

**FACULTY OF VETERINARY MEDICINE  
UNIVERSITY OF PRINCE EDWARD ISLAND**

- 1. NAME:** Frederick S. B. Kibenge
- 2. DEPARTMENT:** Pathology and Microbiology
- 3. PERSONAL DATA:**  
a) **Address and phone number:**

**Home:**



**Work:**

Atlantic Veterinary College  
Department of Pathology and Microbiology  
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b) **Citizenship:** Canadian.

**4. ACADEMIC QUALIFICATIONS:**

<u>Degrees, Diplomas Board Certification</u>	<u>University or Board</u>	<u>Date Granted</u>	<u>Area of Certification</u>
PhD	Murdoch University, (Australia)	1982	Animal Virology
BVM	Makerere University, (Uganda)	1978	Vet. Medicine
ACVM	American College of Veterinary Microbiologists	1988	Immunology

**5. EMPLOYMENT HISTORY:**

- 6/2009-present. Chairman, Department of Pathology and Microbiology, Atlantic Veterinary College, University of Prince Edward Island, Charlottetown, PEI.
- 7/2009-present. Founding Director, UPEI Aquatic Virology Collaborating Centre (AqVCC) Department of Pathology and Microbiology, Atlantic Veterinary College, University of Prince Edward Island, Charlottetown, PEI.
- 7/2009. Special Graduate Faculty, Department of Pathobiology, Faculty of Graduate Studies, University of Guelph, Guelph, Ontario.

- 7/1996-present. Professor of Virology, Atlantic Veterinary College, University of Prince Edward Island, Charlottetown, PEI.
- 7/1989-6/1996. Associate Professor, Veterinary Virology, Atlantic Veterinary College, University of Prince Edward Island, Charlottetown, PEI. Tenured July 1, 1994.
- 3/1988-6/1989 Post-doctoral Researcher, Molecular Biology/Virology, Food Animal Health Research Program, OARDC, Ohio State University, Wooster, Ohio.
- 6/1985-3/1988 Post-doctoral Research Associate, Virology, Poultry Disease Diagnostic Laboratory, WWREC, Washington State University, Puyallup, Washington.
- 8/1982-5/1985 Post-doctoral Research Associate, Virology, Avian Medicine, University of Liverpool, Veterinary Field Station, "Leahurst", Neston, England.
- 3/1980-7/1982 Ph.D Student, Virology, School of Veterinary Studies, Murdoch University, Western Australia.
- 5/1978-2/1980 Graduate Assistant in Microbiology, Faculty of Veterinary Medicine, Makerere University, Uganda.

**6. TEACHING RESPONSIBILITIES:**

(a) **Course Coordinator for:**

- Veterinary Virology VPM-112 (October 1992 - December 1995; July 1997 - June 1998; May 2004 - April 2005; May 2006 - April 2007; May 2008 - April 2009; May 2010 – April 2011).
- Foreign Animal Diseases VPM-421 (since July 2008)
- Special Topics in Diseases of Poultry VPM 495C (since June 2009)
- External Clinical Experience – Institutional or Specialist Practice VPM 490 (since June 2009)
- Clinical Virology portion in Diagnostic Services VPM-450, and Clinical Pathology and Microbiology VPM-470 (since May 1991).
- Aquaculture Diagnostic Services (since September 2011).
- Molecular Biology Techniques VPM-871 (previously VPM-852; since 1989).

(b) **Graduate Students and Residents**

**Graduate Students - Program Supervised**

<u>Year Started</u>	<u>Degree</u>	<u>Student Name</u>	<u>Thesis Title</u>
1997	BSc (Hons)	Tanya St. John	Expression of recombinant VP1 of infectious bursal disease virus in baculovirus (completed May 1998) (Recipient of NSERC PGA (A), 1998, taken to UBC).
1990	MSc	Yatri Drastini	Molecular & Pathologic characterization of Canadian avian reovirus field isolates (completed July 1992).
1990	MSc	Jody K. Dybing	Sequence analysis of infectious bursal disease virus of serotype 2 and

			expression of the VP5 cDNA (completed September 1992). (Recipient of the 1992 Douglas W. Ehresman Graduate Award in Virology at AVC)
1991	MSc	Wangeci Ndiritu	Improved diagnosis of bovine sarcocystosis using molecular techniques (Co-Supervision with Dr. Rick Cawthorn) (completed January 1994). (Recipient of "best graduate student poster presentation" at 36th Annual Meeting of American Association of Veterinary Laboratory Diagnosticians).
1992	MSc	Xia Qin Jane	Comparison of virus isolation, DNA hybridization and PCR for detection of infectious bovine rhinotracheitis virus (bovine herpesvirus-1) in bovine semen (completed December 1994). (Recipient of the 1993 SmithKline Beecham Graduate Studies Research Grant, and 1993 Hagarman Fund Scholarship at AVC).
1993	MSc	Malliga Nagarajan	Analysis of terminal sequences of serotype 2 IBDV genome segments A and B: A comparison with serotype 1 strains (completed June 1995; Distinguished MSc Thesis). (Recipient of the 1995 Douglas W. Ehresman Graduate Award in Virology).
1993	MSc	Vinay Dhama	Functional characterization of cloned VP1 of IBDV (completed July 1995).
1996	MSc	Jianwei Zhou	Improved detection of BHV- 1 in bovine semen by combined PCR and coupled <i>in-vitro</i> transcription-translation (completed August 1998).
1996	MSc	Jennifer Morrison	Improvement of the folding specificity within the MB-1 sequence in order to increase the stability of the protein under rumen-like conditions (Co-Supervision with Dr. Marc Beauregard) (completed Feb. 1999; Distinguished MSc Thesis; Recipient of 1999 Governor General Medal Award).
1999	MSc	Tomy Joseph	Use of epitope mapping to identify a polymerase chain reaction template for

