Tine Moesgaard Iburg - DTU Orbit (23/11/2018)
Tine Moesgaard Iburg

Organisations

Senior Adviser, National Institute of Aquatic Resources
13/02/2018 → present
timi@aqua.dtu.dk
VIP

Veterinarian, National Veterinary Institute
15/06/2015 → present
timi@vet.dtu.dk
VIP

Public Sector Consultancy
20/06/2018 → present
VIP

Fish Diseases
17/01/2017 → present
VIP

Section for Public sector service and commercial diagnostics
04/02/2016 → 04/02/2016 Former
VIP

Section for Virology
12/08/2015 → 04/02/2016 Former
VIP

Research outputs:

Outbreak of viral haemorrhagic septicaemia (VHS) in lumpfish (Cyclopterus lumpus) in Iceland caused by VHS virus genotype IV
A novel viral haemorrhagic septicaemia virus (VHSV) of genotype IV was isolated from wild lumpfish (Cyclopterus lumpus), brought to a land-based farm in Iceland, to serve as broodfish. Two groups of lumpfish juveniles, kept in tanks in the same facility, got infected. The virus isolated was identified as VHSV by ELISA and real-time RT-PCR. Phylogenetic analysis, based on the glycoprotein (G) gene sequences, may indicate a novel subgroup of VHSV genotype IV. In controlled laboratory exposure studies with this new isolate, there was 3% survival in the I.P. injection challenged group while there was 90% survival in the immersion group. VHSV was not re-isolated from fish challenged by immersion. In a cohabitation trial, lumpfish infected I.P. (shedders) were placed in tanks with naïve lumpfish as well as naïve Atlantic salmon (Salmo salar L.). 10% of the lumpfish shedders and 43%-50% of the cohabiting lumpfish survived after 4 weeks. 80%-92% of the Atlantic salmon survived, but no viral RNA was detected by real-time RT-PCR nor VHSV was isolated from Atlantic salmon. This is the first isolation of a notifiable virus in Iceland and the first report of VHSV of genotype IV in European waters.

General information
State: Accepted/In press
Organisations: National Institute of Aquatic Resources, Public Sector Consultancy, Fish Diseases, University of Iceland
Contributors: Guðmundsdóttir, S., Vendramin, N., Cuenca, A., Sigurðardóttir, H., Kristmundsson, A., Moesgaard Iburg, T., Olesen, N. J.
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Publication information
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BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): CiteScore 1.82
Piscine orthoreovirus infection in Atlantic salmon (Salmo salar) protects against subsequent challenge with infectious hematopoietic necrosis virus (IHNV)

Infectious hematopoietic necrosis virus (IHNV) is endemic in farmed rainbow trout in continental Europe and in various salmonid fish species at the Pacific coast of North America. IHN has never occurred in European Atlantic salmon (Salmo salar) farms, but is considered as a major threat for the European salmon industry. Another virus, Piscine orthoreovirus
(PRV), is widespread in the sea phase of Atlantic salmon, and is identified as the causative agent of heart and skeletal muscle inflammation. The aim of this study was to investigate the interactions between a primary PRV infection and a secondary IHNV infection under experimental conditions. A PRV cohabitation challenge was performed with Atlantic salmon. At peak of PRV viremia the fish were challenged by immersion with an IHNV genogroup E isolate. Clinical signs and morbidity were monitored. Target organs were sampled at selected time points to assess viral loads of both pathogens. Antiviral immune response and presence of histopathological findings were also investigated. Whereas the PRV-negative/IHNV positive group suffered significant decrease in survival caused by IHNV, the PRV infected groups did not suffer any morbidity and showed negligible levels of IHNV infection. Antiviral response genes were induced, as measured in spleen samples, from PRV infected fish prior to IHNV challenge. In conclusion, PRV-infection protects Atlantic salmon against IHNV infection and morbidity, most likely by inducing a protective innate antiviral response.

**General information**
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**Publication information**
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BFI (2018): BFI-level 2
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BFI (2017): BFI-level 2
Scopus rating (2017): SJR 1.266 SNIP 1.139
Web of Science (2017): Impact factor 2.903
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): SJR 1.44 SNIP 1.303
Web of Science (2016): Impact factor 2.798
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): CiteScore 2.66 SJR 1.537 SNIP 1.153
Web of Science (2015): Impact factor 2.928
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): CiteScore 2.46 SJR 1.453 SNIP 1.423
Web of Science (2014): Impact factor 2.815
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): CiteScore 3.13 SJR 1.681 SNIP 1.701
Web of Science (2013): Impact factor 3.383
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): CiteScore 2.97 SJR 1.461 SNIP 1.45
Web of Science (2012): Impact factor 3.426
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): CiteScore 3.85 SJR 1.712 SNIP 1.655
Web of Science (2011): Impact factor 4.06
Local infusion of Staphylococcus aureus into the porcine internal carotid artery as a model of sepsis-related brain abscesses - A pilot study

