



Australian Government

MSL973008 Perform histological procedures

Release: 1

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Modification History

Release 1. Supersedes and is equivalent to MSL973008A Perform histological procedures

Application

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

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

While no specific licensing or certification requirements apply to this unit at the time of publication, laboratory operations are governed by relevant legislation, regulations and/or external accreditation requirements. Local requirements should be checked.

Pre-requisite Unit

Nil

Competency Field

Testing

Unit Sector

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 Assemble equipment and materials | <div style="display: flex; flex-direction: column; gap: 10px;"><div>1.1 Confirm the number and type of sections required</div><div>1.2 Collect equipment and arrange the workspace so that equipment can be used safely and efficiently</div><div>1.3 Perform pre-use and safety checks to ensure equipment is fit for purpose</div><div>1.4 Report faulty or unsafe equipment to appropriate personnel</div><div>1.5 Inspect processor reagents for deterioration and adequate</div></div> |
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- volume, and report any items requiring replacement
- 2 **Process and embed plant and animal tissue**
 - 2.1 Select program and reagents for processing
 - 2.2 Monitor processor regularly during processing sequence to ensure dehydration, clearing and infiltration are complete
 - 2.3 Check that temperature of wax is suitable for embedding process
 - 2.4 Check that volume of wax is sufficient for uninterrupted embedding of processor load
 - 2.5 Embed tissue in correct orientation
 - 2.6 Allow block to solidify evenly according to wax requirements
 - 3 **Cut sections of plant and animal tissue**
 - 3.1 Place and secure block and knife in microtome strictly in accordance with safety directions
 - 3.2 Label required number of microscope slides in accordance with workplace traceability requirements
 - 3.3 Cut ribbons of 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 block
 - 3.6 Apply procedures to prevent cross-contamination between samples
 - 3.7 Cut freehand sections of plant tissue as required
 - 3.8 Inspect sections and reject items that do not meet specifications
 - 4 **Stain sections**
 - 4.1 Select reagents specified in the method
 - 4.2 Stain sections according to the method

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| | | 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 all specimens and equipment in accordance with workplace safety protocols/procedures |
| | | 5.3 | Clean up spills using appropriate techniques to protect personnel, work area and environment |
| | | 5.4 | Minimise generation of waste and environmental impacts |
| | | 5.5 | Collect and dispose of all wastes safely |
| | | 5.6 | Report hazards and incidents to designated personnel using workplace procedures |

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.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Standards, codes, procedures and/or workplace requirements

Standards, codes, procedures and/or workplace requirements include the latest version of one or more of:

- Australian and international standards covering the requirements for the competence of testing and calibration laboratories,

laboratory safety and quality management

- national work health and safety (WHS) standards and codes of practice, and national measurement regulations and guidelines
- specific codes, guidelines and procedures, such as National Association of Testing Authorities (NATA) accreditation requirements, principles of good laboratory practice (GLP), and Australian code of good manufacturing practice for medicinal products (GMP)
- workplace documents, such as standard operating procedures (SOPs); quality and equipment manuals; calibration and maintenance schedules; material, production and product specifications; production and laboratory schedules; stock records and inventory; workplace recording and reporting procedures; material safety data sheets (MSDS) and safety procedures; PPE requirements; indicators for use of biohazard and laminar flow cabinets; containment and clean-up of spillages; and waste minimisation and safe disposal procedures
- workplace procedures for processing, cutting and/or staining sections of plant and animal tissues in paraffin wax

Histological procedures

Histological procedures include, but are not limited to, one or more of:

- cutting paraffin sections of organs, such as kidney, liver, small intestine, stomach and tongue
- cutting paraffin sections of dicotyledon and monocotyledon stems
- staining tissue sections with haematoxylin and eosin (human and animal tissue) and safranine and fast green (plant tissue)

Workplace safety procedures

Workplace safety procedures include, but are not limited to, one or more of:

- use of biohazard containers and laminar flow cabinet
- correctly labelling reagents and hazardous materials
- use of PPE, such as gloves, safety glasses, goggles, faceguards, coveralls and gowns
- handling and storing hazardous materials and equipment in accordance with labels, MSDS, manufacturer instructions, and workplace procedures and regulations
- regularly cleaning and decontaminating equipment and work areas

WHS and

WHS and environmental management requirements include:

**environmental
management
requirements**

- complying with WHS and environmental management requirements at all times, which may be imposed through state/territory or federal legislation. These requirements must not be compromised at any time
- applying standard precautions relating to the potentially hazardous nature of samples
- accessing and applying current industry understanding of infection control issued by the National Health and Medical Research Council (NHMRC) and State and Territory Departments of Health, where relevant

Unit Mapping Information

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Links

Companion Volume implementation guides are found in VETNet -

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