



TargetFish Newsflash 4

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

Both liver and adipose tissue are neglected but important immune tissues of rainbow trout

Among the essential metabolic functions of the liver are a role as mediator of systemic and local innate immunity. This has been well documented for humans but hardly examined in fish. Now, stimulated by the TargetFish project, researchers from Centro de Investigación en Sanidad Animal (CISA-INIA) in Spain, confirmed the presence of B and T lymphocytes in liver of rainbow trout (2014: PLoS One 21: e110920). Of interest, infection with viral hemorrhagic septicemia virus (VHSV) indicated that cytotoxic T lymphocytes, in particular, play a key role in the initial response to VHSV in the liver. This type of T lymphocyte is generally accepted as crucially important for fighting virus infections.

The immune response of the adipose tissue has been neglected in most animal species until recently, when immune responses in adipose tissue of humans and mice were linked to obesity and diabetes. Researchers from CISA-INIA not only looked at liver but also analyzed the immune capacity of rainbow trout adipose tissue to confirm the presence of both B and T lymphocytes (2014: PLoS One 22: e111084). Adipose tissue responded to pathogenic challenge by increasing the number of mature B and T lymphocytes. Interestingly, adipose tissue was shown to retain antigens from the peritoneal cavity, an observation important with respect to intra-peritoneally injected vaccines.



These results imply that both, liver and adipose tissue, may be important immune tissues. The results imply that in the future, when evaluating immunity induced by intra-peritoneal injection, a route used for most fish vaccines, adipose tissue should be examined. Of potential interest for nutritionists: a fat-enriched diet modulated immune gene expression in the adipose tissue, suggesting the immune response in adipose tissue can be modulated by diet.

From a practical viewpoint, this study is important in improving our knowledge of the immune response of fish and, ultimately, in the development of fish vaccines with an improved efficacy. It also accentuates the importance of diet in controlling the immune response of fish and may lead to diets, and dietary supplements which specifically enhance the resistance of fish to disease.

TargetFish 2nd Industry Workshop

Following the great success of the 1st TargetFish Industry Workshop held during the 16th International Conference of the European Association of Fish Pathologists (EAFP) in Tampere, Finland in September 2013 a second Workshop is planned for the 17th EAFP Conference in Gran Canaria, Spain in September 2015.

Venue: TENERIFE HALL, AUDITORIUM ALFREDO KRAUS
LAS PALMAS DE GRAN CANARIA, SPAIN
17th EAFP INTERNATIONAL CONFERENCE

Time: 16:30 – 18:30
10th of September 2015



The 1st Industrial Workshop was held relatively close to the commencement of the TargetFish project and basically covered the content of the various Work Packages. Two years on most of the Work Packages have now achieved a number of significant discoveries relevant to the aquatic animal health industry. These findings will be described during the Industry

Workshop and an opportunity for the researchers and industry partners to meet and discuss the significance and application of these findings on the development of new vaccines, vaccination techniques/strategies, treatments and diagnostics and how they may be taken forward into commercial applications.

For more information, please please visit www.targetfish.eu or contact the consortium via targetfish.cbi@wur.nl



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