Asian Core Program Lectureship Award 2008
Dr. Tirayut Vilaivan, Hong Kong
31st March - 6th April 2008

Day 1 (31st March 2008)
Arrive Hong Kong

Day 2 (1st April 2008)
Lecture & academic activities at Chinese University of Hong Kong
Lecture title: Beta-Pyrrolidinyl Peptide Nucleic Acid: A New DNA Analogue with Unusual Binding Properties
Host: Prof. Henry N. C. Wong

Day 3 (2nd April 2008)
Lecture & academic activities at Hong Kong Baptist University
Lecture title: Beta-Pyrrolidinyl Peptide Nucleic Acid: A New DNA Analogue with Unusual Binding Properties
Host: Prof. Wing-Hong Chan

Day 4 (3rd April 2008)
Lecture & academic activities at Hong Kong University of Science and Technology
Lecture title: Beta-Pyrrolidinyl Peptide Nucleic Acid: A New DNA Analogue with Unusual Binding Properties
Host: Profs. Zhihong Guo

Day 5-6 (4th-5th April 2008)
Free & excursion arranged by Prof. Tony K. M. Shing (Chinese University of Hong Kong)

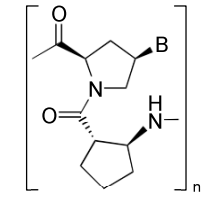
Day 7 (6th April 2008)
Depart for Bangkok

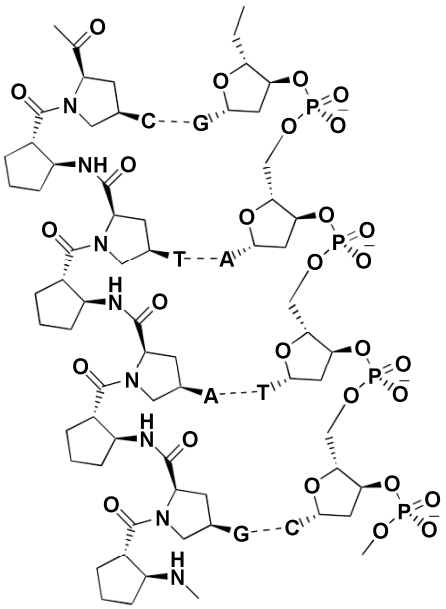
Beta-Pyrrolidinyl Peptide Nucleic Acid: A New DNA Analogue with Unusual Binding Properties

T. Vilaivan

Organic Synthesis Research Unit, Department of Chemistry, Faculty of Science, Chulalongkorn University, Phayathai Road, Patumwan, Bangkok 10330, THAILAND

Novel peptide nucleic acids (PNA) consisting of alternate sequences of nucleobase-modified D-proline and beta-amino acid spacers were synthesized from appropriate monomers by Fmoc-solid phase peptide synthesis. Investigation of the binding properties of several diastereomeric PNAs with DNA revealed a precise stereochemical requirement of the backbone. Some PNAs bind strongly with DNA to form antiparallel 1:1 hybrids with exceptionally high stability and Watson-Crick base pairing specificity. The PNAs also form hybrids with complementary RNA in a highly sequence-specific fashion, but the stability was considerably lower than the corresponding hybrids with DNA. Applications of these new PNAs in fluorimetry and mass spectrometry-based genotyping have also been demonstrated.





A lunch with Prof. Tony Shing and his wife.