WORKSHOP

Proliferativ gjellesykdom i sjøgående oppdrettslaks

7 nov. 2012

Veterinærinstituttet i samarbeid med FHF

-utveksling av ideer og erfaringer

Velkommen!

Veterinærinstituttet
National Veterinary Institute

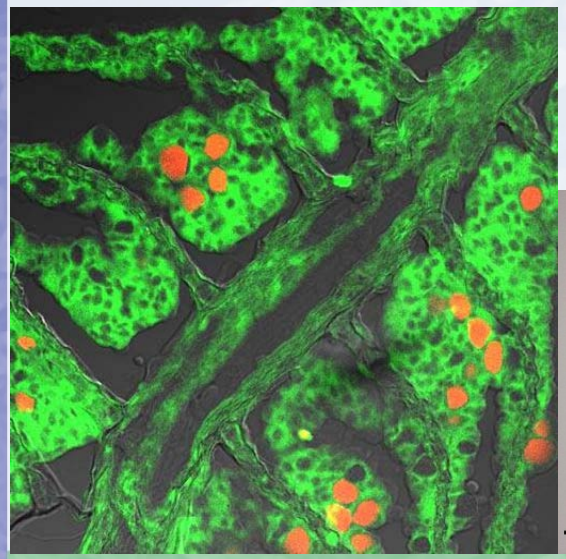
FHF

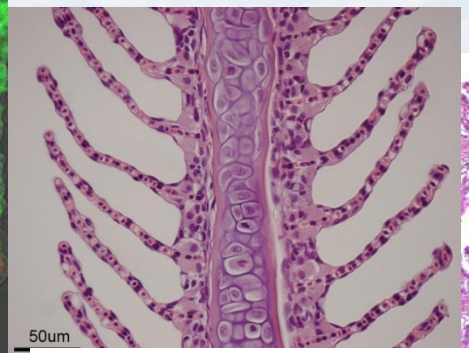
Proliferativ gjellesykdom hos laks i sjø: Patologiske, molekylærbiologiske og epidemiologiske studier

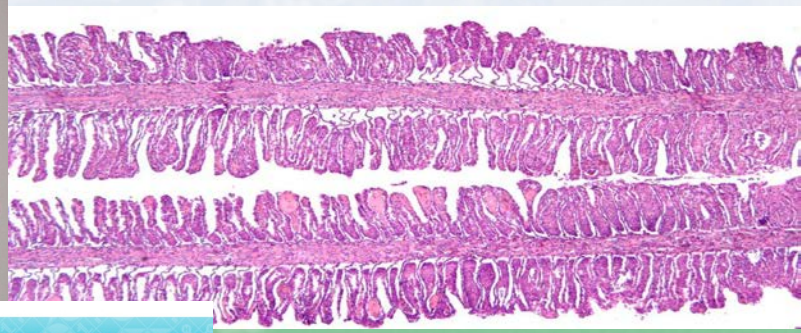
Proliferative gill disease in sea-farmed salmon:
Pathological, molecular biological and epidemiological studies

FHF/VI prosjekt 900800

2012-2014







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- Project steering group
  - Eirik Hoel (Marine harvest)
  - Arne Guttvik (Salmar)
  - Asgeir Østvik (Havbrukstjenesten)
  - Atle Lillehaug (Veterinærinstituttet)

- Project staff
  - Anne Gerd Gjevre (Prosjektleder)
  - Duncan Colquhoun (Bacteriology)
  - Terje Steinum (Molecular biology)
  - Mona Gjessing (Pathology)
    - Kai-Inge Lie (VI, Sandnes)
    - Anne Berit Olsen (VI, Bergen)

Follow-up to previous PGI projects

- ‘Studies of risk factors associated with proliferative gill inflammation in seawater-reared Atlantic salmon’ NFR 163427 (2004 – 2005)
- ‘Proliferative gill inflammation in Atlantic salmon, identification of aetiology’ NFR 164771 (2005 – 2011)

Main results

- NFR 163427

  - Several risk-factors identified
    - Net cleaning (on cage)
    - Number of fish transferred to sea
    - Water quality (oxygen level, water movement)
    - Supplemental sea-water during FW phase reduced risk

    - Very complicated/difficult analysis….

NFR 164771

- Knowledge relating to gill-associated microflora
- 3 agents identified in association with PGI
  - *Dezmoozoon lepeoptherii*
  - *Piscichlamydia* salmonis
  - *Branchiomonas cysticola*

Publications….2008 - present

- Mitchell S.O., Steinum T., Toenshoff E.R., Kvellestad A., Falk K., Horn M. and Colquhoun D.J. (in press) '*Candidatus* Branchiomonas cysticola' an agent of epitheliocystis in sweater farmed atlantic salmon in Norway and Ireland. Journal of Fish Diseases.

- Toenshoff E., Kvellstad A., Mitchell S.O., Steinum T., Falk K., Colquhoun D.J. and Horn M. (2012) A novel betaproteobacterial agent of gill epitheliocystis in seawater farmed Atlantic salmon (*Salmo salar*). PLoS ONE. 7(3): e32696. doi:10.1111/j.1365-2761.2012.01349.x

- Steinum T. Kvellestad A., Colquhoun D.J., Heum M., Mohammad S., Nygaard Grøndtvedt and Falk K. (2010) Microbial studies of proliferative gill inflammation in Norwegian seawater reared Atlantic salmon. (Diseases of Aquatic Organisms). 91: 201-211

- Mitchell S.O., Steinum T., Holland C., Rodger H. and Colquhoun D.J. (2010) Epitheliocystis in Atlantic salmon, *Salmo salar* L., farmed in fresh water in Ireland is associated with "*Candidatus* Clavochlamydia salmonicola" infection. Journal of Fish Diseases. 33: 665-673.

- T. Steinum, K. Sjåstad, K. Falk, A. Kvellestad and D.J. Colquhoun. (2009). An RT PCR-DGGE survey of gill-associated bacteria in Norwegian seawater reared Atlantic salmon suffering proliferative gill inflammationAquaculture 293 (3-4) 172-179.

- Steinum T., Kvellestad A., Rønneberg L.B., Nilsen H., Asheim A., Fjell K., Nygaard S.M.R., Olsen A.B. and Dale O.B. (2008) First cases of amoebic gill disease (AGD) in Norwegian sewater farmed Atlantic salmon, Salmo salar L., and phylogeny of the causative amoeba using 18S cDNA sequences. Journal of Fish Diseases. 31(3): 205-214.

The new project

- Sample collection and analysis 2012-2013
  - Extensive pathology/histology- clinical cases
  - Molecular analysis quantification of
    - *D. lepeopthterii*
    - *P. salmonis*
    - *B. cysticola*
  - *In situ* hybridisation – pathogen/pathological change
  - Further develop scoring system for gill pathology
  - *In situ* characterisation of immune response
  - Infectious challenge – Kochs' postulates
  - Epidemiology
- Workshops- 2012 and 2013