

Publication List of Prof. J. Chattopadhyaya

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2017

422. C2'-F Stereoconfiguration as a puckering switch for base stacking at the dinucleotide level.
C. Moriou, A. D. Da Silva, M. J. Vianelli Prado, C. Denhez, O. Plashkevych, J. Chattopadhyaya, D. Guillaume, and P. Clivio. *Journal of Organic Chemistry*. Article ASAP, DOI: 10.1021/acs.joc.7b03186. Publication Date (Web): January 24, 2018
421. Synthetic siRNA Targeting Human Papillomavirus 16 E6: A Perspective on *in vitro* Nanotherapeutic Approaches.
M. Togtema, R. Jackson, J. Grochowski, P.L. Villa, M. Møllerup, J. Chattopadhyaya, and I. Zehbe
Nanomedicine, 13 (4) 455-474

2016

420. Carbocyclic C-C bond formation: Intramolecular radical ring closure to yield diastereomerically pure (7'S-Me- or 7'R-Me-) carba-LNA nucleotide analogs.
O. Plashkevych, R.S. Upadhyaya and J. Chattopadhyaya
Current Protocols in Nucleic Acid Chemistry, **69**, 4.74.1–4.74.42 (2017) DOI: 10.1002/cpnc.29
419. How RNase HI (*Escherichia coli*) promoted site-selective hydrolysis works on RNA in duplex with carba-LNA and LNA substituted antisense strands in antisense strategy context.
O. Plashkevych, Qing, L. and J. Chattopadhyaya
Molecular BioSystems **13**, 921-938 (2017).

2015

418. A minute amount of S-puckered sugars is sufficient for (6-4) photoproduct formation at the dinucleotide level.
C. Moriou, C. Denhez, O. Plashkevych, S. Coantic-Castex, J. Chattopadhyaya, D. Guillaume, and P. Clivio.
Journal of Organic Chemistry 2015, 80 (1), pp 615–619

2014

417. Distal 2-bond versus 3-bond Electronegative oxo-substituent Effect Controls the Kinetic & Thermodynamic of Conversion of Nitroso to the corresponding Oxime in the Conformationally-locked Pentofuranoses [Bicyclo[2.2.1]heptanesystem].
M. Karimiahmadabadi, S. Erfan, A. Földesi and J. Chattopadhyaya. *Journal Organic Chemistry* **79**, 7266–7276 (2014)

2013

416. “Challenges in the Chemistry of Small Interfering RNA as Potential Therapeutics to Inhibit Cellular mRNA Expression” for Chemistry, Molecular Sciences and Chemical Engineering: edited by Jan Reedijk & David Crich, ELSEVIER INC, with offices at 225 Wyman Street, Waltham, MA 02451, United States. <http://dx.doi.org/10.1016/B978-0-12-409547-2.053373>
C. Zhou and J. Chattopadhyaya.
415. New Anti-protozoal Agents: Their synthesis and Biological Evaluations
R. S. Upadhyaya, S.S. Dixit, A. Földesi and J. Chattopadhyaya *Bioorganic & Medicinal Chemistry Letters* **23**, 2750–2758 (2013)
414. Diastereomer-Specific Repertoire of 7'R- or 7'S-Me-Carba-Locked Nucleic Acids (cLNAs) in Antisense Oligo/RNA Duplexes and Engineering of Physico-chemical and Enzymological Properties.
Q. Li, O. Plashkevych, R.S. Upadhyaya, S.G. Deshpande, A. Földesi, and J. Chattopadhyaya. *Chapter 7*. V.A. Erdmann *et al.* (eds.), *Chemical Biology of Nucleic Acids, RNA Technologies*, DOI 10.1007/978-3-642-54452-1_12, © Springer-Verlag Berlin Heidelberg (2014)

2012

413. Unusual Strain Releasing Nucleophilic Rearrangement of a Bicyclo[2.2.1]heptane System to Cyclohexenyl Derivative
M. Karimi, A. Földesi, and J. Chattopadhyaya
Journal of Organic Chemistry, **77**, 9747–9755 (2012).
412. Steric Effects in the Tuning of the Diastereoselectivity of the Intramolecular Free-Radical Cyclization to an Olefin As Exemplified through the Synthesis of Carba-Pentofuranose Scaffold
M. Karimi, S. Erfan, A. Földesi, and J. Chattopadhyaya.
Journal of Organic Chemistry **77**, 6855–6872 (2012).
411. New Parasite Inhibitors Encompassing Novel Conformationally-locked 5'-Acyl Sulfamoyl Adenosines
S. S. Dixit, R. S. Upadhyaya and J. Chattopadhyaya
Organic & Biomolecular Chemistry **10** (30) 6121–6129 (2012)
410. Design and divergent synthesis of aza-nucleosides from a chiral iminosugar.
Saúl Martínez-Montero, Susana Fernández, Yogesh S. Sanghvi, Jyoti Chattopadhyaya, Muthupandian Ganesan, Namakkal G. Ramesh, Vicente Gotor, and Miguel Ferrero.
Journal of Organic Chemistry, **77**, 4671-4678 (2012)
409. Intramolecular Free-Radical Cyclization Reactions on Pentose-Sugars for the Synthesis of carba-LNA and carba-ENA and the Application of Their Modified Oligonucleotides as Potential RNA Targeted Therapeutics.
C. Zhou and J. Chattopadhyaya.

408. Molecular Structure of the Core-modified siRNA Duplexes Containing Diastereomeric Pair of [C6'(R)-OH]- versus [C6'(S)-OH]-Carba-LNAs Suggests a Model for RNAi Action. O. Plashkevych, and J. Chattopadhyaya. *Nucleosides, Nucleotides and Nucleic Acids* **30**, 815–825 (2011)
407. The *R*-diastereomer of 6'-*O*-toluoyl-carba-LNA modification in the core region of siRNA leads to 24-times improved RNA silencing potency against the HIV-1 compared to its *S*-counterpart
S. Dutta, N. Bhaduri, R. S. Upadhyaya, N. Rastogi, S. G. Chandel, J. k. Vandavasi, O. Plashkevych, R. A. Kardile, J. Chattopadhyaya. *MedChemComm*, **2** (11) 1110-1119 (2011)
406. MOLECULES (ISSN 1420-3049) Special Issue "Protecting Group in Organic Synthesis"
J. Chattopadhyaya, A. Földesi, *Guest Editors* http://www.mdpi.com/journal/molecules/special_issues/protecting_group/
405. Structure Of 10-23 DNAzyme In Complex With The Target RNA *in silico* – A Progress Report On The Mechanism of RNA Cleavage by DNA enzyme
O. Plashkevych, J. Chattopadhyaya In "*Medicinal Chemistry of Nucleic Acids*" Eds. Li-he Zhang, Zhen Xi, and Jyoti Chattopadhyaya, John Wiley & Sons, Inc., of 111 River Street, Hoboken, New Jersey 07030-5774
404. Medicinal Chemistry of Nucleic Acids
Eds. Li-he Zhang, Zhen Xi, and Jyoti Chattopadhyaya, John Wiley & Sons, Inc., of 111 River Street, Hoboken, New Jersey 07030-5774
403. Carba-LNA-5MeC/A/G/T modified Oligos Show Nucleobase-specific Modulation of 3'-Exonuclease Activity, Thermodynamic Stability, RNA-Selectivity and RNase H Elicitation: Synthesis and Biochemistry
Upadhyaya, R.; Deshpande, S.; Li, Q.; Kardile, R.; Sayyed, A.; Kshirsagar, E.; Salunke, R.; Dixit, S.; Zhou, C.; Földesi, A.; Chattopadhyaya, J.
Journal of Organic Chemistry, **76**, 4408–4431 (2011).
402. Allele-selective inhibition of ataxin-3 (ATX3) expression by antisense oligomers and duplex RNAs.
J. Hu, K. Gagnon, J. Liu, J. Watts, F. Bennett, E. Swayze, J. Randolph, J. Chattopadhyaya, D. Corey, *Biological Chemistry*, **392**(4), 315-25 (2011)
401. Synthesis and Antimycobacterial Activity of Prodrugs of Indeno[2,1-*c*]quinoline Derivatives
R.S. Upadhyaya, P. D. Shinde, S. A. Kadam, A.N. Bawane, A. Y. Sayyed, R. A. Kardile, P. N. Gitay, S. V. Lahore, S. S. Dixit, A. Földesi, and J. Chattopadhyaya.
European Journal of Medicinal Chemistry **46**, 1306-1324 (2011).
400. The carba-LNA modified siRNAs targeting HIV-1 TAR region downregulates HIV-1 replication successfully with Enhanced Potency.
S. Dutta, N. Bhaduri, N. Rastogi, S. G. Chandel, J. Vandavasi, R. S. Upadhyaya, and J. Chattopadhyaya.
Med. Chem. Comm., **2**, 206-216 (2011) **Hot article**
<http://blogs.rsc.org/md/>

399. Allele-Selective Inhibition of Mutant Huntingtin Expression with Antisense Oligonucleotides Targeting the Expanded CAG Repeat
K. Gagnon, H. Pendergraff, G. Deleavey, E. Swayze, P. Potier, J. Randolph, E. Roesch, J. Chattopadhyaya, M. Damha, F. C. Bennett, C. Montailier, M. Lemaitre and D. Corey.
Biochemistry, **9**(47), 10166-10178 (2010).
398. Synthesis of 2',4'-Propylene-Bridged (Carba-ENA) Thymidine and Its Analogues: The Engineering of Electrostatic and Steric Effects at the Bottom of the Minor Groove for Nuclease and Thermodynamic Stabilities and Elicitation of RNase H.
Y. Liu, J. Xu, M. Karimiahmadabadi, C. Zhou and J. Chattopadhyaya. *Journal of Organic Chemistry*, **75**, 7112–7128 (2010).
397. Synthesis and structure of azole-fused indeno[2,1-*c*]quinolines and their anti-mycobacterial properties
R. S. Upadhyaya, P. D. Shinde, A. Y. Sayyed, S. A. Kadam, A. N. Bawane, A. Poddar, O. Plashkevych, A. Földesi and J. Chattopadhyaya
Organic and Biomolecular Chemistry, **8** (24), 5661–5673 (2010).
396. Free-radical Ring Closure to Conformationally-locked α -L-Carba-LNAs and Synthesis of their Oligos: Nuclease Stability, Target RNA Specificity, and Elicitation of RNase H.
Q. Li, F. Yuan, C. Zhou, O. Plashkevych and J. Chattopadhyaya. *Journal of Organic Chemistry* **75**, 6122-6140 (2010).
395. A screen of chemical modifications identifies position-specific modification by UNA to most potently reduce siRNA off-target effects
J. B. Bramsen, M. M. Pakula, T. B. Hansen, C. Bus, N. Langkjær, J. Chattopadhyaya, J. W. Engels, P. Herdewijn, J. Wengel and J. Kjems *Nucleic Acids Research*, **38** (17), 5761-5773 (2010)
394. *In vivo* efficacy and off-target effects of Locked Nucleic Acid (LNA) and Unlocked Nucleic Acid (UNA) modified siRNA and small internally segmented interfering RNA (sisiRNA) in mice bearing human tumor xenografts.
Mook O.R.F., Vreijling J., Lena-Wengel S., Wengel J., Zhou C., Chattopadhyaya J., Baas F., Fluiter K. *Artificial DNA: PNA & XNA*, **1**, 36-44 (2010)
393. Why carba-LNA Modified Oligonucleotides Show Considerably Improved 3'-Exonuclease Stability Compared to that of the LNA Modified or the Native Counterparts: A Michaelis-Menten Kinetic Analysis.
C. Zhou and J. Chattopadhyaya, *Journal of Organic Chemistry*, **75**, 2341-2349 (2010).
392. Novel Quinoline and Naphthalene derivatives as potent Antimycobacterial agents
R. S. Upadhyaya, J. K. Vandavasi, R. A. Kardile, S. V. Lahore, S. S. Dixit, H. S. Deokar, P. D. Shinde, M. P. Sarmah and J. Chattopadhyaya, *European Journal of Medicinal Chemistry*, **45**, 1854-1867 (2010).
391. Conformationally constrained Indeno[2,1-*c*]quinolines - A new class of anti-mycobacterial agents. RS Upadhyaya, SV. Lahore, MP. Sarmah, V. Sharma, SS. Dixit, PD. Shinde, A Y. Sayyed, AM. Vibhute, MM. Shaikh, & J. Chattopadhyaya, *Organic & Biomolecular Chemistry*, **8**, 2180-2197 (2010).

