



10th International Course "Care and Use of Laboratory Animals: mice, rats and zebrafish"

ZEBRAFISH PRACTICALS Videos / Self-study

1) Zebrafish Husbandry

https://www.youtube.com/watch?v=ew2ayFEH9PA&ab_channel=LarissaWilliams

Info

This film shows the basics of zebrafish facilities, equipment used, husbandry and handling of fish in different developmental phases, under laboratory conditions.

2) Breeding Zebrafish for Biomedical Research

<https://www.understandinganimalresearch.org.uk/resources/video-library/breeding-zebrafish/>

Info

This film shows some of the aspects of zebrafish production and maintenance. Zebrafish embryos, unlike mouse embryos, develop outside the mother's body and are transparent throughout the first few days of life. This provides unparalleled opportunities for researchers to scrutinise the fine details of embryonic vertebrate development without first having to resort to invasive procedures or killing the mother. This advantage is enhanced by the fact zebrafish can produce 200 - 300 fertilised eggs every week. High Definition clips from this film are available on request to office@uar.org.uk.

3) Water quality monitoring

https://www.youtube.com/watch?v=MvA2cKRBTXg&ab_channel=InVivoBiosystems

Info

Maintaining water quality is crucial for successful zebrafish maintenance and husbandry, especially during the startup of a fish rack. This video discusses how to keep track of the water quality parameters (ammonia, nitrites, nitrates, and pH), gives an example of how we started our fish rack, and the process of the nitrogen cycle for initial rack set-up.

4) Zebrafish anaesthesia procedure

https://www.youtube.com/watch?v=50qaWPGDmkl&ab_channel=TheFishVetDrLoh

Info

Fish anaesthesia can be quite challenging because there are far fewer signs that can be used to assess anaesthetic depth. Some things the operator can rely on, include monitoring the muscle tone, opercular beats (frequency, regularity and strength), gill colour, response to stimulus and eye position. It is possible to use machinery for other aspects as ECG, HR, Pulse oximeter, however, these would be impractical for very small fishes. This video demonstrates 5 of the six stages of anaesthesia.

5) Zebrafish drug administration procedure

https://www.youtube.com/watch?v=0olcjoY9U3A&ab_channel=Ay%C3%A7aArslanErg%C3%BCI

Info

This film shows the procedure of drug administration to zebrafish through intra-peritoneal injection.

6) Stress, fear and anxiety behavioural tests for zebrafish

<https://www.youtube.com/watch?v=qAa0SxLaob4>

Info

This short film shows the effect of predator exposure on a group of adult zebrafish. The predator, an Indian leaf fish (*Nandus nandus*) is located in the tank on the left. In this case, the stressed zebrafish exhibit an anxiety-like behavior, expressed as tight shoaling, erratic movements and restriction of movement in the lower part of tank.

https://www.youtube.com/watch?v=C8hkwip_tWg

<https://www.youtube.com/watch?v=P-L62ENUQKU>

Info

Zebrafish in nature form shoals, yet when kept in pairs they often exhibit an aggressive behavior that leads to the formation of a social hierarchy. The winner of this interaction is considered the dominant individual, while the loser is characterized as the subordinate. Dominant behavior is expressed through chasing and biting, whereas the subordinate freezes and flees in an effort to avoid the attacks of the dominant. This is considered as a form of social stress.

Heraklion, June 2024