

## **PhD position (f/m/d) in genomics of sex chromosome evolution in African cichlids**

At the Zoological Research Museum Alexander Koenig, Leibniz Institute for the Analysis of Biodiversity Change (LIB) in Bonn, Germany, we seek a PhD student in the DFG funded project “Drivers and dynamics of sex chromosome evolution in African cichlid fishes” at the Center for Molecular Biodiversity Research (ZMB) in the research group Comparative Vertebrate Genomics headed by Astrid Böhne, for the time of 3 years (salary according to German salary scale for the public sector TV-L E13, part time 65%).

### **Project background**

The mechanisms of sex determination are diverse despite their unifying function in defining male and female sex within a species. They range from an array of environmental factors over different genetic sex determination systems to a complex interplay of extrinsic and intrinsic factors. These mechanisms are ultra-conserved in some organismal groups (e.g. all mammals share the same sex chromosomal system); however, in other groups even sister species vary in their way how sex is determined. This project focuses on the investigation of sex chromosomes in a model system of evolutionary biology, the African cichlid fishes. Within the Lake Tanganyika radiation of these fishes, we previously identified an outstandingly high rate of sex chromosome turnover, i.e. change in the actual chromosome used as sex chromosome. This project will investigate sex chromosome evolution from new perspectives by submerging deeper into the sex chromosome history of African cichlids to identify sex chromosomes along the cichlid phylogeny. Further, the project zooms into particular species of Lake Tanganyika with previously identified sex chromosomes to study repeatedly evolved sex chromosomes with the aim to disentangle if changes in the same genes drove sex chromosome evolution convergently. Within this project line, we will also compare genomic sequences and perform crosses between species that have different sex chromosomal systems to identify genomic signatures underlying transitions between sex chromosomes. To understand how sex is established and maintained at the molecular level, we will also analyze gene expression as well as the regulatory signatures activating and silencing gene expression in males and females.

For questions related to the project and position reach out to [a.boehne@leibniz-zfmk.de](mailto:a.boehne@leibniz-zfmk.de)

### **Job description**

The successful applicant is a creative, open-minded individual who will use methods of comparative and evolutionary genomics, phylogenetics and transcriptomics building on whole genome/transcriptome re-sequencing and de novo reference genome sequencing. Tasks will range from animal breeding and raising, over wet lab work until bioinformatic data analysis with the aim to understand the evolution of sex chromosomes in cichlid fishes.

Starting date: at the earliest possible date

## **Your Profile**

The successful candidate should hold a masters degree in a relevant area such as evolutionary biology, molecular biology, genomics, bioinformatics or related fields and have a genuine interest in evolutionary biology, population genomic methods, genome evolution, speciation and phenotype-genotype associations. The willingness to learn new methods is a requirement, programming skills (e.g. R, python, workflow management tools, HPC computing), experience with whole genome analyses and/or comparative genomics, next generation sequencing data generation and handling, molecular biology wet lab experiments, fish keeping/handling as well as experience with the model system are a plus. A good command of English is required for communication with collaborators and publication of results. German is no requirement as Bonn is an international city.

## **Required documents**

Cover letter, a motivation letter (1-2 pages), CV, transcripts of academic records, and contact information for 2 potential references as a single PDF.

The LIB is a family-friendly institution and an equal opportunity employer. We are committed to increasing the proportion of women in academics. Consequently, we actively encourage applications by women. We also welcome applications from candidates with severe disabilities. Disabled candidates with equivalent qualifications will be preferentially considered.

Please send your application by 27.02.2022 exclusively digitally via our applicant portal to Ms. Sandra Middelhoff: [www.leibniz-lib.de/karriere](http://www.leibniz-lib.de/karriere).

For organizational reasons, only online applications will be accepted. You can find more information about our facility on the Internet at: [www.leibniz-lib.de](http://www.leibniz-lib.de).