AQUA-FAANG Final Conference

11-13 October 2023, Edinburgh, UK

This is a draft program subject to modifications ahead of the conference

Day 1: Wednesday 11th October

9:00-9:10 Welcome and introduction: A short history of AQUA-FAANG
Sigbjørn Lien/Dan Macqueen

Session 1: Improving the functional annotation of farmed fish genomes, 9:10-12:10

9:10-9:30 Development of functional annotation assays
Matthew Peter Kent, NMBU

9:30-9:50 Ensembl's regulatory annotation pipeline
Gabriela Merino, EMBL-EBI

9:50-10:10 Using Ensembl's regulatory annotation
Garth Ilsley, EMBL-EBI

Coffee break 10:10-10:40

10:40-11:00 Functional miRNA annotation in teleost fish
Julien Bobe, INRAe

11:00-11:10 Preliminary analyses of lncRNAs and muscle related ohnologues between AQUA-FAANG species
Daniel Garcia de la serrana, University of Barcelona

11:10-11:30 An Atlas of regulatory elements and structural variants in Turbot: potential implications for improving farming
Paulino Martinez, USC

11:30-12:20 Celebrating 10 years of FAANG - From FAANG to Fork: Highly annotated genomes as resources to improve farmed animal production
Guest speaker: Emily Clark, University of Edinburgh - the EuroFAANG RI Project

Lunch 12:20-13:20

Session 2: The dynamic functional regulation of farmed fish genomes 13:20-17:00

13:20-13:40 Evolution of duplicated genome regulation in salmonids
Marie-Odile Baudement, NMBU

13:40-14:00 Gene expression and regulation across salmonid ontogeny
Diego Perojil Morata, Uni Edinburgh

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 817923.

14:00-14:20 Comparative regulomics gives insights into the conservation and evolution of regulatory elements following whole genome duplication in salmonids
Manu Kumar Gundappa, Uni Edinburgh

14:20-14:40 Linking divergence of salmonid gene expression to regulation
Gareth Gillard, NMBU

14:40-15:00 Differences in transcription initiation in early embryogenesis between Cyprinid species
Damir Baranasic, Imperial College London

Coffee break 15:00-15:30

15:30-16:00 Exploring the mechanisms behind allotetraploid genome regulation using carp as a model
Ada Jimenez-Gonzalez, Uni Birmingham

16:00-16:20 Genomic and cellular insights into antiviral responses and viral disease resistance in salmonid fishes
Thomas Clark, INRAe/Uni Aberdeen

16:20-16:40 Comparative regulomics in flatfish: from turbot to the main farmed Pleuronectiformes
Juan Rubiolo, USC

16:40-17:00 Dynamic gene expression and regulation during gilthead sea bream development
Elena Sarropoulou, HCMR

Drinks reception 18:00-19:00
Playfair Library, Old College, South Bridge, Edinburgh

Dinner 19:00
Playfair Library, Old College, South Bridge, Edinburgh

Day 2: Thursday 12th October

Session 3: Functional genomic basis for immune responses and disease resistance in farmed fish, 9:00-13:00

9:00-9:20 Genome functional annotation of host defense response in gilthead sea bream (*Sparus aurata*) through chromatin accessibility and differential gene expression assays
Costas Tsigenopoulos, HCMR

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9:20-9:40 Transcriptome and chromatin landscape of European seabass immune response to viral-like stimulation
Serena Ferraresso, UNIPD

9:40-10:00 Functional genomic architecture of viral nervous necrosis disease resistance in farmed European seabass
Robert Mukiibi, University of Edinburgh

10:00-10:45 Decoding enhancer function: from the nucleosome to the nucleus
Guest Speaker: Wendy Bickmore, University of Edinburgh

Coffee break 10:45-11:20

11:20-11:40 Transcriptional differences in CyHV-3 response between resistant and susceptible common carp (Cyprinus carpio) crossings
Lukasz Napora-Rutkowski, ZIGR

11:40-12:00 Symmetric expression of ohnologs encoding conserved antiviral responses in tetraploid common carp suggest absence of subgenome dominance after whole genome duplication
Hendrik-Jan Megens, Wageningen University

12:00-12:20 Multiomics reveals the genomic regulatory landscape underlying the antiviral response in Atlantic salmon
Shahmir Naseer, University of Aberdeen

12:20-12:40 In vitro mutant models for functional characterization of genes of the type I IFN pathway in salmonids
Pierre Boudinot, INRAe

12:40-13:00: Multiomics uncovers the epigenomic and transcriptomic response to viral and bacterial stimulation in turbot.
Oscar Aramburu, USC

Lunch 13:00-14:00

14:00-15:15 AQUA-FAANG 2.0: what's next? Group discussion
Please note: this will involve simultaneous discussions among 5-6 breakout groups. We will therefore not stream this session for the online audience. The stream for day 2 ends at lunch time, 13:00 CET.

Pub quiz 16:30-18:30
Held at the Salisbury Arms, approximately 5 min walk from the conference centre

Free Evening - Self-arranged dinner and time to explore Edinburgh

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Industry Day, Friday 13th October:

Session 4: AQUA-FAANG relevance to industry, 9:00-11:10AM

9:00-9:15 Basic overview of AQUA-FAANG and its potential applications in industry
Sigbjørn Lien, NMBU

9:15-9:30 Ensembl gene annotation, regulation and variant effect prediction for aquaculture
Peter Harrison, EMBL-EBI

9:30-10:10 Accounting for overlapping annotations as biological priors in genomic prediction models of complex traits
Andrea Rau, INRAe - the GENE-SWitCH Project

10:10-10:50 Functional genomics and selective breeding in aquaculture: implications from the AQUA-FAANG project
Speakers: Diego Robledo, Sara Faggion, Robert Mukiibi

10:50-11:10 Developing a flexible, low cost, multifunctional genotyping solution for selective breeding in aquaculture
Rachael Wilbourn, Xelect Ltd.

Coffee Break 11:10-11:40

Session 5: Perspectives from industry, 11:40-13:00

11:40-12:00 A way out of black box genomic selection
Antti Kause, LUKE - the AquaIMPACT Project

12:00-12:20 Advancing selective breeding in aquaculture through the functional annotation of fish genomes
Mark Looseley, Xelect Ltd.

12:20-12:40 T.B.C
Tim Knutsen, AquaGen

12:40-13:000 Potential use of AQUA-FAANG results to develop different breeding programs in diverse aquaculture companies, increasing their efficiency, profitability and sustainability.
Adrian Millan, GeneAqua

Lunch 13:00-14:00

14:00-15:00 Panel Discussion
Covering the main talking points of day 3 and future perspectives for aquaculture industry

15:00-15:10 Final words and acknowledgements

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