**Identifying and Treating Common Illnesses in Laboratory Mice**

**Last Review Date: May 2, 2024**

 **I. Purpose**
The purpose of this standard operating procedure is to describe common rodent ailments and the defined treatments allowable by Laboratory Animal Resources (LAR) staff without prior consultation with the AV. Any health condition not characterized must be evaluated by the AV.

**II. Policy**

It is LAR's policy to meet or exceed all federal, state, and local regulations and guidelines and to comply with all institutional policies and procedures as they apply to the use of animals in research. Personnel must attend any applicable training in animal care and use, occupational health and safety, equipment operation, and Standard Operating Procedures before performing activities outlined in this SOP or working under the direct supervision of a trained LAR staff member.

**III. Responsibility**

* It is the responsibility of the Attending Veterinarian (AV) to oversee the health care program for all animals housed in LAR facilities.
* LAR technical staff is responsible for daily animal health observations, as well as the administration of treatments prescribed by the AV.
* Under certain defined conditions, trained technical staff identify and treat health conditions without prior assessment by the AV.
	+ These conditions are confined to those considered commonplace, and which commonly occur within the LAR vivariums
	+ These defined conditions ensure prompt attention to health issues that are commonly observed and where treatment is straightforward
	+ Training requirements for LAR staff include proficiency in the accurate identification of the disease conditions described, and the ability to administer the prescribed treatments properly

**IV.  Common Health Conditions In Mice Covered Under This SOP**

* Minor fight wounds: May occur in various species (mice, rats, and dwarf hamsters) and are characterized by superficial punctures, abrasions, and minor lacerations
* Blepharoconjunctivitis (BC): BC is characterized by irritation and inflammation of the eyelids and conjunctiva typically caused by *S.* *aureus.* BC usually presents as swelling around the eyes with squinting (blepharospasm), ocular discharge, and reddening of the peri-ocular skin.
	+ BC is commonly observed in the 129/SvJ strain of mice but may occur in any mouse strain
* Ulcerative dermatitis (UD): A common, spontaneous, dermatological condition in mice, particularly those with a C57Bl/6 background. UD usually presents as hair loss (alopecia), small scabs (excoriations), and itching (pruritis), especially around the head, neck, and ears. These lesions often expand to encompass other parts of the body, such as the dorsum, armpits, and flank areas.
	+ Initial lesions may be mild but due to chronic scratching and excoriation that progress to ulcerations or debilitating fibrotic contractures (See UD treatment SOP)
* Rectal prolapse (RC): RC is a condition where the rectal walls collapse to a degree such that they protrude out the anus and are visible outside the body
	+ Transgenic mice have a high incidence of anorectal prolapse due to underlying inflammatory bowel disease (IBD)
	+ Rectal prolapse may be observed in peri-weaning to adult mice
* Hydrocephalus in nursing and weaning mouse pups: Hydrocephalus is an infrequent occurrence noted in nursing and weaning mouse pups. Hydrocephalus develops due to an obstructed outflow of cerebral spinal fluid (CSF), over-production of CSF, or lack of absorption of CSF. The CSF builds up within the ventricles of the brain causing an untreatable pressure necrosis of brain tissues, as well as a deformation of the skull of the affected mouse. This is an untreatable, painful condition that is always terminal.

**V.  Procedures**

General Information:

* All animals are observed a minimum of once daily by technical staff trained in animal care. All health concerns are documented and reported through Laboratory Animal Resources (LAR).  Any significant, unresponsive, or unusual health complaint is brought immediately to the attention of the Attending Veterinarian for assessment.
* All health concerns are documented
* Any significant, unresponsive, or unusual health complaint is brought immediately to the attention of the AV for assessment
* All treatments require prior approval from the Principal Investigator.
* All treatments and observations are documented until the condition is resolved.
* All health and treatment documentation is then placed on file in LAR.

Treatment for Minor Fight Wounds (FW):

* FWs are addressed by separating the animals, as necessary.  FW are observed daily until healing and resolution are noted. If the wounds are encrusted, exuding serum or the skin is gaping, the injury is treated a minimum of once daily by applying an antiseptic solution such as tamed iodine (Betadine Solution) or Vetericyn VF® spray Treatment is continued until the wound is healed (usually 7-10 days).
* If the area around the FW becomes swollen or infected, healing is not steadily progressing, or if the animal demonstrates signs of depression or lethargy, the AV is consulted immediately.

Treatment for Blepharoconjunctivitis (BC):

* Initiate treatment with Neomycin Ophthalmic ointment or Tobramycin Ophthalmic drops once to twice daily. Treatment should be continued at least 48 hours following the resolution of clinical signs, which is often a treatment period of 7-14 days.  If the condition has been treated for seven days without visible improvement, switch the antibiotic to the other allowable ophthalmic antibiotic for an additional seven days. If the condition worsens or does not resolve after 14 days of treatment, the AV should be consulted.
* Ophthalmic preparations containing steroids, such as hydrocortisone, are not to be used unless specifically directed by the AV.

Treatment for Ulcerative Dermatitis (UD):

* When UD is identified, treatment should be initiated promptly to prevent or delay the progression of the lesions.
* Immediate treatment consists of trimming the rear toenails
* Once permission for treatment is obtained from the PI, use Betadine® solution as soon as an open sore or wound is noticed and apply directly to UD lesions once daily as needed.  Alternatively, Vetericyn VF® spray may be used.
* If the UD lesions are progressively worsening and are not responding to treatment, the mouse should be assigned a UD score (using the UD scoring scale).  If the score is >75, the AV and PI (or facility manager) should be notified and a recommendation for euthanasia be made.

Treatment for Rectal Prolapse (RP):

* With a persistent prolapse, the everted tissues of the rectum may become dehydrated, inflamed, swollen, or infected. Therefore, prolapses should be treated to obtain rapid resolution and avoidance of these complications.
* Prolapses ≤ 5 mm may be treated once daily for up to five days with Preparation H®.  These ointments will keep tissues moist, reduce swelling, and promote reduction of the prolapsed tissues.
* If the prolapse is > 5 mm, does not resolve after five days of treatment, or worsens during treatment, the AV should be consulted.

Treatment for Hydrocephalus:

* There is no treatment for hydrocephalus.
* LAR staff members are directed to inform the PI of the condition of the affected animal and euthanize the mouse as soon as it is identified.