



# TargetFish Newsflash 14

**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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## Improving vaccination of rainbow trout against enteric redmouth disease (ERM)

To date, despite the fact that vaccination procedures against enteric red mouth disease (ERM) have been well established, outbreaks of ERM in rainbow trout farms do occur. Could this mean that the current vaccines, which are based on *Yersinia ruckeri* serotype O1, biotype 1, do not provide full protection against other biotypes? Researchers from the Laboratory of Aquatic Pathobiology, University of Copenhagen, studied exactly

At 3 months after vaccination, the highest protection was obtained among fish which were immersion vaccinated (primer) and boosted by injection (100% survival) (group 4), directly followed by the group which received a single injection vaccination (98% survival) (group 3). At this time, the unvaccinated control group showed a very low survival (24%) only. At 5 months after vaccination, the highest protection (100% survival) was found in

this question using different administration methods. Before using different administration methods they tested the effect of the different available vaccines and showed that the vaccine containing biotype 2 protected better against the prevalent biotype 2 than vaccines containing only biotype 1. After that they continued the follow up studies with the best vaccine (containing biotype 1 and 2). Then the additional experiments (different administration methods) were conducted only with vaccines composed of both biotype 1 and 2. Rainbow trout were vaccinated with biotype 1 either via immersion and/or via injection and then challenged by injection with the non-motile biotype 2 variant several months after vaccination.

Fish received one or two (priming and booster) vaccinations as follows: 1) 1x immersion vaccinated (30 sec in 1:10 bacterin dilution), 2) 2x immersion vaccinated (primer and booster), 3) 1x injection vaccinated 4) 1x immersion and injection vaccinated (primer and booster) 5) 1x bath vaccinated (1h) in 1:2000 diluted bacterin 6) immersion and 1x bath vaccinated (1h) in diluted bacterin 1:2000 (primer and booster).

fish primed by immersion and boosted by injection (group 4), again directly followed by the group which received a single injection vaccination (95% survival) (group 3). At this time, the unvaccinated control group showed a lower survival (74%). At 7 months after vaccination, fish receiving a single injection vaccination showed the highest protection (83% survival) (group 3). At this time, the unvaccinated control group showed a survival of 56%.

These experiments demonstrate that booster vaccination against ERM, especially when applying double immersion, combined immersion with injection or even a single injection vaccination can provide long term protection against ERM caused by biotype 2. This approach could improve current protocols based on a single immersion step only. Implementation of a single injection vaccination and or a booster injection vaccination after an immersion priming, could possibly replace the current single immersion practice and thereby improve health status of aqua cultured rainbow trout at farm level and reduce usage of antibiotics.

[Read here the full article](#)



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### **TargetFish Industry Workshops**

The 2nd TargetFish Industry Workshop was held during the 17th International Conference of the European Association of Fish Pathologists (EAFP) in Gran Canaria, Las Palmas in September 2015. The significance of TargetFish highlights and achievements for the aquatic animal health industry were discussed. A Workshop Report has been published in the Bulletin of the European Association of Fish Pathologist [Volume 36 \(1\), 2016, page 52-55.](#) Anticipate a 3<sup>rd</sup> TargetFish Industry Workshop in September, 2017 at the EAFP conference in Belfast.

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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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