Effect of dietary components on the gut microbiota of aquatic animals. A never-ending story?

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 It is well known that healthy gut microbiota is essential to promote host health and well-being. The intestinal microbiota of endothermic animals as well as fish are classified as autochthonous or indigenous, when they are able to colonize the host's epithelial surface or are associated with the microvilli, or as allochthonous or transient (associated with digesta or are present in the lumen). Furthermore, the gut microbiota of aquatic animals is more fluidic than that of terrestrial vertebrates and is highly sensitive to dietary changes. In fish, it is demonstrated that [a] dietary form (live feeds or pelleted diets), [b] dietary lipid (lipid levels, lipid

sources and polyunsaturated fatty acids), [c] protein sources (soybean meal, krill meal and other meal products), [d] functional glycomic ingredients (chitin and cellulose), [e] nutraceuticals (probiotics, prebiotics, synbiotics and immunostimulants), [f] antibiotics, [g] dietary iron and [h] chromic ox