme histochemistry performed in the laboratory.

6.6.4 The procedure should be performed in the morning, if possible, to ensure safe arrival in Southampton General Hospital during the working day. A full clinical history should accompany the biopsy.

6.6.5 **Open Biopsy:** – a piece of muscle should be taken parallel to the muscle fibres. The biopsy should measure 20x10x10mm if possible. Place the muscle onto a piece of card in a damp environment as described in paragraph 6.2.



6.6.6 **Needle biopsies**: usually multiple smaller biopsies, placed in a damp environment as described in paragraph 6.2.

6.6.7 **Packaging:** The package should be addressed to

Neuropathology Laboratory, Level E
South Pathology Block
Southampton General Hospital
Southampton
SO16 6YD

Label the package as follows:

"URGENT: CONTAINS FRESH TISSUE, FOR IMMEDIATE ATTENTION"

6.6.8 **Transportation:** The muscle must be transported as soon as possible after excision. Specimens originating outside Southampton General Hospital should be transported by taxi or express courier. To facilitate delivery of these specimens the driver may deliver the package to the main reception area at the entrance to the hospital. On arrival at the reception desk the driver should ask the receptionist to telephone the laboratory on **extension 4882**. A member of the laboratory staff will collect the package from the driver at the reception area. If the biopsy arrives after 5.30pm, contact the on-call Histology BMS via the SGH switchboard.

6.6.9 **Informing the laboratory:** If possible, the laboratory should be informed by telephone to 023 8120 4882 when the specimen begins its journey. If the biopsy is expected to arrive after 5.30pm, you must contact the **on-call Histology BMS,** via SGH switchboard, and let them know what time the biopsy is expected and ask the driver to contact the on-call BMS on arrival at the hospital.

6.6.10 **Confirmation of receipt:** The laboratory will confirm receipt if a contact telephone number is provided.

6.7 QUALITY CONTROL/ASSESSMENT

Muscle biopsies received will be recorded in the record book – LF 120 003 and can be traced using MasterLab or TPID systems.

6.8 LIMITATIONS OF METHOD

The muscle biopsy must be frozen as soon as possible after excision, up to a maximum transportation time of 4 hours.

6.9 REPORTING OF RESULTS AND INTERPRETATION

Not applicable to this procedure

6.10 PROCEDURE NOTES AND OTHER PERTINENT INFORMATION

Not applicable

7. TRACEABILITY AND UNCERTAINITY

7.1 TRACEABILITY

This SOP can be traced back to DOC915: Dubowitz V and S Caroline. A. Muscle Biopsy. A Practical Approach, 3rd Edition Saunders Elsevier 2007

7.2 UNCERTAINTY

Uncertainty can be measured by Internal Quality Control as well as External Quality Control. Problems can also occur due to staff training issues.

Please refer to QP 000 036