			protein amplification of BHV-1 glycoprotein D (completed March 2001; Distinguished MSc Thesis); (Recipient of the 2000 Douglas W. Ehresman Graduate Award in Virology at AVC)
1999	MSc	Jingbai Nie	Cloning and expression of green fluorescent protein gene in <i>Clavibacter michiganensis</i> subsp. <i>Sepedonicum</i> as a marker for the localization of this pathogen in the infected potato (completed July 2002). (Co-Supervision with Dr. Solke H. DeBoer).
2000	MSc	Rebecca Marshall	Can the haemagglutinin genotype of infectious salmon anaemia virus explain the virus antigenic type? (completed March 2003).
2000	MSc	Emeka Moneke	Pathogenesis of infectious salmon anaemia virus (Transferred from MSc to PhD program Sept. 2001). (Co-Supervision with Dr. Basil O. Ikede).
2002	MSc	Nick Tribble	Ivermectin resistance in sea lice. (Transferred from MSc to PhD program Dec. 2003). (Co-Supervision with Dr. John Burka).
2003	MSc	Chris MacWilliams	Pathogenesis of infectious salmon anaemia virus (ISAV) in rainbow trout. (Co-Supervision with Dr. Gerald Johnson; completed May 28, 2009).
2006	MSc	Paul Young	The binding characteristics of emamectin benzoate to the GABA receptors and glutamate-gated chloride channels of <i>Lepeophtheirus salmonis</i> (Krøyer). (completed August 15, 2008) (Co-Supervision with Dr. John Burka).
2008	MSc	Priyanka Pundir	Antimicrobial peptides as activators of G protein-coupled receptors (GPCRs) signaling in innate immune modulation of inflammation. (Converted to PhD June 2010; Co-Supervision with

Dr. Marianna Kulka).

1996	PhD	Malliga Nagarajan	Studies on molecular mechanisms of virulence of infectious bursal disease virus (completed Nov. 1, 1999).
1999	PhD	Nicole Ramlachan	Infectious salmon anaemia virus (discontinued from program Sept. 1, 1999)
1999	PhD	Juan Rodriguez	Characterization of infectious bursal disease virus VP4 and its influence on apoptotic induction (completed May 26, 2002). (Recipient of the Arnold S. Rosenwald Student Poster Award at the 138th AVMA/AAAP Annual Meeting, Boston, MA, July 14-18, 2001).
2001	PhD	Tomy Joseph	Host-parasite interactions of infectious salmon anaemia virus. (completed August 3, 2004).
2001	PhD	Emeka Moneke	Gene expression of infectious salmon anaemia (ISA) virus (ISAV) relevant to understanding the pathogenesis of ISAV in fish. (Co-Supervision with Dr. Basil O. Ikede; completed June 21, 2004).
2002	PhD	Khalid Munir	Detection and typing of infectious salmon anaemia virus, an orthomyxovirus by real-time RT-PCR. (completed March 28, 2007).
2003	PhD	Nick Tribble	Expression of P-glycoproteins in <i>Lepeophtheirus salmonis</i> . (Co-Supervision with Dr. John Burka; completed January 29, 2007).
2005	PhD	Mohamed El khair	Attenuation of adverse effects of serotype 1 infectious bursal disease virus (IBDV) in chickens by interference with serotype 2 IBDV (Quit and started another program September 15, 2006).
2006	PhD	Samuel Workenhe	Innate immunity in infectious salmon anaemia virus (ISAV) infections (completed August 12, 2009).

2010	PhD	Anil Kalupahana	Characterization of avian reoviruses isolated from wild birds (Co-Supervision with Dr. Scott McBurney).
2010	PhD	Priyanka Pundir	Antimicrobial peptides as activators of G protein-coupled receptors (GPCRs) signaling in innate immune modulation of inflammation. (Converted from MSc June 2010; Co-Supervision with Dr. Marianna Kulka).

