

PhD Position in:  
„Phylogenomics and molecular convergence in insectivorous  
afrotherian mammals”

A position is available in the **Evolutionary Adaptive Genomics group** at the Institute for Biochemistry and Biology, **University of Potsdam**, Germany. The position is part time (65%) and available as soon as possible. The salary will be according to German Public Service Salary Scale 13 TV-L. The position is limited to a period of 3 years and funded by the German Research Foundation (DFG). As part of the assigned duties, there will be ample opportunity to conduct the independent scientific research necessary for the completion of a doctorate.

**Application deadline: February 20<sup>th</sup> 2023**

### **Project Description**

With the emergence of phylogenomic data it could be shown that the morphologically-defined mammalian clade Insectivora, accepted for more than 180 years, contains two, not even closely related lineages of placental mammals: the Eulipotyphla (shrews, moles, hedgehogs) that originated on northern continents (Laurasia), and the Afrosoricida (tenrecs, golden moles, otter shrews) that originated in Africa. These surprising results suggested remarkable phenotypic convergence between African afrosoricidans and Laurasian eulipotyphlans, as both lineages independently evolved shrew-like, mole-like, hedgehog-like and semi-aquatic ecomorphs. Particularly on Madagascar, tenrecs diversified into multiple lineages and eco-morphological groups due to the lack of competitors (similar to the Malagasy radiation of lemurs, euplerid carnivorans, and nesomyine rodents). Due to the lack of molecular resources, the genomic basis behind this phenotypic convergence is poorly understood. In collaboration with collection researchers, field biologists and bioinformaticians, the project aims to de-novo assemble the genomes of multiple afrosoricidan species covering all phylogenetic and ecomorphological lineages (with special focus on Malagasy tenrecs) using state-of-the-art long-read sequencing technologies (e.g., PacBio HiFi). We specifically aim to (I) reconstruct the phylogenomic history of the group; (II) compare the rates of molecular and morphological evolution along the phylogenomic tree of afrosoricidans; and (III) identify genome-wide molecular convergence/parallelism among African and Laurasian insectivorans. The PhD candidate will particularly focus on genome assemblies and multiple-evidence genome annotation as well as comparative genomics and molecular convergence analyses. The position also includes the application of phylogenetic comparative methods to and total evidence estimations of morphological data to a minor degree.

### **Research Environment**

The PhD position is hosted in the Evolutionary Adaptive Genomics group at the University of Potsdam (head: Prof. Michael Hofreiter; <https://www.uni-potsdam.de/de/ibb-genomics/index>), housing a stimulating international team focused on comparative genomics, population genetics, phylogenomics, paleogenetics, systematics and taxonomy of living and extinct mammals (and other vertebrate groups). The lab has a long-term track record on the molecular evolution of afrotherian

mammals (e.g., proboscideans, sirenians, macroscelideans). Parts of the project will be conducted in cooperation with the Senckenberg LOEWE Center for Translational Biodiversity Genomics.

### **Expectations**

- Master/Diploma degree in Biology, Biochemistry, Bioinformatics or in other relevant fields
- bioinformatic (e.g., Linux/bash, Python) and statistical skills to handle large-scale genomic sequencing data
- strong interest in evolutionary research questions
- willingness to get involved in data generation (wet lab) and integration of morphological data into phylogenomic framework
- excellent communication skills and good proficiency in spoken and written English (German language skills are not a requirement, but a willingness to learn is desirable)
- ability to work both independently and as part of a multidisciplinary team

### **Application**

Please send your application until February 20<sup>th</sup> 2023 as a single pdf file containing: a one-page cover letter outlining your motivation, research interests and skills; a detailed CV with a list of publications (if any); copies of transcripts, credentials and certificates; contact details of two potential referees. Please send your application to Dr Patrick Arnold ([patrickarnold@uni-potsdam.de](mailto:patrickarnold@uni-potsdam.de)). Do not hesitate to get in contact if you have further questions. The University of Potsdam strongly supports equal opportunity and diversity. We welcome all applicants regardless of sex, nationality, ethnic or social background, religion or worldview, disability, age, sexual orientation or gender identity. We are committed to creating family-friendly working conditions.