390. The synthesis of therapeutic locked nucleos(t)ides
Chuanzheng Zhou and Jyoti Chattopadhyaya, *Current Opinion in Drug Discovery & Development*, **12**(6), 876-898 (2009).
389. Highlights of 30-Years of Bioorganic Chemistry (BOC) Research at Uppsala University (1979-2009).
András Földesi and Jyoti Chattopadhyaya. Download from www.boc.uu.se. Uppsala University Pres, Copyright ©May, 2009 by J. Chattopadhyaya, A. Földesi, ISBN: 978-91-506-2085-6, pp. 205s
388. Interview – “Chemistry, life and longevity”, Jyoti Chattopadhyaya talks to Marie Cote of Royal Society of Chemistry (UK) about Chemistry’s role in our lives....
Chemical Science, March 2009/ Volume 6/ Issue 3/ ISSN 1478-6524/CSHCBM/www.rsc.org/ Chemical Science.
387. Synthesis of Conformationally Locked Carba-LNAs through Intramolecular Free-Radical Addition to C=N. Electrostatic and Steric Implication of the Carba-LNA Substituents in the Modified Oligos for Nuclease and Thermodynamic Stabilities.
Jianfeng Xu, Yi Liu, Christelle Dupouy, and Jyoti Chattopadhyaya, *Journal of Organic Chemistry*, **74**, 6534-6554 (2009).
386. Design, Synthesis and biological evaluation of novel triazole, urea and thiourea derivatives of Quinoline against Mycobacterium tuberculosis
RS Upadhyaya, GM. Kulkarni, V. Nageswara Rao, V. J. Kishore, SS Dixit, V. Sharma and J. Chattopadhyaya, *Bioorganic & Medicinal Chemistry*, **17**, 4681-4692 (2009).
385. New (fused)quinoline, naphthalene and dibenzo(b,g)(1,8) naphthyridine derivatives useful for treating mycobacterial disease caused by any strains of Mycobacterium tuberculosis, and as antimalarial, antifungal, antitumor and antiviral agents , J Chattopadhyaya and RS Upadhyaya, PCT/SE 2009/050008.
Patent Number: WO2009091324-A1 CA2711912-A1 US2011059948-A1 IN201005113-P4
Patent Assignee: CHATTOPADHYAYA J; UPADHAYAYA R S
Inventors:CHATTOPADHYAYA J; UPADHAYAYA R S.
384. 5 or 6-Membered conformationally locked 2',4'-carbocyclic ribo-thymidines useful for treating cancer, bacterial or virus infection. J. Chattopadhyaya, Patent number: US 08461124, PCT/SE2008/050268. Official Gazette of the United States Patent and Trademark Office Patents Published: JUN 11 2013
Patent Number(s): WO2008111908-A1 ; EP2134736-A1 ; US2010087387-A1 ; US8461124-B2
Inventor(s): CHATTOPADHYAYA J
Patent Assignee Name(s) and Code(s): CHATTOPADHYAYA J(CHAT-Individual)
383. Design, Synthesis, Biological Evaluation and Molecular modeling studies of Novel Quinoline Derivatives Against *Mycobacterium tuberculosis*. R.S Upadhyaya, V.J. Kishore, V. Nageswar Rao, V. Sharma, S. S. Dixit and J. Chattopadhyaya, *Bioorganic & Medicinal Chemistry*, **17**, 2830-2841 (2009).
382. A large-scale chemical modification screen identifies design rules to generate siRNAs with high activity, high stability and low toxicity.
J.B. Bramsen, M.B. Laursen, C. Bus, T.B. Hansen, N. Langkjær, B.R. Babu, T. Højland, M. Abramov, A. Van Aerschot, D. Odadzic, R. Smicius, J. Haas, C. Andree, J. Barman, M. Wenska, P. Srivastava, C. Zhou, D. Honcharenko, S. Hess, E. Müller, G.V. Bobkov, S.N. Mikhailov, E. Fava, T. F. Meye, J. Chattopadhyaya, M. Zerial, J.W. Engels, P. Herdewijn, J. Wengel, J. Kjems *Nucleic Acids Research*, **37**, 2867–2881 (2009).
381. Double Sugar and Phosphate Backbone-constrained Nucleotides: Synthesis, Structure, Stability and Their Incorporation into Oligodeoxynucleotides.
C. Zhou, O. Plashkevych, J. Chattopadhyaya, *Journal of Organic Chemistry*, **Featured article**; **74** (9), 3248–3265 (2009); <http://pubs.acs.org/galleyproof/AP-ufiZFcydQcUwd8JbtJ5w>
380. Synthesis and Structure of New Methylene-bridged hexopyranosyl nucleoside (BHNA).
C. Zhou, O. Plashkevych, Y. Liu, N. Badgujar, J. Chattopadhyaya. *J. HETEROCYCLES*, **78** (7), 1715-1728 (2009).
379. Fine Tuning of Electrostatics Around the Internucleotidic Phosphate through Incorporations of Functionalized 2', 4'-Carbocyclic-LNAs and –ENAs Lead to Significant Modulation of Antisense Properties.
C. Zhou, Y. Liu, M. Andaloussi, N. Badgujar, O. Plashkevych, J. Chattopadhyaya, *Journal of Organic Chemistry*, **74**, 118–134 (2009)
378. New methylene-bridged hexopyranosyl nucleoside modified oligonucleotides (BHNA): synthesis and biochemical studies.
C. Zhou and J. Chattopadhyaya, *ARKIVOC : Journal of Organic Chemistry*, **2009** (iii), pp171-186.
- 2008**
377. Unusual Radical 6-endo Cyclization to the Carbocyclic-ENA and Elucidation of its Solution Conformation by 600 MHz NMR and *ab initio* Calculations.
C. Zhou, O. Plashkevych and J.Chattopadhyaya, *Organic & Biomolecular Chemistry*, **6**, 4627 – 4633 (2008), DOI: 10.1039/b813870b
376. Sequence-specific Solution Structures of the Four Isosequential Pairs of Single-stranded DNAs and RNAs
S. Chatterjee, W. Pathmasiri, and J. Chattopadhyaya, Preliminary version of this manuscript with all NMR Tables and Figures (including 145 pages of data as SI) and Results and Discussion is available from *Nature Precedings*: <http://hdl.handle.net/10101/npre.2008.1685.1> (2008). <http://precedings.nature.com/documents/1685/version/1> " dl:10101/npre.2008.1685.1.
375. Modulation of Pyrene Fluorescence in DNA probes Depends upon the Nature of the Conformationally Restricted Nucleotide.
D. Honcharenko, C. Zhou, and J. Chattopadhyaya. *Journal of Organic Chemistry* **2008**, **73**, 2829 - 2842.
- 2007**
374. Conformationally-2',4'-Locked Aza-ENA and Carbocyclic ribo-Thymidine. (*Non-peer-reviewed Abstract of the Plenary Lecture delivered by JC at the 5th International Symposium on Nucleic acid Chemistry, held at the Tokyo University Nov 20-22, 2007*). J Chattopadhyaya
Nucleic Acids Symposium Series, **51**, 69-70 (2007).
Erratum: *Nucleic Acids Symposium Series (OXF)* **52**: 729 (2008); doi:10.1093/nass/nrn366
373. Synthesis of Conformationally-Constrained 2'-N,4'-C-Ethylene-Bridged Adenosine (aza-ENA-A).
Malgorzata Wenska, Dmytro Honcharenko, Wimal Pathmasiri, and Jyoti Chattopadhyaya. *HETEROCYCLES*, **73**, 303 - 324 (2007)

372. The Five- and Six-Membered Conformationally Locked 2',4'-Carbocyclic *ribo*-Thymidine: Synthesis, Structure and Biochemical Studies.
P. Srivastava, J. Barman, W. Pathmasiri, O. Plashkevych, M. Wenska and J. Chattopadhyaya. *Journal of the American Chemical Society*, **129** (26), 8362 – 8379 (2007).
371. Chemical and Structural Implications of 1',2'- versus 2',4'-Conformational Constraints in the Sugar Moiety of Modified Thymine Nucleosides.
O. Plashkevych, S. Chatterjee, D. Honcharenko and J. Chattopadhyaya, *Journal of Organic Chemistry*, **72** (13) 4716 -4726 (2007).
370. High Quality oligo-RNA Synthesis using the New 2'-O-TEM Protecting Group by Selectively Quenching the Addition of *p*-Tolyl Vinyl Sulphone to Exocyclic Amino Functions.
C. Zhou, W. Pathmasiri, D. Honcharenko, S. Chatterjee, J. Barman and J. Chattopadhyaya, *Canadian Journal of Chemistry*, **85** (4), 293-301 (2007).
369. Comparison of the RNase H Cleavage Kinetics and Blood Serum Stability of the North-Conformationally Constrained and 2'-Alkoxy Modified Oligonucleotides.
D. Honcharenko, J. Barman, O. P. Varghese, and J. Chattopadhyaya, *Biochemistry* **46** (19), 5635 - 5646 (2007).
368. 2-(4-Tolylsulfonyl)ethoxymethyl (TEM) - A New 2'-OH Protecting Group For Solid Support RNA Synthesis.
C. Zhou, D. Honcharenko, and J. Chattopadhyaya, *Organic & Biomolecular Chemistry*, **5**, 333–343 (2007).
- 2006**
367. Nucleic Acid therapeutics for hematologic malignancies— theoretical considerations.
Opalinska J. B., Kalota A., Chattopadhyaya J., Damha, M., Gewirtz A. M. *Annals of the New York Academy of Sciences (USA)*, October; 1082: 124-36 (2006).
366. Conformationally Constrained 2'-N,4'-C-Ethylene-Bridged Thymidine (Aza-ENA-T): Synthesis, Structure, Physical, and Biochemical Studies of Aza-ENA-T-Modified Oligonucleotides.
Oommen P. Varghese, J. Barman, W. Pathmasiri, O. Plashkevych, D. Honcharenko, and J. Chattopadhyaya. *Journal of the American Chemical Society*, **128** (47), 15173–15187 (2006).
365. Invited Book Review on “Charge Transfer in DNA: From Mechanism to Application.”
Edited by Hans-Achim Wagenknecht.
Reviewed by: J. Chattopadhyaya, *ChemBioChem*, **7** (2), 389 (2006).
364. The Chemical Nature of 2'-Substituent in the pentose-sugar dictates pseudoaromatic character of the nucleobase (pK_a) in DNA/RNA.
S. Chatterjee, W. Pathmasiri, O. Plashkevych, D. Honcharenko, O. P. Varghese, M. Maiti, and J. Chattopadhyaya, *Organic & Biomolecular Chemistry*, **4**, 1675–1686 (2006)
363. Synthesis and Structure of Novel Conformationally-constrained 1',2'-Azetidino-Fused Bicyclic Pyrimidine Nucleosides: Their Incorporation into Oligo-DNAs and the Thermal Stability of the Heteroduplexes.
D. Honcharenko, O. P. Varghese, O. Plashkevych, J. Barman and J. Chattopadhyaya, *Journal of Organic Chemistry*, **71**, 299–314 (2006).
362. membranes analyzed by immobilized liposome chromatography.
A. Lundquist, C. Engvall, E. Boija, S. Kurtovic, J. Chattopadhyaya, C. Lagerquist Häggglund, and P. Lundahl, *Biomedical Chromatography*, **20**, 83–87 (2006).
361. Non-identical Chemical Characters of the Internucleotidic Phosphates can Modulate the Non-enzymatic Reactivity of the Phosphodiester Bonds in RNA.
J. Barman, S. Acharya, S. Chatterjee, Å. Engström, and J. Chattopadhyaya, *Organic & Biomolecular Chemistry*, **4**, 928–941 (2006).
- 2005**
360. Facile preparation of the Oxetane-Nucleosides.
M. Bogucka, P. Nauš, W. Pathmasiri and J. Chattopadhyaya. *Organic & Biomolecular Chemistry*, **3**, 4362-4372 (2005).
359. The 5-Me of thymine (T) interaction with the Neighboring Nucleobases dictate the relative stability of isosequential DNA/RNA hybrid duplexes.
S. Chatterjee, W. Pathmasiri & J. Chattopadhyaya, *Organic & Biomolecular Chemistry*, **3**, 3911–3915 (2005).
358. A Uniform Mechanism Correlating Dangling-end Stabilization and Stacking Geometry.
J. Isaksson and J. Chattopadhyaya, *Biochemistry*, **44**, 5390-5401 (2005).
357. Oxetane Locked Thymidine in the Dickerson-Drew Dodecamer Causes Local Base Pairing Distortions – An NMR Structure and Hydration Study
J. Isaksson, O. Plashkevych, P. I. Pradeepkumar, W. Pathmasiri, P. Shrivastava, S. Chatterjee, J. Barman, C. Petit and J. Chattopadhyaya, *Journal of Biomolecular Structure & Dynamics*, **23** (3), 233-356 (2005).
356. 2'/3'-O-peptidyl Adenosine as a General Base Catalyst of its Own External Peptidyl Transfer: Implications for the Ribosome Catalytic Mechanism.
M.M. Chagalov, G.D. Ivanova, M.A. Rangelov, P. Acharya, S. Acharya, N. Minakawa, A. Földesi, I.B. Stoinea, V.M. Yomtova, C.D. Roussev, A. Matsuda, J. Chattopadhyaya, and D.D. Petkov, *ChemBioChem*, **6**, 1–6 (2005).
355. Electrostatic Cross-modulation of the Pseudoaromatic Character in Single Stranded RNA by Nearest-neighbor Interactions.
P. Acharya and J. Chattopadhyaya, *Pure and Applied Chemistry*, **77** (1), 291-311 (2005).
- 2004**
354. Human deoxycytidine kinase as a deoxyribonucleoside phosphorylase.
E. Usova, T. Maltseva, A. Földesi, J. Chattopadhyaya and S. Eriksson, *Journal of Molecular Biology*, **344**, Issue 5, 1347-1358 (2004).
Corrigendum to Table 2 in the above article “Human Deoxycytidine Kinase as a Deoxyribonucleoside Phosphorylase” is given in the corrected Table 2 in version *Journal of Molecular Biology* **348**, p503 (2005)
353. Single-stranded Adenine-rich DNA and RNA Retain Structural Characteristics of their Respective Double-

