
1. PURPOSE

The intent of this Standard Operating Procedure (SOP) is to describe the quarantine program for mice coming from non-commercial or non-approved sources (see definition in section 3) in order to prevent the introduction of rodent pathogens into established colonies.

2. RESPONSIBILITY

Animal care staff, import coordinator, veterinary care staff, principal investigator (PI) and their staff.

3. DEFINITION

Non-approved sources are all rodent suppliers other than Charles River Laboratories (excluding National Cancer Institute), Harlan, Taconic, and the production division of Jackson Labs.

4. PROCEDURES

- 4.1. The PI requesting the animals must submit a completed Import Request form.
- 4.2. The sending institution provides the veterinarian (or designate) with the following information:
 - 4.2.1. A recent (<3 months) health report of the colony.
 - 4.2.2. A Mouse Health Information form containing:
 - 4.2.2.1. A summary of health issues for the last 12 months, for the whole facility
 - 4.2.2.2. A description of the husbandry practices (sterile or non-sterile, micro-isolation, use of change station, etc.)
 - 4.2.2.3. A description of the health monitoring program
- 4.3. Veterinarian's (or designate's) responsibilities:
 - 4.3.1. Evaluate the information provided by the source institution.
 - 4.3.2. If necessary, consult with the PI to determine whether the mice will be received for quarantine.
 - 4.3.3. Notify the PI and import coordinator of the decision on quarantine housing for each quarantine request.
 - 4.3.4. Notify the import coordinator of any special screening procedures for groups of animals (e.g. special instructions if mice are immunodeficient).
 - 4.3.5. Determine whether or not tests are necessary and indicate which tests are required. Rederivation may be requested if imported mice are likely to be positive for pathogens excluded in the requested housing facility. Rederivation may be accomplished by c-section, cross-fostering, embryo transfer or artificial insemination. The requirements for each import are determined according to the health status of the sending facility and the housing conditions of the destination facility.
- 4.4. Quarantine Access:
 - 4.4.1. Only essential personnel have access to quarantine (i.e., the import coordinator, facility manager, animal care staff or veterinary care staff).
 - 4.4.2. If research personnel require access to the quarantine room, contact the import coordinator for permission and instructions on entering the room. A quarantine room orientation must be scheduled.
 - 4.4.3. Do not transfer mice out of quarantine before the end of the designated quarantine period unless the transfer was approved by a veterinarian or their designate

4.5. Breeding Mice in Quarantine:

- 4.5.1. Breeding in quarantine is encouraged since pups can be good indicators of potential health problems and are valuable for testing.
- 4.5.2. Allow limited breeding during quarantine only if it has been approved by a veterinarian and/or the import coordinator.
- 4.5.3. If space is limited, the import coordinator notifies researchers that they may need to limit breeding to the most essential lines and needs. The facility manager is also notified of any space requirements.
- 4.5.4. If barrier colony animals must be bred to a quarantined group, allow the barrier mice into the quarantine facility. Do not allow those mice to return to the barrier colony until the quarantine period is complete.

4.6. Husbandry:

- 4.6.1. Operate quarantine facilities under biosafety level 2, bioexclusion level 3 practices.

4.7. Observation and Special Care:

- 4.7.1. Observe animals at least once daily.
- 4.7.2. Report animals with clinical signs to the veterinary care staff.
- 4.7.3. If deaths occur, store the carcasses in the designated refrigerator and inform veterinary care staff and import coordinator.
- 4.7.4. For unexplained morbidity/mortality perform gross necropsy and collect tissues for histopathology of necessary.

