

CURRICULUM VITAE

September 2022

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Position Senior Reseacher, DTU Aqua Section for Fish and Shellfish Diseases

Training

2001 PhD, Fish Diseases, Royal Veterinary and Agricultural University (RVAU), Denmark
1993 cand.med.vet. (Graduate in Veterinary Science - DVM), RVAU

Scientific focus

Expert in fish-pathogenic bacteria and diseases in molluscs

- Research, diagnostics and scientific advice
- Disease prevention, including bacteriophage therapy
- Diagnostic methods
- Controlled infection models: pathogen transmission and survival on and in the host
- Pathogenesis
- Influence of feed and feed additives on health including the intestinal microbiota of the fish.

Supervision of 2 PhD students and 2 PostDocs

Management experience

Project leader of the GUDP Organic RDD project OPTIFISH.

WP leader of the projects RobustFish and FLAVOPHAGE.

Publications in total

42 peer-reviewed (10 as first author, 2 as second and last author, 7 as second author; 5 as last author); 21 non-peer reviewed; 2 book chapters; 7 reports; 17 ICES WGPDMO reports; 1 WKEMOP report; 80 abstracts (42 as first author); 2 extended abstracts; 1 PhD thesis

Web of Science publications 40. Citations 1347. h-index 20 (August 14, 2022)

(August 14, 2022)

Selected publications

Jørgensen J, Sundell K, Castillo D, Dramshøj LS, Jørgensen NB, Madsen SB, Landor L, Wiklund T, Donati VL, **Madsen L**, Dalsgaard I & Middelboe M (2022). Reversible mutations in gliding motility and virulence genes: a flexible and efficient phage defence mechanism in *Flavobacterium psychrophilum*. *Environmental Microbiology* <https://doi.org/10.1111/1462-2920.16126>

Donati VL, Madsen L, Middelboe M, Strube ML & Dalsgaard I (2022). The Gut Microbiota of Healthy and *Flavobacterium psychrophilum*-Infected Rainbow Trout Fry Is Shaped by Antibiotics and Phage Therapies. *Frontiers in Microbiology* **13** <https://www.frontiersin.org/article/10.3389/fmicb.2022.771296>

Castillo D, Donati VL, Jørgensen J, Sundell K, Dalsgaard I, **Madsen L**, Wiklund T & Middelboe M (2021b). Comparative Genomic Analyses of *Flavobacterium psychrophilum* Isolates Reveals New Putative Genetic Determinants of Virulence Traits. *Microorganisms* **9**(8):1658. <https://doi.org/10.3390/microorganisms9081658>

Castillo D, Jørgensen J, Sundell K, **Madsen L**, Dalsgaard I, Wiklund T & Middelboe M (2021a). Genome-informed approach to identify genetic determinants of *Flavobacterium psychrophilum* phage susceptibility. *Environmental Microbiology* <https://doi.org/10.1111/1462-2920.15593>

Donati VL, Dalsgaard I, Runtuvuori-Salmela A, Kunttu H, Jørgensen J, Castillo D, Sundberg L-R, Middelboe M, **Madsen L** (2021b).