- stranded Conformations and Show Directional Differences in Stacking Pattern.
J. Isaksson, S. Acharya, J. Barman, P. Cheruku and J. Chattopadhyaya, *Biochemistry*, **43** (51), 15996-16010 (2004).
352. Invited Book Review on "Highlights in Bioorganic Chemistry", Eds C. Schmuck and H. Wenneemers.
J. Chattopadhyaya, *ChemiBioChem*, **5**, 1719 (2004).
351. Oxetane modified, conformationally constrained, antisense oligodeoxyribonucleotides function efficiently as gene silencing molecules.
J. B. Opalinska, A. Kalota, L. K. Gifford, P. Lu, K-Y Jen, P.I. Pradeepkumar, J. Barman, T.K. Kim, C. Swider, J. Chattopadhyaya, and A.M.Gewirtz, *Nucleic Acids Research*, **32** (19), 5791-5799 (2004).
350. Synthesis, Physicochemical and Biochemical Studies of 1',2'-Oxetane Constrained Adenosine and Guanosine Modified Oligonucleotides, and their Comparison with those of the Corresponding Cytidine and Thymidine Analogs.
P. I. Pradeepkumar, P. Cheruku, O. Plashkevych, P. Acharya, S. Gohil and J. Chattopadhyaya, *Journal of the American Chemical Society*, **126**, 11484-11499 (2004)
349. Significant pK_a perturbation of Nucleobases is an Intrinsic Property of the Sequence Context in DNAs and RNAs. S. Acharya, J. Barman, P. Cheruku, S. Chatterjee, P. Acharya, J. Isaksson and J. Chattopadhyaya, *Journal of the American Chemical Society*, **126**, 8674-8681 (2004)
348. Synthesis of 2'- 2H_1 -Ribonucleosides.
Földesi, M. K. Kundu, Z. Dinya and J. Chattopadhyaya, *Helvetica Chimica Acta*, **87**, 742-757 (2004).
347. Measurement of Nucleobase pK_a Values in Model Mononucleotides shows RNA-RNA Duplexes to be More Stable than DNA-DNA Duplexes.
P. Acharya, P. Cheruku, S. Chatterjee, S. S. Acharya and J. Chattopadhyaya, *Journal of the American Chemical Society*, **126**, 2862-2869 (2004).
- 2003**
346. Studies towards the large scale chemical synthesis of the precursors of ribonucleosides-3',4',5',5''- 2H_4 and -2',3',4',5',5''- 2H_5
A. Földesi and J. Chattopadhyaya, *Nucleosides, Nucleotides and Nucleic Acids*, **22** (12), 2093-2104 (2003).
345. Studies on the Stereoselective Synthesis of Deuterated-Ribose Derivatives.
M. K. Kundu,, A. Földesi and J. Chattopadhyaya, *Helvetica Chimica Acta*, **86**, 633-643 (2003).
344. Cross-modulation of the pK_a of Nucleobases in a Single Stranded Hexameric-RNA due to Tandem Electrostatic Nearest-neighbor Interactions.
P. Acharya, S. Acharya, N. V. Amirkhanov, P. Cheruku, A. Földesi and J. Chattopadhyaya, *Journal of the American Chemical Society*, **125**, 9948-9961 (2003).
343. A Repertoire of Pyridinium-Phenyl-Methyl Cross-talk Through a Cascade of Intramolecular Electrostatic Interactions.
P. Acharya, O. Plashkevych, C. Morita, S. Yamada and J. Chattopadhyaya, *Journal of Organic Chemistry*, **68**, 1529-1538 (2003).
342. The pK_a of the Internucleotidic 2'-Hydroxyl Group in Diribonucleoside (3'→5') Monophosphates.
S. Acharya, A. Földesi, and J. Chattopadhyaya, *Journal of Organic Chemistry*, **68**, 1906-1910 (2003).
341. Tandem Electrostatic Effect From the First to the Third Aglycon in the Trimeric RNA Owing to the Nearest-neighbor Interaction
P. Acharya, S. Acharya, A. Földesi and J. Chattopadhyaya, *Journal of the American Chemical Society*, **125**, 2094-2100 (2003)
- 2002**
340. Conformational analysis of antisense 2'-oxetane modified DNA/RNA duplexes as substrates for RNase H.
O. Plashkevych, and J. Chattopadhyaya, NSC Progress Report 2002, .p31-34. National Supercomputing Center at Linköpings universitet, ISBN: 91-7373-687-2.
339. Cross-Modulation of Physico-Chemical Character of Aglycones in Dinucleoside (3'→5') monophosphates by the Nearest Neighbor Interaction in the Stacked State.
S. Acharya, P. Acharya, A. Földesi and J. Chattopadhyaya, *Journal of the American Chemical Society*, **124**, 13722-13730 (2002).
338. Experimental evidences unequivocally prove the role of stereoelectronics as one of the major forces responsible for the self-assembly of DNA and RNA. P. Acharya, J. Issakson, P.I. Pradeepkumar and J. Chattopadhyaya, *Collection of Czechoslovak Chemical Communications Symposium Series (Chemistry of Nucleic Acid Components)* **5**, 99-120 (2002).
337. Synthesis of the DNA-[Ru(tpy)(dppz)(CH₃CN)]²⁺ Conjugates and their Photo Cross-Linking Studies with the Complementary DNA Strand. D. Ossipov, S. Gohil and J. Chattopadhyaya, *Journal of the American Chemical Society* **124**, 13416-13433 (2002).
336. Antisense oligonucleotides with oxetane-constrained cytidine enhance heteroduplex stability, and elicit satisfactory RNase H response as well as showing improved resistance to both exo and endonucleases.
P.I. Pradeepkumar, N.V. Amirkhanov, J. Chattopadhyaya, *Organic & Biomolecular Chemistry*, **1**, 81-92 (2003)
335. Computational and NMR study of Quaternary Ammonium Ion Conformations in Solutions.
V.B. Luzhkov, F. Österberg, P. Acharya, J. Chattopadhyaya and J. Åqvist, *Physical Chemistry Chemical Physics*, **4**, 4640-4647 (2002).
334. An Electrochemical Probe of DNA stacking in an Antisense Oligonucleotide Containing a C3'-endo Locked Sugar.
E. M. Boon, J. K. Barton, P. I. Pradeepkumar, J. Isaksson, C. Petit and J. Chattopadhyaya, *Angewandte Chemie, International Edition in English*, No 18, 3402-3405 (2002).
333. Kinetic Analysis of the RNA Cleavage of the oxetane modified Antisense-RNA Hybrid Duplex by RNase H.
N.V. Amirkhanov, P.I. Pradeepkumar, J. Chattopadhyaya, *Journal of the Chemical Society, Perkin Transactions 2*, Issue 5, 976-984 (2002).
332. The RNase H Affinity and Cleavage of the target RNA in the Antisense-RNA Hybrid Duplexes Containing various 3'-Tethered Substituents in the Antisense Strand.

331. The Hydrogen Bonding and Hydration of 2'-OH in Adenosine and Adenosine 3'-ethylphosphate.
P. Acharya and J. Chattopadhyaya, *Journal of Organic Chemistry*, **67**, 1852-1865 (2002)

2001

330. Dipyrido[3,2-a:2', 3'-c]phenazine-Tethered Oligo-DNA: Synthesis and Thermal Stability of Their DNA • DNA and DNA • RNA Duplexes and DNA • DNA • DNA Triplexes. D. Ossipov, E. Zamaratski, and Jyoti Chattopadhyaya. Chapter (pp. 229-244) in *Perspectives in Nucleoside and Nucleic Acid Chemistry*. (2001) Editor: M. Volkan Kisakürek; Editor: Helmut Rosemeyer Publisher: Wiley-VCH, ISBN10: 3906390217, ISBN13: 9783906390215

329. The Oxetane Modified Antisense Oligonucleotides Promote RNase H Cleavage of the Complementary RNA Strand in the Hybrid Duplex as good as the Native, and Offer Improved Endonuclease Resistance.
P.I. Pradeepkumar and J. Chattopadhyaya, *Journal of the Chemical Society, Perkin Transactions 2*, Issue 11, 2074 - 2083 (2001).

328. Synthesis of Multiply Labelled Ribonucleosides for Sequence-Specific Labeling of oligo-RNA.
J. Milecki, A. Földesi, A. Fischer, R. W. Adamiak, J. Chattopadhyaya, *Journal of Labelled Compounds & Radiopharmaceutical*, **44** (11), 763-783 (2001).

327. Deuterated Nucleosides, J. Chattopadhyaya, *United States patent* 5,721,350

326. Total Synthesis of 2',3',4',5',5''-²H₅-Ribonucleosides – the Key Building Blocks for NMR Structure Elucidation of Large RNA.
A. Földesi, A. Trifonova, Z. Dinya and J. Chattopadhyaya, *Journal of Organic Chemistry*, **66**, 6560-6570 (2001).

325. Synthetic studies to improve the deuterium labeling in nucleosides for facilitating structural studies of large RNAs by high-field NMR spectroscopy.
M.K. Kundu, A. Trifonova, Z. Dinya, A. Földesi and J. Chattopadhyaya, *Nucleosides, Nucleotides & Nucleic Acids*, **20**, 1333-1338 (2001).

