

University of Prince Edward Island

Faculty of Veterinary Medicine
Summary of Dissertation

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Analysis of structural proteins of Atlantic salmon bafinivirus – a coronavirus of fish

Atlantic Salmon Bafinivirus (ASBV) is a recently discovered coronavirus of fish, isolated from farmed Atlantic salmon. The ASBV genome, similarly to other bafiniviruses, has 4 major open reading frames (ORFs): replicase polyprotein (pp1a/1b), spike (S), membrane (M), and nucleocapsid (N) proteins. Genome sequence analysis of ASBV revealed a putative sixth protein, a 110 amino-acid polypeptide, which most likely corresponds to the envelope (E) protein in coronaviruses of the subfamily *Coronavirinae*.

The main objective of this research was to investigate viral replication and viral genome composition of ASBV. The aims of this research were to characterize the replication kinetics of ASBV, to investigate ASBV receptor binding by partially characterizing the S1 subunit of the S protein, and to investigate transcription studies of a putative Envelope “E” gene of ASBV. This research was undergone to advance our understanding of molecular interactions between ASBV and host cells.

As ASBV is a recently isolated virus, there are a number of specific research questions that currently remain unanswered. An overarching conclusion to this research is the difficulty of characterization of novel fish viruses, and the need for additional research.