



IACUC Guidance:	TAMU-G-014	Title:	IACUC Guidelines for the Identification of Research Animals	
	Location	Effective Date	Review By	
	College Station/Dallas/Galveston/Kingsville	04/01/2024	03/31/2027	
	Houston	05/01/2024	03/31/2027	

1. PURPOSE

1.1. Individual animal identification is important for animal colony management, animal health/medical records, and for research data interpretation. This document provides guidance on the IACUC’s requirements for identification of research animals at Texas A&M University.

2. SCOPE

2.1. Does not include emerging identification technologies such as: p-chip microtransponders, luminescent micro-tattooing or biometric ear printing.
 2.2. Individual research animal species will not be discussed. For more information on appropriate identification methods, contact CMP/ARU/PAR/PRF.

3. RESPONSIBILITY

3.1. The PI will ensure that research animals are adequately and appropriately identified as described in the approved animal use protocol.
 3.2. The PI will ensure that all personnel have appropriate training in the application of animal identification procedures.

4. DEFINITIONS AND/OR ACRONYMS

4.1. Centrally administered support service for animal research and teaching programs at Texas A&M University:
 4.1.1. **ARU:** Animal Resource Unit supports the School of Dentistry vivarium
 4.1.2. **CMP:** Comparative Medicine Program supports the Texas A&M College Station Campus
 4.1.3. **PAR:** Program for Animal Resources supports the Institute of Biosciences and Technology vivarium
 4.1.4. **PRF:** Pharmaceutical Research Facility supports the Kingsville Pharmaceutical Science Facility vivarium
 4.1.5. **Sea Life:** The Sea Life Facility supports the Galveston campus
 4.2. **Cryoanesthesia:** Local anesthesia produced by chilling an area to near-freezing temperature to diminish neural sensitivity to pain during brief/minor surgical procedures, e.g. vapocoolant spray.
 4.3. **NAIS:** National Animal Identification System. Government-run program to extend government animal health surveillance by identifying and tracking specific animals.
 4.4. **PI:** Principal Investigator. The individual who has ultimate administrative and programmatic responsibility for the design, execution, and management of a project utilizing vertebrate animals.
 4.5. **RFID:** Radio frequency identification. Form of wireless communication that incorporates the use of electromagnetic or electrostatic coupling in the radio frequency portion of the electromagnetic spectrum to uniquely identify an animal.

5. GUIDELINES OR PROCEDURE

5.1. Population Management
 5.1.1. Means of animal identification include:
 5.1.1.1. Room, rack, tank, pond, pen, stall and cage cards with written, bar-coded, or radio frequency identification (RFID) information.
 5.1.2. Identification cards should include the source of the animal, species, strain or stock, names and contact information for the responsible investigator(s), pertinent dates, and protocol number when applicable. Genotype information, when applicable, should also be included.
 5.1.3. It may be necessary to identify animals in multiple ways (e.g., as a transgenic animal and by individual identification)

5.1.4. Animals may wear collars, bands, plates, or tabs or be marked by colored stains, ear notches/punches and tags, tattoos, transponders and brands.

5.2. Non-Invasive Methods

5.2.1. Use of these methods do not require prior IACUC approval.

5.2.2. Non-invasive methods may be used as the sole method of identification, or in conjunction with an invasive method, depending on the needs of the study.

5.2.3. Examples of non-invasive methods include but are not limited to the use of: Cage cards, detailed drawings, photographic/video-graphic records, indelible marker, nontoxic ink or dye.

5.2.4. Markers and Dyes

5.2.4.1. Short term options which require reapplication (every 3-4 days) include nontoxic permanent markers to mark the tail, ear, or fur or human hair dye or marking sprays to mark the fur.

5.2.4.2. Specialized "animal markers" use a nontoxic pigment that remains on the fur for 6-12 weeks.

5.2.5. Non-invasive method(s) utilized for free-living wild animals in their natural habitat must be performed as described on the applicable state, federal or international permit associated with the AUP.

5.3. Invasive Methods

5.3.1. May require use of anesthesia or analgesia administration and must be described in the approved protocol prior to use.

5.3.2. Ear tags

5.3.2.1. Metal ear tags are inexpensive and do not require general anesthesia for application; however, the animal must be securely restrained. This method is not ideal for animals undergoing MRI and/or CT imaging, as they must be removed prior to imaging.