- Interactions between Rainbow Trout Eyed Eggs and *Flavobacterium* spp. Using a Bath Challenge Model: Preliminary Evaluation of Bacteriophages as Pathogen Control Agents. *Microorganisms* 9(5):971. <https://doi.org/10.3390/microorganisms9050971>
- Zrncic S, Vendramin N, Boutrup TS, Boye M, **Madsen L**, Nonneman B, Brnic D & Oraic D (2021). First description and diagnostics of disease caused by *Piscirickettsia salmonis* in farmed European sea bass (*Dicentrarchus labrax* Linnaeus) from Croatia. *Journal of Fish Diseases* <https://doi.org/10.1111/jfd.13366>
- Donati VL, Dalsgaard I, Sundell K, Castillo D, Er-Rafik M, Clark J, Wiklund T, Middelboe M & **Madsen L** (2021a). Phage-mediated control of *Flavobacterium psychrophilum* in aquaculture: in vivo experiments to compare delivery methods. *Frontiers in Microbiology* 12 <https://www.frontiersin.org/article/10.3389/fmicb.2021.628309>
- Gesto M, **Madsen L**, Andersen NR, El Kertaoui N, Kestemont P, Jokumsen A & Lund I (2021). Early performance, stress- and disease-sensitivity in rainbow trout fry (*Oncorhynchus mykiss*) after total dietary replacement of fish oil with rapeseed oil. Effects of EPA and DHA supplementation. *Aquaculture* 536 <https://doi.org/10.1016/j.aquaculture.2021.736446>
- Jørgensen LvG, Nielsen JW, Villadsen MK, Vismann B, Dalvin S, Mathiessen H, **Madsen L**, Kania, PW & Buchmann K (2020). A non-lethal method for detection of *Bonamia ostreae* in flat oyster (*Ostrea edulis*) using environmental DNA. *Scientific Reports* 10(1), article 16143 <https://doi.org/10.1038/s41598-020-72715-y>
- Jansson E, Haenen O, Nonnemann B, **Madsen L**, van Gelderen E, Aspán A, Säker E, Boonstra M, Gulla S, Colquhoun DJ, Roozenburg-Hengst I, Dalsgaard I (2020). MALDI-TOF MS: a diagnostic tool for identification of bacterial fish pathogens. *Bull. Eur. Ass. Fish Pathol.*, 40(6), 240-248
- Baron S, Ceccarelli D, Dalsgaard I, Granier SA, Haenen O, Jansson E, **Madsen L**, Jouy E, Kempf I, Larvor E, Morin T, Testerink J, Veldman K, Mouritsen KK, Van Gelderen B, Voorbergen-Laarman M, Säker E, Blomkvist E & Smith P (2020). Influence of incubation time on antimicrobial susceptibility testing of pathogenic *Vibrio anguillarum* and *Vibrio vulnificus* isolated from fish. *Aquaculture* 524, 735258. <https://doi.org/10.1016/j.aquaculture.2020.735258>
- Sundell K, Landor L, Nicolas P, Jørgensen J, Castillo D, Middelboe M, Dalsgaard I, Donati VL, **Madsen L** & Wiklund T (2019). Phenotypic and Genetic Predictors of Pathogenicity and Virulence in *Flavobacterium psychrophilum*. *Frontiers in Microbiology* 10, 1711. <https://www.frontiersin.org/article/10.3389/fmicb.2019.01711>
- Wahli T & **Madsen L** (2018). Flavobacteria, a never-ending threat for fish: a review. *Current Clinical Microbiology Reports* 5, 1, 26-37
- Gesto M, **Madsen L**, Andersen NR & Jokumsen A (2018). Differences in stress and disease resilience related to emergence time for first feeding in farmed rainbow trout (*Oncorhynchus mykiss*). *Journal of Experimental Biology* 221, jeb174623. <https://doi/10.1242/jeb.174623>
- Duchaud E, Rochat T, Habib C, Barbier P, Loux V, Guérin C, Dalsgaard I, **Madsen L**, Nilsen H, Sundell K, Wiklund T, Strepparava N, Wahli T, Caburlotto G, Manfrin A, Wiens GD, Fujiwara-Nagata E, Avendaño-Herrera R, Bernardet J-F & Nicolas P (2018). Genomic Diversity and Evolution of the Fish Pathogen *Flavobacterium psychrophilum*. *Frontiers in Microbiology* 9: 138. <https://doi/10.3389/fmicb.2018.00138>
- Lazado CC, Gesto M, **Madsen L**, Jokumsen A (2018). Interplay between daily rhythmic serum-mediated bacterial killing activity and immune defence factors in rainbow trout (*Oncorhynchus mykiss*). *Fish and Shellfish Immunology* 72, 4189-425. <https://doi.org/10.1016/j.fsi.2017.11.025>
- Rochat T, Fujiwara-Nagata E, Calvez S, Dalsgaard I, **Madsen L**, Calteau A, Lunazzi A, Nicolas P, Wiklund T, Bernardet JF, Duchaud E (2017). Genomic characterization of *Flavobacterium psychrophilum* serotypes and development of a multiplex PCR-based serotyping scheme. *Frontiers in Microbiology*, section Microbial Physiology and Metabolism. 2017. <https://doi.org/10.3389/fmicb.2017.01752>
- Alfjorden A, Areskog M, Bruno D, Carnegie R, Cheslett D, Feist S, Ford S, Jones S, Lillehaug A, **Madsen L**, Renault T, Ruane N & Vennerström P (2017). New Trends in Important Diseases Affecting the Culture of Fish and Molluscs in the ICES Area 2002 – 2015. *ICES Cooperative Research Report* No. 337. 50 pp. <http://doi.org/10.17895/ices.pub.2800>
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- Christiansen RH, **Madsen L**, Dalsgaard I, Castillo D, Kalatzis PG & Middelboe M (2016). Effect of bacteriophages on the growth of *Flavobacterium psychrophilum* and development of phage-resistant strains. *Microbial Ecology* 71, 845-859. <https://doi/10.1007/s00248-016-0737-5>
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- Ingerslev H-C, Strube ML, Jørgensen L von G., Dalsgaard I, Boye M & **Madsen L** (2014b). Diet type dictates the gut microbiota and the immune response against *Yersinia ruckeri* in rainbow trout (*Oncorhynchus mykiss*). *Fish and Shellfish Immunology* 40:2, 624-633
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microbiota in rainbow trout (*Oncorhynchus mykiss*) is affected by first feeding and diet type. *Aquaculture* **424-425**, 24-34