## 8. PUBLICATIONS:

### (a) Papers in Refereed Journals (2005-2011)

103. **Kibenge, F.S.B.**, Godoy, M.G., and Kibenge, M.J.T. Diagnostic methods for aquatic animal diseases: Global issues and trends. OIE Scientific and Technical Review, in press.
102. **Kibenge, F.S.B.**, Kibenge, M.J.T., and Masaoud, E. 2011. Infectious Salmon Anaemia Virus (ISAV) Ringtest: Validation of the ISAV Diagnostic Process using Virus-spiked Fish Tissues and ISAV TaqMan® Real-time RT-PCR. *Journal of Aquaculture Research and Development*, 2:110. doi:10.4172/2155-9546.1000110
101. Daoust, P-Y., **Kibenge, F.S.B.**, Fouchier, R.A.M., van de Bildt M.W.G., van Riel, D., and Kuiken, T. 2011. Replication of low-pathogenic avian influenza virus in naturally infected mallard ducks (*Anas platyrhynchos*) causes no morphological lesions. *Journal of Wildlife Diseases* 47(2):401-409.
100. Parmley, E.J., Soos, C., Breault, A., Fortin, M., Jenkins, E., **Kibenge, F.**, and 7 others. 2011. Detection of low pathogenic avian influenza viruses in wild ducks from Canada: Comparison of two sampling methods. *Journal of Wildlife Diseases* 47(2):466-470.
99. Kulshreshtha, V., Kibenge, M., Salonius, K., Simard, N., Riveroll, A., and **Kibenge, F.** 2010. Identification of the 3' and 5' Terminal Sequences of the 8 RNA Genome Segments of European and North American Genotypes of Infectious Salmon Anaemia Virus (an Orthomyxovirus) and Evidence for Quasispecies Based on the Non-Coding Sequences of Transcripts. *Virology Journal* 7:338.
98. Workenhe, S.T., Rise, M.L., Kibenge, M.J.T., and **Kibenge, F.S.B.** 2010. The fight between the teleost fish immune response and aquatic viruses. *Molecular Immunology* 47:2525-2536.
97. Cornejo, I., Sepúlveda F.V., **Kibenge, F.S.B.**, and Young J.I. 2010. Isolation of the Atlantic salmon  $\beta$ -actin promoter and its use to drive expression in salmon cells in

- culture and in transgenic zebrafish. *Aquaculture* 309:75-81.
96. Bustin, S.A., Beaulieu, J-F., Huggett, J., Jaggi, R., **Kibenge, F.S.B.**, Olsvik, P.A., Penning, L.C., Toegel, S. 2010. MIQE précis: Practical implementation of minimum standard guidelines for fluorescence-based quantitative real-time PCR experiments. *BMC Molecular Biology* 11:74. [**Highly accessed article**].
95. Godoy, M.G., **Kibenge, F.S.**, Kibenge, M.J., Olmos, P., Ovalle, A., Yañez, R., and Avendaño-Herrera. 2010. TaqMan® real-time RT-PCR detection of infectious salmon anaemia virus (ISAV) from formalin-fixed paraffin-embedded Atlantic salmon *Salmo salar* tissues. *Diseases of Aquatic Organisms* 90:25-30.
94. Pasick, J., Berhane, Y., Kehler, H., Hisanaga, T., Handel, K., Robinson, J., Ojkic, D., **Kibenge, F.**, Fortin, M., King, R., Hamel, A., Spiro, D., Parmley, J., Soos, C., Jenkins, E., Breault, A., Caswell, D., Davies, C., Rodrigue, J., McAloney, K., and Leighton, F. 2010. Survey of Influenza A Viruses Circulating in Wild Birds in Canada 2005 to 2007. *Avian Diseases* 54:440-445.
93. Chérif, N., Gagne, N., Groman, D., **Kibenge, F.**, Iwamoto, F., Yason, C., Hammami S. 2010. Complete sequencing of Tunisian redspotted grouper nervous necrosis virus betanodavirus capsid gene and RNA-dependent RNA polymerase gene. *Journal of Fish Diseases* 33:231-240.
92. Workenhe, S.T., Hori, T.S., Rise, M.L., Kibenge, M.J.T., and **Kibenge, F.S.B.** 2009. Infectious salmon anaemia virus (ISAV) isolates induce distinct gene expression responses in the Atlantic salmon (*Salmo salar*) macrophage/dendritic-like cell line TO, assessed using genomic techniques. *Molecular Immunology*, 46:2955-2974.
91. **Kibenge, F.S.B.**, Godoy, M.G., Wang, Y., Kibenge, M.J.T., Gherardelli, V., Mansilla, S., Lisperger, A., Jarpa, M., Larroquete, G., Avendaño, F., Lara, M. and Gallardo, A. 2009. Infectious salmon anaemia virus (ISAV) isolated from the ISA disease outbreaks in Chile diverged from ISAV isolates from Norway around 1996 and was disseminated around 2005, based on surface glycoprotein gene sequences. *Virology Journal*, 6:88. [**Highly accessed article**].
90. Racine, T., Hurst, T., Barry, C., **Kibenge, F.S.B.**, and Duncan, R. 2009. Aquareovirus Effects Syncytiogenesis Using a Novel Member of the FAST Protein Family Translated from a Non-Canonical Translation Start Site. *Journal of Virology* 83:5951-5955.
89. Workenhe, S.T., Kibenge, M.J.T., Iwamoto, T., and **Kibenge, F.S.B.** 2008. Absolute Quantitation of Infectious Salmon Anaemia Virus Using Different Real-time Reverse Transcription PCR Chemistries. *Journal of Virological Methods*, 154:128-134.
88. Godoy, M.G., Aedo, A. Kibenge, M.J.T., Groman, D.B., Yason, C.V., Grothusen, H.,

