

Fin Clipping of Zebrafish
IACUC Standard Procedure
Effective Date: April 2022

Objectives:

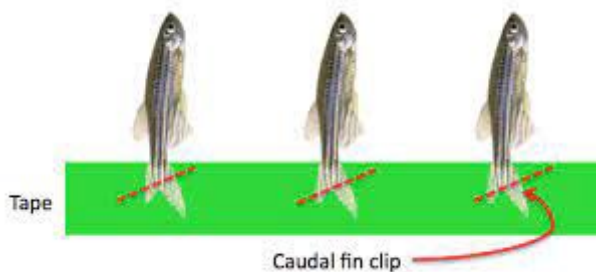
Fin clipping is performed in order to isolate genetic material from individual fish for the purpose of genotyping. A small amount of tissue is clipped from the end of the tail in order to extract DNA, which will be used for further analysis such as PCR. If done correctly, the caudal fin regenerates within two weeks. Users should be experienced or trained in the proper handling of fish in order to minimize over-handling. LARC will provide an initial training to new labs and health monitoring training.

Pre-Procedure Preparations:

- Surfaces used for the procedure should be disinfected with ethanol, Vimoba or a diluted chlorhexidine solution prior to set up. The fish should not come in contact with the cleaning agents directly. Alternatively, fin clips can be performed in new petri dishes. The cutting tool (scalpel, razor blade or surgical scissor) should be freshly unwrapped from an autoclaved pack, or bead sterilized initially and between fish in order to prevent cross-contamination of genomic material. Gloves may be worn but may also reduce sensitivity to safe handling including sensitivity to the degree of hand pressure on the animal. If gloves are not used, the user will thoroughly wash their hands in warm soapy water and rinse prior to handling the fish.

Description of Procedure:

- Fish are anesthetized by immersion in 0.02% MS-222 (Tricaine) at neutral pH until gill movement is slowed (estimated 2-3 minutes). Stock preparation is 4g/L buffered to pH 7 in sodium bicarbonate (at 2:1 bicarb to MS-222). The dosage for adult anesthesia is 168ug/ml or 4.2ml stock solution in 100 ml water. The anesthetized fish is then transferred immediately onto a petri dish or clean surface using a plastic spoon. The fin is clipped at a point not greater than halfway between the tip of the fin and the point where the scales end. No more than 50% of the fin area should be removed. This procedure should take less than one minute and should not result in bleeding.



- Fish are then immediately transferred to a container with fresh system water and monitored continuously until they are recovered and the ability to right themselves. Upon immersion in fresh water, fish should regain swimming ability within 5 minutes.

Following fin clipping, fish are transferred to individual on-system holding tanks with circulating water. Fully recovered fin clipped fish may be housed with other clipped fish during recovery. Health should be monitored continuously or at least twice daily. Fin regrowth takes approximately 14 days but fish may be returned to general tanks within 3 days.

Agents:

This procedure requires MS-222 (tricaine) and sodium bicarbonate. All agents administered to animals should be listed in the “Agents” section of the IACUC protocol.

Adverse Effects:

Adverse effects should be listed in the “Adverse Effects” section of the IACUC protocol.

Examples include: Infection, injury due to handling, failure to exhibit normal swimming movements or eating behavior, over-exposure to anesthetic agents.