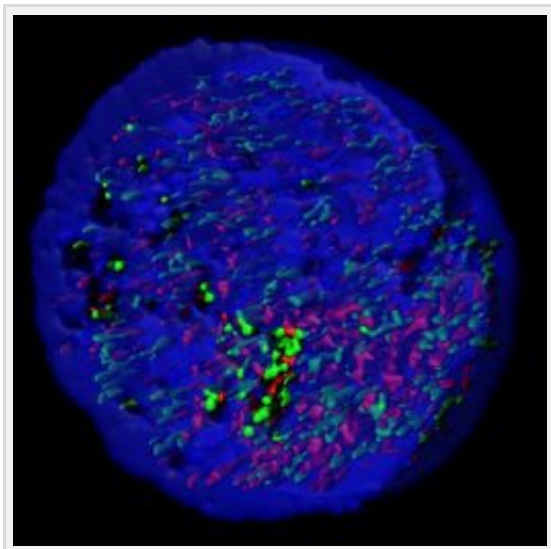


Nencki Institute of Experimental Biology

Chromatin topology: the Nencki Institute involved in groundbreaking research

2015-12-30



A group of scientists from the Nencki Institute participated in an advanced study on chromatin topology and its impact on the gene transcription.

The work was published in the top biological journal *Cell* on December 17th.

The new study program was coordinated by the group of Prof. Yijun Ruan from Jackson Laboratories in Farmington USA. The American group used an advanced global approach called chromatin interaction analysis by paired-end tag sequencing (ChIA-PET) to comprehensively map higher-order chromosome folding in the interphase cells. The role of the Nencki group was to provide an independent

verification of the findings by ChIA-PET using morphological methods. Five scientists from the Nencki Institute used combined approach of super-resolution microscopy and FRET/FLIM (fluorescence resonance energy-transfer) to analyse the cells by means of immunofluorescence and FISH (fluorescence in situ hybridization). This '3D genome' strategy thus provides unique insights in the topological mechanism of human gene expression variations and bases of a variety of diseases.

Tang Z, Luo OJ, Li X, Zheng M, Zhu JJ, Szalaj P, **Trzaskoma P**, **Magalska A**, **Wlodarczyk J**, **Ruszczycki B**, Michalski P, Piecuch E, Wang P, Wang D, Tian SZ, Penrad-Mobayed M, Sachs LM, Ruan X, Wei CL, Liu ET, **Wilczynski GM**, Plewczynski D, Li G, Ruan Y. (2015) **CTCF-Mediated Human 3D Genome Architecture Reveals Chromatin Topology for Transcription.** *Cell*. 2015 Dec 17;163(7):1611-27.