

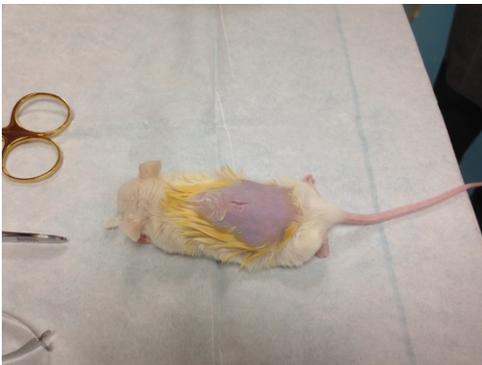
Renal capsule implantation surgery

Preparation:

- 1) Weigh mouse and inject 100mg/kg ketamine + 10mg/ml xylazine (or your institution's approved dose) solution SQ or IP.
- 2) When mouse is anesthetized shave around incision site; shave a large area across the mouse's entire back.
- 3) Put puralube ophthalmic ointment on mouse's eyes.
- 4) Clean skin around incision site with alternating betadine and alcohol three times. Wipe in circles starting at center of site and extending outward. Do not wipe back over the center with a used wipe/swab.
- 5) Check pedal reflex and respiration before starting surgery. Mouse should not react to toe pinch. Mouse should have a slow, deep breathing pattern. Rapid, shallow breathing is a sign that mouse is not fully anesthetized.

Surgery:

- 6) Put on sterile gloves. Make a 0.5-1cm incision immediately posterior to the curvature in the spine, parallel with the spine, and slightly to the left or right (depending on which kidney you are using).

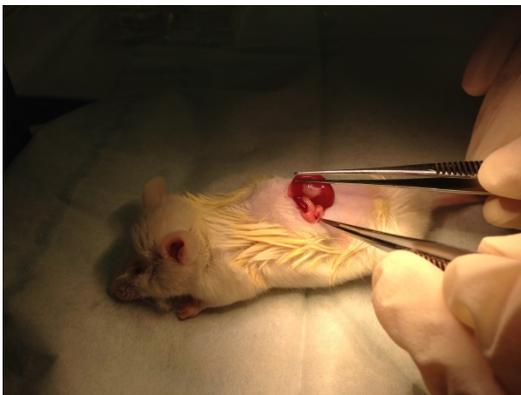


- 7) Make similar incision in the muscle wall. You will see a very dark spot (spleen); make incision slightly posterior and between spleen and spine.

- 8) Use your fingers to put pressure on abdomen and exteriorize kidney.



- 9) Put mouse under microscope so kidney is facing up. Keep the kidney surface dry for this step. Using fine surgical forceps and either micro-dissection scissors or toothed forceps, make a 1mm incision/tear in the kidney capsule. Make sure that this incision is directly in the center of the kidney so that the capsule doesn't rip off one end. Take care not to injure underlying kidney; a small spot of blood is normal.
- 10) From this point on the kidney should be kept moist at all times. Use blunt glass microdissector to cover kidney in sterile PBS and then enlarge hole to cover ½ length of the kidney in the center. Glass microdissector can be made using a glass Pasteur pipette and Bunsen burner.
- 11) Use glass microdissector to make a pocket between the capsule and kidney on the one side.
- 12) Use one pair of forceps to hold the left side membrane up. Use another pair of forceps to put a piece of tumor (~2mm x 2mm) directly on top of the incision.



- 13) Use forceps or glass microdissector to push tumor into the pocket you created on the left side of the kidney. Once fully inside the pocket slide the tumor as far down as possible to ensure it doesn't pop out of the pocket. All this should be done when the kidney is wet with PBS, otherwise you can rip the capsule.
- 14) Use sterile cotton applicator to push kidney gently back inside the body cavity.

- 15) Use chromic gut sutures to suture muscle wall. Put at least 2 interrupted sutures; more may be required depending on size of incision. Make sure your sutures lay flat and you cut the ends off very close to the knot to avoid irritation.
- 16) Use staples (preferred) or silk sutures to close the skin incision. Add a few drops of Vetbond glue to ensure incision doesn't open.
- 17) Put a few drops of Marcaine analgesic on top of the incision.
- 18) Dose mouse with 0.05mg/kg buprenorphine SQ (or your institution's approved dose). Put mouse on surgical heat source (gel pad, water circulator, etc) until awake.
- 19) Monitor respiration (should be slow at first, but more rapid as mouse wakes up) and body temperature for the duration. Make sure eyes are moist. If white spot starts to develop on eye, add more puralube.
- 20) When mouse is starting to wake place in cage. If needed, add enrichment to distract them from playing with their wounds. If mouse is not 100% awake make sure you lay it on a kimwipe inside the cage to prevent mouse from aspirating bedding and suffocating.