



Australian Government

MSL973020 Perform histological procedures

Release: 1

MSL973020 Perform histological procedures

Modification History

Release	Comments
Release 1	This version was released in <i>MSL Laboratory Operations Training Package Release 2.0</i>. Supersedes and equivalent to MSL973008 Perform histological procedures. Range of conditions removed. Assessment requirements amended.

Application

This unit of competency describes the skills and knowledge to perform straightforward histological procedures involving processing and sectioning (by hand or rotary microtome) of plant and/or animal tissues in paraffin wax.

This unit of competency applies to laboratory assistants working in biomedical, biotechnology, environmental and education sectors. Personnel will work under direct supervision and have ready access to workplace procedures.

No licensing or certification requirements exist at the time of publication. However, regulations and/or external accreditation requirements for laboratory operations exist, so local requirements should be checked. Relevant legislation, industry standards and codes of practice within Australia must also be applied.

Pre-requisite Unit

Nil

Competency Field

Testing

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

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| 1 | Process tissue | 1.1 | Perform pre-use checks to ensure processor is fit for purpose |
| | | 1.2 | Select program and reagents for processing |

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| | 1.3 | Inspect processor reagents for deterioration and adequate volume, and report any items requiring replacement |
| | 1.4 | Check processor for errors that occurred during processing sequence |
| 2 | Embed tissue | |
| | 2.1 | Check that volume of wax is sufficient for uninterrupted embedding of processor load |
| | 2.2 | Check that temperature of wax is suitable for embedding process |
| | 2.3 | Embed tissue in correct orientation |
| | 2.4 | Apply procedures to prevent cross-contamination between tissues |
| | 2.5 | Inspect blocks, reject and re-embed items that do not meet quality control standards |
| 3 | Cut sections of tissue | |
| | 3.1 | Label required number of microscope slides in accordance with workplace traceability requirements |
| | 3.2 | Check the flotation bath is ready and satisfactory for use |
| | 3.3 | Cut representative sections at the required thickness observing prescribed safety measures |
| | 3.4 | Float sections onto water bath to flatten tissues |
| | 3.5 | Pick up sections onto microscope slides ensuring identification on slides matches that on the block |
| | 3.6 | Apply procedures to prevent cross-contamination between samples |
| | 3.7 | Compare the blocks and sections ensuring the tissue on slides matches that in the blocks |
| | 3.8 | Inspect sections and reject any that do not meet quality control standards |
| 4 | Stain sections | |
| | 4.1 | Select reagents specified in the method |

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| | 4.2 | Stain sections according to the method |
| | 4.3 | Examine sections microscopically to ensure expected staining outcomes have been achieved |
| | 4.4 | Mount sections to ensure long-term preservation |
| | 4.5 | Attach permanent labels giving specimen details according to workplace traceability requirements |
| 5 | Maintain a safe work environment | |
| | 5.1 | Ensure personal safety and minimise cross-contamination through the use of personal protective equipment (PPE) |
| | 5.2 | Handle chemicals and sharps safely |

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Unit Mapping Information

Equivalent to MSL973008 Perform histological procedures, Release 1.

Links

MSL Laboratory Operations Companion Volume Implementation Guide is available from VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5c63a03b-4a6b-4ae5-9560-1e3c5f462baa>

Assessment Requirements for MSL973020 Perform histological procedures

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Performance Evidence

There must be evidence the candidate has completed the tasks outlined in the elements and performance criteria of this unit, and:

- safely performed straightforward embedding, sectioning and staining of at least 3 different tissue specimens (including animal and/or plant) in paraffin wax, including:
 - embedding tissue types in correct orientation and characteristics that minimise tissue loss and artefacts during microtomy
 - cutting sections at the specified thickness that are free of wrinkles, scores and folds
 - using appropriate stains including haematoxylin and eosin for animal tissue
 - cover slipping slides, ensuring that no air bubbles are formed to preserve the material for the life of the slide
 - labelling slides clearly with minimum legal traceability requirements.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- nature of tissues, processing and sectioning methods used in job role
- functions of the components of a rotary microtome
- purpose of procedures implemented and steps involved
- requirements for cleaning up spills and reporting faulty or unsafe equipment, hazards and incidents.
- microscopic anatomy of vascular tissue relevant to samples stained
- macroscopic appearance of epithelial/epidermal tissue relevant to samples embedded
- correlation between poorly maintained processing reagents and resultant tissue blocks being difficult to cut or unsuitable for cutting
- relationship between correct orientation of the tissue during embedding and ability to cut quality sections

- workplace safety procedures and precautions relevant to:
 - handling irritating, volatile, flammable and potentially carcinogenic chemicals and stains, such as formaldehyde, xylene, limonene, ethanol
 - embedding and microtomy
 - sharps and broken glassware
- awareness of environmental sustainability issues as they relate to the work task
- legal, ethical and work health and safety (WHS) requirements specific to the work task including traceability, confidentiality and security requirements of all client information, and laboratory data and records.

Assessment Conditions

Skills must have been demonstrated in the workplace or in a simulated environment that reflects workplace conditions and contingencies. The following conditions must be met for this unit:

- use of suitable facilities, equipment and resources, including:
- a standard histology laboratory with relevant equipment, samples and reagents; and computer information systems, databases, record and filing systems, including specimen accessioning
- workplace procedures, test methods and equipment manuals.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

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