Flinders University

Standard Operating Procedure
Transport of Genetically Modified Animals

SOP Number:	SOP prepared by:	Date created:
IBC_SOP_4	Jess Hall	December 2015
IBC approval date:	**Contact:**	**Review date:**
17/02/2016	ibcadmin@flinders.edu.au	December 2020

1. Relevant Legislation and Policies

- *Gene Technology Act 2000*
- *Gene Technology Regulations 2011*
- *Guidelines for the Transport, Storage and Disposal of GMOs*
- *Australian Code for the Care and Use of Animals for Scientific Purposes, 8th edn.*
- *Animal Welfare Act 1985*
- *Animal Welfare Regulations 2012*
- *Commonwealth Quarantine Act 1908*
- *Flinders University Policy on Research Practice 2001*

2. Biosafety & Animal Welfare Policy

- Flinders University is accredited by the Office of the Gene Technology Regulator (OGTR) under Section 92 of the *Gene Technology Act 2000* (the *Act*). Any person wishing to undertake work involving gene technology and/or Genetically Modified Organisms (GMOs) at the University must seek and receive approval from the Flinders University Institutional Biosafety Committee (IBC) before commencing work. All work involving GMOs must be conducted in accordance with the *Act*, the *Gene Technology Regulations 2011* (the *Regulations*) and associated guidelines. Application forms can be found on the Flinders University biosafety website: http://www.flinders.edu.au/research/researcher-support/ebi/biosafety/resources/forms.cfm
- All staff and students involved in research with GMOs must attend Biosafety Training Day once every three years, or when the *Gene Technology Act* and *Regulations* are updated.

Research involving animals:

- The University holds a licence for the use of animals for teaching and research purposes. To satisfy the conditions of the licence, anyone wishing to undertake teaching and research using animals must submit a proposal to the Animal Welfare Committee (AWC). No work with animals may commence until written approval has been received from the AWC. Application forms can be found on the Flinders University Animal Ethics website: http://www.flinders.edu.au/research/researcher-support/ebi/animal-ethics/resources/forms.cfm
- All staff and students involved in animal research must also complete Animal Ethics Online Training.

3. Safe Work Method Statement

Refer to Risk Assessments (RA), Safe Work Method Statements (SWMS) and Safety Data Sheets (SDS) for substances, processes and plant equipment where appropriate. All Notifiable Low Risk Dealings (NLRDs) must have an accompanying risk assessment approved by the Institutional Biosafety Committee.

4. Before Work Commences

a) Ensure that you have approval to transport GMOs as part of your approved IBC project (see section 5 below for activities considered to be 'transport').

b) RA, SWMS and SDS – ensure you have read and understood for all substances, processes and plant equipment being used.

c) Ensure that you are aware of the locations of the following in the work area(s):
- Spill kit
- Fire extinguisher
- Eye wash and safety shower
- Exits
- Required PPE
- Unintentional release flowchart (in PC facilities)

5. Transport Requiring Approval Under the Gene Technology Act 2001

As defined in the OGTR Guidelines for the Transport, Storage and Disposal of GMOs, transport includes ALL of the following:

- movement of GMOs from one certified physical containment (PC) facility to another;
- movement of GMOs between a certified PC facility and a storage location outside of an authorised PC facility;
- movement of GMOs imported into Australia from the Australian border to: a certified PC facility; storage outside of a certified PC facility; a point of export from Australia; or to a place where the GMOs are to be decontaminated or disposed of;
- movement of GMOs to be exported from Australia from the time that the GMOs leave a certified PC facility or a storage location outside of an authorised PC facility until the GMOs have left Australia;
- movement of GMOs between a place of storage to another place of storage;
- movement of GMOs between any points specified in a licence;
- movement of GMOs from any point specified in a licence to an authorised PC facility; and
- movement of GMOs or waste containing GMOs from a certified PC facility, or from storage outside of a certified PC facility, to a place where the GMOs are to be decontaminated or disposed of (e.g. to an autoclave or incinerator).

6. Requirements for the Transport of GM Animals

The following requirements apply to the transport of GM animals that do not contain GM microorganisms. For animals containing GM microorganisms, please refer to the *SOP for Transport of GM Microorganisms*.

PC1 and PC2 GMOs may only be transported to another facility of the same containment level or higher, or to a locked storage facility outside of a certified facility, or to a place for decontamination/destruction. Live PC1 and PC2 animals cannot be housed outside of a PC facility.

Transport to facilities external to Flinders University or shipment interstate or overseas should be via a courier company that specialises in the shipment of animals, including GM animals, and uses a climate controlled vehicle and offers door to door service.

Please refer to the Animal Welfare SWMSs 'mouse: transportation' and 'rat: transportation' for minimum welfare standards for transportation of animals. These SWMSs are available from the Animal Welfare website:
http://www.flinders.edu.au/research/researcher-support/ebi/animal-ethics/resources/sops.cfm

Packaging/containment:

- Small GM animals (e.g. mice, rats) that do not contain GM microorganisms should be transported between certified facilities in a cage or rigid, unbreakable box (primary container) that is sealed closed (clipped, taped or banded) to enable it to maintain its integrity under all reasonably expected requirements of transport.

Example of 'banded' mouse cage, secured for transportation

Example of 'banded' rat cage, secured for transportation

- Transport of small GM animals (not containing GM microorganisms) to facilities external to Flinders University or shipment interstate or overseas should be organised with assistance from the College of Medicine and Public Health Animal Facility (Animal Facility) staff. Shipping containers should be unbreakable boxes, firmly sealed with strapping tape. Where possible, metal fly wire should be stapled over the shipper (beneath the lid) to prevent the possibility of an accidental release when removing the lid.