324. Do the 16mer, 5'-GUGGUCUGAUGAGGCC-3' and the 25mer, 5'-CGCCGAACUCGUAAGAGUCACCAC-3', form a hammerhead ribozyme structure in physiological condition? An NMR and UV thermodynamic study.
E. Zamaratski, A. Trifonova, P. Acharya, J. Isaksson, T. Maltseva and J. Chattopadhyaya, *Nucleosides, Nucleotides & Nucleic Acids*, **20**, 1219-1224 (2001).

323. Molecular modeling of 2'-OH mediated hydrogen bonding in ribonucleos(t)ides by NMR constrained AM1 and MMX calculations.
P. Acharya, I. Velikian, S. Acharya and J. Chattopadhyaya, *Nucleosides, Nucleotides & Nucleic Acids* **20**, 1211-1218 (2001).

322. An energetic correlation of ab initio and NMR studies of the 3'-gauche effect in 3'-substituted thymidines.
P. Acharya, C. Thibaudeau and J. Chattopadhyaya, *Nucleosides, Nucleotides & Nucleic Acids* **20**, 1229-1234 (2001).

321. The NMR conformation study of the complexes of deoxycytidine kinase (dCk) and 2'-deoxycytidine/2'-deoxyadenosine.

T. Maltseva, E. Usova, S. Eriksson, J. Milecki, A. Földesi and J. Chattopadhyaya, *Nucleosides, Nucleotides & Nucleic Acids* **20**, 1225-1228 (2001).

320. The First Example of a Hoogsteen basepaired DNA duplex in Equilibrium with the Watson-Crick Basepaired Duplex – A Thermodynamic and Structural Study by 600 MHz NMR. J. Isaksson, T. Maltseva, P. Agback, X. Luo, A. Kumar, E. Zamratski and J. Chattopadhyaya, *Journal of Biomolecular Structure & Dynamics*, **18**, 783-806 (2001).

319. Synthesis of [Ru(phen)₂dppz]²⁺ Tethered oligo-DNA, and Studies on the Metallointercalation Mode into the DNA Duplex.
D. Ossipov, P.I. Pradeepkumar, M. Holmer and J. Chattopadhyaya, *Journal of the American Chemical Society*, **123**, 3551-3562 (2001).

318. The pK_as of 2'-hydroxyl Group in Nucleosides and Nucleotides.
I. Velikyán, S. Acharya, A. Trifonova, A. Földesi and J. Chattopadhyaya, *Journal of the American Chemical Society*, **123**, 2893-2894 (2001).

317. The Recognition and Cleavage of RNA in the Antisense Oligo-RNA Hybrid Duplexes by RNase H.
N.V. Amirkhanov, E. Zamaratski, and J. Chattopadhyaya, *Tetrahedron Letters*. **42**, 489-491 (2001).

316. A critical survey of the structure-function of the antisense oligo/RNA hybrid duplex as substrate for RNase H.
E. Zamaratski, P.I. Pradeepkumar and J. Chattopadhyaya, *Journal of Biochemical and Biophysical Methods*, **48**, 187-203 (2001)

315. Conformation-specific Cleavage of Antisense Oligonucleotide-RNA Duplexes by RNase H.
P.I. Pradeepkumar, E. Zamaratski, A. Földesi and J. Chattopadhyaya, *Journal of the Chemical Society, Perkin Transactions 2*, 402-408 (2001).

314. The 3'-Modified Antisense Oligos Promote Faster Hydrolysis of the Target RNA by RNase H than the Natural Counterpart. E. Zamaratski, D. Ossipov, P.I. Pradeepkumar, N. Amirkhanov and J. Chattopadhyaya, *Tetrahedron*, **57**, 593-606 (2001).

2000

313. Transmission of the Conformational Information in the Antisense/RNA Hybrid Duplex influences the Pattern of the RNase H Cleavage Reaction.
P.I. Pradeepkumar, E. Zamaratski, A. Földesi and J. Chattopadhyaya, *Tetrahedron Letters*, **41**, 8601-8607 (2000).

312. An NMR Conformational Study of the Complexes of ¹³C/²H Double-labeled 2'-Deoxynucleosides and Deoxycytidine Kinase (dCK)
T. Maltseva, E. Usova, S. Eriksson, Jan Milecki, A. Földesi, J. Chattopadhyaya, *Journal of the Chemical Society, Perkin Transactions 2*, Issue 11, 2199-2207 (2000).

311. The synthesis of deuterionucleosides.
A. Földesi, A. Trifonova, C. M. Kundu and J. Chattopadhyaya, *Nucleosides, Nucleotides and Nucleic Acids* **19**, 1615-1656 (2000).

310. The RNA Molecular Wire: The pH-Reverse Relaxation Study in Electronic Character of Adenine-9-yl is Transmitted to Drive the Sugar-Phosphate Backbone Torsions in Adenosine 3', 5'-bis-phosphate. I. Velikian, P. Acharya, A. Trifonova, A. Földesi and J. Chattopadhyaya, *Journal of Physical Organic Chemistry*, **13**, 300-305 (2000).
309. A Comparative ^{13}C and ^2H Transverse Relaxation Study of Microsecond Dynamics of the AT tract of Selectively $^{13}\text{C}/^2\text{H}$ Labelled DNA duplexes: $d^5(^1\text{C}^2\text{G}^3\text{A}^4\text{T}^5\text{T}^6\text{A}^7\text{A}^8\text{T}^9\text{C}^{10}\text{G})$ $d^5(^1\text{C}^2\text{C}^3\text{A}^4\text{T}^5\text{T}^6\text{A}^7\text{A}^8\text{T}^9\text{G}^{10}\text{G})$. T.V. Maltseva, A. Földesi and J. Chattopadhyaya, *Magnetic Resonance in Chemistry*, **38**, 403-414 (2000).
308. The Identification of the A-Type RNA Helices in A 55mer RNA by Selective Incorporation of Deuterium Labeled Nucleotide Residues (The Uppsala NMR-Window Concept). T. Maltseva, A. Földesi, and J. Chattopadhyaya. *Journal of Biochemical & Biophysical Methods*, **42** (3), 153-178 (2000).
- 1999**
307. Stereoisomeric Selectivity of the Human Deoxynucleoside Kinases. J. Wang, J. Chattopadhyaya and S. Eriksson, *Biochemistry*, **38** (51), 16993-16999 (1999).
306. Dipyrido[3,2-a:2',3'-c]phenazine Tethered Oligo-DNA. Synthesis and Thermal Stability of Their DNA-DNA and DNA-RNA Duplexes and Triplexes. D. Ossipov, E. Zamaratski and J. Chattopadhyaya, *Helvetica Chimica Acta*, **82**, 2186-2200 (1999).
305. The physico-chemical properties of 5'-Polyarene tethered DNA Conjugates and their duplexes with complementary RNA. N. Puri and J. Chattopadhyaya, *Nucleosides and Nucleotides*, **18** (11&12), 2785-2818 (1999).
304. Selective Cleavage of the O⁶-Diphenylcarbamoyl group from Sugar-modified Guanosines for Incorporation into oligo-DNA. A. Trifonova, A. Földesi, Z. Dinya and J. Chattopadhyaya, *Tetrahedron Letters*, **40**, 7283-7284(1999).
303. Synthesis of C2-d-2,3-O-Isopropylidene-D-ribose. A. Trifonova, A. Földesi, Z. Dinya and J. Chattopadhyaya, *Collection of Czechoslovak Chemical Communications*, **2**, 47-52 (1999).
302. Stereoelectronic Effects in Nucleosides and Nucleotides and their structural implications. C. Thibaudeau and J. Chattopadhyaya Uppsala University Press, ISBN 91-506-1351-0, Distributor: Dept of Bioorganic Chemistry, Uppsala University, 1999. This can be down-loaded from our website: <http://www.boc.uu.se/>
301. The transmission of the electronic character of guanin-9-yl drives the sugar-phosphate backbone torsions in guanosine 3', 5'-bisphosphate. P. Acharya, A. Trifonova, C. Thibaudeau, A. Földesi and J. Chattopadhyaya, *Angewandte Chemie, International Edition in English*, **38**, 3645-3650 (1999).
300. The Change of the Electronic Character Upon Cisplatin Binding to Guanine Nucleotide is Transmitted to Drive the Conformation of the Local Sugar-Phosphate Backbone – A Quantitative Study.
299. The Enantioselectivity of the Human Deoxynucleoside Kinases. J. Wang, J. Chattopadhyaya and S. Eriksson, *Nucleosides & Nucleotides*, **18**(4 & 5), 807-810 (1999)
298. The strength of the 3'-gauche effect dictates the structure of 3'-anthraniloyladenine and its 5'-phosphate, Two analogues of the 3'-end of aminoacyl tRNA. P. Acharya, B. Nawrot, M. Sprinzl, C. Thibaudeau and J. Chattopadhyaya, *Journal of the Chemical Society, Perkin Transactions 2*, 1531-1536 (1999).
297. The Application of the "Uppsala NMR-window" Concept for Conformational Analysis of Large DNA and RNA by High-field NMR Spectroscopy. A. Földesi, T. Maltseva, and J. Chattopadhyaya, *Nucleosides and Nucleotides*, **18** (6&7), 1599-1600 (1999).
296. Synthesis of $^2\text{H}/^{13}\text{C}$ -Labeled 2'-Deoxynucleosides and their Site-specific Incorporation into Oligo-DNA for Structural Studies via Relaxation time Measurements. A. Földesi, T. Maltseva, and J. Chattopadhyaya, *Nucleosides and Nucleotides*, **18** (6&7), 1377-1378 (1999).
295. A Single Carbocyclic Nucleotide Substitution in a 12mer DNA Gives a Hoogsteen Basepaired Duplex (till 38°C) and a Hairpin (till 65°C). A 600 MHz NMR Spectroscopic Study. J. Isaksson, T. Maltseva, P. Agback, X. Luo, A. Kumar, E. Zamaratski and J. Chattopadhyaya, *Nucleosides and Nucleotides*, **18** (6&7), 1593-1596 (1999).
294. Determination of the group electronegativity of trifluoromethyl in 3'-O-Trifluoromethylthymidine by ^1H -NMR spectroscopy. C. Thibaudeau, N. Nishizono, Y. Sumita, A. Matsuda, and J. Chattopadhyaya. *Nucleosides and Nucleotides*, **18**(4&5), 1035-1053 (1999).
293. The first example of sequence-specific non-uniformly $^{13}\text{C}_6$ -labelled RNA: Synthesis of the 29mer HIV-1 TAR RNA with ^{13}C relaxation window. I. Milecki, E. Zamaratski, T.V. Maltseva, A. Földesi, R.W. Adamiak and J. Chattopadhyaya, *Tetrahedron*, **55**, 6603-6622 (1999).
292. Diastereospecific synthesis of nucleosides-3',4',5',5''-d₄. A. Trifonova, Z. Dinya, A. Földesi and J. Chattopadhyaya, *Tetrahedron*, **55**, 4747 (1999).
291. How kinetically accessible is an RNA target for hybridization with an antisense oligo? A lesson from an RNA target which is as small as a 20mer. N. Puri and J. Chattopadhyaya, *Tetrahedron*, **55**, 1505 (1999).
290. Measurement of the Deuterium Relaxation Times in Double-labelled ($^{13}\text{C}/^2\text{H}$) thymidine and 2'-deoxyadenosine as well as in selectively labelled DNA duplex: 5'-d($^1\text{C}^2\text{G}^3\text{A}^4\text{T}^5\text{T}^6\text{A}^7\text{A}^8\text{T}^9\text{C}^{10}\text{G}$)₂-3'. T.V. Maltseva, A. Földesi and J. Chattopadhyaya. *Magnetic Resonance in Chemistry*, **37**, 203-213 (1999).
- 1998**
289. Measurement of T₁ relaxation rates of natural abundant ^{13}C at C2' in a non-uniformly deuterium labelled oligo-DNA. T.V. Maltseva, A. Földesi and J. Chattopadhyaya. *Journal*