- Lisperguer, A., Calbucura, M., Avendaño, F., Imilán, M., Jarpa, M., and **Kibenge, F.S.B.** 2008. First detection, isolation and molecular characterization of infectious Salmon anaemia virus associated with clinical disease in farmed Atlantic salmon (*Salmo salar*) in Chile. *BMC Veterinary Research* 4:28 doi:10.1186/1746-6148-4-28. [**Highly accessed article**].
87. Workenhe, S.T., Kibenge, M.J.T., Wright, G.M., Wadowska, D.W., Groman, D., and **Kibenge, F.S.B.** 2008. Infectious salmon anaemia virus replication and induction of alpha interferon system genes in Atlantic salmon erythrocytes. *Virology Journal* 5:36 doi:10.1186/1743-422X-5-36.
86. Tribble, N., Burka, J.F, **Kibenge, F.S.B.**, and Wright, G.M. 2008. Identification and localization of a putative ATP-binding cassette transporter in sea lice (*Lepeophtheirus salmonis*) and host Atlantic salmon (*Salmo salar*). *Parasitology*, 135: 243-255.
85. Parmley, J., Bastien, N., and 17 others (listed alphabetically). 2008. Wild bird influenza survey, Canada, 2005. *Emerging Infectious Diseases*, 14:84-87.
84. Godoy, M., **Kibenge, F.**, Aedo, A., Kibenge, M., Groman, D., Grothusen, H., Lisperguer, A., Calbucula, M., Aveldaño, F., Imillan, M., and Jarpa M. 2007. Primera detección, aislamiento y caracterización Molecular de ISAV en Salmon del atlántico *Salmo salar* de cultivo en Chile. *Salmo Ciencia*, 2(2): 47-55.
83. MacWilliams, C., Johnson, G.R., Groman, D., and **Kibenge, F.S.B.** 2007. Morphologic description of infectious salmon anaemia virus (ISAV)-induced lesions in rainbow trout, *Oncorhynchus mykiss* (Walbaum). *Diseases of Aquatic Organisms*, 78:1-12.
82. **Kibenge, F.S.B.**, Kibenge, M.J.T., Wang, Y., Qian, B., Hariharan, S., and McGeachy, S. 2007. Mapping of putative virulence motifs on infectious salmon anaemia virus surface glycoprotein genes. *Journal of General Virology*, 88:3100-3111.
81. Tribble, N., Burka, J., and **Kibenge, F.S.B.** 2007. Evidence for changes in the transcription levels of two putative P-glycoprotein genes in sea lice (*Lepeophtheirus salmonis*) in response to emamectin benzoate exposure. *Molecular & Biochemical Parasitology*, 153:59-65.
80. **Kibenge, F.S.B.**, Xu, H., Kibenge, M.J.T., Qian, B., and Joseph, T. 2007. Characterization of gene expression on genomic segment 7 of infectious salmon anaemia virus. *Virology Journal*, 4:34 doi:10.1186/1743-422X-4-34.
79. Workenhe, S.T., Wadowska, D.W., Wright, G.M., Kibenge, M.J.T., and **Kibenge, F.S.B.** 2007. Demonstration of infectious salmon anaemia virus (ISAV) endocytosis in erythrocytes of Atlantic salmon. *Virology Journal*, 4:13 doi:10.1186/1743-422X-4

-13.

78. Tribble, N.D., Burka, J.F., **Kibenge, F.S.B.** 2007. Identification of the genes encoding for putative gamma aminobutyric acid (GABA) and glutamate-gated chloride channel (GluCl) alpha receptor subunits in sea lice (*Lepeophtheirus salmonis*). *Journal of Veterinary Pharmacology and Therapeutics*, 30:163-167.
77. **Kibenge, F.S.B.**, Kibenge M.J.T, Groman, D. and McGeachy S. 2006. *In-vivo* correlates of infectious salmon anaemia virus pathogenesis in fish. *Journal of General Virology*, 87 (9):2645-2652.
76. Kibenge, M.J.T., Munir, K., and **Kibenge, F.S.B.** 2005. Constitutive expression of Atlantic salmon Mx1 protein in CHSE-214 cells confers resistance to infectious salmon anaemia virus. *Virology Journal*, 2:75 doi:10.1186/1743-422X-2-75.
75. Rodriguez-Lecompte, J.C., Nio-Fong, R., Lopez, A., Markham, F.R.J, and **Kibenge, F.S.B.** 2005. Infectious bursal disease virus (IBDV) induces apoptosis in chicken B cells. *Comparative Immunology Microbiology & Infectious Diseases*, 28:321-337.
74. Moneke, E., Ikede, B.O., and **Kibenge, F.S.B.** 2005. Viraemia during infectious salmon anaemia virus infection of Atlantic salmon is associated with replicating virus in leucocytes. *Diseases of Aquatic Organisms* 66:153-157.
73. Moneke, E., Groman, D., Johnson, G.R., Wright, G.M., Stryhn, H., Ikede, B.O., and **Kibenge, F.S.B.** 2005. Correlation of virus distribution in tissues with histologic lesions in Atlantic salmon experimentally infected with infectious salmon anaemia virus. *Veterinary Pathology*, 42:338-349.

(b) **Book Chapters and monographs** (2005-2011)

5. Rimstad, E., Biering, E., Brun, E., Falk, K., **Kibenge, F.S.B.**, Mjaaland, S., Snow, M., and Winton, J. 2006. Which risk factors relating to spread of infectious salmon anaemia (ISA) require development of management strategies? Opinion of the Panel on Animal Health and Welfare of the Norwegian Scientific Committee for Food Safety, *ad hoc* group.  
([http://www.vkm.no/eway/default.aspx?pid=0&oid=-2&trg=\\_\\_new&\\_\\_new=-2:17005](http://www.vkm.no/eway/default.aspx?pid=0&oid=-2&trg=__new&__new=-2:17005))
4. Delmas, B., **Kibenge, F.S.B.**, Leong, J.C., Mundt, E., Vakharia, V.N. and Wu, J.L. 2005. *Birnaviridae*. In "Virus Taxonomy - Classification and Nomenclature of Viruses: Eighth Report of the International Committee on Taxonomy of Viruses" (C.M. Fauquet, M.A. Mayo, J. Maniloff, U. Desselberger and L.A. Ball, eds). pp 561-569. Elsevier, Academic Press, New York.