Example of shipping container suitable for sending small GM animals to external facilities, secured with strapping for transportation

- All packaging of GM animals for transport must occur within the PC facility that the animal is currently housed in. Animals must not be removed from transport containers outside of the destination PC facility.
- Following use for transport, the cages/shipping containers must either be decontaminated before reuse or disposal, or disposed of via the biohazard (yellow) waste stream.

Segregation:

- GM and non-GM animals capable of interbreeding must be kept physically separated from each other during transport, unless approval has been granted for cross-breeding as part of the approved dealing.
- If segregation fails for any reason, then the non-GM animals must be treated as though they were GM animals from that point onwards.

Labelling:

- Before transport occurs, the outermost container containing GM animals must be clearly labelled to indicate to other handlers that the animal is a GMO.
    - When animals are sent off-campus, include a label indicating that the box/cage must only be opened within a PC facility.
- Before transport occurs, the outermost container must be labelled to clearly show the name, address and contact details of the sender, so that the sender can be contacted should the container be lost, damaged or misdirected.
    - This is not required when the transport takes place entirely within one building.

Example of shipping container for small GM animals, including labels with sender and receiver contact details, and labels indicating that the animals are GMOs

Accounting requirements:

- Procedures must be in place to ensure that all transported GM animals can be accounted for. This is to ensure that loss of GM animals during transport, or the failure of delivery, can be detected. This can be achieved by counting and recording the number of animals both before transport occurs, and again once the animals have reached the final transport destination.
    - Check the number of animals in the cage against the number recorded on the cage card. If there are any discrepancies, report to Animal Facility staff.
    - Before animals leave the physical containment facility within Animal Facility, the number of animals in each cage must be checked and recorded on the "Animal Movement Checklist" located in each animal room before animals leave the room.
- When GM animals are transported by a courier to an external recipient, the number of animals in each cage should be counted and recorded. The sender should then contact the intended recipient (preferably via email) to confirm in writing that the same number of animals per cage has been received. For example:

Cage number	Number of animals sent	Number of animals received
1	4 x p53 KO mice	.....
2	2 x Cdcp1 KO mice	.....
3	4 x Khdrbs1 KO mice	.....

Security arrangements:

- Access to GMOs must be restricted, by any means that is effective, to only persons approved by the IBC to handle the GMO.
    - This can be achieved by keeping animals in a locked area until collection, or by an approved person accompanying animals at all times during transport.

Decontamination:

- After transporting small animals, containers/cages must be decontaminated including by ensuring that no individual animals are hidden in any bedding or media.

Escape or Unintentional Release:

In the event of an escape or unintentional release of a GM animal, including failure of GM animals to be delivered to an intended recipient:

- Within Flinders University, refer to the spill or unintentional release flowchart available within each PC facility on campus, and also from the Biosafety website: http://www.flinders.edu.au/research/researcher-support/ebi/biosafety/resources/forms.cfm
- If a GM animal escapes within a certified PC facility, trapping devices must be used to capture the animal and the animal must be returned to its container/cage or euthanized.
- Any real or suspected unintentional release of GMOs outside of a certified PC facility must be reported to the IBC Chairperson (Pam Sykes - ph. 0408722674) or IBC Executive Officer (Jess Hall - ph. 72218353) as soon as reasonably practicable.

7. Contacts, Definitions and References

Contacts:

Position	Name	Contact details
IBC Executive Officer	Jess Hall	ibcadmin@flinders.edu.au ph. 72218353
IBC Chair	Prof Melissa Brown	melissa.brown@flinders.edu.au ph. 82012747
Manager, Animal Facility	Roxanne Collingwood	roxanne.collingwood@flinders.edu.au ph. 82044380

Definitions:

- **Physical containment (PC) facility:** There are four levels of physical containment applied to facilities certified by the Regulator (PC1–PC4). These are arranged in order of ascending stringency of containment requirements, which reflect the level of risk involved in the dealings that can be undertaken at each level. The required PC level for the containment of a dealing is governed by the *Act* and the *Regulations*.
- **Primary container:** A container immediately surrounding the GMO.
- **Sealed:** Able to contain all GMOs or the reproductive material of GM plants or GM aquatic organisms (including pollen or gametes) being transported or stored, and able to remain closed during all reasonably expected conditions of transport and storage.
- **Secondary container:** The container immediately surrounding the primary container.
- **Unbreakable:** Able to withstand all reasonably expected conditions of transport and storage such as: the forces, shocks and impacts expected during handling; or changes of temperature, humidity or air pressure.
- **Viable:**
    - **Microorganisms, cells and cell cultures** – able to survive or multiply even though resuscitation procedures may be required (e.g. when sub-lethally damaged by being frozen, dried, heated or affected by chemicals, including decontamination agents).
    - **Other organisms, whole or part** – able to live and grow independently of its parent or source organism, or able to reproduce or contribute genetic material to reproduction (e.g. sperm, ova, pollen, seeds, vegetative propagules).

References:

- *Guidelines for the Transport, Storage and Disposal of GMOs*: http://www.ogtr.gov.au/internet/ogtr/publishing.nsf/Content/tsd-guidelines-toc

- *Flinders University Biosafety Manual* (March 2015): http://www.flinders.edu.au/about_research_files/Documents/ebi/ibc/Flinders%20University%20Biosafety%20Manual.pdf

8. SOP Review

This SOP currently applies to transport of GMOs from dealings approved by the Flinders University Institutional Biosafety Committee. This SOP will be reviewed every 5 years, but will also be updated more frequently as policies, procedures and requirements change.