

Zincore: an atypical coregulator, binds zinc finger transcription factors to control gene expression

Zinc finger proteins (ZNFs) are the largest family of transcription factors, yet how they activate gene expression and whether they require dedicated coactivators remains unclear. I will discuss the identification of Zincore, a previously uncharacterized protein complex consisting of QRICH1 and SEPHS1, as a novel ZNF-specific coactivator. Both QRICH1 and SEPHS1 are critical for embryonic development in mice and their haploinsufficiency is linked to similar neurodevelopmental defects in humans. We show that among Zincore clients, ZFP91 is a transcription factor that binds to the evolutionary conserved motif CTTTAAR, and the cryo-EM structure of Zincore in complex with ZFP91 bound to this motif.



**Anastassis
(Tassos)
Perrakis**

**The Netherlands
Cancer Institute and
Oncode Institute**

I studied biology at the University of Athens and obtained my PhD in chemistry from the University of York for research I conducted at the European Molecular Biology Laboratory (EMBL). After a long-term EMBO fellowship working on DNA mismatch repair, I became a staff scientist and group leader at EMBL-Grenoble. There, I coordinated the development of the first-ever X-ray micro-diffractometer. I also focused on pattern recognition methods for crystallographic electron density map interpretation. For the past twenty-five years, I have worked at the Netherlands Cancer Institute. For the last decade, I have also been affiliated with the Oncode Institute and hold a professorship at Utrecht University. My team manages a diverse portfolio of projects. These range from developing methods to validate and enrich experimental and predicted protein structures to using X-ray crystallography and single-particle cryo-electron microscopy together with biophysical methods.

<https://www.nki.nl/research/research-groups/anastassis-tassos-perrakis>

Host: John Vontas



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**Costas Fotakis
room**



www.imbb.forth.gr
imbb_seminars@imbb.forth.gr