Bachelor or Master thesis BIOVIT 2023/24

Topic/Title (Norwegian)

Tilpasning uten sex? – Epigenomisk populasjonsstruktur av aseksuell finnskjegg (*Nardus stricta*)

Topic/Title (English)

No sex, but still adapting? – Epigenomic population structure of asexual matgrass (*Nardus stricta*)

Summary

European populations of the grass *Nardus stricta* follow a very interesting pattern. While populations in Western Europe are reproducing sexually, the remaining populations seem to have emerged asexually and show little to no genetic variation. Nonetheless, the climatic conditions that European *N. stricta* populations are adapted to are very diverse, and preliminary data suggests that there is significant structure in the epigenome – despite the lack of genetic variation. In this project we aim to test if the epigenetic structure is correlated with climatic conditions. We will use methylation content-sensitive enzyme ddRAD sequencing to characterize the epigenomic signatures of ca. 15 populations and compare them with each other. The results will give important insights into the molecular mechanisms that allow plants to adapt to climatic variations.

Potential work that needs to be performed is molecular lab work, bioinformatics and population genetic analyses. Participation in field work in summer 2024 is possible. Since this project is a collaboration with the Bräutigam lab at University of Toronto, candidates are encouraged to spend some time in Toronto to learn wet lab techniques and/or bioinformatic pipelines.

Subject area (keywords)

Epigenomics, population genetics, molecular evolution,

Language thesis

English

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Master thesis

Credits

60

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