Graduate School Event

Thesis Defense: Evolution of sex chromosomes, sex determination and asexuality in Artemia brine shrimp

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Host: Maximilian Jösch

In recent years, large-scale genomics paved the way for the rapid identification of sex chromosomes in a large variety of species. Although this has yielded new insights into sex chromosome evolution and its consequences, evidence is still lacking for several of the proposed models. Artemia brine shrimp, crustaceans from the Branchiopoda class, are well suited for testing our current models, which are heavily biased towards XY systems. They have ZW sex chromosomes, which are not well-characterized and the sex determination mechanism is currently unknown. They also have closely related sexual and asexual species, which makes them a great model for studying the genetic basis of parthenogenesis. For the first part of my PhD, we generate chromosome-level assemblies for two Artemia species. We use the assemblies to characterize the extent of conservation and differentiation of the sex chromosomes across the clade, and combine them with RNAseq data to identify genes in the sex determination cascade. In the second part, we generate single-nucleus RNAseq of the Artemia female reproductive system data to explore the expression patterns of the Z-specific region throughout meiosis. In the last part, we use a combination of newly generated single nucleus RNAseq and WGS data of an asexual species and a closely related sexual species to shed light on the molecular pathways involved in the transition to asexual reproduction in Artemia.

Monday, February 10, 2025 10:00am - 11:00am
Central Bldg / O1 / Ballroom (I01.O1.006) and Zoom

This invitation is valid as a ticket for the ISTA Shuttle from and to Heiligenstadt Station.
Please find a schedule of the ISTA Shuttle on our webpage:
https://ista.ac.at/en/campus/how-to-get-here/ The ISTA Shuttle bus is marked ISTA Shuttle (#142) and has the Institute Logo printed on the side.