

Office of Research Support and Compliance

Vice President for Research, Scholarship and Creative Endeavors

Guidelines for the Use of Chemical Depilatory Agents on Laboratory Animals

The University of Texas at Austin Institutional Animal Care and Use Committee

These guidelines have been written to assist faculty, staff, and students in performing vertebrate animal procedures in a humane manner and complying with pertinent regulatory requirements. Under some circumstances deviations from these procedures may be indicated but such variances must be approved in advance by the IACUC.

This document provides information to researchers who use chemical depilatory agents in order to remove hair on animals used for research, teaching, or other purposes at the University of Texas at Austin. It is organized into three sections:

Section A – Background Information

Section B – Use of Chemical Depilatory Agents

Section C – References and Acknowledgements

Section A – Background Information

Chemical depilatory agents (e.g. Nair, Veet, etc.) may be used on animals designated for IACUC approved procedures, including but not limited to surgery, imaging, blood collection, or routine cleaning of cranial implants. An advantage of using a depilatory is its ease of use in areas that are difficult to shave; however, researchers should take precautions when using depilatories in order to ensure the health and well-being of the animal. Application of depilatories should be in accordance with the manufacturer's directives.

Section B – Use of Chemical Depilatory Agents

Removal of the hair is essential to proper aseptic technique when performing procedures that involve skin incisions. Appropriate hair removal is often best performed when the animal is anesthetized, although that is not always possible. In the instance that the animal cannot be anesthetized for hair removal, it should be properly restrained. The most common strategies currently employed to remove fur/hair are clipping, depilatory cream, or combined use of both products.

Instructions for depilatory cream contact time are generally developed for human skin and hair. Depilatory contact times reported in experimental studies in rodents range from 5 s to 10 min (1, 2, 5, 6). Although depilatory cream is an effective and easy way to remove hair from a surgical site, several studies have demonstrated that these creams can cause skin damage including epidermal hyperplasia, dermal fibroplasia, and infiltration of neutrophils within 15 seconds of application that lasts for at least 3 days after application (3, 4, 7, 8). A recent study illustrated that irrespective of contact time, depilatory cream universally resulted in cutaneous damage in the albino and pigmented mouse strains examined (8).

To date, we have not observed significant clinical evidence of skin damage in animals where depilatory creams have been used. However, sensitivity to depilatories likely varies by species, age, sex, strain, etc., Based on the reported findings described above (3, 4, 7, 8), it is important to consider if histopathological skin changes with a significant inflammatory component could potentially cause confounding research impacts to your specific studies. If so, the IACUC recommends the use of clippers for hair removal.

If depilatory cream is utilized:

- A thin, solid layer should be applied to the area of interest using a glove or cotton swab.
- When using depilatory cream within one centimeter of the eyes (e.g. a rodent cranial procedure) the eyes should be protected with a sterile petrolatum ophthalmic ointment (e.g., Puralube) prior to applying the depilatory.
- The depilatory should be left on the animal the shortest amount of time necessary to remove the hair (all species).
 - For sensitive areas (e.g., head, abdomen, medial limbs), recommended contact time is 15-30-seconds (rodents).
 - For regions with thicker skin (e.g., shoulders, back) application time may extend closer beyond 30 seconds (rodents).
 - Depilatory cream should not be left on for longer than 2 minutes (rodents).
 - Additional applications are discouraged, and they are more likely to cause discomfort and skin pathology. However, if hair remains after initial application, dry the area thoroughly and repeat the process once, applying the depilatory cream directly to the haired-area using a cotton-tipped applicator. If hair remains after conducting the process a second time, contact vet staff to discuss appropriate next steps.
 - Application time may be longer for other species (primates), but should be limited to the shortest duration possible to remove the hair, and should never exceed manufacturers recommendations.
- The researcher should set a timer once the depilatory is applied, and animals should not be left unattended during the hair removal process.
- Once the contact time has been reached, the depilatory should be promptly wiped off using warm water and a cloth or gauze pad.
- Researchers should take care to ensure all the depilatory has been removed to avoid continued tissue damage. If the depilatory is left on the animal's skin for too long, it can cause chemical burns, severe discomfort, or risk for inadvertent ingestion during grooming.
- The depilatory should be immediately removed if the animal shows signs of distress, discomfort, or adverse reactions. In these instances, the researcher should consult a UT Austin veterinarian to see if additional treatment is required.
- Studies have shown that depilatory cream causes significant clinical and histopathological skin lesions in rabbits (4) and thus are not permitted for hair removal in rabbits.

Section C – References and Acknowledgements

References:

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4. LeFors JE, Anderson LM, Hanson MA, Raiciulescu S. 2022. Assessment of 2 hair removal methods in New Zealand white rabbits (*Oryctolagus cuniculus*). *J Am Assoc Lab Anim Sci* 61:

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6. Thompson S, Slaga TJ. 1976. Mouse epidermal aryl hydrocarbon hydroxylase. *J Invest Dermatol* 66:108–11
7. Tsai PF, Chou FP, Yu TS, Lee HJ, Chiu CT. Depilatory creams increase the number of hair follicles, and dermal fibroblasts expressing interleukin-6, tumor necrosis factor- α , and tumor necrosis factor- β in mouse skin. *Korean J Physiol Pharmacol*. 2021 Nov 1;25(6):497-506.
8. Reichert MN, Koewler NJ, Hargis AM, Felgenhauer JL, Collura Impelluso L. Effects of Depilatory Cream Formulation and Contact Time on Mouse Skin. *J Am Assoc Lab Anim Sci*. 2023 Mar 6.

Parts of this guideline are adapted from:

1. John Hopkins University Animal Care and Use Committee, “Hair Removal on Rodents,” available at: <http://web.jhu.edu/animalcare/policies/Hair%20Removal%20on%20Rodents.doc>
2. University of Michigan Animal Care and Use Program, “Up in the Air About Removing Hair? Follow These Best Practices for Using Nair®,” available at: <https://animalcare.umich.edu/announcements/airabout-removing-hair-follow-these-best-practices-using-nair%C2%AE>
3. Hankenson, F. Claire. *Critical Care Management for Laboratory Mice and Rats*. Vol. 1, CRC Press, 2014.

Approval Date	Major Change(s) Approved
7/10/2023	• Refined guidance in section B. Added more references.