4.8. Testing:

4.8.1. Infectious Disease PCR Testing:

- 4.8.1.1. Samples are obtained independently for each shipment being quarantined.
- 4.8.1.2. If more than one distinct strain is included in one shipment, each strain is tested independently.
- 4.8.1.3. Samples from up to 10 cages may be pooled into a single sample, provided all 10 cages are from the same shipment or distinct strain.
- 4.8.1.4. After a minimum acclimation period of 72 hours, collect the following samples:
 - Collect one fresh fecal pellet with no bedding material per animal. Up to 10 fecal pellets can be submitted in the same vial/tube as one single sample.
 - Collect fur/skin swab by thoroughly swabbing each animal on the head between ears, back/rump, inguinal area and perianal area. One swab can be used to sample more than one mouse, e.g., all the mice in one cage. Clip the swab head and place in the vial/tube.
 - Collect swabs of the oral cavity from up to 10 animals. Cut off the swab tip from the shaft and place into the collection vial/tube.
 - Separate vials/tubes must be submitted for fur/skin swabs, oral swabs and fecal pellets.
- 4.8.1.5. Submit samples to Charles River for the Mouse PCR Rodent Infectious Agent (PRIA) panel as requested by veterinarian (or designate): <http://www.criver.com/products-services/basic-research/health-monitoring-diagnostic-services/pria>.

4.8.2. Once the samples have been collected as in section 4.8.1, consider treating the quarantined animals preventatively for external and internal parasites in the following manner:

- 4.8.2.1. Treat 50% of the animals with ivermectin 0.008 mg/mL in the drinking water (i.e., mix 1 volume of ivermectin sheep drench 0.08% with 99 volumes of water).
- 4.8.2.2. If after 3 days no adverse reaction has been seen with the first half under treatment, place the second half of the animals on ivermectin medicated water as described above.
- 4.8.2.3. Maintain treatment for 7 days.
- 4.8.2.4. Discontinue treatment for the next 7 days.

4.8.2.5. If parasitology test results are positive, 5 to 7 treatment cycles may be necessary as determined by the veterinarian or designate.

4.9. Outcome and follow up:

- 4.9.1. Ensure a veterinarian (or designate) interprets the results.
- 4.9.2. Proceed with one of the following options depending upon the results for each group of quarantine animals and the instructions from a veterinarian (or designate):
 - 4.9.2.1. Transfer the animals to an animal facility with the corresponding health status (refer to the excluded pathogens lists).
 - 4.9.2.2. Begin a rederivation process.
 - 4.9.2.3. Hold the animals in quarantine for an extended period, if space is available in consultation with the facility supervisor.
 - 4.9.2.4. Euthanize the animals.

SOP REVISION HISTORY

DATE	PREVIOUS VERSION	NEW VERSION
2017.03.31	4.3.5. Determine whether or not tests are necessary and indicate which tests are required. This is determined according to the health status of the sending facility and the requirements of the destination facility.	4.3.5. Determine whether or not tests are necessary and indicate which tests are required. This is determined according to the health status of the sending facility and the requirements of the destination facility. Rederivation may be requested if imported mice are likely to be positive for pathogens excluded in the requested housing facility. Rederivation may be accomplished by c-section, cross-fostering, embryo transfer or artificial insemination. The requirements for each import are determined according to the health status of the sending facility and the housing conditions of the destination facility.
2017.03.31	4.8.1.4. After a minimum acclimation period of 72 hours, collect the following samples: Feces: collect fresh fecal pellets with no bedding material. Up to 10 fecal pellets from multiple animals can be pooled together into one sample. Fur/Skin swab from at least two sites (head between ears, back/rump, inguinal area, perianal area). Pool up to 10 swabs per single sample. One swab can be used for multiple animals. Oral swab: Pool up to 10 swabs per single sample. One swab can be used for multiple animals.	4.8.1.4. After a minimum acclimation period of 72 hours, collect the following samples: Feces: collect fresh fecal pellets with no bedding material. Up to 10 fecal pellets from multiple animals can be pooled together into one sample. Fur/Skin swab from at least two sites (head between ears, back/rump, inguinal area, perianal area). Pool up to 10 swabs per single sample. One swab can be used for multiple animals. Oral swab: Pool up to 10 swabs per single sample. One swab can be used for multiple animals. <ul style="list-style-type: none"> • Collect one fresh fecal pellet with no bedding material per animal. Up to 10 fecal pellets can be submitted in the same vial/tube as one single sample. • Collect fur/skin swab by thoroughly swabbing each animal on the head between ears, back/rump, inguinal area and perianal area. One swab can be used to sample more than one mouse, e.g., all the mice in one cage. Clip the swab head and place in the vial/tube. • Collect swabs of the oral cavity from up to 10 animals. Cut off the swab tip from the shaft and place into the collection vial/tube. • Separate vials/tubes must be submitted for fur/skin swabs, oral swabs and fecal pellets.
2017.03.31		Mouse Health Information form updated