(c) **Conference Proceedings** (2005-2011)

13. **Kibenge, F.S.B.**, Godoy, M.G., and Kibenge, M.J.T. 2011. Laboratory issues – Aquatic animal disease, diagnosis, and global trends. OIE Global Conference On Aquatic Animal Health Programmes: Their Benefits For Global Food Security, Panama City, Panama, June 28-30, 2011.  
[http://www.oie.int/eng/A\\_aquatic/themes.htm](http://www.oie.int/eng/A_aquatic/themes.htm).
12. **Kibenge, F.S.B.**, Godoy, M.G., Wang, Y., Kibenge, M.J.T., and Gherardelli, V. 2009. Phylogeography of infectious salmon anaemia virus (ISAV). *World Association of Veterinary Laboratory Diagnosticians-14th International Symposium, Madrid, Spain, 17-20 June 2009*.
11. **Kibenge, F.S.B.** 2006. Distinguishing between different virus species and different strains of a viral species. Special Workshop on viral strain differentiation and listing and notification of diseases by strain/genotype. *1<sup>st</sup> International Conference of OIE Reference Laboratories and Collaborating Centres, Florianopolis, Brazil, December 3-5, 2006*.

(d) **Abstracts** (2005-2011)

102. **Kibenge, F.S.B.**, Olmos, P., Almonacid, J., Gherardelli, V., Gaggero, A., Kibenge, M., Avendano-Herrera, R., and Godoy, M. 2010. Observations on the behaviour of Chilean strains of infectious salmon anaemia virus in cell culture (Poster). *OIE International Symposium on Infectious Salmon Anaemia, Oslo, Norway, September 13-15, 2010*.
101. **Kibenge, F.**, Kibenge, M., Simard, S., Riveroll, A., Pallapothu, M., and Salonijs, K. 2009. Development of a DIVA system for an infectious salmon anaemia (ISA) virus vaccine using a qRT-PCR test based on segment 6 of the ISA virus. *14<sup>th</sup> European Association of Fish Pathologists International Conference on Diseases of Fish and Shellfish, Prague, Czech Republic, September 14-19, 2009*.
100. Parmley J., Soos, C., McAloney K., Pollard, B., **Kibenge, F.S.B.**, Jenkins, E., and Leighton, F.A. 2008. Impact of trapping method on detection of avian influenza viruses among wild ducks in Atlantic Canada. *57<sup>th</sup> Annual International Conference of the Wildlife Disease Association, Edmonton, Alberta, August 3-8. Abstract no. 67*.
99. **Kibenge, F.S.B.** 2008. Infectious salmon anaemia virus (ISAV) phenomics. 2008 Annual Meeting of the Fish Health Section of the American Fisheries Society, July 9-12, 2008, University of Prince Edward Island, Charlottetown, PEI, Canada.
98. Workenhe S.T., Kibenge, M.J.T., Wright, G.M., Wadowska, D.W., Groman, D.B., and **Kibenge, F.S.B.** 2008. Infection of fish red blood cells by infectious salmon

anaemia virus. American Fisheries Society, Fish Health Section Annual Conference, Charlottetown, PEI. Annual Meeting of the Fish Health Section of the American Fisheries Society, University of Prince Edward Island, Charlottetown, PEI, Canada. July 9-12, 2008,

97. **Kibenge, F.S.B.** 2008. The Phylogeography of infectious salmon anaemia virus. International ISA workshop in Chile, Puerto Montt, June 06, 2008, sponsored by Marine Harvest, Puerto Montt, Chile.
96. **Kibenge, F.S.B.** 2008. Molecular epidemiology of infectious salmon anaemia virus in Chile. International ISA-PD workshop in Chile, Puerto Montt, June 06, 2008, sponsored by Biovac, Puerto Montt, Chile.
95. **Kibenge, F.S.B.** 2008. Diagnostic considerations of infectious salmon anaemia virus using molecular biology techniques. International ISA-PD workshop in Chile, Puerto Montt, June 06, 2008, sponsored by Biovac, Puerto Montt, Chile.
94. **Kibenge, F.S.B.**, Kibenge, M.J.T., Wang, Y., Qian, B., Hariharan, S., and McGeachy, S. 2007. Molecular correlates of ISAV virulence. *32<sup>nd</sup> Eastern Fish Health Workshop, Gettysburg, Pennsylvania, June 18-22, 2007.*
93. Burka, J.F., Tribble N.D., MacDonald N.C., and **Kibenge, F.S.B.** 2007. Potential resistance mechanisms by sea lice *Lepeophtheirus salmonis* to avermectins. *Sea Lice Workshop, Aquaculture, San Antonio, TX, March 1, 2007.*
92. Young, P., **Kibenge, F.S.B.**, and Burka, J.F. 2007. Binding characteristics of emamectin benzoate to GABA- and glutamate-gated chloride channels of sea lice (*Lepeophtheirus salmonis*). *APICS Aquaculture Conference, Saint John, NB, March 3, 2007.*
91. **Kibenge, F.S.B.**, Kibenge, M.J.T., Wang, Y., Qian, B., Hariharan, S., and McGeachy, S. 2006. Correlates of virulence of infectious salmon anaemia virus. *1<sup>st</sup> OIE Global Conference on Aquatic Animal Health, Bergen, Norway, October 9-12, 2006.*
90. Kibenge, M.J.T., Wang, Y., Qian, B., McGeachy, S., and **Kibenge, F.S.B.** 2006. Virulence phenotypes of infectious salmon anaemia virus (ISAV). *5th International Symposium on Aquatic Animal Health, San Francisco, California, September 2-6, 2006.*
89. Burka, J.F., Tribble, N.D., and **Kibenge, F.S.B.** 2006. Resistance mechanisms by sea lice *Lepeophtheirus salmonis* to avermectins. *5th International Symposium on Aquatic Animal Health, San Francisco, California, September 2-6, 2006.*
88. Kibenge, M.T., Qian, B., Hariharan S., and **Kibenge, F.S.B.** 2005. Identification of a new HPR group of infectious salmon anaemia virus in New Brunswick: What does it

