Euthanasia
What is Euthanasia

Euthanasia literally means a "good death".

A more appropriate simple definition is a "gentle death".

Specifically, this means that animals should be killed humanely with minimal pain and distress.
Because improper technique can cause pain and suffering to animals during euthanasia, **you must be trained** to properly and humanely perform euthanasia. The LAF veterinary staff offers training for all personnel working with animals. To arrange a training session, contact the LAF office at 4-1385.
Secondary (Adjunctive) Methods of Euthanasia
Secondary (Adjunctive) Methods

• Death of the animal must be confirmed prior to placing the animal in the cooler.

• The most common method to assure death is to use a secondary method of euthanasia.
What does that mean?

If primary euthanasia method is:

<table>
<thead>
<tr>
<th>Method</th>
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<tr>
<td>CO$_2$ inhalation</td>
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<tr>
<td>Inhalation anesthesia</td>
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<tr>
<td>Injectable anesthesia</td>
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...then you **MUST** use a secondary method:

- Exsanguination
- Decapitation
- Cervical dislocation
- Tissue harvest
- Bilateral pneumothorax

Training in euthanasia techniques is available by contacting the LAF office at 4-1385.
Inhaled Agent Use of Euthanasia

- CO$_2$
- Isoflurane
• When possible, inhaled agents should be administered where animals are most comfortable (e.g., for rodents, in the home cage)

• If animals need to be combined, they should be of the same species and compatible cohorts

• Avoid combining animals that may fight

• Chambers should not be overloaded and need to be kept clean to minimize odors that might cause distress in animals subsequently euthanized
The LAF has three (3) CO₂ euthanasia stations and a mobile unit.

Basement of the “old” Guyton Building
G044

8th floor of the Research Wing
R820

Basement of the “new” Guyton Building
G080-A

Mobile Unit
(normally housed in R820)
Follow the SOP

• SOPs are posted at each CO₂ station.

Laboratory Animal Facilities
Carbon Dioxide Euthanasia Procedures For Mice and Rats

The Euthanex system is designed to humanely euthanize 1 mousebox cage at an efficient and effective manner. Adhering to the following instructions will ensure appropriate euthanasia, consistent with the AVMA Guidelines on Euthanasia (2013).

1. Attach the appropriate size top (large rectangle for rat boxes and small rectangle for mouse boxes) to the CO₂ gas line. The “quick-connect” valve should firmly attach the line to the top – the “quick-connect” should click into place.
2. Animals should remain in their “home cage” to reduce stress.
3. Remove water bottles and the wire bar lid from the cage top. (note, the water feed hole on rat cages should be covered/closed by filling with paper towel)
4. Turn silver knob at the top of the CO₂ tank clockwise (ON); the pressure gauge must be filled from the tank should now indicate the tank pressure.
5. Turn the knob on the flowmeter to:
   - 2 L/min for mouse euthanasia
   - 6 L/min for rat euthanasia

   It may take up to 5 – 10 minutes for euthanasia to be completed.
6. Maintain gas flow for 1 minute after breathing has stopped.
7. Torque silver knob on top of the CO₂ tank clockwise (OFF).
8. Turn the knob on the flow meter to 0.
9. Remove animals from the cage. If respiration or presence of heart beat is noted return the animal to the box and repeat steps 4 – 8.
10. If no vital signs (heartbeat, respiration) are noted complete secondary (adjunct) method of euthanasia.
11. Place animal in a black bag and place in cooler.
12. Take the cage to the “dirty” cage wash and place any dirty laundry in laundry hamper.

Members of the LAF veterinary staff are available to assist with euthanasia procedures or answer any questions. If you need assistance, please call 4138 or look for someone in LAF during normal working hours. After hours or weekends, a veterinary staff member is on call and can be reached via pager (662) 899-3643.

Remember, you MUST use a secondary method of euthanasia as an adjunctive method to ensure death.

If primary euthanasia method is:

- CO₂ inhalation
- Inhalation anaesthetic
- Injectable anaesthetic

... then you MUST use a secondary method as approved in your animal activity protocol such as:

- Resuscitation or resuscitation or
- Cervical dislocation or brain harvest or
- Bilateral pneumothorax

Notes:

Newborn (day 1) rats and mice require exposure times of 35 and 50 minutes, respectively, to ensure death. By age 10 days, exposure times of 5 minutes may be effective. Research staff should check with the approved protocols for specifics on euthanasia methods approved for different species and animals. The secondary method of euthanasia should also be listed in the approved protocol.

Keeping animals in their home cage is recommended as noted on this SOP. If animals cannot be euthanized in the home cage, consideration should be given to maintaining compatible groups and prevention of overcrowding animals in the chamber. If euthanasia cannot be conducted in the home cage, the chamber should be emptied and cleaned between uses.

When the pressure gauge on the CO₂ read in the red “alert gas” zone or appear empty, please alert someone in the LAF so the tank can be changed to a full tank.
Follow your Protocol!

Question #20 on the Animal Activity Protocol form outlines the method of euthanasia approved for the study.
The Laboratory Animal Facilities (LAF) veterinary staff provides training in euthanasia procedures, as well as assists in the euthanasia of animals.

Training sessions on the appropriate use of the CO$_2$ stations are offered each month.

Investigators are encouraged to consult with a veterinarian for euthanasia techniques specific to the age and species of animals.
For additional information, please consult

The AVMA Guidelines for the Euthanasia of Animals: 2013 Edition

at

Questions?
Contact the LAF office (4-1385) or the IACUC Office

iacuc@umc.edu