- of the Chemical Society, *Perkin Transactions 2*, Issue 12, 2689 (1998).
288. Partially-deuterated Oligo-DNA reduces Overcrowding, Enhances Resolution and Sensitivity and Provide Improved NMR Constraints for Structure Elucidation of Oligo-DNA. T.V. Maltseva, A. Földesi and J. Chattopadhyaya, *Tetrahedron*, **54**, 14515-14528 (1998).
287. Synthesis of partially-deuterated 2'-deoxynucleoside blocks and their incorporation into oligo-DNA for simplification of overcrowding, and selective enhancement of resolution and sensitivity in the ¹H-NMR spectra. A. Földesi, T.V. Maltseva and J. Chattopadhyaya, *Tetrahedron*, **54**, 14487-14514 (1998).
286. Synthesis of Phenazine-tethered Arabino and Xylofuranosyl Oligonucleotide Conjugates: The thermal Stability and Fluorescence Properties of their Duplexes (DNA-DNA & DNA-RNA) and Triplexes. E. Zamaratski and J. Chattopadhyaya, *Tetrahedron*, **54**, 8183 (1998).
285. Synthesis of 1'-Phenazine-tethered Psicofuranosyl Containing Oligonucleotides: The thermal Stability and Fluorescence Properties of their Duplexes and Triplexes. D. Ossipov and J. Chattopadhyaya, *Tetrahedron*, **54**, 5667 (1998).
284. NMR Conformation of (-)-β-D-Aristeromycin and its 2'-deoxy and 3'-deoxy counterparts in aqueous solution. C. Thibaudeau, S. Bekiroglu, A. Kumar, A. Matsuda, V. Marquez and J. Chattopadhyaya. *Journal of Organic Chemistry*, **63**, 5447 (1998).
283. The 5'-Purine-Pyrimidine-3'/3'-Pyrimidine-Purine-5' stacks are more stabilizing in self-complementary DNA duplex than the 5'-Purine-Purine-3'/3'-Pyrimidine-Pyrimidine-5' stack. D. Ossipov, E. Zamaratski and J. Chattopadhyaya, *Nucleosides & Nucleotides*, **17** (9-11), 1613-1616 (1998).
282. Pseudorotation of the sugar moiety in pyrimidine nucleosides occurs in the same time scale as the overall tumbling: ²H-NMR relaxation time study. J. Plavec and J. Chattopadhyaya, *Magnetic Resonance in Chemistry*, **36**, 732-740 (1998).
281. A New Generalized Karplus-type Equation Relating Vicinal Proton-Fluorine Coupling Constants to H-C-C-F torsion. C. Thibaudeau, J. Plavec and J. Chattopadhyaya, *Journal of Organic Chemistry*, **63**, 4967 (1998).
280. The Solution Conformation of a Carbocyclic Analog of Dickerson-Drew Dodecamer, Its Comparison with its X-ray Structure and the NMR Structure of the Native Counterpart. A. Y. Denisov, S. Bekiroglu, T. V. Maltseva, A. Sandström, K-H. Altmann, M. Egli, and J. Chattopadhyaya, *Journal of Biomolecular Structure & Dynamics*, **16** (3), 547-568 (1998).
279. The Residence Time of the Bound Water in the Hydrophobic minor Groove of the Carbocyclic-Nucleoside Analogs of Drew-Dickerson Dodecamers. T.V. Maltseva, K-H. Altman, M. Egli and J. Chattopadhyaya, *Journal of Biomolecular Structure & Dynamics*, **16** (3), 569-578 (1998).
278. The information transmission from the nucleobase drives the sugar-phosphate backbone conformation in the nucleotide wire. C. Thibaudeau and J. Chattopadhyaya, *Nucleosides & Nucleotides*, **17** (9-11), 1589-1604 (1998).
277. The electronic nature of the aglycone dictates the drive of the pseudorotational equilibrium of the pentofuranose moiety in C-nucleosides. I. Luyten, J. Matulic-Adamic, L. Beigelman and J. Chattopadhyaya, *Nucleosides & Nucleotides*, **17** (9-11), 1605-1612 (1998).
276. Elucidation of the origin of nOes and rOes that show the hydration in the minor and major groove of DNA duplex with ATTAAT tract by NOESY and ROESY experiments. T. V. Maltseva, P. Roselt and J. Chattopadhyaya, *Nucleosides & Nucleotides*, **17** (9-11), 1617-1634 (1998).
275. T₁ and T₂ relaxation times of the ¹³C nuclei of deuterium-labeled nucleosides. T.V. Maltseva, A. Földesi and J. Chattopadhyaya *Magnetic Resonance in Chemistry*, **36**, 227 (1998).
274. The quantitation of the competing energetics of the stereoelectronic and steric effects of the 3'-OH and the aglycone in the α- versus β-D- & -L-2'-deoxy ribonucleosides by ¹H-NMR. C. Thibaudeau, A. Földesi and J. Chattopadhyaya, *Tetrahedron*, **54**, 1867 (1998).
273. Determination of the tautomeric equilibrium of ψ-uridine in the basic solution. I. Luyten, K.W. Pankiewicz, K.A. Watanabe and J. Chattopadhyaya, *Journal of Organic Chemistry*, **63**, 1033-1040 (1998).

1997

272. The strength of the anomeric effect in adenosine, guanosine and in their 2'-deoxy counterparts is medium-dependent I. Luyten, C. Thibaudeau and J. Chattopadhyaya, *Journal of Organic Chemistry*, **62**, 8800 (1997).
271. The NMR structure of estrone (Es)-tethered tandem DNA duplex: [d(5'pCAGCp3')-Es] + [Es-d(5'pTCCA3')] : d(5'TGGAGCTG3'). A. Y. Denisov, A. Sandström, T. V. Maltseva and J. Chattopadhyaya, *Journal of Biomolecular Structure & Dynamics*, **15** (3), 499 (1997).
270. Cyclic phosphorylating and phosphorylating agents: Reactivity and utility in the synthesis of biophosphates. N. Puri, C. Sund and J. Chattopadhyaya, "Ugi-symposium - Multikomponenten-Reaktionen (22.9.1995)", pp. 55-78 (1997); Ed. H. Eckert, Bull from Dept. of Org. Chem., Tech. Univ. Munich., Germany.
269. Synthesis of 5'-polyarene-tethered oligo-DNAs and the thermal stability and spectroscopic properties of their duplexes and triplexes. N. Puri, E. Zamaratski, C. Sund and J. Chattopadhyaya, *Tetrahedron*, **53**, 10409 (1997).
268. The first experimental evidence for a larger medium-dependent flexibility of natural β-D-nucleosides compared to the α-D-nucleosides. C. Thibaudeau, A. Földesi and J. Chattopadhyaya, *Tetrahedron*, **53**, 14043 (1997).
267. The determination of the ionization constants of C-nucleosides. I. Luyten, C. Thibaudeau and J. Chattopadhyaya, *Tetrahedron*, **53**, 6903 (1997).

266. The tunable transmission of the aromatic character of the aglycone through the anomeric effect in C-nucleosides drives its own sugar conformation: a thermodynamic study. I. Luyten, C. Thibaudeau, A. Sandström and J. Chattopadhyaya, *Tetrahedron*, **53**, 6433 (1997).
265. MCR III. Multicomponent reactions and their Libraries. A New type of Organic Chemistry of the Isocyanides and Phosphorus derivatives. J. Chattopadhyaya, A. Dömling, K. Lorenz, W. Ichtter, I. Ugi and B. Werner, *Nucleosides & Nucleotides*, **16**, 843, (1997).
264. The chemistry of C-Branched spermine tethered oligo-DNA and their properties in forming duplexes and triplexes. C. Sund, N. Puri and J. Chattopadhyaya, *Nucleosides & Nucleotides*, **16**, 755, (1997).
263. The Discovery of Intramolecular Stereoelectronic Forces That Drive the Sugar Conformation in Nucleosides and Nucleotides. C. Thibaudeau and J. Chattopadhyaya, *Nucleosides & Nucleotides*, **16**, 523, (1997).
262. The application of Uppsala "NMR-window" concept for conformational analysis of biologically functional DNAs and RNAs by high-field NMR. A. Földesi, S.-I. Yamakage, F. P. R. Nilsson, T. V. Maltseva and J. Chattopadhyaya, *Nucleosides & Nucleotides*, **16**, 517 (1997).
261. Determination of the solution conformation of a non-uniformly deuterium labelled (Uppsala "NMR-window") 21mer RNA hairpin by NMR spectroscopy and computational methods. A. Sandström, T. Maltseva and J. Chattopadhyaya, *Nucleosides & Nucleotides*, **16**, 743 (1997).
255. How do the energetics of the stereoelectronic gauche and anomeric effects modulate the conformation of nucleos(t)ides? J. Plavec, C. Thibaudeau and J. Chattopadhyaya, *Pure Appl. Chem.*, **68** (11), 2137-2144 (1996).
254. Comparative Assessment of Structure and Reactivity of Wyosine by Chemistry, Spectroscopy and *ab initio* Calculations. J. Plavec and J. Chattopadhyaya, *Tetrahedron*, **52** (5), 1597-1608 (1996).
253. Quantitation of the pD Dependent Thermodynamics of the N \rightleftharpoons S Pseudorotational Equilibrium of the Pentofuranose Moiety in Nucleosides Gives a Direct Measurement of the Strength of the Tunable Anomeric Effect and the pK_a of the Nucleobase. C. Thibaudeau, J. Plavec and J. Chattopadhyaya, *Journal of Organic Chemistry*, **61** (1), 266-286 (1996).

1995

252. The Interaction of the 2'-OH Group with the Vicinal Phosphate in Ribonucleoside 3'-ethylphosphates Drives the Sugar-Phosphate Backbone into Unique (S, ϵ -) Conformational State. J. Plavec, C. Thibaudeau, G. Viswanadham, C. Sund, A. Sandström and J. Chattopadhyaya, *Tetrahedron*, **51** (43), 11775-11792 (1995).
251. Partially-deuterated Nucleotide Residues in Large DNA Duplex Simplify the Spectral Overlap and Provide both the J-coupling and nOe Informations by the "NMR-window" Approach. A. Földesi, S.-I. Yamakage, T. V. Maltseva, F. P. R. Nilson, P. Agback and J. Chattopadhyaya, *Tetrahedron*, **51** (36), 10065-10092 (1995).
250. Reparameterization of Karplus Equation Relating $^3J_{C-C-O-P}$ to Torsion Angle. J. Plavec and J. Chattopadhyaya, *Tetrahedron Letters*, **36** (11), 1949-1952 (1995).
249. Base-pair exchange kinetics of the imino and amino protons of the 3'-phenazinium tethered RNA-DNA duplex: $r(^5\text{GAUUGAA}^3)$ and their comparison with those of $B-d(^5\text{TCAATC}^3\text{-Pzn})$ DNA duplex. T. V. Maltseva, V. F. Zarytova and J. Chattopadhyaya, *Journal of Biochemical and Biophysical Methods*, **30** (1), 163-177 (1995).
248. Poor Hydration Enhances The Activation Energy of the Exchange Rate of the Base-paired Imino Protons with Water at the Core Part of DNA Duplex. T. V. Maltseva and J. Chattopadhyaya, *Tetrahedron*, **51** (18), 5501-5508 (1995).
247. The Synthesis and Reactivity of New 2-(N,N-Diisopropylamino)-3-Methylsulfonyl-1,3,2-Benzoxazaphospholes. The Utility of the 5-Chloro analogue in the One-Pot Synthesis of Oligothiophosphates: (Ap₃ppA, Ap₃pppA, ppp5'A2'p₃5'A, m⁷Gp₃ppA, Ap₃pppp, Ap₃pp). N. Puri, S. Hünsch, C. Sund, I. Ugi and J. Chattopadhyaya, *Tetrahedron*, **51** (10), 2991-3014 (1995).
246. Specific interaction between HIV-1 proteinase and 5'-phosphate peptidomimetic derivatives of nucleoside analogues.

