SOP Number: C-005

SOP Title: IVC cage changing

Purpose:
1. To maintain mice in clean microenvironment
2. To minimize pathogen transmission from personnel and room environment to the mice in individually ventilated cage when performing cage changing

Responsibility: Technicians, Laboratory Assistants/Attendants and Animal Users

Related SOP:
- O-003 Use of Animal Transfer Station and Biosafety Cabinet
- C-003 Handling of Animals in IVC in Biosafety Cabinet and Animal Transfer Station

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1. General Notes
   1.1. Use of sleeve covers
      1.1.1. A pair of clean sleeve covers are put on
      1.1.2. When leaving the concerned room or switch to other duty, the sleeve covers are removed and leaved on a clean surface (e.g. on a clean cart) near the ATS/BSC until resuming the cage changing duty procedures.
      1.1.3. Used sleeve covers are returned to designated location for sterilization and reused.
   1.2. Hand disinfection is required
      1.2.1. After touching items inside a cage, and before touching all other clean items outside the cage (to avoid deposition of infectious agents, potentially originated from an infected cage, on clean materials), and
      1.2.2. After moving hands from outside the ATS/BSC into the ATS/BSC, before touching clean materials or items inside cages (to exclude infectious agent in unprotected area, i.e. outside ATS/BSC)
   1.3. The concerned gloved hand(s) are disinfected by spraying with alcohol disinfectant and rubbing to distribute over the hands thoroughly. Care is taken not to spray on the opened IVC, i.e. not on the animals.
   1.4. Forceps after used to pick mice are rinsed in a beaker of water (to remove debris) then submersed in a beaker of alcohol disinfectants until they are used again for mouse picking from another cage.
2. **Setting up in ATS/BSC**
   2.1. Prepare the ATS/BSC as described in SOP O-003 *Use of Animal Transfer Station and Biosafety Cabinet*.
   2.2. Dirty cage is kept on the left hand side of the ATS/BSC working surface.
   2.3. Clean materials, e.g. clean cages, diet and new nestlet are kept on the right hand side of the ATS/BSC working surface.
   2.4. On the right hand side of the ATS/BSC, close to the sash, set up a beaker of water (for rinsing dirty forceps) and a beaker of alcohol disinfectant (for disinfecting the forceps before animal picking).
   2.5. On the right hand side of the ATS/BSC, clean cages and other cage materials, e.g. wire lids and covers, are moved into the BSC from the respective bag.

3. **Cage changing**
   3.1. A cage to be changed is removed from the IVC rack and sprayed with alcohol disinfectant to all surfaces.
   3.2. The cage is put onto the working surface of the ATS/BSC.
   3.3. Gloved hands of the operator are disinfected by spraying with the disinfectant on one hand and rub against another hand to distribute the disinfectant thoroughly.
   3.4. The cage top is opened and put on the left hand side inverted.
   3.5. Move the wire lid to the new cage with the left hand. If using the right hand, disinfect the right hand before touching items outside the cage afterward.
   3.6. If required, replenish the diet hopper with the right hand (disinfect the gloved hand if it had touch potential dirty surface).
   3.7. Using a pair of forceps, which have been immersed in disinfectant, to transfer the mice from the soiled cage to the new cage gently, by holding the base of the tail.
   3.8. Check briefly any health abnormality on the mice.
   3.9. If the old nest is in a good condition and clean, move the old nest to the new cage as well.
   3.10. If required, add an additional piece of nestlet into the new cage (which already containing one piece of nestlet during autoclaving).
   3.11. After transferring all mice into the new cage, check if there is still any mice left beneath the beddings and enrichments, using the pair of forceps.
   3.12. Report any abnormality, health problems and death of any animals to the responsible technician by immediate communication, or leaving notes on the cage and notify the technician afterward.
   3.13. Transfer the cage card from the old cage to the new cage.
   3.14. Position the wire lid properly and close the newly changed cage with the cage top.
   3.15. Move the dirty cage, with the left hand, to a cart locating at the cage changer’s left hand side.
   3.16. Disinfect both hands.
   3.17. Return the newly changed cage to the original cage slot on the IVC rack.
4. **Material maintenance in a non-operating BSC**
   4.1. Nestlets are kept in the designated container with the proper covering.
   4.2. After an APCF staff opens and uses a bag of diet, the left-over of the diet will be transferred into a designated clean container (an empty IVC cages or a plastic box).
   4.3. Users use diet in the designated containers only, but not the diet in a new bag, unless in an emergency case.
   4.4. Surplus cage parts are assembled and put on the designated rack. Unpaired cage parts are brought to the autoclave room for repacking and sterilizing. No cage part is leaved in the ATS/BSC after the procedures.

5. **Occupational Safety and Animal Welfare Measures**
   5.1. Both hands must be used in holding, lifting and transferring a cage.
   5.2. Operator must wear the appropriate personal protective equipment (PPE; i.e. designated disposable gown and gloves, etc.) to provide protection from exposure to disinfectant and allergens.
   5.3. Soiled cages that are to be cleaned must be checked for the absence of any carcass or living mouse (especially pup/s) hidden under the beddings, nesting materials or enrichment items.