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Vás pozývajú na 70. prednášku v rámci Kuželových seminárov:

Dr. Andrej Lupták
School of Biological Sciences
University of California Irvine, USA

Reverse origami: Discovery of new genomic ribozymes and aptamers

ktorá sa uskutoční 15. apríla 2009 (streda) o 15:45

v seminárnej miestnosti Profesora Štefana Kuželu v budove
Prírodovedeckej fakulty UK (CH1-222)

http://www.naturaoz.org/seminare.html

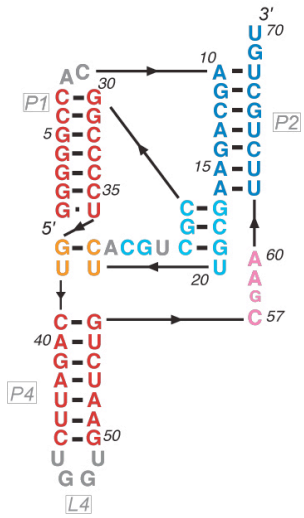
Dr. Andrej Lupták

http://www.chem.uci.edu/faculty/aluptak/

- 1996 BA, University of Pennsylvania, Biochemistry and Biophysics
- 1996 MS, University of Pennsylvania, Chemistry
- 2002 PhD, Yale University, Biophysical Chemistry
- 2002-2007 Research Fellow, Szostak lab, Massachusetts General Hospital & Harvard Medical School, Molecular Biology
- 2007-present Assistant Professor, University of California, Irvine, Pharmaceutical Sciences/Chemistry
- Member of Chao Family Comprehensive Cancer Center

Research interests: RNA biology and chemistry

RNAs are remarkable as both information carriers and structured functional macromolecules. Beyond their well-known role in the information transfer between DNA and proteins, RNAs act as catalysts (ribozymes) in many cellular processes such as protein synthesis, splicing, and tRNA maturation. In addition, RNA can fold to form small-molecule recognition elements (riboswitches) that regulate gene expression. It is clear that RNA structure and regulation is critical to a wide variety of cellular events, but the complexity of regulatory mechanisms is only now beginning to be appreciated.



We explore the biology and chemistry of RNA by utilizing in vitro selection techniques to search for new catalytic RNAs in mammalian genomes. Through these RNAs, we look for novel modes of cell regulation. Another way in which we combine the study of RNA biology and chemistry is to use synthetic libraries to select aptamers and ribozymes with designed characteristics. Of particular interest is the selection of fluorogenic molecules that we will use to study RNA in live cells with hitherto unprecedented spatial and temporal resolution. To facilitate the selection process we are developing novel fluorescence-based methods to display and isolate fluorogenic nucleic acids.

Publications

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- Salehi-Ashtiani K, Luptak A, Litovchick A, Szostak JW. A genomewide search for ribozymes reveals an HDV-like sequence in the human CPEB3 gene. Science. 2006 Sep 22; 313(5794):1788-92.
- Luptak A, Doudna JA. Distinct sites of phosphorothioate substitution interfere with folding and splicing of the Anabaena group I intron. Nucleic Acids Res. 2004 Apr 23;32(7):2272-80.
- Luptak A, Ferre-D'Amare AR, Zhou K, Zilm KW, Doudna JA. Direct pK(a) measurement of the active-site cytosine in a genomic hepatitis delta virus ribozyme. J Am Chem Soc. 2001 Sep 5;123(35):8447-52.