Special Issue

to Celebrate the Centenary Year of Prof. Har Gobind Khorana – Advances in the Synthesis of Bio-Active Nucleosides, Functional Nucleotides and Oligonucleotides
Guest Editors: A. Kapdi, Y. S. Sanghvi

Regio- and Stereoselective Synthesis of 2’-Deoxy-4’-thioguanine Nucleosides: Evaluation of Anti-Hepatitis B Virus Activity and Cytotoxicity Leading to Improved Selectivity Index by 4’-C-Cyanation

H. Kumamoto, S. Imoto, N. Kuwata-Higashi, H. Mitsuya, K. Haraguchi
Recent Advances in the Synthesis of 5-(Hetero)aryl Uracil Derivatives

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Prefunctionalization of (hetero)aryl reagents
Prefunctionalization of uracil substrates
Bis-prefunctionalization of both substrates
Direct cross-coupling of non-activated substrates

Current Strategies on the Enantioselective Synthesis of Modified Nucleosides

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Biocatalysis
Chiral Ligand Transition Metal
Asymmetric Synthesis
Chiral Auxiliaries
Chiral Organo-Catalysis

High enantioselectivity
Provide versatile nucleoside analogues
Lesser number of steps
Simple and practical conditions
Synthesis of Modified C-Nucleosides of Therapeutic Significant: A Succinct Account

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Synthesis of 2-Aminopyridine-Modified Peptide Nucleic Acids

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Palladium-Catalyzed Cyanation of Nucleobases: Total Synthesis of Toyocamycin, Sangivamycin, and a Mycalisine A Precursor

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Chemical Diversification of Carbocyclic Fluorinated Pyrimidine Nucleosides: Introducing 2′-Arabino Analogues and Ring Unsaturation

Fluorinated pyrimidine carbanucleosides

Late-stage modification

2',3'-unsaturation

2'-stereo inversion

1',2'-unsaturation

BF₃@K10: An Efficient Heterogeneous Montmorillonite Catalyst for the Halogenation of N-Heterocycles

BF₃@K10

NXS

BF₃

MMT

Solvent Selection in the Detritylation Reaction for the Solid-Phase Synthesis of Oligonucleotides

no binding

CH₂Cl₂
toluene
Facilitated Synthetic Access to Boronic Acid-Modified Nucleoside Triphosphates and Compatibility with Enzymatic DNA Synthesis

G. Niogret, P. Röthlisberger, F. Levi-Acobas, F. Bonhomme, G. Gasser, and M. Hollenstein*
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Serendipitous Synthesis of 5-Hydroxyuridine from 2′,3′-O-Isopropylidene N4-Acetylcytidine by Hypervalent Iodine(III)-Mediated Reaction

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Fluorescent 2′-Deoxyuridine (dU) Analogue: Tropolonyl triazolyl-dU (tt-dU) Exhibits Solvatochromism/HeLa Cell Internalization and Its Triphosphate (tt-dUTP) Is Incorporated into DNA Enzymatically

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A Facile Synthesis of 3'-Fluoro Hexitol Adenosine and Guanosine Phosphoramidites

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Synthesis of 2'-Deoxy-2'-β-fluoro-4'-azido-5-fluorouridine as a Potential Anti-HIV Agent

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Alternative Synthesis of α-L-Threofuranosyl Guanosine 3'-triphosphate

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J. C. Chaput*
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Acyclic 2-Ethynylnaphthalene-Modified 8-Aza-3,7-dideaza-2′-deoxyadenosine Allows Thymine Discrimination by Probing the DNA Minor Groove Environment

Synthesis and Properties of 2′-Deoxyadenosine Mimics Bearing a Thieno[3,2-d]pyrimidine Ring

Synthesis and Evaluation of 3′-Oleyl–Oligonucleotide Conjugates as Potential Cellular Uptake Enhancers
Regio- and Stereoselective Synthesis of 2′-Deoxy-4′-thioguanine Nucleosides: Evaluation of Anti-Hepatitis B Virus Activity and Cytotoxicity Leading to Improved Selectivity Index by 4′-C-Cyanation

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S. Imoto
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EC_{50}: 1.6 \mu M
CC_{50}: 8.7 \mu M
SI: 5.4

EC_{50}: 0.015 \mu M
CC_{50}: 6.7 \mu M
SI: 446.7