



Australian Government

MSL973029 Perform histological procedures

Release: 1

MSL973029 Perform histological procedures

Modification History

Release 1. Supersedes and equivalent to MSL973020 Perform histological procedures. Changes to Performance Criteria, Performance Evidence and Knowledge Evidence.

Application

This unit of competency describes the skills and knowledge to perform straightforward histological procedures involving processing and sectioning (by 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	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1. Process tissue	1.1 Perform pre-use checks to ensure processor is fit for purpose 1.2 Check reagents are in sequential order 1.3 Inspect processor reagents for deterioration and adequate volume, and report any items requiring replacement 1.4 Select program for processing
2. Embed tissue	2.1 Perform pre-use check to ensure embedding centre is fit for purpose and uninterrupted embedding of processor load 2.2 Embed tissue types in correct orientation and characteristics that

Elements	Performance Criteria
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	minimise tissue loss and artefacts during microtomy 2.3 Apply procedures to prevent cross-contamination between tissues 2.4 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 Secure block in microtome following specified safety directions 3.4 Cut representative sections at the required thickness observing prescribed safety measures 3.5 Float sections onto water bath to flatten tissues and pick up sections onto microscope slides ensuring identification on slides matches that on the block 3.6 Compare the blocks and sections ensuring the tissue on slides matches that in the blocks 3.7 Apply procedures to prevent cross-contamination between samples 3.8 Inspect sections and reject any that do not meet quality control standards
4. Stain sections	4.1 Label specimens in accordance with workplace traceability requirements 4.2 Select reagents specified in workplace procedures 4.3 Stain sections according to workplace procedures 4.4 Mount sections ensuring no bubbles 4.5 Examine sections microscopically to ensure expected staining outcomes have been achieved 4.6 Inspect slides and reject any that do not meet quality control standards
5. Maintain a safe work environment	5.1 Ensure personal safety and minimise cross-contamination using 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

Supersedes and is equivalent to MSL973020 Perform histological procedures.

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 MSL973029 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, cutting and staining of at least 3 different tissue specimens in paraffin wax, including:
 - cutting sections that are free of wrinkles, scores and folds
 - using appropriate stains including haematoxylin and eosin.
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Knowledge Evidence

There must be evidence the candidate has knowledge of:

- non-renewable nature of tissues
- 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 stain quality control
- 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 hazardous chemicals and stains used in the job role, including formaldehyde, xylene/limonene, ethanol
 - embedding and microtomy
 - sharps and broken glassware
- environmental sustainability issues as they relate to the work task
- legal and ethical requirements specific to the work task including traceability, confidentiality and security requirements of all client information, and laboratory data and records legal requirements relating to the use of human tissue.
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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
 - computer information systems, databases, record and filing systems, including specimen accessioning
 - workplace procedures and equipment manuals.

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

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