



Czech Society for Structural Biology

12th Structural Biology Club of the Czech Society for Structural Biology

online on

30 November 2022, 13:00

with the following scientific talks kindly delivered by our guests

Deciphering the intricate role of intrinsically disordered regions in transcription factor regulation

Presented by **Tobias Madl, Gottfried Schatz Research Center for Cell Signaling, Metabolism and Aging, Medical University of Graz**

Intrinsically disordered regions (IDRs) lack stable tertiary structure and instead rapidly interconvert between different conformations. This structural plasticity enables IDRs to act as key players in cellular signaling pathways, including Wnt, p53 and FOXO signaling. Transcription factors (TFs) are enriched in IDRs, many of which are stabilized by or acquire tertiary structure in the presence of DNA or other binding partners. Examples for TFs with long IDRs are T-cell factor/lymphoid enhancer binding factor 1 (TCF/LEF), FOXOs and p53. In the recent years, increasing evidence points towards potential links between TCF/LEF, FOXO and p53 signaling. For example, binding of β -catenin to FOXO inversely correlates with Wnt/TCF/LEF-mediated transcription, and this shift of β -catenin from TCF/LEF to FOXO has been shown to play a role in colon cancer metastasis, osteoblast differentiation, liver metabolism, and kidney fibrosis. Despite the importance of the interplay between these two major signaling pathways at the level of TFs and β -catenin, the molecular mechanism as to β -catenin and TCF/LEF, FOXO and p53 TFs interact and how this may regulate TF function remains unknown.

Here, I will present our recent work on the regulation and cross-talk of FOXO with Wnt/ β -catenin and p53 signaling using and integration of NMR spectroscopy and complementary biophysical/computational approaches. Our recent data illustrate how the interplay of IDRs, DNA-binding domains, posttranslational modifications, and co-factor/ β -catenin binding contribute to transcription factor function.

Molecular mechanisms and principles of self-organisation in cilia

Presented by **Gaia Pigino, Human Technopole, Milano**

TBA

Moderator: Richard Stefl, CEITEC Masaryk University, CZ

Please, join us on this Zoom link (join 5-10 minutes before the beginning)

<https://cesnet.zoom.us/j/98867419047?pwd=WEF6THZuU01YQVpmMmxsV1hFaWZjQT09>

Meeting ID: 988 6741 9047

Passcode: 726237

Richard Stefl and Jan Dohnálek

on behalf of the Czech Society for Structural Biology

<https://cssb.structbio.org>