**Recommendations for Sterile Surgery in Rodents
revised 2016**

1. Animal prep
Animals should be shaved as close to the skin as possible so that minimal to no hair is left on the skin in the surgical field. This will allow a proper scrub, will make closing the skin easier, and will allow better evaluation of the incision site post-operatively. The surgical field should be a wide margin on all sides of the incision site to prevent accidental contamination.
2. Skin prep
The skin scrub should consist of alternating scrubs with betadine solution and alcohol for a minimum of 3 alternating scrubs. The scrub should start in the center of the surgical field (where the incision will be made) and move outwards. If the animal wakes up during the scrub and has to be placed back in the induction chamber, the skin scrub must be repeated. You can use cotton swabs to perform the scrub. Avoid getting the animal too wet.
3. Instrument handling
Instruments should be autoclaved in a surgical pack and kept in that pack vs. laid out on a paper towel on the surgery table. Instruments should be kept away from non-sterile surfaces throughout the surgery (e.g. do not wipe on non-sterile surfaces) and should be re-sterilized once contaminated (e.g. if accidentally touching a non-sterile surface) using a hot bead sterilizer. The **“tips” technique**, where just the tips of instruments are kept sterile, is recommended.

**Tips Technique:**

* Requires clean exam gloves.
* Restricts you to using only the sterile working ends of the surgical instruments to manipulate the surgical field.
* The gloved, but not sterile, hand must never touch the working end of the instruments, the suture, suture needle, or any part of the surgical field.
* Useful when working alone and manipulation of non-sterile objects (e.g., anesthesia machines, microscopes, lighting) is required.
* Instruments and gloves may be used for a series of similar surgeries in the same session, provided they are maintained clean and disinfected between animals.
* Instruments are to be washed and then disinfected in a hot bead sterilizer or using a high-level disinfectant (e.g. Cidex pro ) prior to second surgery (e.g. between donor and recipient if transplanting).
1. Drapes
The use of drapes will prevent additional contamination of the surgical field with hair, etc. At a minimum, we recommend the use of drapes for animals that are on immunosuppressive protocols due to the increased susceptibility to post-operative infection. A sterile drape or towel should also be placed underneath the animal to minimize potential for contamination when wiping or laying down instruments (the sterile tips of instruments should always be placed on sterile surfaces throughout the procedure). We have found that grocery store saran wrap is an effective and cheap drape to use for rodent surgery (e.g. **Glad Press n’ Seal wrap**) and there is a publication indicating a lack of pathogens in these products. The press n’ seal wrap should also be used on keyboards, control knobs or other equipment that has to be touched during the surgery.
2. Closure
Body wall/muscle/skin closure should be performed according to that stated in the protocol. This ensures appropriate healing with a decreased risk of dehiscence, infection, pain, etc. For example, in a liver transplant protocol it states that nylon will be used on the body wall and clips for the skin. Using suture on the skin is also an acceptable alternative. It is recommended that a continuous/running pattern be used on the body wall and a simple interrupted pattern be used on the skin. If there are problems with the body wall suture, then interrupted sutures can also be used

**For additional details on survival surgical techniques in rodents, please see our website below:**[**http://web.jhu.edu/animalcare/procedures/survival-rodents.html#animalprep**](http://web.jhu.edu/animalcare/procedures/survival-rodents.html#animalprep)