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## *Aeromonas salmonicida* proliferation and quorum sensing in response to mucins isolated from Atlantic salmon skin and intestine

János Tamás Padra, Henrik Sundh, Chunsheng Jin, Niclas G Karlsson, Kristina Sundell and Sara K Lindén  
University of Gothenburg, Sweden

Aquaculture is a growing industry increasing the need for understanding host-pathogen interactions in fish. The skin and mucosal surfaces covered by a mucus layer is the first point of contact between fish and pathogens. However, knowledge on fish mucin-pathogen interactions is limited. *A. salmonicida*, the causative agent of furunculosis is a major infectious threat to aquaculture. We previously demonstrated that the binding of *A. salmonicida* to Atlantic salmon mucins differ between body sites and is dependent on the presence of the sialic acid: N-acetyl neuraminic acid on mucins. Here, we cultured *A. salmonicida* in the presence of mucins purified from skin, *pyloric caeca*, proximal and distal intestine from five healthy Atlantic salmon and analyzed growth rate and bacterial communication through quorum sensing molecules. Intestinal mucins enhanced *A. salmonicida* growth, whereas skin mucins had no effect. The increase in growth was positively affected by longer glycan chains of mucins and higher ratio of sialic acid. Enzymatic desialylation of mucins enhanced proliferation further. Mucins from all sites decreased the production of autoinducer-II (AI-II) signal molecules. Desialylation organ specifically altered the level of AI-II molecules produced by *A. salmonicida*. Thus, it appears that although mucins of the intestinal tract stimulated *A. salmonicida* growth, presumably reflecting that the pathogen senses the right target niche, the sialylated mucin glycans seem to act as a defense mechanism and limit the growth response. Mucin inhibition of QS may be an additional host defense mechanism influenced by the level of sialylation on salmon mucins.

### Biography

János Tamás Padra has completed his PhD at the University of Debrecen, Hungary in 2012. Since then he is a Post-Doctoral member of Mucins in Infection and Cancer team lead by Dr Sara K Lindén at Sahlgrenska Academy, University of Gothenburg, Sweden.

[janos.tamas.padra@gu.se](mailto:janos.tamas.padra@gu.se)

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