mean? *30th Annual Eastern Fish Health Workshop, Shepherdstown, West Virginia, June 13-17, 2005.*

87. Kibenge, M.T., Qian, B., Hariharan S., and **Kibenge, F.S.B.** 2005. Identification of a new HPR group of infectious salmon anaemia virus in New Brunswick. *Annual Meeting of the Canadian Society of Microbiologists, Halifax, Nova Scotia, June 12-15, 2005.*
86. Tribble, N.D., Burka, J.F., **Kibenge, F.S.B.**, Westcott, J., Hammell, L., MacDonald, N. 2005. Mechanisms of resistance development to emamectin benzoate SLICE in sea lice. *International Marine Biotechnology Conference, St. John's, Newfoundland, June 7-12, 2005.*
85. Tribble, N.D., Burka, J.F., **Kibenge, F.S.B.** 2005. Identification of ABC transporters in sea lice (*Lepeophtheirus salmonis*). *International Marine Biotechnology Conference, St John's, Newfoundland, June 7-12, 2005.*
84. Farid, A, Benkel, B.F., **Kibenge, F.S.B.**, Finley, G.G., and Ferns, L.E. 2005. Identification of strains of Aleutian mink disease in Nova Scotia; Preliminary results. *EAAP Annual Meeting, Uppsala, Sweden, June 5-8, 2005.*

(e) **Theses Supervised** (2005-2011)

21. Workenhe, S.T. 2009. Molecular interaction of infectious salmon anaemia virus and the Atlantic salmon innate immune system. *PhD Thesis, University of Prince Edward Island.*
20. MacWilliams, C.K. 2009. Pathogenesis of infectious salmon anaemia virus (ISAV) in rainbow trout (*Oncorhynchus mykiss*). *MSc Thesis, University of Prince Edward Island.*
19. Young, P. 2008. The binding characteristics of emamectin benzoate to the GABA receptors and glutamate-gated chloride channels of *Lepeophtheirus salmonis* (Krøyer). *MSc Thesis, University of Prince Edward Island.*
18. Munir, K. 2007. Detection and typing of infectious salmon anaemia virus, an orthomyxovirus by real-time RT-PCR. *PhD Thesis, University of Prince Edward Island.*
17. Tribble, N. 2007. Investigation into potential emamectin benzoate resistance mechanisms in sea lice *Lepeophtheirus salmonis*. *PhD Thesis, University of Prince Edward Island.*

**9. PRESENTATIONS:**

**Professional Presentations - Invited (2005-2011)**

42. **Kibenge, F.S.B.**, Godoy, M.G., and Kibenge, M.J.T. 2011. Laboratory issues – Aquatic animal disease, diagnosis, and global trends. OIE Global Conference On Aquatic Animal Health Programmes: Their Benefits For Global Food Security, Panama City, Panama, June 28-30, 2011.
41. Kibenge, M.J.T., Godoy, M.G., Wang, Y., Gherardelli, V., Olmos, P., and **Kibenge, F.S.B.** 2010. Tracing the spread of ISAV by use of genotypically assigned types. *First Chilean Biosecurity Conference in Salmon Farming, Puerto Montt, Chile, October 18-19, 2010.*
40. Rimstad, E., Falk, K., Mjaaland, S., and **Kibenge, F.S.B.** 2010. Characterization of infectious salmon anaemia virus (Plenary). *OIE International Symposium on Infectious Salmon Anaemia, Oslo, Norway, September 13-15, 2010.*
39. **Kibenge, F.S.B.** 2010. Virus-host interactions of infectious salmon anaemia virus, an orthomyxovirus of fish. *PROYECTO FIP 2008-66 Workshop, Bivalve molluscs and copepods as possible vectors of high risk diseases in salmonids, Valparaiso, Chile, August 18, 2010*, sponsored by Pontificia Universidad Catolica de Valparaiso, Chile.
38. **Kibenge, F.S.B.** 2010. Salmon farming in the marine virus environment. *PROYECTO FIP 2008-66 Workshop, Bivalve molluscs and copepods as possible vectors of high risk diseases in salmonids, Valparaiso, Chile, August 18, 2010*, sponsored by Pontificia Universidad Catolica de Valparaiso, Chile.
37. **Kibenge, F.S.B.** 2010. Infectious salmon anaemia virus in Rainbow trout under controlled conditions. *Puerto Varas, Chile, July 9, 2010*, sponsored by Aquagestion S.A., Puerto Montt, Chile.
36. **Kibenge, F.S.B.** 2010. Solving a fish mystery : The origin of ISA in Chile. *Puerto Varas, Chile, July 9, 2010*. sponsored by Aquagestion S.A., Puerto Montt, Chile.
35. **Kibenge, F.S.B.** 2010. Meaning of presence of ISAV HPR0 group, world situation. *Background to manage Chile ISAV-HPR0, Puerto Montt, Chile, July 9, 2010*. sponsored by Aquagestion S.A., Puerto Montt, Chile.
34. Godoy, M and **Kibenge, F.S.B.** 2008. Status of ISA in the world, impact in fresh water production. Second Freshwater conference, Chile2008, Organized by Skretting, November 14, 2008.
33. **Kibenge, F.S.B.** 2009. A Global Reference Laboratory for Infectious Salmon Anaemia. 8th Annual Meeting of the Canadian Animal Health Laboratorians Network (CAHLN) June 7-10, 2009, University of Prince Edward Island, Charlottetown, PEI, Canada.

