

BASIC TRAINING ON UTILIZATION OF ZEBRAFISH AS AN ANIMAL MODEL

This basic online training program is covering the use of Zebrafish as an animal model in biomedical research.

It is composed of mixed theory and practical sessions for important aspects of Zebrafish Research. The course is obligatory for all students and researchers who intend to experiment with Zebrafish at Qatar University Zebrafish Facility under Biomedical Research Center (BRC), regardless of previous training they may have had at other organizations. It is our responsibility to guide researchers and students to be trained and certified properly in using Zebrafish at BRC in a humane and responsible manner. This training program will give the trainee a general understanding on the regulations and responsibility in using Zebrafish for a variety of research purposes. The successful participants will be awarded course completion certificates. A copy of the certificate should be submitted with relevant research protocols for QU-IACUC approval prior to starting Zebrafish projects.

Training language: English

Date and time: 15-16 Aug 2021, 9 am – 1 pm

Registration requirement: All participants for the Zebrafish course must complete following CITI trainings through www.citiprogram.org and send the CITI completion certificate to our email brc@qu.edu.qa with the registration number:

- Working with the animals in Biomedical research – Refresher course
- Working with Zebrafish (Danio Rerio) in Research Settings

Sessions:

For each session, there will be a theoretical lecture followed by demonstration videos explained to the participants in an interactive manner. The techniques demonstrated in this course will be at a basic level. Passing the course will not indicate competency, therefore additional practice will be required to ensure that the individual is confident before applying the techniques. There will be 4 lectures within this session:



Sessions	Time	Title	Description
August 15th, 2021			
Session 1	9 am – 11 am	Introductory lecture on Zebrafish Animal Model in Biomedical Research	This lecture will introduce the participants with the basics of Zebrafish Experimentation as well as relevant procedures at BRC. Topics will include: Overview of BRC Research Activities, Biosafety Practices and Ethical Procedures at BRC; Zebrafish as an emerging animal model in research; advantages and limitations of Zebrafish, overview of different techniques and research areas for Zebrafish. The lecture will be delivered by Dr. Huseyin C. Yalcin from BRC, the head of Zebrafish Facility at the center. Duration is 2 hrs.
Session 2	11 am – 1 pm	Zebrafish Husbandry	This lecture will introduce the participants how to properly maintain zebrafish lines using water circulation systems. Topics will include: basics of Zebrafish maintenance; assessment and monitoring of water quality; feeding of zebrafish; and health monitoring of Zebrafish. In the demonstration part, the participants will see the operation of water circulatory system and will observe feeding and breeding of the adult Zebrafish, and water quality tests. Then, embryo maintenance will be presented, including embryo collection, cleaning embryos, and monitoring of embryos (24 hr., 48 hr., 72 hr. hpf). The lecture will be delivered by Zebrafish Facility technician Enas El-Absi. Duration is 2 hrs.
August 16th, 2021			
Session 3	9 am – 11 am	Monitoring of Zebrafish Embryo/Larvae	This lecture will show proper monitoring of zebrafish development. Topic will include: assessment of developmental stages of zebrafish embryo via microscopy; developmental assays for Zebrafish such as hatching rate, survival rate, tail flick and phenotypic assessment. In the demonstration part, the participants will see how to image, analyze and perform phenotypic assessment and tail flick assay. The utilization of Zebra Box behavioral analysis platform to track multiple zebrafish embryos simultaneously will be presented. We will also explain how to process and present the tracking results. The lecture will be delivered by Zebrafish Facility Manager Dr. Fatiha Benslimane. Duration is 2 hrs.
Session 4	11 am – 1 pm	Experimental techniques with Zebrafish	This lecture will present most commonly used techniques for Zebrafish experimentation. These include: chemical exposure of Zebrafish for toxicity investigations; morpholino design and injections for genetic studies; and cardiac function assessment for Zebrafish. In the demonstration part, the participants will see how to expose chemicals to Zebrafish embryos for toxicity tests and follow-up monitoring. We will also present how to inject Morpholino to multiple zebrafish embryos, and relevant phenotypic assessment. Participants will see preparation of imaging slides, recording beating hearts and blood flow and further heart function analysis. The lecture will be delivered by Zain Zakaria and Hadeel Al-Jighefee. Duration is 2 hrs.