Madsen L, Kamp J & Møllergaard S (2013). What can the Limfjord tell us about limiting factors for *Bonamia ostreae* in northern Europe? *Bulletin of the European Association of Fish Pathologists* **33**, 165-169

Madsen L, Bertelsen SK, Dalsgaard I & Middelboe M (2013). Dispersal and survival of *Flavobacterium psychrophilum* phages *in vivo* in rainbow trout and *in vitro* under laboratory conditions: Implications for their use in phage therapy. *Applied and Environmental Microbiology* **79**, 4853-4861

Henriksen MMM, **Madsen L** & Dalsgaard (2013). Effect of hydrogen peroxide on immersion challenge of rainbow trout fry with *Flavobacterium psychrophilum*. *PLoS One* **8**, issue 4

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Møller JD, Larsen JL, **Madsen L** & Dalsgaard I (2003). Involvement of a sialic acid-binding lectin with hemagglutination and hydrophobicity of *Flavobacterium psychrophilum*. *Applied and Environmental Microbiology* **69**, 5275-5280

Bruun MS, **Madsen L** & Dalsgaard I (2003). Efficiency of oxytetracycline treatment in rainbow trout experimentally infected with *Flavobacterium psychrophilum* strains having different *in vitro* antibiotic susceptibilities. *Aquaculture* **215**, 11-20

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Wiklund T, **Madsen L**, Bruun MS & Dalsgaard I (2000). Detection of *Flavobacterium psychrophilum* from fish tissue and water samples by PCR amplification. *Journal of Applied Microbiology* **88**, 299-307

Madsen L, Arnbjerg J & Dalsgaard I (2000). Spinal deformities in triploid all-female rainbow trout (*Oncorhynchus mykiss*). *Bulletin of the European Association of Fish Pathologists* **20**, 206-208

Madsen L & Dalsgaard I (2000). Comparative studies of Danish *Flavobacterium psychrophilum* isolates: ribotypes, plasmid profiles, serotypes and virulence. *Journal of Fish Diseases* **23**, 211-218

Dalsgaard I & **Madsen L** (2000). Bacterial pathogens in rainbow trout, *Oncorhynchus mykiss* (Walbaum), reared at Danish freshwater farms. *Journal of Fish Diseases* **23**, 199-209

Bruun MS, Schmidt AS, **Madsen L** & Dalsgaard I (2000). Antimicrobial resistance patterns in Danish isolates of *Flavobacterium psychrophilum*. *Aquaculture* **187**, 201-212

Madsen L & Dalsgaard I (1999b). Vertebral column deformities in farmed rainbow trout (*Oncorhynchus mykiss*). *Aquaculture* **171**, 41-48

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