MOUSE HEALTH INFORMATION FORM

SENDING INSTITUTION		DATE	
SENDING INVESTIGATOR		MCGILL INVESTIGATOR	

FACILITY DESCRIPTION

Facility where mice are housed: Cages <input type="checkbox"/> Sterile <input type="checkbox"/> Not sterile Cage changing <input type="checkbox"/> With BSC or cage change stations <input type="checkbox"/> Without BSC or cage change stations	Housing Room: Food <input type="checkbox"/> Sterile <input type="checkbox"/> Not sterile Water <input type="checkbox"/> Sterile - autoclaved <input type="checkbox"/> Chlorinated/Acidified <input type="checkbox"/> Purified by reverse osmosis <input type="checkbox"/> Not treated
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HEALTH MONITORING PROGRAM DESCRIPTION

Health status determined by: <input type="checkbox"/> Environmental (EAD) Sampling <input type="checkbox"/> Sentinel animals housed on dirty bedding <input type="checkbox"/> Animals sampled directly	Monitoring frequency: <input type="checkbox"/> Monthly <input type="checkbox"/> Quarterly <input type="checkbox"/> Semi-annually <input type="checkbox"/> Annually
Method used for parasitology testing: <input type="checkbox"/> PCR <input type="checkbox"/> Other	
Method used for virology testing: <input type="checkbox"/> PCR <input type="checkbox"/> Other	
Method used for bacteriology testing: <input type="checkbox"/> PCR <input type="checkbox"/> Other	
If using sentinel animals, indicate the ratio of sentinel animals per total number of colony cages:	
If using sentinel animals, indicate the number of sentinel animals tested per cage:	
Testing laboratory:	

MOUSE HEALTH INFORMATION FORM

* Please indicate all agents tested and any positive results from the last 18 months in either the housing room or facility

VIRUSES							
TESTED	ROOM +	FACILITY +		TESTED	ROOM +	FACILITY +	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Adenovirus Type 1 & 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Mouse Theilovirus (TMEV, GDVII)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Mousepox (Ectromelia)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Murine Norovirus (MNV)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Lymphocytic Choriomeningitis virus (LCMV)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pneumonia Virus of Mice (PVM)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Mouse Coronavirus (MHV)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Reovirus Type 1,2,3,4
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Mouse Parvoviruses (MPV, MVM)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sendai virus
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Mouse Rotavirus (EDIM)				

BACTERIA							
TESTED	ROOM +	FACILITY +		TESTED	ROOM +	FACILITY +	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bordetella bronchiseptica	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Mycoplasma pulmonis
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CAR Bacillus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pasteurella pneumotropica
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Citrobacter rodentium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pseudomonas aeruginosa
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Clostridium piliforme (Tyzzer's)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Salmonella
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Corynebacterium kutscheri	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Streptobacillus moniliformis
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Helicobacter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Streptococcus pneumoniae
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Corynebacterium bovis (immunodeficient mice only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	B-hemolytic Streptococcus groups A,B,C,G
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Klebsiella spp.				

PARASITES							
TESTED	ROOM +	FACILITY +		TESTED	ROOM +	FACILITY +	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pinworms	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Spirochaeta muris
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Fur mites	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pneumocystis (immunodeficient mice only)

Please list any other positive results

COMPLETED BY:	
DATE:	

Please send this completed form and recent health reports (< 3 months) to import.cmarc@mcgill.ca