Brain pathology is an important aspect of human sepsis but is difficult to study in human patients. Therefore, animal models of sepsis-related brain pathology are needed. As pigs mirror multiple aspects of sepsis-related brain pathology in humans, this makes the pig a potentially suitable model. Unfortunately, models of sepsis in pigs are difficult to manage due to the accompanying massive systemic inflammatory response. To overcome these difficulties we designed a model in pigs of brain bacteremia established by local brain infusion in order to evaluate if this approach could reduce the systemic responses but still reflect the brain pathology of sepsis in humans. As a pilot study to obtain basic knowledge, we evaluated two methods of local infusion: long term infusion (60 minutes) of Staphylococcus aureus suspended in saline and, short-term infusion (10 minutes) of S. aureus embedded in autologous microthrombi. The study revealed: 1) bacteria suspended in saline as well as embedded in microthrombi can pass through the rete mirabile and thereby cause local brain bacteremia; 2) despite the high dose of S. aureus used for infusion, only mild clinical signs developed; and 3) despite the mild clinical signs, one pig had developed a brain microabscess by 48 h after infusion. The brain pathology present in this pig thereby reflected human cases of S. aureus-sepsis with microabscess formation as the predominant lesion. In addition, the abscess morphology mirrored previously observed microabscesses in experimental porcine S. aureus sepsis models.
Modelling severe Staphylococcus aureus sepsis in conscious pigs: are implications for animal welfare justified?

A porcine model of haematogenous Staphylococcus aureus sepsis has previously been established in our research group. In these studies, pigs developed severe sepsis including liver dysfunction during a 48 h study period. As pigs were awake during the study, animal welfare was challenged by the severity of induced disease, which in some cases necessitated humane euthanasia. A pilot study was therefore performed in order to establish the sufficient inoculum concentration and application protocol needed to produce signs of liver dysfunction within limits of our pre-defined humane endpoints. Four pigs received 1 × 10^8 cfu/kg BW of S. aureus, and two controls were sham inoculated with saline. A fixed infusion rate of 3 mL/min was used, while the inoculum concentration, i.e., the dose volume, was changed between the pigs. The following dose volumes were used: 10 mL (n = 1), 20 mL (n = 2), and 30 mL (n = 1), corresponding to infusion durations of 3.33, 6.66, and 10 min at dose rates of 3 × 10^7, 1.5 × 10^7, and 1 × 10^7 cfu/min/kg BW, respectively. Blood samples were drawn for complete blood count, clinical chemistry, and inflammatory markers before and every 6 h after inoculation. Prior to euthanasia, a galactose elimination capacity test was performed to assess liver function. Pigs were euthanised 48 h post inoculation for necropsy and histopathological evaluation. While infusion times of 6.66 min, and higher, did not induce liver dysfunction (n = 3), the infusion time of 3.33 min (n = 1) caused alterations in parameters similar to what had been seen in our previous studies, i.e., increasing bilirubin and aspartate aminotransferase, as well as histopathological occurrence of intravascular fibrin split products in the liver. This pig was however euthanised after 30 h, according to humane endpoints. A usable balance between scientific purpose and animal welfare could not be achieved, and we therefore find it hard to justify further use of this conscious porcine sepsis model. In order to make a model of translational relevance for human sepsis, we suggest that future model versions should use long-term anaesthesia.

General information
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Publication information
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BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
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Scopus rating (2017): CiteScore 1.54 SJR 0.691 SNIP 0.801
Web of Science (2017): Indexed yes
Scopus rating (2016): CiteScore 1.29 SJR 0.662 SNIP 0.7
Web of Science (2016): Indexed yes
Scopus rating (2015): CiteScore 1.5 SJR 0.74 SNIP 0.757
Scopus rating (2014): CiteScore 1.43 SJR 0.669 SNIP 0.787
Web of Science (2014): Indexed yes
Scopus rating (2013): CiteScore 1.55 SJR 0.654 SNIP 0.759
ISI indexed (2013): ISI indexed no
Scopus rating (2012): CiteScore 1.55 SJR 0.616 SNIP 0.656
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Web of Science (2012): Indexed yes
Scopus rating (2011): CiteScore 1.67 SJR 0.66 SNIP 0.652
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Modelling_severe_Staphylococcus_aureus_sepsis_in_conscious_pigs.pdf
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Research output: Research - peer-review › Journal article – Annual report year: 2016

Activities:

DAFINET and ProFish Workshop
Period: 17 Nov 2015 → 18 Nov 2015
Tine Moesgaard Iburg (Participant)
National Veterinary Institute
Section for Virology

Related event
DAFINET and ProFish Workshop
17/11/2015 → 18/11/2015
København, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

Aquacel 2020: Kick off meeting 2015
Period: 1 Nov 2015 → 3 Nov 2015
Tine Moesgaard Iburg (Participant)
National Veterinary Institute
Section for Virology

Related event
Aquacel 2020: Kick off meeting 2015
01/11/2015 → 03/11/2015
Montpellier, France
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

EURL-Fish training course
Period: 12 Oct 2015
Tine Moesgaard Iburg (Organizer)
National Veterinary Institute
Related event

**EURL-Fish training course: Introduction to histopathology in fish diseases**
12/10/2015 → 15/10/2015
Copenhagen, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

**17th International Conference on Diseases of Fish and Shellfish**
Period: 7 Sep 2015 → 11 Sep 2015
Tine Moesgaard Iburg (Participant)
National Veterinary Institute

Related event

**17th International Conference on Diseases of Fish and Shellfish**
07/09/2015 → 11/09/2015
Las Palmas, Spain
Activity: Attending an event › Participating in or organising a conference

**19th Annual Workshop for national reference laboratories for fish diseases**
Tine Moesgaard Iburg (Participant)
National Veterinary Institute

Related event

**19th Annual Workshop for national reference laboratories for fish diseases**
27/05/2015 → 28/05/2015
Copenhagen, Denmark
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.