5.3.2.2. Tags must be appropriately sized for the species and age of the animal. Proper placement is necessary to prevent auricular irritation or trauma.

5.3.2.3. In agricultural animals, ear tags are best used in conjunction with a more permanent form of identification.

5.3.2.4. Use of a topical vapocoolant spray is recommended in calves and piglets. Topical anesthetics must be listed in the approved protocol if used.

5.3.3. Mini-ID Ear Tags (mouse)

5.3.3.1. RapID Tags lightweight plastic tag (0.07 g) that has a 2D barcode etched onto a titanium plate attached to the plastic tag. It is read using a barcode reader, similar to microchips.

5.3.4. Ear Notching & Ear Punching

5.3.4.1. Ear notching or punching is an inexpensive and permanent method of identification (and source for genotyping: see TAMU-G-007).

5.3.4.2. In properly restrained rodents, general anesthesia is not required.

5.3.4.3. Cryoanesthesia is an effective option for reducing pain associated with ear notching in calves and piglets.

5.3.4.4. Instrumentation must be sharp, sterilized before use, cleaned and disinfected between animals. See TAMU-G-013 for information regarding aseptic technique.

5.3.5. Tattoos

5.3.5.1. Tattooing is an effective way of uniquely identifying many species. Ear tattooing is often used in dogs, cats, rabbits, guinea pigs, monkeys, goats, sheep and cattle.

5.3.5.2. In agricultural species, restraint may be necessary to read a tattoo, rendering this form of identification less ideal.

5.3.5.3. Horses are typically tattooed on the inside surface of the upper lip, with chemical restraint, as needed.

- 5.3.5.4. Tattooing is a frequently used method for permanent identification of dogs and may be placed in the ear, flank or in the oral cavity.
 - 5.3.5.5. Injecting tattoo ink subcutaneously into the ears, tail, hocks or toes can permanently identify neonatal rats and mice. Usually, a series of pattern of dots identifies individual animals.
 - 5.3.5.6. Appropriate anesthesia/analgesia is recommended when tattooing animals with more than a colored dot. The veterinary staff should be consulted for assistance with selection of agents which must be described in the approved protocol.
 - 5.3.5.7. Follow manufacturer's guidelines for procedures and recommended age for both electric and micro tattooing. Needles must be sterile, sharp and replaced at the frequency recommended by manufacturer.
 - 5.3.5.8. Tattooing may require special training. For information on training, please contact CMP/ARU/PAR/PRF.
- 5.3.6. Toe Clipping
- 5.3.6.1. Toe clipping is the removal of the distal portion of the toe, corresponding to a predetermined numbering code, as a means of permanent identification of small rodents and/or for a source of tissue for genotyping. (See TAMU-G-007 for more information regarding the performance of this procedure)
- 5.3.7. Electronic Transponders
- 5.3.7.1. Electronic transponders are an effective method of automated identification of individual animals of a variety of species.
 - 5.3.7.2. Local anesthesia is recommended, as appropriate, when implanting the transponder subcutaneously. Some transponders need to be placed intra-peritoneally which requires general anesthesia, surgery and appropriate post-operative analgesia.
 - 5.3.7.3. Aseptic technique must be used to insert (subcutaneous or intraperitoneal) transponders.
 - 5.3.7.4. CMP/ARU/PAR/PRF veterinary staff should be consulted for assistance with selection of anesthetic agents. Anesthetics must be described in the approved protocol.
 - 5.3.7.5. For agricultural species, electronic transponders require special sensor units or stations, but should be considered when possible.
- 5.3.8. Cattle/Horses
- 5.3.8.1. Freeze-branding consistently identifies darkly-colored animals. Branding locations include: hip, shoulder, rear leg, or side but takes some time to become evident.
 - 5.3.8.1.1. Note: hot iron branding is more stressful than freeze-branding.
 - 5.3.8.1.2. Branding should be performed by trained personnel only, with appropriate restraint (physical and/or chemical).
 - 5.3.8.2. Ear and neck chains can become lost and should not be used as the only method of identification.
 - 5.3.8.3. Neck chains/straps should be avoided in situations in which the animal could become entangled.
 - 5.3.8.4. The NAIS will provide an additional means of identification when implemented.
- 5.3.9. Wild species - General
- 5.3.9.1. Invasive method(s) utilized for free-living wild animals in their natural habitat must be performed as described on the applicable state, federal or international permit associated with the AUP.
 - 5.3.9.2. Investigators are encouraged to use identification methods that do not make wild animals vulnerable to predators, do not predispose the animal to entanglement, and do not require

recapture to determine identity. Where feasible, investigators should use natural characteristics for identification as opposed to methods that alter the animal in some manner.

