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MÜNCHEN

BIOMEDICAL CENTER MUNICH
BIOMEDIZINISCHES CENTRUM MÜNCHEN

Doctoral researcher position (m/f/x)
in Bioinformatics / Infection Biology

Biomedical Center Munich (BMC), LMU Munich
Group of Prof. Nicolai Siegel / Supervised by Dr. Markus Schmidt

About us and the project:
We are seeking a talented and motivated PhD student to join a project aimed at **assembling a pangenome for the unicellular parasite *Trypanosoma brucei***. Pangenomes are data structures that store the similarities and differences of hundreds of individual genomes. Such a pangenome assembly is crucial for the analysis of sequencing data from a heterogeneous population of cells. Using an assembly from a single genome instead of a pangenome would make sequencing reads of genomic regions absent from that single genome unanalyzable. Since trypanosomes are unicellular organisms and since we expect a large amount of heterogeneity between cells, the state-of-the-art strategies to assemble pangenomes cannot be applied to these organisms. Instead, we will use a combination of single-cell RNA-seq and bulk DNA-seq to generate our pangenome from a heterogeneous mixture of cells from the field.

You will develop a tool to disentangle bulk DNA-seq data using single-cell RNA-seq data. Next, you will set up a pipeline to assemble a pangenome from that data. Finally, you will analyze the pangenome to study the cell-to-cell heterogeneity of the parasites.

Your tasks and responsibilities:
- Developing novel tools to assemble a pangenome from an unusual dataset
- Contributing to the data generation in the wet lab
- Assembling the pangenome using your developed tools
- Analyzing the pangenome
- Publishing your results

Your qualifications:
- Master's degree in bioinformatics, computer science, biology, or similar
- Curiosity and creativity
- Coding experience in Python, C, and/or C++
- An interest in next-generation sequencing and algorithmics
- Ability to work in a team
- Proficiency in English (spoken and written) and excellent communication skills

Benefits we offer:
- A pleasant, supportive, and very international environment
- An interesting project that is at the cutting edge of computational and biological research
- LMU Graduate Program for further professional and personal development
- People with disabilities who are equally as qualified as other applicants will receive preferential treatment

How to apply:
Please submit the following documents as **one pdf file (max. 5MB)**:
- Motivation letter that explains why you want to work on this project and what qualifies you for this position (max. ½ page)
- CV (max. 2 pages)
- Academic transcripts and degree certificates
- Contact emails to two references familiar with your previous work

via email to: Dr. Markus Schmidt, markus.schmidt@lmu.de

Application deadline: **4th of May 2025**