MSc. internship

Exploring the Diversity of Barley Chloroplast Genomes

Background & aim

We are looking for a motivated MSc student to join a project investigating chloroplast genome diversity in barley (Hordeum vulgare).

We are interested in exploring the genetic diversity of the chloroplast genome within species as done in Theeuwen *et al.* (2024) *PNAS*, DOI: 2414024121. We are initially looking at barley, but the tools developed in the project can be applied to future investigations.

The project will involve assembling and analysing a large collection of barley chloroplast genomes from sequence data. You will develop and apply bioinformatic workflows for chloroplast genome assembly, quality assessment, annotation, and comparative analysis. Depending on your interests, the project can also include investigating patterns of genetic diversity, population structure, phylogeny, or variation in specific chloroplast genes.

This project is well suited for you, if you are interested in **plant genetics, genomics, evolution, and bioinformatics**. Experience with command-line tools and programming (e.g. Python or R) is desired.

Institute: Jan Ingenhousz Institute

Theme: Bioinformatics

Type of experiment: Genome assembly

Location: Radix



What you will learn

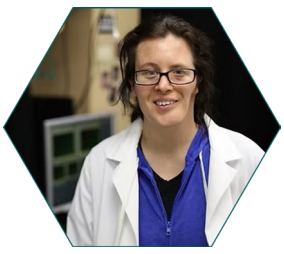
- Chloroplast genome assembly from sequencing data
- Genome annotation and comparative genomics
- Handling and analysing large genomic datasets
- Phylogenetic and population-genetic analyses
- Reproducible bioinformatics workflows

The project offers the opportunity to work with a large and diverse genomic dataset and to investigate how chloroplast genomes vary across barley germplasm.

Jan IngenHousz Institute

The Jan IngenHousz Institute (JII) is an open science research institute dedicated to improving photosynthesis to enhance global crop productivity, sustainability, and climate resilience. JII brings together expertise in engineering, data science, plant biology, biophysics, genetics, and breeding. We develop innovative sensors, research methods, and data analysis platforms that enable collection and interpretation of real-time field measurements of photosynthesis.

Located on the campus of Wageningen University, JII offers a dynamic, interdisciplinary environment where curiosity meets impact. If you're a student eager to apply your knowledge to photosynthetic efficiency challenges, this is your opportunity!



For more information, contact **Deserah Strand** (dez@jii.org)

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