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AQUAEXCEL.EU/TRAINING-COURSES

CONDUCTING EXPERIMENTAL INFECTION TRIALS IN FISH AND SHELLFISH

FREE training course

DATE: SELF-PACED LECTURES (PART 1): AVAILABLE FROM 28 OCTOBER 2024.
LIVE LECTURES (PART 2): 11 & 12 NOVEMBER 2024 **LOCATION:** ONLINE

COURSE DESCRIPTION

This course offers comprehensive training in the design and analysis of experimental infection trials in fish and shellfish, covering both fundamental and advanced concepts.

The course is divided into two parts, the first part will consist of self-paced lectures covering essential theoretical topics, including ethical considerations for using animals in experiments, designing infection trials, evaluating pathogens and pathologies, etc. The second part will consist of live lectures focusing on applying the theoretical knowledge gained in the first part to real infection trials using several fish species and bivalves and different types of pathogens.

TARGET AUDIENCE

This course is tailored for researchers, PhD and MSc students, animal caretakers, technicians, and industry professionals who wish to understand the key elements in designing and analysing experimental infection trials involving fish and shellfish.

LEARNING OBJECTIVES

PART 1: Self-paced lectures

- Describe important aspects of fish welfare and ethics required for working with fish for experimental purposes (Module 1)
- Outline the legislative requirements for conducting experimental trials with fish and shellfish (Module 1)
- Explain the purpose of conducting an experimental infection trial (Module 2)
- Design the experimental setup according to the purpose of the experiment (Module 2)
- Describe which methods could be used to assess infection trials (Module 3)
- Select appropriate statistical methods for hypothesis testing based on the setup of the infection trial (Module 4)
- Outline different types of vaccines and adjuvants (Module 5)

PART 2: Live lectures

- Identify key parameters for designing experimental infection trials (Modules 6-10)
- Outline differences of working with different fish species (Modules 6-8)
- Identify the advantages and limitations of the different infection models (Modules 6-10)
- Outline infection models for parasitic infection assessment (Module 8)
- Evaluate critical factors in vaccine testing (Module 9)
- Assess vaccine efficacy against infectious diseases (Module 9)
- Design infection trials with bivalves (Module 10)

Designed and developed by ERINN Innovation

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Other queries: info@aquaexcel.eu

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COURSE STRUCTURE:

PART 1: Self-paced lectures

Module 1: **Use of animals for experiments: General Concepts;** Lecturer: Niels Jørgen Olesen (DTU, Denmark)
- Legislative requirements for conducting experimental trials with fish and shellfish
- Fish welfare and ethics in working with experimental fish
- 3R: Principle of replacement, reduction and refinement
- Biosecurity levels for experimental facilities

Module 2: **Design an experimental infection trial;** Lecturers: Niccolò Vendramin, Britt Bang Jensen and Jacob Schmidt (DTU, Denmark)
- Defining the purpose of the experiment
- Setting up an infection trial with fish
- Calculate the required number of fish for the trial
- Viral and bacterial infection models

Module 3: **Evaluation of pathogens and pathologies;** Lecturers: Jacob Schmidt, Argelia Cuenca, Niccolò Vendramin and Lone Madsen (DTU, Denmark)
- Evaluation of pathology
- Evaluation of host-response to infection
- Pathogen detection and re-isolation

Module 4: **Statistical evaluation of fish infectious trials;** Lecturer: Britt Bang Jensen (DTU, Denmark)
- Choosing the correct statistical methods for hypothesis testing based on the experiment's purpose

Module 5: **Vaccines: Basic concepts**; Lecturer: Dagoberto Sepúlveda (DTU, Denmark)
- Types of vaccines
- Adjuvants
- Delivery methods

PART 2: Live lectures - Day 1

Module 6: **INFECTION TRIALS WITH SALMONIDS**

Lecturers: Jacob Schmidt, Niccolò Vendramin, Lone Madsen (DTU, Denmark)

Lecture topics:
- Overview of working with salmonids
- Adjusting the infection models to the pathology
- Assessing external pathology of a skin disease
- Effect of the infection model and fish size on the pathogenesis

Module 7: **INFECTION TRIALS WITH CYPRINIDS**

Lecturers: László Ardó (Uni-MATE, Hungary)

Lecture topics:
- Overview of working with cyprinids
- Effect of thermal stress in infection in common carp
- Infection of resistant and sensitive common carp families

Module 8: **INFECTION TRIALS WITH PARASITES**

Lecturers: Oswaldo Palenzuela (CSIC, Spain)

Lecture topics:
- Overview of working with fish for parasitic infection
- Infection models of different fish parasites

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PART 2: Live lectures - Day 2

Module 9: **VACCINE TESTING**

Lecturers: Niels Lorenzen (DTU, Denmark), Ariadna Sitjà-Bobadilla (CSIC, Spain)

Lecture topics:
- Factors to consider for vaccine testing
- Prospects of vaccination against parasitic infections

Module 10: **INFECTION TRIALS WITH BIVALVES**

Lecturers: Isabelle Arzul (IFREMER, France)

Lecture topics:
- Overview of main bivalve diseases
- Infection models of different bivalves pathogens

PRACTICAL INFORMATION

Location: Online Course. Full details on access will be provided after registration.

Date & Time:

- **Self-paced lecture (Part 1)** will be available from 28 October 2024 (for those who register before 25th October, 12:00 hrs. Between 29 Oct - 8 Nov we try to make this part available within 3 working days after registration)
- **Live lectures (Part 2)** 11 November 2024, from 9:00 to 15:30 hrs CET (Central European Time) and 12 November 2024, from 9:00 to 14:30 hrs CET.

This (live) course will be recorded as the basis for the non-live online course that will be available on an on-going basis after the live course. Further details will follow after the live lecture.

REGISTRATION

Complete your registration request through the form that can be found on the official AQUAEXCEL3.0 website: https://aquaexcel.eu/training-course-3-conducting-experimental-infections-in-fish-and-shellfish/

REGISTRATION DEADLINE = 8 November 2024, 9:00 hrs (CET)

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