

Department of Histopathology
Great Ormond Street Hospital for Children NHS Foundation Trust

Prepared by: M. Benatti

Authorised by : T JACQUES

SOP Index No: SSOP 11.51

Activation date: April 2017

Review interval: 2 years

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Area of application: Service users

SOP title: Paediatric Muscle Biopsy Service, Histopathology, Great Ormond Street Hospital

PURPOSE AND SCOPE:

Instructions and guidelines for the handling of fresh muscle biopsy and fresh skin biopsy for histological investigation.

METHOD:

Recommended handling guidelines

Skeletal muscle presents particular difficulties in biopsy as a result of its contractile property, its marked susceptibility to ice crystal artefact and the necessity for the muscle fibres to be orientated in transverse section (TS).

Good communication between theatre/sender and laboratory ensures rapid and timely handling. Muscle tissue does not autolyse rapidly, but the delay between excision and freezing should not exceed 2 hours absolute maximum. The quicker the sample is received into the laboratory, orientated and frozen the better.

Clinical details

Please include as much relevant clinical information as possible on your request form for muscle biopsy analysis as this determines the work-up required within the laboratory. Please state which muscle has been biopsied. Any queries, please contact the neuropathologist.

Sample size

The minimal optimum sample size is a cylinder of tissue 1cm long and 0.5cm diameter with the long axis parallel with the grain of the muscle fibres.

Instructions for dispatch

Great Ormond Street histopathology department is open from 9am until 5:30pm Monday to Friday, excluding public and bank holidays. Please contact the histopathology department on extension 5475/5476 to inform of biopsy expected arrival time, preferably before 4:30pm unless otherwise arranged.

1. Internal cases (GOSH)

The sample for histochemistry and electron microscopy must be wrapped in saline **dampened** gauze. Please do not over soak the gauze as this causes saline artefact, equally if the sample is too dry this affects the tissue quality.

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All samples must be delivered rapidly to Histopathology, level 3, Cameila Botnar Laboratory. Biopsies must come to the laboratory as soon as possible as the enzymes we try to demonstrate begin to degrade soon (20mins) after removal from the patient. This must be made very clear to the portering staff. It is preferable if the SpR involved with the case brings the tissue to the lab if at all possible.

If a sample is taken during the night or out of hours, then the tissue must go to Chemical Pathology, Camelia Botnar Laboratory to be frozen there and collected by histopathology staff the next working day.

If tissue is for Respiratory Chain Enzyme Assay, please request mitochondrial respiratory chain enzymes on PIMS and follow the Sample Handling instructions on the form. If further clarification is required, please call extension ext 7874.

If you require **Fibroblast culture on a skin biopsy**, you will need skin transport medium which is available from **Chemical Pathology, level 5 CBL. Ext 1785 (working Hours), 5009 (Out of Hours)**

The sample is then sent to the Enzyme Lab in the ICH, via Chemical Pathology.

Notes : Skin biopsies for EM/histology

Where skin biopsies are taken alongside muscle biopsies, please **send** on saline dampened gauze in a separate specimen container rapidly along with the muscle sample and they will be prepared accordingly.

2. External cases (London)

Please contact the Histopathology Department 020 7405 9200 (direct ext. 5475/7576) to inform when a muscle has been dispatched to the department.

Hospitals within London have to ensure that the fresh tissue, wrapped in saline **dampened** gauze is received at GOSH laboratory urgently. Traffic is a problem and motorcycle couriers can get through the traffic easier than a car.

If there is a problem with transport, it is advisable to get the muscle 'snap frozen' prior to dispatch as per instructions below for external cases. **The tissue should then be dispatched on dry ice to arrive the same day before 4.30pm or alternatively early the next working day.** Please inform the department when a sample is expected.

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If tissue is for Respiratory Chain Enzyme Assay, please contact the Neurometabolic Unit NHNN on 0203 448 3818 or 0203 448 3844 for sample requirements and collection instructions.

3. External cases National/International requiring transport on dry ice

Samples must be sent snap-frozen, transported on dry ice to histopathology from external hospitals outside of London or if transport is likely to exceed 1 hour. In addition, a sample must be taken and placed in 2.5% glutaraldehyde first for transport.

The tissue must be handled on site as above (rapidly in saline dampened gauze) and then frozen in such a way as to avoid ice crystal artefact.

Recommended freezing methods:

- Snap freezing in hexane/dry ice bath

Please contact the neuropathologist and/or the laboratory to inform of expected time of arrival of the muscle biopsy, confirming when dispatched on dry ice. Receipt of the sample will be confirmed to the sender.

If tissue is for Respiratory Chain Enzyme Assay, please contact the Neurometabolic Unit NHNN on 0203 448 3818 or 0203 448 3844 for sample requirements and collection instructions.

Contact Details

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Chemical Pathology (skin fibroblast culture)

ext: 1785 (working Hours)
5009 (Out of Hours)

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Neurometabolic unit, National Hospital, Queens Square (for respiratory chain enzyme analysis/co-enzyme A analysis). Tel 0203 448 3818

COSHH.

Substance	Location	Safety information
Dry Ice	Reception room	Please see Safety data sheet in COSHH folder.
Hexane	Reception room/ freezer room	Please see Safety data sheet in COSHH folder.
Saline	Theatre	Please see Safety data sheet in COSHH folder.

DOCUMENT DISTRIBUTION:

x1 copy reception room SOP folder room P3.040, x1 copy Neuropathology SOP folder room P3.041, x1 electronic copy on GOSH intranet.