Full recombinant flagellin B from Vibrio anguillarum (rFLA) and its recombinant D1 domain (rND1) promote a pro-inflammatory state and improve vaccination against P. salmonis in Atlantic salmon (S. salar)

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Abstract
Flagellin is the major component of the flagellum, and a ligand for Toll-like receptor 5. As reported, recombinant flagellin (rFLA) from Vibrio anguillarum and its D1 domain (rND1) are able to promote in vitro an upregulation of pro-inflammatory genes in gilthead seabream (Sparus aurata) and rainbow trout (Oncorhynchus mykiss) macrophages. This study evaluated the in vitro and in vivo stimulatory/adjuvant effect for rFLA and rND1 during P. salmonis vaccination in Atlantic salmon (Salmo salar). We demonstrated that rFLA and rND1 are molecules able to generate an acute upregulation of pro-inflammatory cytokines (IL-1β, IL-8, IL-12β), allowing the expression of genes associated with T-cell activation (IL-2, CD4, CD8β), and differentiation (IFNγ, IL-4/13, T-bet, Eomes, GATA3), in a differential manner, tissue/time dependent way. Altogether, our results suggest that rFLA and rND1 are valid candidates to be used as an immuno-stimulant or adjuvants with existing vaccines in farmed salmon.

Author keywords
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