5.3.10. Bats

5.3.10.1. Wing punch marks can be used to identify bats for a few weeks. Instrumentation must be sharp, sterilized before use, cleaned and disinfected between animals. See TAMU-G-013 for information regarding aseptic technique.

5.3.10.2. Freeze marking is a permanent means of identifying bats.

5.3.11. Avian species

5.3.11.1. Patagial (Wing Markers) and Leg Tags

5.3.11.1.1. Birds can be individually identified by numbered wing tags placed in the wing web or by numbered leg bands.

5.3.11.2. Colored Leg Bands

5.3.11.2.1. Depending on length of the study, consider UV-stable plastic to keep color from fading.

5.3.11.2.2. Color bands can affect behavior in some species.

5.3.11.3. All types of markers require permits for wild birds.

5.3.11.4. Contact [International Shorebird Banding Project](#) before affixing flags to shorebirds.

5.3.12. Aquatic Species

5.3.12.1. Identification methods available for use include fin clipping, genetic testing, identification tags, subcutaneous injections of elastomeric or other materials, individual transponder tags (in animals of sufficient size) and, as applicable, external features such as individual color patterns.

5.3.12.2. Identification of the entire group of animals housed in a tank, aquaria, pond, or other may be preferable or more appropriate in some situations than individual identification.

5.3.12.2.1. Note: detailed animal records are still required.

5.3.12.3. List of identification methods with examples of each method:

5.3.12.3.1. External Tags: Threads, ribbons, wires, dangling tags

5.3.12.3.2. External Marks: Fin clipping, pigments, branding

5.3.12.3.3. Internal Tags: Coded Wire Tags (CWT), Passive Integrated Transponder (PIT), Body Cavity Tags (BCT), Internally attached-externally detected (VI)

5.3.12.3.4. Internal-External Marks: chemical marks on bony structures such as scales or fin rays, thermal marks, elastomers, biological marks

5.3.12.3.5. Electronic Tags: Transponder tags, transmitter tags, data storage tags, satellite tags/popup tags/chat tags

5.3.12.3.6. Genetic Marks: Blood or tissues for genetic analysis

5.3.13. Dogs/Cats

5.3.13.1. Must be individually identified.

5.3.13.2. Unweaned puppies/kittens do not require individual ID while they are maintained as a litter with their dam in the same primary enclosure, provided the dam is individually identified.

5.3.13.3. Options include: Tags, Microchips and Tattoos.

5.3.13.4. Tags must contain the following information: USDA# (48-A-0000) & Individual# (personal ID#: 1, 27, 32 etc.). Note: Tags MUST include the letters USDA.

