Hair Removal on Rodents

PURPOSE: This guideline describes techniques for hair removal for surgery and imaging in rodents.

BACKGROUND:

Preoperative

While dedicated facilities are not required for rodent survival surgery the use of sterile instruments, surgical gloves, and aseptic procedures is necessary[1,2]. Bacteria residing on the hair and skin surfaces should be removed to decrease the risk of infection. Removal of the hair is essential to proper aseptic technique when performing procedures that involve skin incisions.

Imaging

When working with furred rodent models (e.g. other than nude strains) it may be necessary to remove hair from the regions of interest prior to imaging. The presence of hair absorbs/scatters light, and in several types of imagers blocks a significant percentage of equipment signals[3, 7]. In performing various imaging procedures, it is typically advantageous to remove the hair.

PROCEDURE:

Hair Removal Techniques

Three methods of hair removal are currently used; clipping with electrical clippers, using a chemical depilatory agent, and shaving with a razor[6].

Clipping:

Electrical clippers may be utilized on animals prior to performing approved procedures. The closeness of the hair clipped will be contingent upon the rationale for hair removal and the size of clippers used. Using clippers can be immediately followed by the use of a chemical depilatory agent for further hair removal.

Depilatory Creams:

Chemical depilatory agents may be used on animals designated for approved procedures. Depilatory creams (such as Nair®, Veet®, etc) have been proven to be effective, atraumatic, as well as non-toxic[4]. Depilation has also been associated with a significant reduction in skin surface bacteria[4]. An advantage of using a depilatory is its ease of use in areas that are difficult to shave. Applications of such agents should be made in accordance with the manufacturer's directives by placing a layer upon the area to be depilated for the designated time-frame. The depilatory and hair is removed by wiping the area with a water-moistened gauze pad or cloth. It is imperative that all

traces of the depilatory cream be removed in order to avoid possible irritation from excessive exposure to the chemical agent. Although some animals may require a second brief treatment, the optimal time-frame of exposure for each strain can be determined by performing a test application on a smaller region, prior to the procedure.

Shaving:

Shaving with a razor may take place on animals before an approved procedure is performed. Shaving is becoming less common because it produces microscopic defects in skin that have been associated with increasing the risk of site infections[4]. However, when compared to alternative techniques such as chemical depilation, no statistical difference has been found between the methods[5, 6].

Topical analgesia may be provided for animals experiencing minor skin irritation related to shaving, clipping, or depilation. In the event of complications clinical calls should be placed for veterinary consultation.

References:

1. Animal Welfare Act Regulations
2. Guide for the Care and Use of Laboratory Animals. NRC. National Academy Press, 8th ed., (2011)
3. Hoffman, R.M. In vivo imaging with fluorescent proteins: The new cell biology. Acta Histochem. 106, 77-78 (2004)
4. Le Roux, B.T., Lowether, C.E., Mukheibir, S.C.., Preoperative preparation of the skin with a depilatory. S Afr Med J. 1975 Oct 4;49(42): 1761-2
5. Powis, S.J.A., Waterworth, T.A., Arkell, D.G., Preoperative skin preparation: clinical evaluation of depilatory cream. British Medical Journal, 1976, 2, 1166-1168
6. Thur de Koos P, McComas, B.. Shaving versus skin depilatory cream for preoperative skin preparation. A prospective study of wound infection rates. Am J Surg. 1983 Mar; 145(3): 377-8.
7. Turnbull, DH, Ramsay, J.A., Gulnar, S.S., Bloomfield, T.S., Ultrasound backscatter microscope analysis of mouse melanoma progression. Ultrasound in Medicine & Biology. 22 (7) 1996,845-853