32. Godoy, M and **Kibenge, F.S.B.** 2008. Status of ISA in the world, impact in fresh water production. Second Freshwater conference, Chile2008, Organized by Skretting, November 14, 2008.
31. **Kibenge, F.S.B.** 2008. The Phylogeography of infectious salmon anaemia virus. International ISA workshop in Chile, Puerto Montt, June 06, 2008, sponsored by Marine Harvest, Puerto Montt, Chile.
30. **Kibenge, F.S.B.** 2008. Infectious salmon anaemia virus (ISAV) phenomics. 2008 Annual Meeting of the Fish Health Section of the American Fisheries Society, July 9-12, 2008, University of Prince Edward Island, Charlottetown, PEI, Canada.
29. **Kibenge, F.S.B.** 2008. Molecular epidemiology of infectious salmon anaemia virus in Chile. International ISA-PD workshop in Chile, Puerto Montt, June 06, 2008, sponsored by Biovac, Puerto Montt, Chile.
28. **Kibenge, F.S.B.** 2008. Diagnostic considerations of infectious salmon anaemia virus using molecular biology techniques. International ISA-PD workshop in Chile, Puerto Montt, June 06, 2008, sponsored by Biovac, Puerto Montt, Chile.
27. Godoy, M., and **Kibenge, F.S.B.** 2007. ISA-v presence in Chile: Comparative analysis of strains and pathogenicity. ISA workshop in Chile, Puerto Varas, November 19-20, 2007, organized by The Chilean Salmon Industry Association A.G. – Intesal-SalmonChile- and the National Service of Fishing – Sernapesca.
26. **Kibenge, F.S.B.** 2007. ISA-v research and impacts on salmon farming in Canada. ISA workshop in Chile, Puerto Varas, November 19-20, 2007, organized by The Chilean Salmon Industry Association A.G. – Intesal-SalmonChile- and the National Service of Fishing – Sernapesca.
25. **Kibenge, F.S.B.** 2007. Canadian regulation to control ISA-v. ISA workshop in Chile, Puerto Varas, November 19-20, 2007, organized by The Chilean Salmon Industry Association A.G. – Intesal-SalmonChile- and the National Service of Fishing – Sernapesca.
24. **Kibenge, F.S.B.** 2007. Presentation of infectious salmon anaemia virus in Canada. ISAV International Symposium in Chile, Puerto Varas, August 3, 2007, organized by Aquagestión-Fundación Chile, Puerto Montt, CHILE.
23. **Kibenge, F.S.B.** 2007. Methods of diagnosis of ISAV. ISAV International Symposium in Chile, Puerto Varas, August 3, 2007, organized by Aquagestión-Fundación Chile, Puerto Montt, CHILE.
22. **Kibenge, F.S.B.** Long-term vision for the Department of Pathology and Microbiology. Candidate for Chair of Department. University of Prince Edward

Island, Atlantic Veterinary College, February 20, 2006.

21. **Kibenge, F.S.B.** A Peer's Perspective of the NSERC Strategic Project Grants Program. Information session: Strategic Project Grants – New Target Areas. Organized by NSERC Atlantic Regional Office, and held at UPEI, February 9, 2006.
20. **Kibenge, F.S.B.** Correlates of virulence of infectious salmon anaemia virus (ISAV). National Veterinary Institute, Oslo, Norway, June 8, 2005.
19. Science and Engineering Research Canada, NSERC Workshop B – Identifying opportunities for partnerships and proposals: Presented a case study of NSERC University-industry partnerships. NSERC Atlantic Regional Office, Scientific Park, Moncton, NB, May 13, 2005.
18. Science and Engineering Research Canada, NSERC Workshop B – Identifying opportunities for partnerships and proposals: Presented a case study of NSERC University-industry partnerships. Atlantic Technology Centre, Charlottetown, PEI, May 12, 2005.

#### **10. PROFESSIONAL MEMBERSHIPS AND ACTIVITIES: (2005-2011)**

Expert Member, Panel Review, The Research Council of Norway for Applications submitted to Aquaculture program (HAVBRUK), September-October 2011.

External Examiner for the PhD Thesis "Chicken infectious anemia virus vaccination induces immune disorders and viral persistency in infectious bursal disease virus-infected young chicks" by Assad Vaziry, Department of Microbiology and Immunology, Faculty of Veterinary Medicine, University of Montreal, St. Hyacinthe, Quebec, 2010.

