



VABILO NA PREGLOV KOLOKVIJ / INVITATION TO THE PREGL COLLOQUIUM

Prof. dr. Nenad Ban

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**Velika predavalnica Kemijskega inštituta / Lecture Hall at the
National Institute of Chemistry; Hajdrihova 19, Ljubljana**

Structural Studies of Eukaryotic Ribosomes and Functional Insights

The main goal of the research in my laboratory is to study structures of prokaryotic and eukaryotic ribosomes, ribosomal subunits and their complexes with various factors involved in protein synthesis with the aim to obtain functional insights into this process (1). We are using crystallography as the primary method in combination with electron microscopy and biochemical experiments. Although basic aspects of protein synthesis are preserved in all kingdoms of life, eukaryotic ribosomes are much more complex than their bacterial counterparts, require a large number of assembly and maturation factors during their biogenesis, use numerous initiation factors, and are subjected to extensive regulation. We have recently obtained first detailed information about eukaryotic ribosomes by determining crystal structures of the small and the large eukaryotic ribosomal subunits in complex with initiation factors (2,3,4). These results reveal architectural features of the eukaryotic ribosome and offer insights into the various eukaryotic-specific aspects of protein synthesis and ribosome evolution.

1. Ataide SF, Schmitz N, Shen K, Ke A, Shan SO, Doudna JA, Ban N. (2011) The Crystal Structure of the Signal Recognition Particle in Complex with Its Receptor. *Science* 331:881-886
2. Rabl J, Leibundgut M, Ataide SF, Haag A, Ban N. (2011) Crystal structure of the eukaryotic 40S ribosomal subunit in complex with initiation factor 1. *Science* 331:730-6, Epub 2010 Dec 23
3. Klinge S, Voigts-Hoffmann F, Leibundgut M, Arpagaus S, Ban N. (2011) Crystal Structure of the Eukaryotic 60S Ribosomal Subunit in Complex with Initiation Factor 6. *Science* 334:941-948
4. Weisser M, Voigts-Hoffmann F, Rabl J, Leibundgut M, Ban N. (2013) The crystal structure of the eukaryotic 40S ribosomal subunit in complex with eIF1 and eIF1A. *Nat Struct Mol Biol* 20(8):1015-7

Vljudno vabljeni! / Kindly invited!