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Nucleosides, Nucleotides and Nucleic Acids

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Preface

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Preface

This special issue of *Nucleosides, Nucleotides & Nucleic Acids* contains the Proceedings of the Conference Targeting RNA: Artificial Ribonucleases, Conformational Traps and RNA Interference which was held in Novosibirsk, Russia, on June 18–21, 2003.

This meeting emphasized studies of RNA structure and interactions that provide the basis for developing new therapeutic approaches. It was sponsored by the Russian Academy of Sciences and attended by about 100 scientists from 5 countries.

The conference opened with a lecture by Jian-Sheng Sun of the Museum National d'Histoire Naturelle, Paris, in memory of Prof. Claude Helene, longtime director of the Laboratoire de Biophysique at the Museum. Dr. Sun reviewed the career of Prof. Helene from his work on physical chemistry of biopolymers in the 1970s to his leading role during the past 15 years in the “antigene” strategy of using triplex forming oligonucleotides for regulation of gene expression at the transcription level.

Meeting highlights included:

- artificial ribonucleases built of peptide-like structures and oligonucleotides
- conformational traps and RNA Lassos as sequence specific agents for translational inhibition of specific genes
- triplex forming oligonucleotides conjugated to minor-groove binding polyamides and to camptothecin capable of promoting site-specific breaks in DNA
- a new method for making antisense libraries that are greatly enriched in sequences from specific genes or groups of genes
- “kissing loop” interactions between single-stranded loops of RNA.
- dimerization of HIV genomic RNA in the HIV virion as a potential target for drug intervention
- siRNA (small interfering RNA) inhibition of gene expression
- analysis of factors that make a good target site for antisense oligonucleotides and siRNA
- inhibition of the multidrug resistance gene MDR-1 using LNA oligomers, double-stranded ODN transcription factor decoys, and siRNA.

The conference closed with a workshop on extracellular nucleic acids. Groups from Switzerland, Russia and Germany presented results of studies aimed at the

characterization of RNA and DNA present in the circulation, investigation of mechanisms of cellular uptake of nucleic acids and evaluation of circulating nucleic acids as markers for early cancer diagnostics.

The workshop was followed by an excursion to the Altai Mountains which provided the conferees with more possibilities to develop new friendships and enjoy Siberian nature in summer.