1996

260. 2',3'-Dideoxy-3'-nitrothymidine and 2'-propoxy-3'-nitrothymidine. S. Neidle, N. Hossain, A. Papchikhin and J. Chattopadhyaya, *Acta Crystallographica*, **C52**, 3173-3177 (1996).
259. The Nature of Intramolecular stereoelectronic forces in nucleosides and nucleotides. J. Chattopadhyaya, *Nucleic Acids Research, Symposium Series*, **35**, 111-112 (1996).
258. Synthesis of C-Branched Spermine-tethered Oligo-DNA and the Thermal Stability of Duplexes and Triplexes. C. Sund, N. Puri and J. Chattopadhyaya, *Tetrahedron*, **52** (37), 12275-12290 (1996).
257. The NMR Structure of a 31mer RNA domain of *Escherichia coli* RNase P RNA using its non-uniformly deuterium labelled counterpart (The "NMR-window" concept) C. Glemarec, J. Kufel, T. Maltseva, A. Sandström, L. A. Kirsebom and J. Chattopadhyaya, *Nucleic Acids Research*, **24** (11), 2022-2035 (1996).
256. The use of non-uniform deuterium labeling ("NMR-window") to study the NMR structure of a 21mer RNA hairpin. A. Földesi, S.-I. Yamakage, F. P. R. Nilson, T. V. Maltseva and J. Chattopadhyaya, *Nucleic Acids Research*, **24** (7), 1187-1194 (1996).

- U. Nilroth, Y. Besidsky, B. Claesson, J. Chattopadhyaya, I. Ugi and U. H. Danielson, *Drug Design and Discovery*, **13** (13), 43-54 (1995).
245. The Diastereospecific Synthesis of New 2',3'-Cis- α -Fused Carbocyclic Nucleosides.
A. Papchikhin, P. Agback, J. Plavec and J. Chattopadhyaya, *Tetrahedron*, **51** (1), 329-342 (1995).
244. 2',3'-Dideoxy-3'-C,2'-N-((3R,5R)-5-ethoxy-carbonyl-2-methyl-1,2-isoxazolidine)-ribothymidine.
B. M. Burkhart, A. Papchikhin, J. Chattopadhyaya and M. Sundaralingam, *Acta Crystallographica*, **C51** (7), 1462-1464 (1995).
243. The use of 5'-phosphate derivatives of nucleoside analogues as inhibitors of HIV-1 replication.
U. Nilroth, L. Vrang, G. Ahlsén, Y. Besidsky, J. Chattopadhyaya, I. Ugi and U. H. Danielson, *Antiviral Chemistry & Chemotherapy*, **6** (1), 50-64 (1995).
- 1994**
242. The solution structure of a 3'-phenazinium (Pzn) tethered DNA-RNA duplex with a dangling adenosine:

$$\begin{array}{l} r(\delta^5 \text{GAUUGAA}^{3'}) \\ d(\delta^5 \text{TCAATC}^{3'}\text{-Pzn}) \end{array}$$
T. V. Maltseva, P. Agback, M. N. Repkova, A. G. Venyaminova, E. M. Ivanova, A. Sandström, V. F. Zarytova and J. Chattopadhyaya, *Nucleic Acids Research*, **22** (25), 5590-5599 (1994).
241. The synthesis of lariat-RNAs and their conformational analysis by NMR spectroscopy: The study of their unique self-cleavage reaction modelling some catalytic RNAs (Ribozymes).
C. Sund, B. Rousse, N. Puri, G. Viswanadham, P. Agback, A. Sandström, C. Glemarec, S.-I. Yamakage and J. Chattopadhyaya, *Bulletin des Societes Chimiques Belges*, **103** (6), 591-617 (1994).
240. Remarkable Conformational Change Promoted by 3'-Ethylphosphate at the Branch-point of a Tetrameric Lariat-RNA Dictates Its Self-cleavage Reaction Modelling Some Catalytic RNAs (Ribozymes)
B. Rousse, C. Sund, C. Glemarec, A. Sandström, P. Agback and J. Chattopadhyaya, *Tetrahedron*, **50** (29), 8711-8736 (1994).
239. Quantitation of Anomeric Effect in Adenosine and Guanosine by Comparison of the Thermodynamics of the Pseudorotational Equilibrium of the Pentofuranose Moiety in N- and C-Nucleosides.
C. Thibaudeau, J. Plavec and J. Chattopadhyaya, *Journal of the American Chemical Society*, **116** (18), 8033-8037 (1994).
238. How Does the 2'-Hydroxy Group Drive the Pseudorotational Equilibrium in Nucleoside and Nucleotide by the Tuning of the 3'-Gauche Effect?
J. Plavec, C. Thibaudeau and J. Chattopadhyaya, *Journal of the American Chemical Society*, **116** (15), 6558-6560 (1994).
237. New Diastereospecific Synthesis of 2',3'-Dideoxy-2'- or 3'-C₂-branched- or 2',3'- α -fused-isoxazolidine Nucleosides Directly from the Seconucleoside.
A. Papchikhin and J. Chattopadhyaya, *Tetrahedron*, **50** (17), 5279-5286 (1994).
236. The synthesis of New 3'-bis-C-substituted-3'-Deoxy-3'-Dehydro-[3.3.0]- α -fused Thymidines by Intramolecular Radical Trapping by Tethered Acetylenes.
N. Garg, N. Hossain and J. Chattopadhyaya, *Tetrahedron*, **50** (17), 5273-5278 (1994).
235. The differences in the T₂ relaxation rates of protons in partially-deuteriated and fully protonated sugar residues in a large oligo-DNA ("NMR-window") gives complementary structural information.
P. Agback, T. V. Maltseva, S.-I. Yamakage, F. P. R. Nilson, A. Földesi and J. Chattopadhyaya, *Nucleic Acids Research*, **22** (8), 1404-1412 (1994).
234. The synthesis and conformation of 2'- and 3'-hypermodified tricyclic nucleosides and their use in the synthesis of novel 2'- or 3'-isomeric 4(7)-substituted isoxazolidine nucleosides.
J. Rong, P. Roselt, J. Plavec and J. Chattopadhyaya, *Tetrahedron*, **50** (16), 4921-4936 (1994).
233. Diastereospecific Synthesis of 2'- or 3'-C-Branched Nucleosides through Intramolecular Free-radical Capture by Silicon-tethered Acetylene.
Z. Xi, J. Rong and J. Chattopadhyaya, *Tetrahedron*, **50** (17), 5255-5272 (1994).
232. New Synthesis of 3'-C-substituted-3'-Nitromethyl-ribo-Thymidines.
N. Garg, N. Hossain, J. Plavec and J. Chattopadhyaya, *Tetrahedron*, **50** (14), 4167-4178 (1994).
231. How Does the Electronegativity of the Substituent Dictate the Strength of the Gauche Effect?
C. Thibaudeau, J. Plavec, N. Garg, A. Papchikhin and J. Chattopadhyaya, *Journal of the American Chemical Society*, **116** (9), 4038-4043 (1994).
230. How Does the 3'-Phosphate Drive the Sugar Conformation in DNA?
J. Plavec, C. Thibaudeau, G. Viswanadham, C. Sund and J. Chattopadhyaya, *Journal of the Chemical Society, Chemical Communications*, 781-783 (1994).
229. Synthesis and Phosphorylating Properties of 2-Chloro-2,3-dihydro-3-methanesulfonyl-1,3,2-benzoxazaphosphole-2-Oxide Derivatives with Chloro Substituents on the Benzene Ring.
S. Hünsch, W. Richter, I. Ugi and J. Chattopadhyaya, *Liebigs Annalen der Chemie*, 269-275 (1994).
228. How do the Aglycones drive the Pseudorotational Equilibrium of the Pentofuranose Moiety in C-Nucleosides?
C. Thibaudeau, J. Plavec, K. A. Watanabe and J. Chattopadhyaya, *Journal of the Chemical Society, Chemical Communications*, 537-540 (1994).
227. Synthetic and conformational studies of branched and lariat RNAs. Modelling the lariat formed in the splicing reaction - A critical review.
C. Sund, C. Glemarec and J. Chattopadhyaya, *He Proceedings of the Indian Academy of Sciences*, (Chemical Sciences), special issue in Bioorganic Chemistry, **106** (5), 1023-1050 (1994).
226. Solution Conformation of Lariat-RNAs and their Self-Cleavage Reactions
P. Agback, C. Glemarec, A. Sandström, L. Yin, J. Plavec, C. Sund, S.-I. Yamakage, G. Viswanadham, B. Rousse, N. Puri and J. Chattopadhyaya, in "*Structural Biology: State of the Art 1993, Proceedings of the 8th Conversations*", Eds. R. H. Sarma and M. H. Sarma, Adenine Press, New York, 1994, p. 293-338.

