



NACIONALNI INŠTITUT ZA BIOLOGIJO

Večna pot 111, SI-1000 Ljubljana

National Institute of Biology kindly invites you to attend the lecture:

**"The Aptamer Technology: Powerful Tools in Basic Science,
Diagnostics and Therapy"**

**by Prof. Dr. Henning Ulrich,
Department of Biochemistry, Institute of Chemistry,
University of São Paulo, U, Brazil.**

**The lecture will take place on Monday, the 29th April 2013,
at 15:00 p.m. in the Lecture Hall B2
of the Biological Centre, Večna pot 111, Ljubljana.**

Abstract:

DNA and RNA aptamers interact with their target proteins with high selectivity, specificity and affinity. The SELEX method consists of iterative cycles of in vitro screening of a combinatorial oligonucleotide library containing to 10¹⁶ different molecules and possible secondary and tertiary structures for target binding followed by PCR amplification of selected sequences. Aptamer ligands can be developed against almost any target protein. Due to the wide spectrum of applications, these novel molecules are used in numerous pharmacological, clinical and industrial processes. In the beginning, RNA and DNA aptamers were identified which bind to proteins that naturally interact with nucleic acids or small molecules such as ATP. In the following years, the use of the SELEX technique was extended in order to isolate oligonucleotide ligands for a wide range of proteins of importance for therapy and diagnostics, such as growth factors (3), cell surface antigens, entire cells and even whole organisms. Recently, the use of in vitro selection methods have been extended to living organisms such as bacteria, trypanosomes and Plasmodium falciparum-infected erythrocytes. Moreover, since it became apparent that aptamers are capable to distinguish between little differences in cell surface-marker-proteins expressed by i.e. cancer cells, parasite-infected cells or stem cells in comparison to normal somatic cell, they have been developed into promising agents for diagnostic and therapeutic applications. In this talk, I will focus on new accomplishments of the aptamer technology, and demonstrate some examples from my own research.

Kindly invited!