OIE Delegate to 2<sup>nd</sup> *International Conference of OIE Reference Laboratories and Collaborating Centres, Paris, France, June 20-23, 2010.*

External Examiner for the PhD Thesis "Improved Methods for Production and Characterisation of Jembrana Disease Virus Proteins" by Judhi Rachmat, Murdoch University, Perth, Western Australia, May, 2010.

External Examiner for the PhD Thesis "Structure function studies on the nucleocapsid protein of arteriviruses" by Hakimeh Mohammadi, Department of Pathobiology, Ontario Veterinary College, University of Guelph, Guelph, Ontario, January 14, 2010.

Non-Committee Member on Examination Committee of PhD Qualifying Examination of M. Alexandra (Alex) Reid, Department of Pathobiology, Ontario Veterinary College, University of Guelph, October 16-23, 2009.

Member of Panel of Experts for Evaluation of Faculty Member, Department of Microbiology, for the post of Professor (Tenure Track System) Microbiology. University of Agriculture, Faisalabad, Pakistan, September 28, 2009.

External Examiner for the PhD Thesis “Epidemiology of foot and mouth disease in buffaloes of Punjab Province” by Ms. Farhat Nazir Awan, Department of Microbiology, University of Veterinary & Animal Sciences, Lahore, Pakistan, August 22, 2009.

External Examiner for the PhD Thesis “Effect of various stress factors on the immune response of broilers” by Mr. Muhammad Yasser Mustafa Butt, Department of Microbiology, University of Veterinary & Animal Sciences, Lahore, Pakistan, August 08, 2009.

External Referee for Faculty Member, School of Public Health, University of Saskatchewan, for promotion to Full Professor rank. University of Saskatchewan, March 20, 2009.

External Examiner for the PhD Thesis “Effect of supplementing dietary sources of n-3 fatty acids and vitamin A on laying performance, egg quality and immune response in laying hens” by Mr. Shakeel Ahmad, University of Agriculture, Faisalabad, Pakistan, January 24, 2009.

Regional Editor, Member of Editorial Board of Pakistan Journal of Life and Social Sciences ([http://www.pjlss.edu.pk/editorial\\_board.htm](http://www.pjlss.edu.pk/editorial_board.htm)), July 18, 2008 to present.

External Referee for Faculty Member, School of Public Health, University of Saskatchewan, for promotion to Full Professor rank. University of Saskatchewan, June 09, 2008.

External Examiner for the PhD Thesis “Field trials of gametocytes vaccine (Local Isolate) and its comparative efficacy with imported vaccine against coccidiosis in poultry” by Mr. Muhammad Irfan Anwar, University of Agriculture, Faisalabad, Pakistan, May 28, 2008.

External Examiner for the PhD Thesis "Latent Equine Herpesvirus Infections in Horses" by Hazilah Hamzah, Murdoch University, Perth, Western Australia, May, 2008.

Canadian Collaborator on an International Science and Technology Center (ISTC) project “Epidemiological Monitoring of Avian Flu Virus Circulation in Nature, an Estimation of Biological Danger of the Pestholes in Kyrgyzstan”. The project is funded by the Department of Foreign Affairs and International Trade (DFAIT) through ISTC in Moscow.

Member, *ad hoc* group for the Norwegian Scientific Committee for Food Safety-Panel on Animal Health and Welfare (concerning risk assessment of infectious salmon anaemia), July-December 2006.

Member, Strategic Projects Selection Panel – Quality Foods and Novel Bioproducts at NSERC, July 12, 2006 - March 31, 2009.

External Examiner for the PhD Thesis “Adaptation of a local wild infectious bursal disease virus on chicken embryo fibroblast cell culture and evaluation of the adapted virus as vaccine in chickens” by Muhammad Azhar Khan, University of Agriculture, Faisalabad, Pakistan, May 20, 2006.

Member, Canada’s Avian Influenza Virus Laboratory Network (under the National Centre for Foreign Animal Disease, CFIA), December 2005-present.

External Examiner for the PhD Thesis “Development of infectious bursal disease vaccine on Vero cell line using the indigenous virus” by Muhammad Hidayat Rasool, University of Agriculture, Faisalabad, Pakistan, January 31, 2006.

External Examiner for the PhD Thesis “Characterization of major structural proteins of infectious salmon anaemia virus (ISAV)” by Vidar Teis Aspehaug, University of Bergen, Bergen, Norway, June 10, 2005.

Member of the European Food Safety Authority (EFSA)’s Expert Database, September 2009-present.

OIE Expert, OIE Reference Laboratory for Infectious Salmon Anaemia, May 2004-present.

- Annual Reports of OIE Reference Laboratories and Collaborating Centres, 2010.
- Annual Reports of OIE Reference Laboratories and Collaborating Centres, 2009.
- Annual Reports of OIE Reference Laboratories and Collaborating Centres, 2008.
- Annual Reports of OIE Reference Laboratories and Collaborating Centres, 2007.
- Annual Reports of OIE Reference Laboratories and Collaborating Centres, 2006.
- Annual Reports of OIE Reference Laboratories and Collaborating Centres, 2005.
- Annual Reports of OIE Reference Laboratories and Collaborating Centres, 2004.

Member of the RTI Genes, Cells and Molecules Evaluation (1501) Group and Biological Systems and Functions Group (1502) at NSERC, November 2011.

Member, Scholarships and Fellowships Selection Committee in Cell and Molecular Biology (Committee 187) at NSERC, November 2003-June 2005.

International Committee for Taxonomy of Viruses (ICTV) Birnavirus study group (since 1990).