

CURRICULUM VITALE

Personal information

Name: Marit Seppola
Nationality: Norwegian
Present position: Scientist at Nofima Marin, Muninbakken 9-13, 9291 Tromsø, Norway
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Languages: Norwegian and English

Education

2004-2008 PhD, University of Tromsø, Thesis title “Genes involved in the innate immunity of Atlantic cod”.
2004 Licence for performing animal experiments, University of Tromsø.
2004 Introduction to bioinformatics, University of Tromsø.
2004 Comparative immunology, University of Tromsø.
2001 Project management, Norwegian School of Management (BI).
1999 Immunology, University of Tromsø.
1994-1998 Master of science, University of Tromsø, Title “Antibacterial polypeptide chlamysin B: recombinant production in *Esheria coli*.
1993-1994 Electrical Engineering, Narvik University College.

Professional experience

1999- Scientist II, Nofima Marin.
1995-1998 Short engagements as engineer, research technician, scientific assistant.

Participation in scientific projects

2009-2010 Vibriosis and furunculosis for Atlantic cod: efficacy, protective antigens and specific immune responses (CodVacc)
2008-2011 Indo-Norwegian platform on fish and shellfish vaccine development (VaccInAqua)
2009-2009 *Francisella piscicida* in Atlantic cod: Characterisation of infection and development of test vaccines.
2009-2009 The effect of adjuvans on the innate immune response in Atlantic cod.
2008-2009 Lysozyme activity in different Atlantic salmon tissues.
2008-2008 Development of a challenge model for Francisellosis
2008- 2011 Identification of key antiviral and inflammatory modulators in Atlantic cod.
2007-2009 Characterisation of *Piscirickettsia salmonis* infection and technology development for optimal vaccines against intracellular fish pathogens.
2007-2009 Development of markers for sex determination in Atlantic cod.
2007-2008 Establishment of methods to the development of sterile farmed Atlantic cod.
2004-2008 Defence genes and immune mechanisms against viral and bacterial diseases of Atlantic cod.
2001-2004 Development of genetic methods for the identification and quantification of fish and seafood.
2000-2002 Evaluation of *Carnobacteria* as inhibitory agent and its potential in biopreservation of seafood.
1999-2000 Genetic variability among isolates of *Listeria monocytogenes* from food products, clinical samples and processing environments.

International papers

2009 **Seppola, M.**, Johansen, L. H., Mikkelsen, H. The innate immune response to *Francisella piscicida* infection in Atlantic cod cells, In prep.
2009 Myrnes, B., **Seppola, M.**, Johansen, A., Michiels, C., Nilsen, I.W. Comparison of lysozyme activity and gene expression in Atlantic salmon tissues. In prep.
2009 Jensen, I., **Seppola, M.**, Mennen, S., Sommer, A-I. Susceptibility of Atlantic cod (*Gadus morhua* L.) fry to experimental challenge with different strains of infectious pancreatic necrosis virus (IPNV). In prep.
2009 Jensen, I., Steiro, K., **Seppola, M.**, Mennen, S., Sommer, A-I. Establishment of a continuous cell line from Atlantic cod (*Gadus morhua* L.). In prep.
2009 Johnsen, H. **Seppola, M.**, Delgandhi, M., Andersen Ø. Molecular characterisation and expression analysis of the *Dmrt1* gene in Atlantic cod (*Gadus morhua* L.). Submitted to Comparative Biochemistry and Physiology (first author in maternity leave).
2009 Furnes, C., Kileng, Ø., Rinaldo, C.H., **Seppola, M.**, Jensen, I., Robertsen, B. Atlantic cod (*Gadus morhua* L.) possesses three homologues of ISG15 with different expression kinetics and

