



EURL-Fish training course: Introduction to Histopathology in fish diseases Copenhagen 12th -15th October 2015

Description of the course “Introduction to Histopathology in fish diseases”, held at the European Union Reference Laboratory (EURL) for Fish diseases, Frederiksberg (12/10-15/10 2015)

Course content:

The 4-days course is primarily based on practical work (hands on) in combination with theoretical presentations.

This course will focus on the application of histopathology in fish diseases, combining a general histopathological approach with pathogen specific techniques as ImmunoHistoChemistry and In Situ Hybridization. The first day participants will be shown how to sample optimal samples for histopathological examination, considering different tissues and fish sizes. During the afternoon theoretical class room teaching will be given on methodologies, pitfalls and troubleshooting

Starting from day 2 participants will start a training track where first normal histology will be shown subsequently compared to lesions that characterize systemic infection before finally being introduced to advanced staining or pathogen detecting technique as IHC and ISH.

The course gives an introduction to the normal histology of fish, to general pathology and to specific histopathological lesion occurring as a consequence of disease. Focus is put on the understanding of pathological processes and on training in histopathological diagnostics.

The course is dialogue based and sufficient time will be given for discussion under way and for evaluation of test results.

A social dinner will be organized the second evening. Further details are provided in the invitation letter.



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General course objectives

The course aims to introduce participants to the use of histopathology in fish diseases, combining technical knowledge on how to process samples including collection and treatment with different fixative, and descriptive capacities of lesions that can be observed during different disease stages of systemic infections.

The course will be structured on two main pillars: an overarching part on how to approach histopathology and combine theoretical knowledge on specific lesions to diseases patterns and a more specific part on Immune Histo-Chemistry and in situ hybridization describing pitfalls and application of these techniques to specific pathogens.

Theoretical session will include descriptions of the techniques with major focus on their application, pitfalls and trouble shooting. Practical sessions will allow participants to spend time at the microscope, individually observing prepared slides. Open discussion as well as one-to-one supervision with the tutors will allow the participants to focus on the most important features of each slide.

Participants are welcome to bring their own slides to discuss the case with the other participants and tutors.

Learning objectives

This course aims to introduce the students to normal histology of fish and to histopathological processes, with main focus on the systemic infection in farmed fish.

The participants that will have fully followed all the course's objectives will be able to:

Sample organs and tissue for histo-pathological examination and submit them in a correct way

Gain knowledge to discriminate between normal histology, artefact occurred during fixation and processing,

Gain knowledge in spotting and describing in a harmonised way lesions occurring during disease process

Gain knowledge in the technology for preparing IHC and ISH, assess pitfalls and errors in test performances and designs.



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Overall the course will allow participants to understand the underlying principles of the different tests and to critically review them in order to assess pitfalls and to correctly interpret them

The major focus will be on systemic infection with major focus on listed viral diseases.

The course will provide a forum where pre-knowledge, experience and examples can be discussed between participants and teachers, and hereby raise the awareness of pitfalls when using the various techniques.

Intended learning outcomes

To increase the practical and theoretical knowledge of histopathology of listed fish diseases. The course also aims at providing a forum where (good and bad) experiences can be discussed among participants and teachers.

The core elements

Histopathology in fish diseases

IHC applied to fish diseases

ISH applied to fish diseases

Assessment

Each day will end with a short result and discussion follow-up in order to evaluate whether the participants picked up the core elements.

During the last day a slide with significant lesions will be provided to participants who will have to describe it in accordance with the methodology learned during the course. The slides will be discussed afterwards.

At the end of the course a questionnaire for course evaluation will be delivered to all participants.

The course material

Protocol for the hands-on exercises, power-point presentations as well as the original scientific papers describing the applied assays/techniques is included in the course binder. The supervisors will collect the generated results and provide shared data overviews to be starting point of discussions.



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The course participants

Since course attendants can come from very different experiences, during the general introduction (day 1), researchers and technicians will be asked to introduce themselves, their pre-experience in the laboratory and their expectations to the course in order to target the course content optimally, especially during the theoretical- and discussion workshops. Their starting point will therefore be mixed as some may have limited theoretical or practical experience, while others may be highly experience in some or all disciplines.

Course supervisors

Ole Bendik Dale tutor responsible for Histopathology

Torsten Snogdal Boutrup tutor responsible on IHC

Tim Kåre Jensen tutor responsible on ISH



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Draft programme (subject to changes)

Day 1	Day 2	Day 3	Day 4
Section 1	Section 2	Section 3	Section 4
<p>9:00-10:00 Course introduction Participants will present themselves <u>Coffee Break 10:00-10:30</u> 10:30-12:00 Theoretical introduction and practical exercise on sampling tissues and organs from different fish sizes</p>	<p>9:00-10:00 General pathology principles Theoretical <u>Coffee Break 10:00-10:30</u> 10:30-12:00 Microscopy room slide observation</p>	<p>8:30-10:00 Use of IHC Theoretical <u>Coffee Break 10:00-10:30</u> 10:30-12:00 Microscopy room IHC slides observation</p>	<p>8:30 - 12:00 Microscopy Room Course assessment <u>Participants will be given slides with lesions and will have to describe them in a proper way.</u> <u>General discussion of the slides provided will follow</u></p>
Lunch 12 -12:30	Lunch 12 -12:30	Lunch 12 -12:30	Lunch 12 -12:30
<p>12:30 – 14:30 Normal histology and artifacts</p>	<p>12:30 – 14:00 General pathology part II Definition and description of lesions Focus on systemic infection <u>Coffee Break 14:00-14:30</u> 15:00-16:30 Microscopy room II</p>	<p>12:30- 14:00 Use of ISH Theoretical I <u>Coffee Break 14:00-14:30</u> 15:00-16:30 Microscopy room II</p>	<p>12:30-14:30 General discussion on cases brought by participants Course evaluation <u>Coffee , cakes and goodbye 14:30-15:00</u></p>