

Fatty acid binding protein (Fabp2) in Atlantic salmon and rainbow trout

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Feeding fish with plant-based raw materials has been shown to have a negative effect on Atlantic salmon's ability to digest fats.

Studies of the fatty acid binding protein Fabp2 and its location in salmon and trout give grounds for hope that breeding can enable [salmon fish](#) to adapt to vegetable feed in the future.

When Fredrik Venold began his PhD research, we knew little about the fatty acid binding protein Fabp2 in salmon and trout. The results of his research show that Fabp2 is primarily located in the [intestinal cells](#), but that this fatty acid transporter also occurs in lower concentrations in other tissues and in both cytoplasm and the [cell nucleus](#).

By means of molecular and immunological methods specially developed for the purpose, Venold was able to analyse how the level of Fabp2 was affected by the level of fat (lipid level) in the fish feed, by inflammation of the fish's colon and by various fish strains. His results show that the level of Fabp2 drops in intestinal tissue affected by soya-induced inflammation, whereas the lipid level in the feed does not appear to have any substantial influence on the protein level.



The studies also show that selecting trout for increased growth using a feed containing soya can improve growth and produce a higher level of Fabp2. This gives grounds for hope that salmon fish can adapt to the feed of the future by means of breeding, which in turn will result in better intestinal health, fish welfare and growth results.

Venold's doctoral research was carried out at the Norwegian School of Veterinary Science and at the Aquaculture Research Institute, Idaho, USA.

Veterinary surgeon Fredrik Føllesdal Venold defended his doctoral research on 5th March 2013 with a thesis entitled: "Intestinal fatty acid binding protein (Fabp2) in [Atlantic salmon](#) (*Salmo salar*) and [rainbow trout](#) (*Oncorhynchus mykiss*): Molecular characteristics, tissue distribution, and effects of soybean meal-induced inflammation, fish strain, and dietary lipid level".

Provided by Norwegian School of Veterinary Science

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