- conjugation properties. *Developmental and Comparative Immunology*. In press, [doi:10.1016/j.dci.2009.07.005](https://doi.org/10.1016/j.dci.2009.07.005)
- 2009 **Seppola, M.**, Johnsen H., Mennen, S., Myrnes, B., Tveiten, H. Maternal transfer and transcriptional onset of immune genes during ontogenesis in Atlantic cod. *Developmental and Comparative Immunology* (2009) 33:1205-1211
- 2009 Jensen I., **Seppola M.**, Steiro K., Sandaker E., Mennen S., Sommer A. I. Susceptibility of Atlantic cod (*Gadus morhua* L.) juveniles to different ways of experimental challenge with infectious pancreatic necrosis virus (IPNV). *Diseases of Aquatic Organisms* (2009) 85:105-113
- 2009 Furnes, C., **Seppola, M.** Robertsen B. Identification and expression analysis of interferon gamma gene in Atlantic cod (*Gadus morhua* L.). *Fish and Shellfish Immunology* (2009) 26(2):285-92.
- 2009 Larsen, A.N., Solstad, T., Svineng, G., **Seppola, M.**, Jørgensen, T.Ø. Molecular characterisation of a goose-type lysozyme gene in Atlantic cod (*Gadus morhua* L.). *Fish and Shellfish Immunology* (2009) 26(1):122-32
- 2008 Solstad T., Larsen, A.N., **Seppola, M.**, Jørgensen, T.Ø. Identification, cloning and expression of a hepcidin-cDNA of the Atlantic cod (*Gadus morhua* L.). *Fish and Shellfish Immunology* (2008) 25(3):298-310
- 2008 **Seppola M.**, Larsen A.N., Steiro K., Robertsen B., Jensen I. Characterisation and expression analysis of the interleukin genes, IL-1 β , IL-8 and IL-10, in Atlantic cod (*Gadus morhua* L.). *Molecular Immunology* (2008) 45(4):887-897
- 2007 **Seppola M.**, Robertsen B., Jensen I. The gene structure and expression pattern of the non-specific cytotoxic cell receptor (NCCRP-1) in Atlantic cod (*Gadus morhua* L.). *Comparative Biochemistry and Physiology, Part B* (2007) 147(2):199-208
- 2007 **Seppola M.**, Stenvik J., Solstad T., Steiro K., Robertsen B., Jensen I. Sequence and expression analysis of an interferon stimulated gene (ISG15) from Atlantic cod (*Gadus morhua* L.). *Developmental and Comparative Immunology* (2007) 31:156-171
- 2006 **Seppola M.**, Olsen R.E., Sandaker E., Kanapathippillai P., Holzapfel W. Ringø E. Random amplification of polymorphic DNA (RAPD) typing of carnobacteria isolated from hindgut chamber and large intestine of Atlantic cod (*Gadus morhua* L.). *Systematic and Applied Microbiology* (2006) 29:131-137
- 2003 Martinez I., Rørvik L.M., Brox V., Lassen J., **Seppola M.**, Gram L., Fønnesbech-Vogel B. Genetic variability among isolates of *Listeria monocytogenes* from food products, clinical samples and processing environments, estimated by RAPD-typing. *International Journal of Food Microbiology* (2003) 84:285-297
- 2002 Ringø E., **Seppola M.**, Berg A., Olsen R.E., Schillinger U., Holzapfel W. Characterization of *Carnobacterium divergens* strain 6251 isolated from intestine of Arctic charr (*Salvelinus alpinus* L.). *Systematic and Applied Microbiology* (2002) 25:120-129
- 2001 Ringø E., Wesmajervi M.S., Bendiksen H.R., Berg A., Olsen R.E., Johnsen T., Mikkelsen H., **Seppola M.**, Strøm E., Holzapfel W. Identification and characterization of carnobacteria isolated from fish intestine. *Systematic and Applied Microbiology* (2001) 24:183-191
- 2001 Martinez I, Friis T.J., **Seppola M.** Requirements for the application of protein SDS-PAGE and RAPD analysis to product specification. *Electrophoresis* (2001) 22:1526-1533

Presentation at national and international meetings

- 2009 Mennen, S., Johnsen H., **Seppola, M.** Deler av immunforsvaret aktiveres ved et tidlig utviklingsstadium av torsk, Frisk Fisk, Bergen, Norway.
- 2009 **Seppola, M.**, Steiro, K., Mennen, S., Jensen I. Studier av gener involvert i det medfødte immunforsvaret i torskeceller, Frisk Fisk, Bergen, Norway.
- 2008 **Seppola, M.**, Steiro K., Mennen, S., Sandaker, E., Sommer, A-I., Jensen, I. Gene expression and viral infection studies of Atlantic cod cells, International Conference on Fish Diseases and Fish Immunology, Iceland.
- 2008 Mennen, S., Johnsen, H., **Seppola, M.** The ontogeny of immune genes in Atlantic cod, International Conference on Fish Diseases and Fish Immunology, Iceland.
- 2008 Johansen, L-H., **Seppola, M.**, Bordevik, M., Frøystad Saugen, M. Immune gene expression in Atlantic salmon macrophages after *Piscirickettsia salmonis* infection, International Conference on Fish Diseases and Fish Immunology, Iceland.
- 2008 Johnsen H., **Seppola M.**, Delghandi M. Sex determination in Atlantic cod, molecular cloning and characterisation of the *Dmrt1* gene, Sats på torsk, Tromsø, Norway.
- 2007 **Seppola M.**, Larsen A. N., Steiro K., Robertsen B., Jensen I. Expression analysis of genes involved in the inflammatory response in Atlantic cod-IL-1 β , IL-8 and IL-10. European association of fish pathologists (EAFP), Grado, Italia.

