UNIVERSITY STANDARD

Title

UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL
STANDARD ON FOOT PAD INJECTION IN MICE AND RATS

Introduction

PURPOSE
The standards and procedures described below provide guidance to all researchers and animal handlers performing foot pad injections.

SCOPE OF APPLICABILITY
All personnel engaged in performing foot pad injections in mice and rats.

The UNC-CH IACUC expects that anyone involved in animal work at the University will comply with this Standard. Requests for exceptions to this Standard must be reviewed and approved by the IACUC.

Standard

The use of footpad injections is generally discouraged, since rodent forefeet are used for handling food and hind feet are considered major weight-bearing structures. Ventral footpad injections may result in exacerbation of inflammation and swelling at the injection site, resulting in unrelieved pain and distress or progressive debilitation. Consult with a veterinarian to determine an appropriate analgesic regiment to be implemented. The hock may be a viable alternate injection site, possibly preventing movement impediment. Injection into the hock (lateral tarsal region) just above the ankle drains to the same lymph nodes as the footpad yet is a non-weight bearing structure\(^1\).

Approval for footpad injection:
1. Requires scientific justification
2. Allows injection into one hind foot per animal only
3. Is limited to a maximum injection volume of 0.05 ml in mice; 0.10 ml for rats
4. Multiple injections may be approved on a case-by-case basis in protocol review
   a. Note: if the agent injected is immunogenic, justification of the interval between injections should be included in the scientific justification for the footpad injections, and an interval of 2 weeks or more is generally recommended.
5. Investigator must ensure animals are able to reach food and water
6. Requires animals to be housed on soft bedding
7. Monitor daily for pain/distress or complications at injection site

Procedure
- Disinfect the injection site with an approved skin disinfectant
- Use a 25G needle or smaller
- Inject with the bevel facing the skin while going in with the needle
- Push the needle past the bevel into the skin before injecting
- Withdraw the needle slowly from the injection site while pressing down lightly on top of the injection site
- Keep firm pressure on the injection site for a few seconds once the needle is removed. No injected material should be leaking from the injection site
References:
2 NIH ARAC Guidelines, Guidelines for the Use of Adjuvants in Research
3 Institutional Animal Care and Use Committee, University of North Carolina at Chapel Hill, Identification of Pain and Distress in Laboratory Animals
4 Institutional Animal Care and Use Committee, University of North Carolina at Chapel Hill, Survival Surgery, Rodents
5 Laboratory Techniques in Biochemistry and Molecular Biology, A.M.Campbell, Elsevier Science Publishers, 1991
6 The Anatomy of the Laboratory Mouse, Jackson Laboratories

EXCEPTIONS
Requests for exceptions to this Standard must be reviewed and approved by the IACUC.

Definitions

IACUC: Institutional Animal Care and Use Committee
DCM: Division of Comparative Medicine
University Standard: The minimum acceptable limits or rules used to achieve Policy implementation, enforceable by the IACUC.
Footpad injection: Combination of an intradermal and subcutaneous injection typically used when studying the immune respons(es) in draining lymph nodes\(^1\).

Related Requirements

EXTERNAL REGULATIONS AND CONSEQUENCES

UNIVERSITY POLICIES, STANDARDS, AND PROCEDURES

For more detailed guidance, please refer to the University Policy on the Care and Use of Vertebrate Animals for Research, Training and Teaching Purposes.
Contact Information

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Important Dates

- Effective Date and title of Approver: 1/13/2012; UNC IACUC
- Revision and Review Dates, Change notes, title of Reviewer or Approver: 5/10/2013, 12/2017; UNC IACUC

Approved by: UNC IACUC

Dr. Mitchell Picker  
UNC IACUC Chair  
12/2017