225. Solution Conformation of Hexameric & Heptameric Lariat-RNAs and their Self-Cleavage Reactions Which Give Products Mimicking Those From Some Catalytic RNAs (Ribozymes)
B. Rousse, N. Puri, G. Viswanadham, P. Agback, C. Glemarec, A. Sandström, C. Sund and J. Chattopadhyaya, *Tetrahedron*, **50** (6), 1777-1810 (1994).
- 1993**
224. Deuteriation of Sugar Protons Simplify NMR Assignments and Structure Determination of Large Oligonucleotide by the $^1\text{H-NMR}$ window approach.
S.-I. Yamakage, T. V. Maltseva, F. P. Nilsson, A. Földesi and J. Chattopadhyaya, *Nucleic Acids Research*, **21** (22), 5005-5011 (1993).
223. New Synthesis of 2',3'-Dideoxy-2',3'-Didehydro-3'-C-Substituted Thymidines.
N. Hossain, N. Garg and J. Chattopadhyaya, *Tetrahedron*, **49** (44), 10061-10068 (1993).
222. Synthesis of 2'- and 3'-Spiro-isoxazolidine Derivatives of Thymidine and Their Conversions to 2',3'-dideoxy-2',3'-didehydro-2'- or 3'-C-substituted nucleosides by radical promoted fragmentation.
N. Hossain, A. Papchikhin, J. Plavec and J. Chattopadhyaya, *Tetrahedron*, **49** (44), 10133-10156 (1993).
221. Diels-Alder Reaction of 2',3'-Unsaturated-3'-Nitro-Thymidine. First Chemical Evidence of Nitroxide Radical Formation in the Radical-Promoted Denitration Reaction.
N. Hossain, J. Plavec, C. Thibaudeau and J. Chattopadhyaya, *Tetrahedron*, **49** (40), 9079-9088 (1993).
220. Direct estimation of base-pair exchange kinetics in oligo-DNA by a combination of NOESY and ROESY experiments.
T. V. Maltseva, S.-I. Yamakage, P. Agback and J. Chattopadhyaya, *Nucleic Acids Research*, **21** (18), 4288-4295 (1993).
219. How much hydration is necessary for the stabilisation of DNA-duplex?
T. V. Maltseva, P. Agback and J. Chattopadhyaya, *Nucleic Acids Research*, **21** (18), 4246-4252 (1993).
218. The Self-cleavage of Lariat-RNA.
P. Agback, C. Glemarec, L. Yin, A. Sandström, J. Plavec, C. Sund, S.-I. Yamakage, G. Viswanadham, B. Rousse, N. Puri and J. Chattopadhyaya, *Tetrahedron Letters*, **34** (24), 3929-3932 (1993).
217. How does the Steric Effect drive the Sugar Conformation in the 3'-C-branched Nucleosides?
J. Plavec, N. Garg and J. Chattopadhyaya, *Journal of the Chemical Society, Chemical Communications*, pp1011-1014 (1993).
216. New Synthesis of C-Substituted Nucleosides.
N. Garg, J. Plavec and J. Chattopadhyaya, *Tetrahedron*, **49** (23), 5189-5202 (1993).
215. Synthesis of 2',3'-cis-Fused Pyrrolidino- β -D-nucleosides and Their Conformational Analysis by 500 MHz $^1\text{H-NMR}$.
Z. Xi, C. Glemarec and J. Chattopadhyaya, *Tetrahedron*, **49** (34), 7525-7546 (1993).
214. Solution and Solid State Structure of 2',5'-Bis-(O-Trityl)-3'-Oximinouridine.
A. Papchikhin, P. Agback, S. Neidle and J. Chattopadhyaya, *Nucleosides & Nucleotides*, **12** (6), 605-614 (1993).
213. How Do the Gauche and Anomeric Effects Drive the Pseudorotational Equilibrium of the Pentofuranose Moiety of Nucleosides?
J. Plavec, W. Tong and J. Chattopadhyaya, *Journal of the American Chemical Society*, **115** (21), 9734-9746 (1993).
212. Structural studies of the 5'-phenazinium-tethered matched and G-A mismatched DNA duplexes by NMR spectroscopy.
T. Maltseva, A. Sandström, I. M. Ivanova, D. S. Sergeev, V. F. Zarytova and J. Chattopadhyaya, *Journal of Biochemical and Biophysical Methods*, **26**, 173-236 (1993).
211. [4+2] and [3+2] Cycloaddition Reactions of 2',3'-Dideoxy-3'-nitro-2',3'-Didehydrothymidine With Ethyl Vinyl Ether.
A. Papchikhin, P. Agback, J. Plavec and J. Chattopadhyaya, *Journal of Organic Chemistry*, **58** (10), 2874-2879 (1993).
210. Synthesis of 2',3'-Dideoxy-3'-Nitro-2',3'-Didehydro thymidine. Its use as a general intermediate for the preparation of various 2',3'-substituted nucleosides.
N. Hossain, A. Papchikhin, N. Garg, I. Federov and J. Chattopadhyaya, *Nucleosides & Nucleotides*, **12** (5), 499-528 (1993).
209. Solution structure of lariat RNA by 500 MHz NMR spectroscopy and molecular dynamics studies in water.
P. Agback, A. Sandström, S.-I. Yamakage, C. Sund, C. Glemarec and J. Chattopadhyaya, *Journal of Biochemical and Biophysical Methods*, **27**, 229-259 (1993).
208. Conformational Studies of Thymidine Dimers Containing Sulfonate and Sulfonamide Linkages by NMR Spectroscopy.
C. Glemarec, R. C. Reynolds, P. A. Crooks, J. A. Maddry, M. S. Akhtar, J. A. Montgomery, J. A. Secrist III and J. Chattopadhyaya, *Tetrahedron*, **49** (11), 2287-2298 (1993).
207. NMR spectroscopic properties (^1H at 500 MHz) of deuterated* ribonucleotide-dimers, ApU*, GpC*, partially deuterated 2'-deoxyribonucleotide-dimers d(TpA*), d(ApT*), d(GpC*) and their comparison with natural counterparts ($^1\text{H-NMR}$ window).
A. Földesi, F. P. R. Nilsson, C. Glemarec, C. Gioeli and J. Chattopadhyaya, *Journal of Biochemical and Biophysical Methods*, **26**, 1-26 (1993).
206. Synthesis of Heptameric Lariat-RNA Modelling the Lariat Introns of Group II and Nuclear Pre-mRNA Processing Reaction (Splicing).
C. Sund, P. Agback and J. Chattopadhyaya, *Tetrahedron*, **49** (3), 649-668 (1993).
205. Synthesis of Diastereomerically Pure 4'-Alkoxy- α -L- & β -D-nucleosides and their Conformational Analysis by 500 MHz $^1\text{H-NMR}$ Spectroscopy.
W. Tong, P. Agback and J. Chattopadhyaya, *Acta Chemica Scandinavica*, **47**, 145-156 (1993).
204. Conformational studies on some C1'-Branched β -D-nucleosides by $^1\text{H-NMR}$ spectroscopy and molecular mechanics calculations.
J. Plavec, V. Fabre-Buet, V. Uteza, A. Grouiller and J. Chattopadhyaya, *Journal of Biochemical and Biophysical Methods*, **26**, 317-334 (1993).

203. Synthesis of $1^{\#}, 2', 3', 4^{\#}, 5', 5''\text{-}^2\text{H}_6\text{-}\beta\text{-D-ribo}$ nucleosides and $1^{\#}, 2', 2'', 3', 4^{\#}, 5', 5''\text{-}^2\text{H}_7\text{-}\beta\text{-D-2-deoxyribo}$ nucleosides for Selective Suppression of Proton Resonances in Partially-deuterated Oligo-DNA, Oligo-RNA and in 2,5A core ($^1\text{H-NMR window}$). A. Földesi, F. P. R. Nilsson, C. Glemarec, C. Gioeli and J. Chattopadhyaya, *Tetrahedron*, **48** (41), 9033-9072 (1992).
202. Solution Structures of Nonameric and Decameric Branched-RNA Modelling the Lariat of Group II and Nuclear pre-mRNA Introns (Splicing) by 500 MHz NMR Spectroscopy. P. Agback, C. Glemarec, C. Sund and J. Chattopadhyaya, *Tetrahedron*, **48** (31), 6537-6554 (1992).
201. Conformation of Two 4'-Thio-2'-deoxynucleoside Analogs Studied by 500 MHz $^1\text{H-NMR}$ Spectroscopy and X-ray Crystallography. L. H. Koole, J. Plavec, H. Liu, B. R. Vincent, M. R. Dyson, P. L. Coe, R. W. Walker, G. W. Hardy, S. G. Rahim and J. Chattopadhyaya, *Journal of the American Chemical Society*, **114**, 9936-9943 (1992).
200. New Stereocontrolled Synthesis of Isomeric C-Branched- $\beta\text{-D-Nucleosides}$ by Intramolecular Free-radical Cyclization-Opening Reactions Based on Temporary Silicon Connection. Z. Xi, P. Agback, J. Plavec, A. Sandström and J. Chattopadhyaya, *Tetrahedron*, **48** (2), 349-370 (1992).
199. Structural analysis of 2',3'-dideoxyinosine, 2',3'-dideoxyadenosine, 2',3'-dideoxyguanosine, and 2',3'-dideoxycytidine by 500 MHz $^1\text{H-NMR}$ spectroscopy and ab-initio molecular orbital calculations. J. Plavec, L. H. Koole and J. Chattopadhyaya, *Journal of Biochemical and Biophysical Methods*, **25**, 253-272 (1992).
198. Assessment of Competing $2' \rightarrow 5'$ versus $3' \rightarrow 5'$ Stackings in Solution Structure of Branched-RNA by $^1\text{H-}$ & $^{31}\text{P-NMR}$ Spectroscopy. C. Sund, P. Agback, L. H. Koole, A. Sandström and J. Chattopadhyaya, *Tetrahedron*, **48** (4), 695-718 (1992).
197. Structural Properties of Four Isomeric C2'/C3' Modified Uridines. L. H. Koole, J.-C. Wu, S. Neidle and J. Chattopadhyaya, *Journal of the American Chemical Society*, **114**, 2687-2696 (1992).
196. Etudes structurales relatives à un nucléoside psicofuranosique, agénér potentiel antiviral. V. Buet, A. Grouiller and J. Chattopadhyaya, *Journal de Pharmacie de Belgique (Belgium)*, **47** (4), 381-3 (1992)
- 1991**
195. Synthesis of branched nona- and deca-RNA modelling the lariat formed in pre-mRNA processing reactions (splicing). C. Sund, P. Agback and J. Chattopadhyaya, *Nucleic Acids, Symposium Series*, **24**, 9-12 (1991).
194. Synthesis of Furo[2,3-c]pyran- $\beta\text{-D-Nucleosides}$ by Radical-Cyclization & their Conformational Analysis by 500 MHz $^1\text{H-NMR}$ Spectroscopy. Z. Xi, P. Agback, A. Sandström and J. Chattopadhyaya, *Tetrahedron*, **47** (46), 9675-9690 (1991).
193. Synthesis of Tetrameric Cyclic Branched-RNA (Lariat) Modelling the Introns of Group II and Nuclear Pre-mRNA Processing Reaction (Splicing). C. Sund, P. Agback and J. Chattopadhyaya, *Tetrahedron*, **47** (46), 9659-9674 (1991).
192. Comparative Structural Studies of [3.1.0]-Fused 2',3'-Modified $\beta\text{-D-Nucleosides}$ by X-ray Crystallography, NMR Spectroscopy, and Molecular Mechanics Calculations. L. H. Koole, S. Neidle, M. D. Crawford, A. A. Krayevski, G. V. Gurskaya, A. Sandström, J.-C. Wu, W. Tong and J. Chattopadhyaya, *Journal of Organic Chemistry*, **56** (24), 6884-6892 (1991).
191. N²,3-Ethenoguanosine and 1A'-Metamorphosine: ^{15}N NMR Spectroscopy and Elucidation of Physico-chemical Properties by Kinetic and Equilibrium Measurements. C. Glemarec, Y. Besidsky, J. Chattopadhyaya, J. Kusmierek, M. Lahti, M. Oivanen and H. Lönnberg, *Tetrahedron*, **47** (33), 6689-6704 (1991).
190. Synthesis of Tetrameric Branched RNA-DNA Conjugate & Branched-RNA Analogue & Their Comparative Conformational Studies By 500 MHz NMR Spectroscopy. A. Földesi, P. Agback, C. Glemarec and J. Chattopadhyaya, *Tetrahedron*, **47** (34), 7135-7156 (1991).
189. Structural Studies of Anti-HIV 3'- α -Fluorothymidine & 3'- α -Azidothymidine By 500 MHz $^1\text{H-NMR}$ Spectroscopy & Molecular Mechanics (MM2) Calculations. J. Plavec, L. H. Koole, A. Sandström and J. Chattopadhyaya, *Tetrahedron*, **47** (35), 7363-7376 (1991).
188. New Regiospecific Synthesis of Branched Tetra-, Nona-, and Deca-RNA Modelling the Lariat Formed in RNA Splicing Reactions. C. Sund, A. Földesi, S.-I. Yamakage, P. Agback and J. Chattopadhyaya, *Tetrahedron*, **47** (32), 6305-6336 (1991).
187. Structural Studies on 1-(1-deoxy- $\beta\text{-D-psico}$ furanosyl) thymine. J. Plavec, V. Buet, A. Grouiller, L. H. Koole and J. Chattopadhyaya, *Tetrahedron*, **47** (30), 5847-5856 (1991).
186. Spectroscopic, Kinetic and Semiempirical Molecular Orbital Studies on 8-Amino-, 8-Methylamino- & 8-Dimethylamino-Adenosines. J. Hovinen, C. Glemarec, A. Sandström, C. Sund and J. Chattopadhyaya, *Tetrahedron*, **47** (26), 4693-4708 (1991).
185. Solution Structure of Pentameric and Heptameric Branched-RNA Modelling the Lariat Structure of Group II or Nuclear m-RNA Introns Studied by One- and Two-dimensional NMR Spectroscopy at 500 MHz. L. H. Koole, P. Agback, C. Glemarec, X.-X. Zhou and J. Chattopadhyaya, *Tetrahedron*, **47** (18/19), 3183-3206 (1991).
184. Synthesis of new 2',3'-modified uridine derivatives from 2',3'-ene-2'-phenylselenonyl Uridine by Michael addition reactions. W. Tong, Z. Xi, C. Gioeli and J. Chattopadhyaya, *Tetrahedron*, **47** (20/21), 3431-3450 (1991).
183. Solution Structure of Branched $\text{U}_{3'}\text{p}_5'\text{A}_{2'}\text{p}_5'\text{G}_{3'}\text{p}_5'\text{C}$ and its Comparison with $\text{A}_{2'}\text{p}_5'\text{G}_{3'}\text{p}_5'\text{U}$ by 500 MHz NMR Spectroscopy. C. Glemarec, M. Jaseja, A. Sandström, L. H. Koole, P. Agback and J. Chattopadhyaya, *Tetrahedron*, **47** (20/21), 3417-3430 (1991).