- 2007 Furnes C., Rinaldo H. R., **Seppola M.**, Robertsen B. Forsvarsgener mot virussykdommer hos atlantisk torsk. Frisk fisk konferansen. Tromsø, Norway.
- 2007 Jensen I., Mennen S., Steiro K., **Seppola M.**, Sommer A. I. Torskelarver på plast blir cellefabrikk. Frisk fisk konferansen, Tromsø, Norway.
- 2006 **Seppola M.**, Stenvik J., Steiro K., Robertsen B., Jensen I. Sekvens og ekspresjonsanalyse av et interferon stimulert gen (ISG15) fra torsk (*Gadus morhua* L). Havbrukskonferansen, Bergen, Norway
- 2005 **Seppola M.**, Stenvik J., Rinaldo C.H., Robertsen B., Jensen I. Genomic organization and quantitative realtime PCR of ISG15 in Atlantic cod (*Gadus morhua* L). European association of fish pathologists (EAFP), Copenhagen, Denmark.
- 2000 Martinez I., Friis T.J., **Seppola M.** Product speciation by SDS-PAGE of proteins and RAPD methodologies: conditions and requirements. International Congress on Authenticity of Species in Meat and Seafood Products, Vigo, Spain

Project applications

Tveiten, H., Andersen, Ø, Seppola, M. The development of sterile Atlantic cod. Søknad til forskningsrådet 06.06 2008. Innvilget

Seppola M., Johansen L-H., Bordevik, M, Mikkelsen, H. Characterisation of *Francisella piscicida* infection Atlantic cod cells. MABIT søknad, innvilget 2008.

Seppola M., Toften H, Aas-Hansen Ø, Kvamme B. O, Mikkelsen H. The impact of intensive production to stress responses, welfare and health in Atlantic cod. Søknad til forskningsrådet 06.06 2008. Ikke innvilget

Seppola, M. Pathogen dissemination mechanisms used to subvert the immune response in Atlantic cod. Søknad til forskningsrådet 06.06 2008. Ikke innvilget

Toften H, Seppola M., Damsgård B., Aas-Hansen Ø., Jørgensen E., Brown L., Taranger G. L., Kvamme B. O., Mikkelsen H., Sundell K. Cross-talk within the immune-endocrine systems:-Environmental stressors, welfare and disease resistance in farmed fish. Søknad til forskningsrådet 10.06 2007, Avslag.

Jensen I., Seppola M., Sommer A. I. Identification of key antiviral and inflammatory modulators in Atlantic cod (*Gadus morhua* L.). Søknad til FUGE 2007. Innvilget

Stenklev N. C., Aas-Hansen Ø., Seppola M., Fagerheim T., Laukli E. Regeneratory properties of hair cells in the inner ear of the Atlantic cod (*Gadus morhua*) Prosjektsøknad til et lokalt fond, 2008. Ikke innvilget

Stenklev N. C., Aas-Hansen Ø., Seppola M., Fagerheim T., Laukli E. Regeneratory properties of hair cells in the inner ear of the Atlantic cod (*Gadus morhua*) Prosjektsøknad til Neuronor, forskningsrådet, 2007. Ikke innvilget

Toften H, Damsgård B., Aas-Hansen Ø., Stenvik J., Seppola M., Jørgensen E., Brown L., Balfry S. Interactions between marine environmental stressors, immune defence mechanisms and production diseases in Atlantic cod. Prosjektsøknad til forskningsrådet 15.06.06. Ikke innvilget

Seppola M. Rensing og karakterisering av antimikrobielle komponenter fra *Carnobacterium* sp. Prosjektsøknad til MABIT 13.06.03. Ikke innvilget

Seppola M. Identification of biopreservative *Carnobacterium* sp. for improved food safety- Evaluation of *Carnobacterium* as inhibitory agent and its potential in biopreservation of seafood. Prosjektsøknad til MABIT 26.09.01. Innvilget

Administrative tasks

- 2006-2008 Member of the Functional Genomics specialist council of Northern Norway
- 2006- Member of the council in the local work organisation "Forskerforbundet"

Others

- Referee for: Comparative Biochemistry and Physiology
Animal Breeding and Genetics
Molecular Biology Reports
Fish and shellfish Immunology

Sensor for the PhD course comparative immunology 2008

References

Erling Sansdalen, Norut

Guro M. Pedersen, DNV

Børre Robertsen, Norwegian Collage of Fishery Science