Title: Effects of structural variants on gene regulation and fusion transcripts in Atlantic Salmon

Keywords/Stikkord: Structural Variants (SVs), SVs, eQTL, Expression Quantitative Trait Loci, Fusion Transcripts (eqtl), Atlantic Salmon, Salmo salar, Aquaculture, Population Genetics, salmon

Thesis type/Oppgavetype: Master

Credits/Stp: 60

Language/Språk: English

Supervisors/Veiledere: Marie Saitou

Description:
The primary aim of this project is to investigate how structural variants influence gene regulation and create fusion transcripts in Atlantic salmon (Salmo salar). Using genome-wide genetic variant data and RNA sequencing from 900 salmon individuals, the project will identify SVs and correlate them with gene expression changes (eQTLs) and fusion transcript formation. These findings will be crucial for both understanding evolutionary mechanisms in vertebrates and improving production traits for sustainable aquaculture. Reading list: https://www.nature.com/articles/ng.3834 https://www.sciencedirect.com/science/article/abs/pii/S0169534720300768 Tools: https://qtltools.github.io/qtltools/ https://github.com/nf-core/rnafusion?tab=readme-ov-file

Additional info: We welcome motivated master's students who want to contribute to cutting-edge research in evolutionary genomics, bioinformatics, and functional genomics.

Our lab has a strong record of supporting students, with past master's student successfully submitting their work to an international journal.

You can start working early if you like. We value collaboration, initiative, and time management.

Project and/or collaborators: SalmoSV

Contact/Kontakt: marie.saitou@nmbu.no

Date published/Dato publisert: October 6, 2024