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Video Article Dissection of Midgut and Salivary Glands from Ae. aegypti Mosquitoes

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Abstract

The mosquito midgut and salivary glands are key entry and exit points for pathogens such as Plasmodium parasites and Dengue viruses. This video protocol demonstrates dissection techniques for removal of the midgut and salivary glands from Aedes aegypti mosquitoes.

Video Link

The video component of this article can be found at https://www.jove.com/video/228/

Protocol

Dissection of midgut and salivary gland tissues from mosquitoes requires prior preparation of 1X Phosphate Buffered Saline (1X PBS) solution and anesthetization of mosquitoes by subjecting to a temperature of 4°C, until immobilized. The mosquitoes remain anesthetized by placing in a Petri dish that is kept cold on ice. Other materials required include: light microscope fitted with 10x objective, pipettor, fine-tipped forceps, glass slide, needle-tip probes.

Midgut dissection

- 1. Place a drop of 1X PBS onto a glass slide mounted under the light microscope.
- 2. Transfer a mosquito onto the prepared slide by stabbing the mosquito thorax with a needle-tip probe.
- 3. While holding down the mosquito with the probe, use the forceps to grasp the second to the last abdominal segment and gently pull off the mosquito abdomen in a single motion. The midgut should remain attached to the immobilized thorax.
- 4. Discard the abdomen. Use the forceps to detach the midgut from the thorax.

Salivary gland dissection

- 1. Place a drop of 1X PBS onto a glass slide mounted under a light microscope.
- 2. Pick up a mosquito by stabbling the thorax with a needle-tip probe.
- 3. Pull off mosquito legs using your fingers.
- 4. Transfer the mosquito onto the slide.
- 5. Remove the head of the mosquito using forceps.
- 6. While holding down the mosquito thorax with the probe, use another probe to gently push down on the thorax.
- The salivary glands are located at the anterior portion of the thorax and can be isolated by using a needle-tip probe and severing the attachments that connect the gland to the thorax. Intact salivary glands are comprised of three lobes: two lateral lobes and a medial lobe.

Disclosures

The authors have nothing to disclose.