Prostate Collection in The Mouse

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Objective

- To illustrate an approach for collection of mouse prostate glands.
- Often performed in strains that develop prostate tumors (e.g., TRAMP mouse).
- Collection of the glands is a non-survival technique. Glands are often collected at serial time points to assess therapeutic intervention.
Overview

- The prostate glands are comprised of several separate lobes located just beneath the seminal vesicles and around the base of the bladder.

- The cartoon at right illustrates 4 primary lobes (2 pairs).
  - One pair is circled
Skin Incision

- Euthanatize animal

- Begin skin incision just proximal to (in front of) the prepuce and extend, through the prepuce, to the xiphoid.

  - Preputial gland
  - Prepuce/penis

Head of Mouse
Removal of Preputial Gland

Grasp the preputial glands at the base (of the pair) and gently pull towards the tail until they detach.
Abdominal Incision

Incise abdominal muscle; extend incision to the xiphoid, taking care to not damage underlying structures (e.g., bladder).

Note – mouse muscle wall is almost transparent; the lower scissors blade is under the abdominal muscle wall.
Use the bladder as primary landmark; identify vas deferens, testicles and seminal vesicles.
Removal of vas deferens

Identify the vas deferens and trace them to the base of the bladder.
Removal of vas deferens

(Cont’d)

Grasp the end closest to the bladder (as close as possible) with forceps, using a second set of forceps, grasp a few millimeters away.
Removal of \textit{vas deferens} (Cont’d)

Pull the \textit{vas} in opposite directions. The testicle, epididymis and fat pad may be removed from the area. Repeat on the opposite side.
Below the lower curvature of the seminal vesicle (SV), identify the prostate gland.
Located at the furthermost tip of the gland is a large blood vessel – use two forceps to blunt dissect/tear it.
Blunt Dissection

Place the closed tips of forceps between the SV and the gland itself. While gently pushing downward, allow the tips to open – this will allow blunt dissection of the gland from the surrounding connective tissues, all the way to the base of the SV and the bladder.
Removal of the SVs

Grasp the base of the SV (1) closest to the bladder. Place a second set a few millimeters (2) away.
Removal of the SVs (Continued)

While keeping both forceps closed, pull them apart (3). The SVs are very delicate & will easily tear off.

IMPORTANT- Forceps tips holding the torn SV horn MUST remain closed, or seminal fluid will obscure the work area.

Repeat on the opposite SV horn and prostate gland thereby freeing up the two uppermost lobes (4).
Isolation of the lower lobes

Grasp the bladder; pull cranial (towards the head) to see the underlying lower pair of lobes. Overlying fat may need to be removed.

These lobes are smaller, more spherical than the two upper lobes, which are elongated.
All lobes are comprised of small segments, much like pulp within an individual orange segment. Like pulp, they are easy to rupture. Over zealous handling may confound histological assessment.
Blunt Dissection

Again, using a “closed, then open tip” approach, gently blunt dissect the glands off the penis, and where they wrap around towards the descending colon/rectum, until both lobes are freed.
Final Dissection

Place scissors tips between the penis and the lobes and cut upwards towards the bladder. A few snips should free these two lobes, as well as the urinary bladder (and the caudal lobes already freed during earlier dissection).
Cassette Arrangement

Place this tissue grouping on a histology sponge within appropriately labeled tissue cassette relative to the anatomically correct position found within the body.