Micro ribonucleic acids (miRNAs) are small (18-22 nucleotides) endogenous RNAs that potently mediate post-transcriptional silencing of a wide range of genes. They are emerging as critical regulators of cellular processes and some miRNAs have been demonstrated to possess direct antiviral effects. We have previously observed and validated that the fishspecific miRNAs, miR-462 and miR-731, were among 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 gene of VHSV. Recent studies further suggest that the expression of these miRNAs is induced by interferons. In order to analyze if miRNA-462 and miRNA-731 have any antiviral effects, we designed inhibitory synthetic oligonucleotides called antagomiRs or anti-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 will be analysed and compared to data from fish treated with control miRNAs.

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