

## 2015 JANUARY MYXOZOAN UPDATE

### Happy New Year 2015!

This year will see two large biannual European meetings:

- 17th International Conference on Diseases of Fish and Shellfish organised by the EAFP  
<http://eafp.org/eafp-2015-conference/>
- 9th International Symposium on Fish Parasites in Valencia, Spain  
<http://www.9isfp.com/>

As discussed at the last myxozoan workshop, which was held at the 2014 ISAAH meeting in Portland, the next myxozoan workshop will be held in conjunction with the ISFP meeting in Valencia. The workshop is always a great opportunity to network face-to-face with myxo colleagues and engage in open forum discussion of some of the more controversial aspects of myxo research: origin, evolution, classification...

I received only one notice to include in this update – a PhD scholarship program. Send me jobs/post-docs/PhD position information or anything you think may be of interest to our community, before the next update (April).

Thanks to Ashlie Hartigan for compiling this month's Myxo Lab Focus – on the Holzer lab in the Czech Republic.

Here are some general links that I think you may find of interest for 'lunchtime reading':

#### **Nature makes research papers open-access to the public**

<http://www.sciencealert.com/nature-makes-research-papers-open-access-to-the-public>

#### **Science and The Arts**

[http://seedmagazine.com/content/article/the\\_future\\_of\\_science\\_is\\_art/](http://seedmagazine.com/content/article/the_future_of_science_is_art/)

#### **Links to tools for creative data visualisations**

<http://www.creativeblog.com/design-tools/data-visualization-712402>

#### **Balancing a lab life and children**

<http://www.nature.com/nature/journal/v517/n7534/full/nj7534-401a.html>

If you have not yet done so, I encourage you to join ResearchGate and follow your fellow myxozoan colleagues to receive instant updates of new publications in our field.

***Stephen Atkinson***

## PHD OPPORTUNITY SUPPORTED BY CAS-TWAS:

Any student with master degree from developing countries and developed countries can apply for this fellowship, after choosing an appropriate PhD supervisor from any institutes of the Chinese Academy of Sciences. The fellowship will provide 7000RMB/month for approved candidates, and 8000 RMB/month for approved candidates who pass an entrance examination after several months study. Please see the details by visiting <http://www.fellowship.cas.cn/dms/>

I am ready to receive a foreign PhD candidate who applies for this fellowship and who is interested in our work: taxonomy, phylogeny, evolution and ecology of myxozoan and microsporidian parasites, parasitosis caused by microparasites (hepatozoons, coccidians, myxosporeans and microsporidians). Please to contact me:

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ResearchGate [https://www.researchgate.net/profile/Jin\\_Zhang39](https://www.researchgate.net/profile/Jin_Zhang39)

By Ashlie Hartigan



The Laboratory of Fish Protistology has been home to Myxozoa research since the 1960's with Drs Jiří Lom and Iva Dyková, pioneers of Protistology research in fish, in particular Myxozoa. The Laboratory is part of the Institute of Parasitology in the Biology Centre of the Czech Academy of Sciences. We are located south of Prague, in Ceske Budejovice, where the Biology Centre shares its campus with the University of South Bohemia.

Continuing the strong tradition in myxozoan research, in 2011 Dr. Astrid Holzer began as head of the lab. She has done a lot since she arrived including renovating the entire lab and designing our new aquaculture facility.



Holzer Lab (left to right): Dariya Baiko, Miloslav Jirků, Gema Alama-Bermejo, Pavla Bartošová (now Sojková); Martin Kostka, Martina Hrabcová, Ashlie Hartigan; Sneha Patra, Ivan Fiala, Hana Pecková, Ivana Reitingerová, Alena Kodádková

Astrid joined a team of experts in České Budějovice: Ivan Fiala, a legend in myxozoan phylogeny; Pavla Bartošová (now Sojková); Miloslav Jirků; PhD candidate Alena Kodádková and Hana Pecková who has been working in the Laboratory of Fish Protistology for 30 years. Later Sneha Patra began her PhD studies and Ashlie Hartigan and joined as postdocs.

Our work focuses on identification of parasitic infections in cultured and wild fish and amphibians. We provide diagnostic services for local fisheries and veterinary groups as well as field parasitology courses for bachelors students at the University of South Bohemia. Astrid also took part in a simple educational video for the general public to understand myxozoan biology in a fun way.



<https://www.youtube.com/watch?v=TU4N4xSwKVE>

Our current research projects span the globe, from sphaerosporid diversity in European cyprinids, part of Sneha Patra's PhD project, to cryptic species in the Arctic Circle with Alena Kodádková's recent publication, to parasitological surveys in Central Africa of both frogs and fish by Miloslav Jirků. Research topics in our lab range from tracking myxozoan evolution through molecular dating, (recent work of Ivan Fiala and Alena Kodádková), phylogenetic study of *Ceratomyxa* species in clinid fish from South Africa (Tereza Tomková and Alena Kodádková), phylogeny of kidney infecting *Myxidium* species (Dariya Baiko and Ivan Fiala), studying malacosporean life cycles maintained in our aquaria facility (Sneha Patra and Martina Hrabcová), characterising the curious dancing motility of sphaerosporid blood stages (Ashlie Hartigan) as well as the annotation of genes and description of new myxozoan proteins of interest for parasite control (Ashlie Hartigan and Gema Alama-Bermejo) and mitochondrial genome research (Jiří Kyslík and Ivan Fiala).



Astrid Holzer



Aquaculture lab

Myxozoan proteomics is one of the many international collaborative projects in our lab, with Gema working on virulence factors of *Ceratonova shasta* in the Bartholomew Lab in Corvallis, Oregon. Sphaerosporid research strongly involves Edit Ezsterbauer at the Institute

for Veterinary Medical Research in Budapest, Hungary, ceratomyxids research in South Africa with Cecile Reed from University of Cape Town, and Beth Okamura at the Natural History Museum in London will work with Ashlie on archived amphibian Myxozoa.



*Sneha Patra*



*Ivan Fiala & Pavla Sojková*

2014 was a busy year for the Holzer Lab, many of us were working on the newly submitted Myxozoa book (*Myxozoan evolution, ecology and development*, edited by Beth Okamura, Alex Gruhl, Jerri Bartholomew) throughout the year. Alena Kodadková defended her thesis and is leaving to Tamar Lotan's lab in Haifa, Israel. Astrid was part of a successful Horizon 2020 grant application with Ariadna Sitja-Bobadilla and our lab just keeps growing, not just with students and two new postdocs in 2015, but also with the addition of Astrid's daughter Sophie, and Pavla Sojkova's daughter Adela, both potential future myxozoanologists.

Overall, our lab is now moving toward functional biology of Myxozoa, using genomics and transcriptomics to better understand the evolution and host interactions of myxozoans. We are now accommodating proteomic experiments to shed light on how myxozoans can develop, gain nutrients and invade their hosts, with the aim of using this information for the development of targeted myxozoicidal strategies.

