



**Australian Government**

# **ACMATE506 Assist to collect and transfer embryos of mice**

**Release: 2**

# ACMATE506 Assist to collect and transfer embryos of mice

## Modification History

| Release   | Comments                                                                                |
|-----------|-----------------------------------------------------------------------------------------|
| Release 2 | This version released with ACM Animal Care and Management Training Package Version 3.0. |
| Release 1 | This version released with ACM Animal Care and Management Training Package Version 1.0. |

## Application

This unit of competency describes the skills and knowledge required to assist in the collection, handling, storage and transfer of mouse embryos.

The unit applies to individuals who work as animal technicians in research and teaching facilities that require laboratory/research mice to be re-derived by embryo transfer for scientific purposes.

All work practices must be undertaken in accordance with legislative requirements, the current Australian Code for the Care and Use of Animals for Scientific Purposes (the Code), the organisation's standard operating procedures, and protocols, policies and procedures approved by the organisation's Animal Ethics Committee (AEC). Users are advised to check legislative requirements for their jurisdiction.

## Pre-requisite Unit

Nil

## Unit Sector

Animal Technology (ATE)

## Elements and Performance Criteria

| Elements                                             | Performance Criteria                                                                                                                                                           |
|------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Elements describe the essential outcomes.</i>     | <i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>                                                                         |
| 1. Prepare for procedures and maintain documentation | 1.1 Comply with organisational protocols, policies and procedures as set down by the AEC and relevant legislative requirements, including work health and safety, at all times |

| Elements                                         | Performance Criteria                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Elements describe the essential outcomes.</i> | <i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|                                                  | 1.2 Identify regulatory and project documentation requirements<br>1.3 Verify project reproductive and breeding program objectives against instructions<br>1.4 Maintain and update records according to organisational policies and procedures                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 2. Assist to vasectomise males                   | 2.1 Prepare equipment and work areas<br>2.2 Select male mice of appropriate age for vasectomy and assess for health status and suitability for surgery<br>2.3 Prepare and verify contingency plans to respond to potential emergencies during and after surgery<br>2.4 Prepare anaesthetics, analgesics and equipment according to instructions or project specifications<br>2.5 Anaesthetise animal under supervision and monitor to ensure surgical anaesthesia is achieved and maintained<br>2.6 Prepare animal for aseptic surgery<br>2.7 Conduct vasectomy and close wounds under supervision<br>2.8 Monitor animal during recovery<br>2.9 Confirm success of vasectomy |
| 3. Assist to collect embryos                     | 3.1 Monitor females of appropriate age for stages of oestrus cycle<br>3.2 Identify suitable females and assess health status<br>3.3 Prepare female for super-ovulation according to organisational procedure<br>3.4 Mate female with an entire male<br>3.5 Confirm presence or absence of vaginal plugs<br>3.6 Collect embryos under supervision from the reproductive tract of super-ovulated and mated donor females                                                                                                                                                                                                                                                       |
| 4. Manage and manipulate embryos                 | 4.1 Hold embryos in a suitable receptacle under optimal temperature and atmospheric conditions to ensure viability<br>4.2 Grade and manipulate embryos<br>4.3 Wash embryos in an aseptic manner for the purpose of re-derivation transfer<br>4.4 Store embryos before transfer                                                                                                                                                                                                                                                                                                                                                                                               |

| Elements                                         | Performance Criteria                                                                                                                                                                                                                                                                                        |
|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Elements describe the essential outcomes.</i> | <i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>                                                                                                                                                                                                      |
|                                                  | 4.5 Monitor procedures, materials, equipment and techniques for quality                                                                                                                                                                                                                                     |
| 5. Assist to transfer embryos                    | 5.1 Mate females with vasectomised males and check for the presence of vaginal plugs<br>5.2 Prepare embryos for transfer<br>5.3 Under supervision, anaesthetise females for embryo transfer and monitor to ensure surgical anaesthesia is achieved and maintained<br>5.4 Transfer embryos under supervision |
| 6. Monitor success of embryo transfer            | 6.1 Monitor females for pregnancy using appropriate technique<br>6.2 Monitor and record number of pups born to embryos transferred per recipient to determine success of program<br>6.3 Assess health status of pups and recipient after birth and weaning                                                  |