5.3.13.5. Tattoo letters are issued by the USDA-APHIS-Animal Care office after a written request from the licensee.

6. REFERENCES, MATERIALS, AND/OR ADDITIONAL INFORMATION

6.1. References

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 - 6.1.3. Fair, J., E. Paul, J. Jones and L. Bies, Eds. 2023. *Guidelines to the Use of Wild Birds in Research*. Washington, D.C.: Ornithological Council.
 - 6.1.4. CITI Working with Fish in Research Settings
 - 6.1.4.1. Web page: <https://about.citiprogram.org/en/homepage/>
 - 6.1.4.2. Instructions: <https://rcb.tamu.edu/animals/training>
 - 6.1.5. Federation of Animal Science Societies. 2020. *Guide for the Care and Use of Agricultural Animals in Research and Teaching*, 4th edition.
 - 6.1.6. Lomax, S., Hall, E., Oehlers, L. and P. White. Topical vapocoolant spray reduces nociceptive response to ear notching in neonatal piglets. *Vet Anaesth Analg*. 2018 May;45(3):366-373.
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 - 6.1.8. NPS Institutional Animal Care & Use Committee [Standard Operating Procedure](#) for the Study of Bats in the Field. 2016.
 - 6.1.9. Paluch L, Lieggi C, Dumont M, Monette S, Riedel E, Lipman N. Developmental and Behavioral Effects of Toe Clipping on Neonatal and Preweanling Mice with and without Vapocoolant Anesthesia. 2014. *JAALAS*. p 132-140.
 - 6.1.10. Schaefer D, Asner I, Seifert B, Bürki K, Cinelli P. 2010. Analysis of physiological and behavioral parameters in mice after toe clipping as newborns. *Laboratory Animals*, 44:7-13.
 - 6.1.11. National Research Council. 2011. [Guide for the Care and Use of Laboratory Animals](#). National Academies Press, Washington, D.C. 220p.
 - 6.1.12. Institutional Animal Care and Use Committee Guidebook. 2nd Edition. 2002. ARENA/OLAW
 - 6.1.13. Guidelines for Toe Clipping of Rodents. NIH. http://oacu.od.nih.gov/ARAC/documents/Toe_Clipping.pdf
 - 6.1.14. Dahlborn, K, P Bugnon, T Nevalainen, M Raspa, P Verbost, and E Spangenberg. "Report of the Federation of European Laboratory Animal Science Associations Working Group on Animal Identification." *Laboratory Animals* 47, no. 1 (January 2013): 2–11. doi:10.1177/002367712473290.
- 6.2. Resources
- 6.2.1. U.S. Bird Banding Laboratory
 - 6.2.2. Bird Banding Office of the Canadian Wildlife Service
 - 6.2.3. JOVE Rodent Identification I and Rodent Identification II
 - 6.2.4. Mini-Id tags: <https://rapidlab.com/>
 - 6.2.5. [USDA Animal Welfare Inspection Guide](#)
https://www.aphis.usda.gov/animal_welfare/downloads/Animal-Care-Inspection-Guide.pdf
 - 6.2.6. Metal Tags: [Ketchum Mfg](#)
 - 6.2.7. Plastic Tags: [National Band & Tag Company](#)
 - 6.2.8. Microchips: [AVID ID Systems](#), [Home-Again](#)
 - 6.2.9. For more information on animal identification, please contact:
 - 6.2.9.1. [CMP](#): at 979-845-7433
 - 6.2.9.2. [ARU](#): at (214) 828-8149
 - 6.2.9.3. [PAR](#): at (713) 677-7471
 - 6.2.9.4. [PRF](#): at (361) 221-0770
 - 6.2.9.5. Sea Life Facility: at (409) 740-4574



- 6.2.10. [IACUC/AWO Referenced Documents](#): (requires TAMU NetID authentication)
 - 6.2.10.1. TAMU-G-013 Guidelines for Surgical Procedures in Rodents
 - 6.2.10.2. TAMU-G-007 Guidelines on Genetically Modified Animals and Genotyping

6.3. Acknowledgements

- 6.3.1. This document was prepared through the adaptation of materials obtained from the Universities of Arizona and South Florida.

7. HISTORY

Effective Date	Version #	Description
09/19/2019	000	College Station/Galveston: New Document; replaces unnumbered document "Toe clipping in mice"
01/27/2020	001	Houston/Kingsville: new format and updated content; Replaces IBT-206
02/18/2020	002	Dallas: new format and updated content; Replaces CD-206
07/01/2021	003	College Station/Galveston: Renewal document; updated definitions and references; updated content to include ID of fish and bats
08/02/2021	004	Houston/Kingsville: Renewal document; updated definitions and references; updated content to include ID of fish and bats
08/17/2021	005	Dallas: Renewal document; updated definitions and references; updated content to include ID of fish and bats
03/24/2022	006	College Station/Dallas/Galveston: Merging of Dallas animal care and use program with College Station/Galveston
10/20/2022	007	College Station/Dallas/Galveston/Kingsville: Merging of Kingsville animal care and use program with College Station/Dallas/Galveston.
04/01/2024	008	College Station/Dallas/Galveston/Kingsville: Renewal; updated definition and reference sections. Reviewed and approved via TEAMS.
05/01/2024	009	Houston: Renewal; updated definition and reference sections. Reviewed and approved via TEAMS.