

Technical University of Denmark



Evaluation of the potential roles of microribonucleic acids in the interaction of rainbow trout (*Oncorhynchus mykiss*) with Viral hemorrhagic septicemia virus

Bela-Ong, Dennis; Schyth, Brian Dall; Lorenzen, Niels

Publication date:
2013

[Link back to DTU Orbit](#)

Citation (APA):

Bela-Ong, D., Schyth, B. D., & Lorenzen, N. (2013). Evaluation of the potential roles of microribonucleic acids in the interaction of rainbow trout (*Oncorhynchus mykiss*) with Viral hemorrhagic septicemia virus. Abstract from 16th International Conference on Diseases of Fish and Shellfish, Tampere, Finland.

DTU Library
Technical Information Center of Denmark

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

**EVALUATION OF THE POTENTIAL ROLES OF MICRORIBONUCLEIC ACIDS
IN THE INTERACTION OF RAINBOW TROUT (*Oncorhynchus mykiss*) WITH
*Viral hemorrhagic septicemia virus***

D.B. Bela-ong*, B.D. Schyth, and N. Lorenzen

National Veterinary Institute, Technical University of Denmark, Århus, DENMARK

Abstract

Micro ribonucleic acids (miRNAs) are endogenous, 18-22-nucleotide non-coding RNAs that potently mediate post-transcriptional silencing of a broad range of genes. They are emerging as critical regulators of a broad spectrum of biological processes, including immune responses and host-pathogen interactions. Some miRNAs in mammals have been shown to directly inhibit viruses, whereas other cellular miRNAs can be co-opted by viruses to promote viral replication or evade host immune responses. We have previously observed that two miRNAs known from zebrafish, miR-462 and miR-731, were the most highly expressed miRNAs in rainbow trout liver following *Viral hemorrhagic septicemia virus* (VHSV) infection. These miRNAs were also upregulated in the liver and muscle (vaccination site) of fish vaccinated with a DNA vaccine encoding the glycoprotein of VHSV. Recent studies further suggest that the expression of these miRNAs is induced by interferons. In order to investigate the potential role(s) of miRNA-462 and miRNA-731 in host-pathogen interactions, we designed synthetic oligonucleotides called antagomiRs or anti-miRNAs to silence these two miRNAs. These antagomiRs were injected intraperitoneally into rainbow trout fingerlings followed by exposure of the fish to VHSV. Development of disease and levels of infection were analyzed and compared to data from fish treated with control miRNAs. Further analysis of the effect of anti-miRNAs in cell culture will be performed.