



Providing expert services to the European aquaculture industry: Spotlight on Vertebrate Antibodies

Aquaculture is the fastest growing food producing sector worldwide and provides half of all the aquatic animals that humans consume. Parasites can cause significant damage to farmed fish. Preventing and managing diseases is vital for the sustainability of the aquaculture industry.

ParaFishControl (<http://parafishcontrol.eu/>) is an EU funded, H2020 project that aims to improve our understanding of fish-parasite interactions and to develop tools to diagnose, prevent, control and mitigate the most harmful parasites that affect common fish species farmed in Europe. The project consortium comprises 29 partners who contribute expertise across diverse areas.

Here we interview the team from Scotland-based, ParaFishControl partner, Vertebrate Antibodies (<https://vertebrateantibodies.com/>), to learn more about their products and services for the aquaculture sector.



From left to right: Dr Tiehui Wang (Director of Biologicals), Dr YehFang Hu (Research Fellow of Bioanalytical Assay Development) and Dr Abdo Alnabulsi (KTP Associate – Antibody Production & AI Development)

Could you tell us a bit about Vertebrate Antibodies (VAL)?

VAL is an emerging biotech company, founded by scientists back in late 2011. Initially, we focused on developing monoclonal antibodies to veterinary species for basic research. Through building our expertise and establishing our reputation across different sectors, we have expanded our services to encompass additional technologies including recombinant protein production platform, IHC validation and discovery service, software development and, most recently, branching out to the artificial intelligence domain. We see ourselves as an inventory company, able to utilise our technologies and resources to provide novel products and solutions to multiple sectors.

Who are your target clients and what services do you offer them?

In the aquaculture sector, our main clients are scientists working in fish pathology, disease diagnostics and disease prevention by immune stimulation and vaccination. We supply antibodies and provide custom antibody services to the research community. We also supply novel biologicals, including bioactive cytokines, antimicrobial peptides and immune stimulants, and provide custom recombinant protein

services. These antibodies and novel biologicals are essential to advance our understanding of fish-pathogen interactions and pave the way for future discoveries.

In addition, we provide services to vaccine and feed companies, including monitoring tools to assess the efficacy of vaccines and feed formulations. We offer solutions of adjuvants and immunostimulants which can enhance vaccine performance and boost fish immune systems. We also offer innovative solutions through access to Artificial Intelligence software that predicts vaccine and diagnostic targets. This software has machine learning capabilities based on incorporated algorithms that improve the prediction accuracy of therapeutic options. Furthermore, we offer services directly to fish farmers by providing the monitoring tools they seek to chart fish health, assess infection, evaluate vaccine efficacy, and new diet formulations. This information empowers fish farmers to select the best products and strategies.

Why and how did you get involved in ParaFishControl?

The project coordinator, Dr Ariadna Sitjà-Bobadilla spotted the value that VAL technology could offer ParaFishControl, had faith in our team, and invited us to become project partner. We were delighted to take part in this fantastic project. It is a chance for us to contribute to important research and an opportunity to showcase our company, opening up new market opportunities that would otherwise be inaccessible.

What has been your role in this project?

We generated antibodies towards parasite antigens to be used as probes to improve existing diagnostic methods. The antibodies can also be employed for research purposes to further enhance understanding of pathogen-host interactions and for passive immunisation by neutralising parasitic-virulent factors.

How would you say ParaFishControl has contributed to the growth of your company?

The contribution of the ParaFishControl project to our company was primarily knowledge-based rather than financial. The project incorporated leading research institutes and industry biotechnology companies in the aquaculture sector. By being a partner, we were able to absorb a great deal of knowledge and expertise, recognize bottlenecks and challenges facing the sector. This new knowledge enabled our team to develop innovative solutions and tools for the prevention, control and mitigation of the most harmful parasitic species affecting farmed fish species. From a practical perspective, thanks to the new services that we have developed through ParaFishControl, we were able to grow from 1.5 staff members to 7!

Being part of a prestigious EU Horizon 2020 grant also generates great marketing and publicity potential for a SME like ours. We used this experience to create additional strategic alliances and partnerships outside of ParaFishControl.

Is there anything else you would like to add?

We would like to thank all partners in the ParaFishControl consortium for this fantastic experience, and the EU for funding such an overarching project. Even though the project is about to end, we are sure that our collaborations with all the partners will continue. We hope that new consortia will be created after this project to build upon the solid foundations laid by ParaFishControl to continue improving the sustainability and competitiveness of the European aquaculture industry.

Notes for Editors

ParaFishControl is an EU H2020-funded project that aims to increase the sustainability and competitiveness of the European aquaculture industry. It improves our understanding of fish-parasite interactions and develops innovative solutions and tools for the prevention, control and mitigation of the most harmful parasitic species affecting the main European farmed fish species.

For press enquires contact Emma Bello Gomez emma@aquatt.ie