



TargetFish Newsflash 12

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.

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Anti-inflammatory role of a natural messenger of the immune system

Interleukin 10 (IL10) is one of many multifunctional regulatory messenger molecules (cytokines) regulating immune responses, but considered one of few anti-inflammatory ones. IL10 acts on different cell populations from both the innate and adaptive branch of the immune system. The function of IL-10 is to limit and ultimately terminate immune reactions with the aim to avoid damaging effects of long-term inflammation. Its presumed role in the immune system of fish had not been

Researchers from the Cell Biology and Immunology group at Wageningen University, The Netherlands have shown that carp IL10 uses a conserved signaling pathway for conserved inhibitory activities on phagocytes, including de-activation of neutrophils and macrophages. Further, carp IL10 greatly promoted survival and proliferation of (cytotoxic) T cells and stimulated proliferation, differentiation and antibody secretion by B cells. Thus, carp IL10 down-regulates the inflammatory

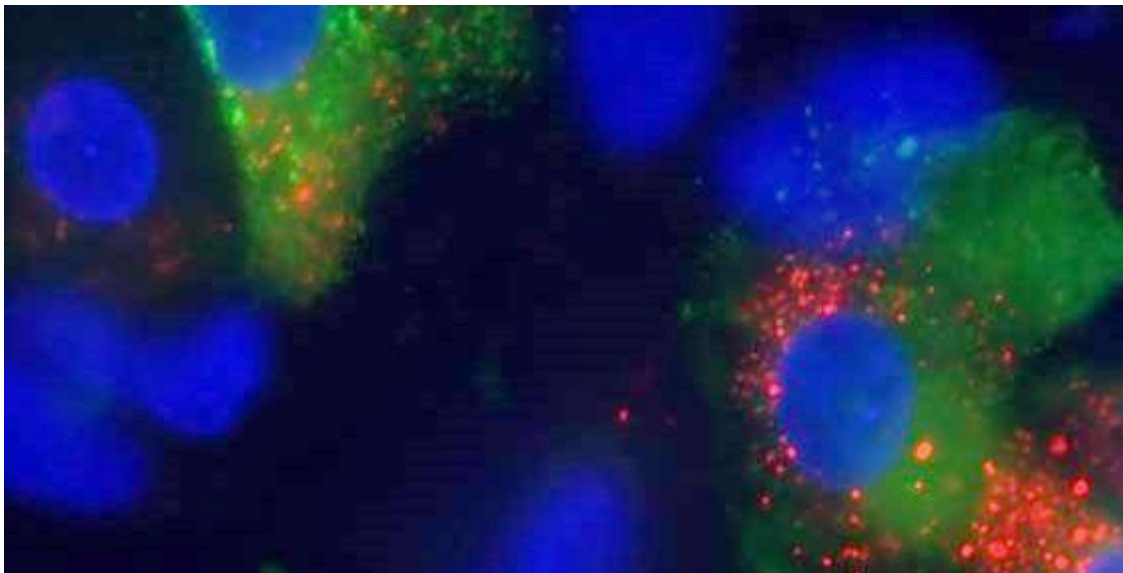
described in detail.

Presumably, IL10 is produced by almost all white blood cell subtypes with helper T cells and monocytes/macrophages considered the most important producers. At the same time, IL10 directly inhibits the synthesis of pro-inflammatory cytokines, reactive oxygen production, surface expression of molecules involved in antigen presentation as well as phagocytosis by the same macrophages. IL10 can exert a direct, potent and rapid shut-down of inflammatory neutrophils.

response of phagocytes, stimulates proliferation of subsets of memory T lymphocytes as well as proliferation, differentiation and antibody secretion by B lymphocytes. In short, carp IL10 shares several prototypical activities with mammalian IL10.

From a practical viewpoint it is important to realize that anti-inflammatory cytokines, including fish IL10, can naturally limit and ultimately terminate immune reactions to avoid damaging effects of long-term inflammation. Crucial modulators of protective immunity such as IL10 can play important regulatory roles in vaccination.

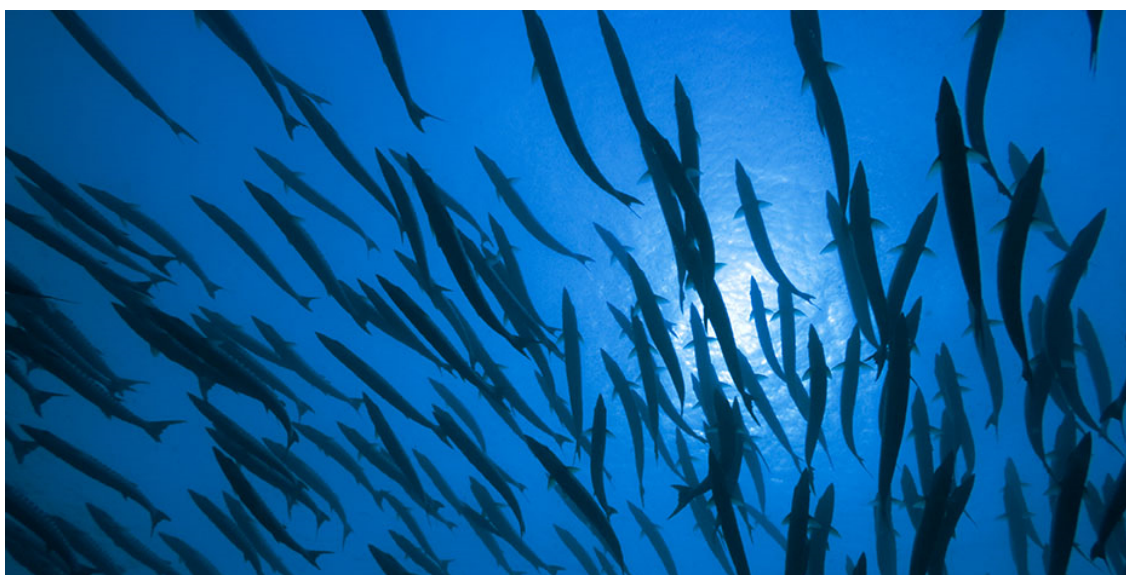
[Read the full article](#)



TargetFish 2nd Industry Workshop

The 2nd TargetFish Industry Workshop held during the 17th

International Conference of the European Association of Fish Pathologists (EAFP) in Gran Canaria, Las Palmas in September 2015, where TargetFish highlights and achievements were discussed, was a great success. The significance of these developments for the aquatic animal health industry and how they may be taken forward into commercial applications were discussed with representatives from both, Academia and Industry. A Workshop Report has just been published in the Bulletin of the European Association of Fish Pathologist [Volume 36 \(1\), 2016, page 52-55](#)



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

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