



## TargetFish Newsflash 16

**TargetFish** brings together leading European research groups that are experts on the fish immune system and enterprises from the Biotech and Veterinary sectors that aim to commercialize fish vaccines for European fish farming. By developing a targeted vaccination strategy, TargetFish will prevent important fish diseases in European aquaculture industry.

This highlight is part of monthly progress updates by the TargetFish consortium.

[targetfish.eu](http://targetfish.eu)

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### **DNA vaccination against a fish rhabdovirus promotes an early chemokine-related recruitment of B cells to the muscle**

Rhabdoviruses like VHSV (Viral Haemorrhagic Septicaemia Virus) and IHNV (Infectious Hematopoietic Necrosis virus) are important pathogens of farmed rainbow trout,

causing high mortalities in fish. One common way to vaccinate fish against these viruses is via injection in the muscle, with plasmid DNA encoding viral proteins (also called DNA vaccination). DNA vaccination has proved a highly effective method for inducing a potent and long-lasting protection against different viruses, in mammals, but especially in fish. Protection via DNA vaccination generally appears to be strong and long-lasting, as shown by expression of high levels of antigen in muscle cells. The mechanisms behind this protection are still not fully understood. Here, a group of TargetFish researchers from Centro de Investigación en Sanidad Animal (Madrid), Friedrich-Loeffler-Institut (Insel Riems) and the Scottish Fish Immunology Research Centre (Aberdeen) focused on the characterization of immune cells infiltrated at the site of DNA injection,



They could demonstrate that after injection with VHSV, both IgM<sup>+</sup> and IgT<sup>+</sup> B lymphocytes migrate in large numbers to the area of antigen expression. In contrast, in control fish injected with an oil adjuvant, different leukocyte cell types (mainly granulocytes/monocytes) were attracted, similar to what occurs in mammals.

Altogether, our results reveal that there is an early chemokine-related B cell recruitment triggered by DNA vaccination (via muscular injection) against VHSV which might play an important role in the initial phase of the immune response. Finally, experiments performed with recombinant proteins and expression

paying special attention to the chemokines and chemokine receptors involved in the process.

plasmids for two trout chemokines: CK5B and CK6, revealed they have chemotactic capacities which might explain the recruitment of B cells to the site of DNA injection.

[Click here to read the full article](#)

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### TargetFish Industry Workshops

Please anticipate another TargetFish Industry Workshop during the 18th International Conference of the [European Association of Fish Pathologists \(EAFP\)](#) in Belfast in September 2017 where the significance of TargetFish highlights and achievements for the aquatic animal health industry will be discussed.



For more information, please visit [targetfish.eu](http://targetfish.eu) or contact the consortium via [targetfish.cbi@wur.nl](mailto:targetfish.cbi@wur.nl)

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