## Foundation Skills

*This section describes those language, literacy, numeracy and employment skills that are essential for performance in this unit of competency but are not explicit in the performance criteria.*

| Skill              | Description                                                                                                                                                                         |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reading            | <ul style="list-style-type: none"> <li>Synthesise relevant ideas from several sources, including identifying work requirements from regulatory and project documentation</li> </ul> |
| Writing            | <ul style="list-style-type: none"> <li>Note observations during monitoring of animals, including health status of pups and recipient</li> </ul>                                     |
| Oral communication | <ul style="list-style-type: none"> <li>Clarify and discuss instructions about work procedures</li> </ul>                                                                            |

## Unit Mapping Information

| Code and title current version | Code and title previous version | Comments | Equivalence status |
|--------------------------------|---------------------------------|----------|--------------------|
|                                |                                 |          |                    |

|                                                                                |                                                                                |                                                                                                   |                 |
|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|-----------------|
| ACMATE506<br>Assist to collect<br>and transfer<br>embryos of mice<br>Release 2 | ACMATE506<br>Assist to collect and<br>transfer embryos of<br>mice<br>Release 1 | Minor changes to performance<br>criteria, foundation skills and<br>knowledge evidence for clarity | Equivalent unit |
|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|-----------------|

## Links

Companion Volumes, including Implementation Guides, are available at VETNet: -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b75f4b23-54c9-4cc9-a5db-d3502d154103>

# Assessment Requirements for ACMATE506 Assist to collect and transfer embryos of mice

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## Performance Evidence

An individual demonstrating competency must satisfy all of the elements and performance criteria in this unit.

There must be evidence that the individual has:

- assisted to collect and transfer embryos of mice on at least two occasions, including:
  - complied with organisational protocols, policies and procedures, including Animal Ethics Committee (AEC), legislative and health and safety requirements, at all times
  - monitored the health and welfare of animals during and after procedures and provided appropriate care.

## Knowledge Evidence

An individual must be able to demonstrate the knowledge required to perform the tasks outlined in the elements and performance criteria of this unit. This includes knowledge of:

- principles and practices for mouse embryo transfer collection, including:
  - anatomical and physiological features of mice related to vasectomy, embryo collection and transfer
  - reproductive cycles relating to mouse embryo technology
  - mouse oogenesis, ovulation, conception and embryonic development
  - constitution, storage and use of proprietary embryo flushing, holding and culture media
  - super-ovulation regimens for mice
  - safe mouse handling techniques, including approved handling methods during the administration of substances and surgical procedures
  - euthanasia or humane killing techniques for culling mice for embryo collection or if suffering during or after surgery

- relevant common diseases, injuries and other impacts on mouse health and wellbeing, and characteristics of healthy, sick or distressed mice
- key requirements of the Australian Code for the Care and Use of Animals for Scientific Purposes relating to the collection and transfer of embryos of mice
- relevant state or territory legislation and regulations relating to:
  - practice of veterinary science
  - workplace health and safety
  - animal welfare and research, including the Office of the Gene Technology Regulator and its impact on the work in assisting to collect and transfer embryos of mice
  - use of therapeutic and controlled substances
- organisational policies and safe work procedures, including:
  - emergency procedures
  - hygiene standards – disinfectants and cleaning agents, techniques, equipment and materials
  - infection control protocols
- relevant laboratory techniques and procedures, including:
  - methods used to collect, store and manipulate embryos from mice for re-derivation purposes
  - methods used to perform embryo transfer procedures in mice
  - surgery relevant to vasectomy, embryo collection and transfer
  - cryo preservation and recovery
  - aseptic techniques
  - relevant anaesthetics, analgesics and other medications used, and methods of administration for mouse surgery
- applicable industry quality assurance requirements and required documentation
- biosecurity issues relating to the collection of samples from animals
- relevant principles of animal welfare and ethics, including the 3Rs (replacement, reduction and refinement) and the 5 Domains.

## Assessment Conditions

Assessment of skills must take place under the following conditions:

- physical conditions:
  - an animal research or production facility, or an environment that accurately represents workplace conditions that has a scientific establishment licence and access to an approved AEC
- resources, equipment and materials:
  - mice used in research.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b75f4b23-54c9-4cc9-a5db-d3502d154103>