182. Intramolecular Cyclization-Trapping of Carbon Radicals by Olefins as means to Functionalize 2'- and 3'-carbons in β -D-nucleosides.
J.-C. Wu, Z. Xi, C. Gioeli and J. Chattopadhyaya, *Tetrahedron*, **47** (12/13), 2237-2254 (1991).
- 1990**
181. Synthesis of new 2',3'-dideoxy-2',3'- α -fused-heterocyclic uridines, & some 2',3'-ene-2'-substituted uridines from easily accessible 2',3'-ene-3'-phenylselenonyl uridine.
W. Tong, J.-C. Wu, A. Sandström and J. Chattopadhyaya, *Tetrahedron*, **46** (8), 3037-3060 (1990).
180. A comparative conformational study of thymidylyl (3' \rightarrow 5')thymidine, thymidylyl(3' \rightarrow 5')-5'-thio-5'-deoxy thymidine, & thymidinylacetamido-[3'(O) \rightarrow 5'(C)]-5'-deoxythymidine by NMR spectroscopy.
C. Glemarec, A. Nyilas, C. Sund and J. Chattopadhyaya, *Journal of Biochemical and Biophysical Methods*, **21**, 311-332 (1990).
179. A New Stereospecific Synthesis of [3.1.0] bicyclic Cyclopropano analog of 2',3'-dideoxyuridine.
J.-C. Wu and J. Chattopadhyaya, *Tetrahedron*, **46** (7), 2587-2592 (1990).
178. Synthesis of [3'(O) \rightarrow 5'(C)]-oxyacetamido linked Nucleosides.
A. Nyilas, C. Glemarec and J. Chattopadhyaya, *Tetrahedron*, **46** (6), 2149-2164 (1990).
177. Structure of a hepatotoxic pentapeptide from the cyanobacterium *Nodularia spumigena*.
A. Sandström, C. Glemarec, J. A. O. Meriluoto, J. E. Eriksson and J. Chattopadhyaya, *Toxicon*, **28** (5), 535-540 (1990).
176. Why Does an Intron Form a Lariat Before the Ligation of 5'- and 3'-Exons in Group II & Nuclear mRNA Splicing? Conformations of Branched Ribonucleotides Modelling the Lariat Intron.
G. Remaud, J.-M. Vial, N. Balgobin, L. H. Koole, A. Sandström, A. F. Drake, X.-X. Zhou, C. Glemarec and J. Chattopadhyaya, in "Structure and Methods, Volume 3: DNA & RNA", Eds. R. H. Sarma and M. H. Sarma, Adenine Press, New York, 1990, p. 319-337.
175. A new synthesis of 1-(2,3-dideoxy- β -D-glycero-pent-2-enofuranosyl)-thymine. A highly potent and selective anti-HIV agent.
J.-M. Vial, P. Agback and J. Chattopadhyaya, *Nucleosides & Nucleotides*, **9** (2), 245-258 (1990).
174. Synthesis of 2'- and 3'-amino substituted uridine, thymidine and adenosine, and their inhibitions of HIV replication.
J.-M. Vial, N. G. Johansson, L. Vrang and J. Chattopadhyaya, *Antiviral Chemistry & Chemotherapy*, **1** (3), 183-202 (1990).
- 1989**
173. Intra- and intermolecular nucleophilic phosphorous-sulfur bond cleavage. The reaction of fluoride ion with *O*-aryl-*O,S*-dialkylphosphorothioates and the degradation of phosphorothioate linkage in *di*-ribonucleotides by vicinal 2'-hydroxyl group.
C. Sund and J. Chattopadhyaya, *Tetrahedron*, **45** (23), 7523-7544 (1989).
172. Synthetic and high-field NMR study of branched tri-, tetra-, penta-, and heptaribonucleotides modelling the lariat-intron in group II splicing.
X.-X. Zhou, J.-M. Vial, A. Sandström, G. Remaud, L. H. Koole and J. Chattopadhyaya, *Nucleic Acids Research, Symposium Series*, **21**, 127-128 (1989).
171. Michael addition reactions of α,β -ene-3'-phenylselenone of uridine. New synthesis of 2',3'-dideoxy-ribo-aziridino, 2',3'-dideoxy-2', 3'-ribo-cyclopropyl- & 2,2'-*O*-anhydro-3'-deoxy-3'-amino uridine derivatives.
J.-C. Wu and J. Chattopadhyaya, *Tetrahedron*, **45** (14), 4507-4522 (1989).
170. A Comparative High-field N.M.R. Study on Tri-, Tetra-, Penta-, and Hepta-mer Ribonucleotides modelling the Branch Site of Group II and Nuclear Messenger RNA spliced Lariat Introns.
L. H. Koole, G. Remaud, X.-X. Zhou, H. M. Buck and J. Chattopadhyaya, *Journal of the Chemical Society, Chemical Communications*, 859-861 (1989).
169. The effect of metal ion complex formation on acidic depurination of 2'-deoxyadenosine and 2'-deoxyguanosine.
J. Arpalahti, R. Käppi, J. Hovinen, H. Lönnberg and J. Chattopadhyaya, *Tetrahedron*, **45** (12), 3945-3954 (1989).
168. Determination of the tautomeric populations of the Y-base.
C. Glemarec, G. Remaud and J. Chattopadhyaya, *Nucleosides & Nucleotides*, **8** (8), 1513-1517 (1989).
167. Synthesis of "branched" trinucleotide using the H-phosphonate chemistry.
A. Földesi, N. Balgobin and J. Chattopadhyaya, *Tetrahedron Letters*, **30** (7), 881-884 (1989).
166. Structure and Toxicity of a Peptide Hepatotoxin from the Cyanobacterium *Oscillatoria agardhii*.
J. A. O. Meriluoto, A. Sandström, J. E. Eriksson, G. Remaud, A. G. Craig and J. Chattopadhyaya, *Toxicon*, **27** (9), 1021-1034 (1989).
165. New synthesis of 2',3'-dideoxy-3'-C-cyano-2'-substituted thymidines by Michael addition reactions.
J.-C. Wu and J. Chattopadhyaya, *Tetrahedron*, **45** (3), 855-862 (1989).
164. Synthesis of branched oligoribonucleotides ("lariat").
N. Balgobin, X.-X. Zhou, J.-M. Vial, A. Nyilas, A. Földesi and J. Chattopadhyaya, *Nucleosides & Nucleotides*, **8** (5 & 6), 793-797 (1989).
163. Why Do All Lariat RNA Introns Have Adenosine as the Branch Point Nucleotide? Conformational Studies on the Implication of the Branch-Point Modification by Guanine, Uracil or Cytosine in the Naturally-Occurring Branched Tetranucleotide by ^1H - & ^{31}P -NMR Spectroscopy.
G. Remaud, N. Balgobin, C. Glemarec and J. Chattopadhyaya, *Tetrahedron*, **45** (5), 1537-1548 (1989).
162. Why Do All Lariat RNA Introns Have Adenosine as the Branch-Point Nucleotide? Conformational Study of Naturally-Occurring Branched Trinucleotides and its eleven Analogues by ^1H -, ^{31}P -NMR and CD Spectroscopy.
G. Remaud, N. Balgobin, A. Sandström, J.-M. Vial, L. H. Koole, H. M. Buck, A. F. Drake, X.-X. Zhou and J. Chattopadhyaya, *Journal of Biochemical and Biophysical Methods*, **18** (1), 1-36 (1989).
161. An analysis of the inhibition of replication of HIV and MULV by some 3' blocked pyrimidine analogues.
H. Bazin, R. Datema, G. Remaud, A.-C. Ericson, G. Gilljam, N.-G. Johansson, J. Hansen, R. Koshida, K.

- Moelling, B. Oberg, G. Stening, L. Vrang, B. Wahren, J.-C. Wu and J. Chattopadhyaya, *Biochemical Pharmacology*, **38** (1), 109-119 (1989).
160. Synthesis and Conformation of 9-(3'-*C*-methyl- β -D-xylofuranosyl)adenine and 3'-*C*-methyl adenosine. J.-M. Vial, L. H. Koole, H. M. Buck and J. Chattopadhyaya, *Acta Chemica Scandinavica*, **43**, 665-669 (1989).
159. Synthesis of Cytidylyl(3' \rightarrow 5')cytidylyl(3' \rightarrow 5')-(2')3'-*O*-[L ^{α} -alanyl]adenosine. A. Nyilas, A. Földesi and J. Chattopadhyaya, *Nucleosides & Nucleotides*, **8** (4), 557-567 (1989).
- 1988**
158. A New Regiospecific Synthesis of "Branched" Tetraribonucleotide and Its Three Analogues to Delineate the Chemospecific Role of the "Branchpoint" Adenine Nucleotide in Splicing. N. Balgobin, A. Földesi, G. Remaud and J. Chattopadhyaya, *Tetrahedron*, **44** (22), 6929-6939 (1988).
157. New Regiospecific Synthesis of the "Branched" Tri-, Penta- & Hepta-Ribonucleic Acids which Are Formed as the "Lariat" in pre-mRNA Processing Reactions [Splicing]. X.-X. Zhou, G. Remaud and J. Chattopadhyaya, *Tetrahedron*, **44** (20), 6471-6489 (1988).
156. New synthesis of 2',3'-dideoxy-2',3'-di-substituted and 2'-mono-substituted uridines and adenosines by Michael addition reactions. J.-C. Wu, T. Pathak, W. Tong, J.-M. Vial, G. Remaud and J. Chattopadhyaya, *Tetrahedron*, **44** (21), 6705-6722 (1988).
155. Fluorescence properties of Y-nucleoside derivatives. T. M. Nordlund, R. Rigler, C. Glemarec, J.-C. Wu, H. Bazin, G. Remaud and J. Chattopadhyaya, *Nucleosides & Nucleotides*, **7** (5,6), 805-811 (1988).
154. On the structure and reactivity of Y-nucleoside (wyosine). C. Glemarec, J.-C. Wu, H. Bazin, G. Remaud, M. Oivanen and J. Chattopadhyaya, *Nucleosides & Nucleotides*, **7** (5,6), 801-804 (1988).
153. Conformation of Lariat Structures Formed in the Splicing of pre-mRNA by NMR Spectroscopy. J.-M. Vial, X.-X. Zhou and J. Chattopadhyaya, *Nucleosides & Nucleotides*, **7** (5-6), 827-830 (1988).
152. Arenesulfonylethoxycarbonyl- A Set of Amino Protecting Groups for DNA and RNA Synthesis. A. Nyilas, A. Földesi and J. Chattopadhyaya, *Nucleosides & Nucleotides*, **7** (5-6), 787-793 (1988).
151. Temperature-dependent ³¹P N.M.R. Shifts to Assess the Conformations of Branched Tri- and Tetra-Nucleotides which are Formed as Lariats in the Splicing Reactions. A. Sandström, G. Remaud, J.-M. Vial, X.-X. Zhou, A. Nyilas, N. Balgobin and J. Chattopadhyaya, *Journal of the Chemical Society, Chemical Communications*, 542-544 (1988).
150. Synthesis and Conformation of 2' \rightarrow 5' and 3' \rightarrow 5' Phosphodiester Linked "Branched" Triadenylates $A_{3'p5'}^{2'p5'}A$. G. Remaud, X.-X. Zhou, B. Öberg and J. Chattopadhyaya, in "Reviews of Heteroatom Chemistry", Eds. S. Oae, MYU publishing Inc., Tokyo, 1988, p. 340-366.
149. Structure and reactivity of Wyosine (Y-nucleoside) and its derivatives. Chemical, Kinetic and spectroscopic studies. C. Glemarec, J.-C. Wu, G. Remaud, H. Bazin, M. Oivanen, H. Lönnberg and J. Chattopadhyaya, *Tetrahedron*, **44** (4), 1273-1290 (1988).
148. Synthesis and conformation of 1-(3'-*C*-methyl-2'-deoxy- β -D-xylofuranosyl)uracil and 9-(3'-*C*-methyl-2'- β -D-xylofuranosyl)adenine, two novel sugar-methylated nucleoside analogues. L. H. Koole, H.-M. Moody, H. M. