Seminar/Talk

Introduction to chromatin structure in evolution and development

Aleksandra Galitsyna
Skoltech

Host: Fyodor Kondrashov

The conformation of DNA in the cells of living organisms remains to be a puzzling problem for nowadays science. Chromatin structure, as probed by chromosome conformation capture techniques, is linked to various molecular functions of the cell, including gene expression, regulation, and replication. Few mechanisms were discovered that contribute to the chromatin structure formation, such as loop extrusion, compartmentalization, and Polycomb looping. However, the details of these processes remain to be elusive. One of the sources of knowledge is a natural variability of DNA structure formation mechanisms across different species. The data for the most informative and popular conformation capture technique, Hi-C, are available for an extensive number of species, including animals, plants, bacteria, fungi, and archaea. For example, CTCF protein serves as a loop extrusion boundary and has a spectacular evolutionary history, which is tightly connected to the presence of topologically associating domains (TADs). Other notable discoveries are made through the analysis of time-course Hi-C data. For example, analysis of embryogenesis allows for unraveling the interplay between loop extrusion, compartmentalization, and expression. In this seminar, we will discuss recent studies of chromatin structure in embryogenesis of Drosophila , zebrafish, and mammals. We will cover controversial problems in the field, for example, the causative connection between chromatin structure and gene expression, establishment of histone modifications alongside large-scale chromatin conformation. The seminar will provide a general introduction to the chromatin structure in evolution and development, highlighting the most recent discoveries in the field.

Wednesday, January 22, 2020 03:00pm - 04:00pm
Mondi Seminar Room 1, Central Building

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.