

Short Course on toxicologic pathology in fish

University of Heidelberg, Germany

Juli 22nd – 23th, 2019

Welcome

This course started, as so many things in science, over a beer. Stephen Feist and Helmut Segner met at a conference and aside from the usual complaints (too much work, too little time, and so on), we discussed the situation of toxicopathology training at European universities in the field of non-rodent species, particularly for fish. Although there is an increasing need for trained fish toxicopathologists in industry and academia, European universities currently offer almost no educational programs on this subject. We therefore felt that it would be useful to develop such a course both for those entering the field and for those already engaged in the assessment of toxicologic pathology in fish. In addition, such a course could play an important role in building a network for fish pathologists and providing mutual support and ongoing training. Consequently, after some more beers we decided to make plans for a new course.

The first course took place in 2013 at the Centre for Fish and Wildlife Health (FIWI) of the University of Bern, Switzerland. Originally it was planned as a singular event, but the response to this course was so positive that we decided to make it an annual event. Five more courses followed: 2014 at the Centre for Environment, Fisheries and Aquaculture (CEFAS), Weymouth Laboratory, UK. 2015 and 2017 took place at Bern, and 2016 at the Centre for Organismal Studies (COS) in Heidelberg. After a break, the 6th course in 2019 is now back again to Heidelberg.

The course aims to introduce the participants into some basic principles of toxicopathology with fish, to discuss technical aspects including potential pitfalls in histopathological studies, as well as to highlight potential fields of application of fish toxicopathology in environmental sciences. The training includes both background lectures and practical sessions.

We welcome you to the 6th course on “Toxicologic Pathology in Fish”. We do hope that you will enjoy the programme and fruitful discussion with colleagues. And of course, we hope that in your spare time you will enjoy the beautiful city of Heidelberg (and some beer, too)

The organizers and lecturers

The organizers and lectures (in alphabetical order):

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Course motivation

The motivation for this course comes from the fact that while histopathology in general and fish histopathology in particular is increasingly used in (eco)toxicological research and hazard assessment, there is a shortage of training opportunities and courses.

Course aims

The aims of the course are

- to introduce and train the participants in basic principles of fish toxicopathology
- to discuss methodological aspects including possible pitfalls,
- to highlight application fields of fish toxicopathology in
 - a. environmental surveillance
 - b. mechanistic toxicological studies
 - c. regulatory hazard assessment

Learning approach

The course combines short theoretical lectures with interactive “hands-on” practical training sessions. The practical sessions will include supervised self-evaluation of histological sections, as well as joint discussions of sections in the whole group.

There is also the possibility that course participants present their own material for discussion and histopathological evaluation.

The course will take place at the University of Heidelberg 22-23 July 2019. The course will place significant emphasis on “hands-on” practical training at microscopes and the diagnosis of pathological changes in fish tissues.

Course fees

The registration fee for the course is 250 € for students and 350 € for professionals. This will include course materials, coffee and lunch during the course days, a reception dinner on 21st July and a joint dinner on 22nd July.

Registration deadline

31.06.2019

Venue of the workshop

Center for Organismal Studies (<http://www.cos.uni-heidelberg.de/>), Im Neuenheimer Feld 230, D-69120 Heidelberg: ground floor, seminar room 005.

Accommodation

There are numerous hotels available at Heidelberg - please consult <http://www.heidelberg-marketing.de/>.

Most Heidelberg hotels can also be booked via booking.com (<http://www.booking.com/>) or HRS (<http://www.hrs.de/>).

Travel

Heidelberg is approximately 1 h train ride away from the airport at Frankfurt, <http://www.frankfurt-airport.com/>.

National and international train connections to Heidelberg can be searched at the homepage of the Deutsche Bahn, <https://www.bahn.de/>.

The city of Heidelberg is well served by public transport (<http://www.vrn.de/>). From the main railway station, most hotels as well as the workshop location (link auf PDF) can be reached either by buses and trams, and several hotels are in a walking distance to the station.

For assistance and help, please contact Thomas Braunbeck (braunbeck@uni-hd.de) or Lisa Baumann (lisa.baumann@uni-heidelberg.de).

Payment information

Please make the workshop payable to Dr. Thomas Braunbeck, COS Heidelberg. Details will be provided upon submission of the registration form (Link PDF).

PRELIMINARY AGENDA

Monday 22nd July 2019

09:00 Registration & Coffee

09:15 Welcome:

Objectives and overview of the agenda

Lecturer and participant introductions

09:30 Lecture:

Where to apply histopathology in fish toxicology (mechanistic studies, regulatory arena, monitoring), and which organs to study? (Helmut Segner)

09:45 Lecture:

Technical aspects of histology: from the fish to the slide (Lisa Baumann)

10:00 Lecture:

Fixation and preparation methods (Thomas Braunbeck, Stephen Feist)

10:30 Lecture:

Why are histological sections so colorful? Principles of staining (Heike Schmidt-Posthaus, Helmut Segner)

11:00 Coffee break

11:15 Lecture and demonstration:

Normal anatomy and histology of fish, rainbow trout, zebrafish, medaka, fathead minnow, adult versus early life stages (tbd)

12:30 LUNCH

13:30 Guided exercise:

Normal anatomy and histology of fish (rainbow trout, zebrafish, medaka, fathead minnow, adult *versus* early life stages (lead Jeff Wolf, under participation of all)

15:00 Coffee break

15:15 Lecture

Mis-diagnoses and missed diagnoses – the challenges in toxicologic pathology with fish (Jeff Wolf)

15:45 Guided exercise:

Comparison of normal and altered tissue structures (all)

17:15 Supervised self-study

Use of “tissue identification checklist”

18:00 END, walk to dinner in the old town of Heidelberg

Tuesday 23rd July 2019

08:30 Lecture:

Semiquantitative grading of histopathological lesions (Heike Schmidt-Posthaus, Thomas Wahli)

09:00 Lecture:

Quantitative pathology (Jeff Wolf)

09:30 Lecture:

Regulatory applications: Histopathology of endocrine disruptors (Lisa Baumann, Helmut Segner)

10:00 Lecture

Histopathology of estrogen disruptors: a case study with fathead minnow (Stephen Feist)

10:30 Coffee break

10:45 Guided exercise:

Fish gonad histopathology (all)

12:30 LUNCH

13:30 Lecture:

Applications in toxicity studies with early life stages of fish (Thomas Braunbeck)

14:15 Lecture:

Applications in environmental monitoring (Stephen Feist)

14:30 Lecture:

Neoplastic changes in fish tissues (Heike Schmidt-Posthaus)

14:45 Lecture:

BEQUALM fish disease measurement programme (Stephen Feist)

15:15 Coffee break

15:30 Practical exercises BEQUALM ring test, Neoplastic changes (Stephen Feist)

16:30 Supervised self-studies/slides of the participants

17:15 Overview of course, feedback and proposals for 2020

17:30 END