

Euthanasia of rodents using isoflurane

Category 3: research

Objective

This Standard Operating Procedure (SOP) describes the technique for humanly euthanising a rodent using isoflurane. This SOP should be read in conjunction with current, relevant research.

Alternatives to animal use N/A

Safety and Risk considerations

Isoflurane is a volatile anaesthetic agent. Care should be taken when handling and using isoflurane in accordance with manufacturer's instructions and MSDS.

Drugs, chemicals or biological agents

Isoflurane.

Procedure

1. Where possible rodents should be euthanised in darkened home cages. Where this is not practicable, individual rodents will be placed in a confined 1 litre container
2. Isoflurane (1-2mL) will be added to a gauze pad and placed into the container. Care must be taken to ensure the liquid isoflurane does not directly come into contact with the rodent.
3. Animals will be monitored until they show an absence of respiratory function, fail to respond to noxious stimulus and until their eyes are fixed and glazed.
4. Death must be confirmed by:
 - i. the absence of heartbeat,
 - ii. The absence of respiration,
 - iii. nil palpebral reflex
 - iv. nil conjunctival reflex
 - v. nil withdrawal response
 - vi. greying of mucous membranes

Impact on animal wellbeing

Since this procedure is designed to rapidly induce euthanasia the impact on the wellbeing of the animal will be minimal.

Reuse and repeated use

This procedure is designed to be used only once.

Animal Care

Since isoflurane is a gaseous anaesthetic this procedure should take place in a fumehood. There should be no disposal of the body until death is established.

All care must be taken to minimise distress to the animal during handling and restraint.

Pain relief

At lower concentrations, isoflurane is commonly employed as a general anaesthetic. During this procedure the animals are unlikely to feel pain.

Qualifications and experience

Demonstrator: Previous experience working with small animals is critical. Specifically, knowledge on how to handle rodents expertly while keeping them calm.

Students: If this procedure is carried out for the first time, supervision by an experienced operator is essential for learner safety and animal wellbeing.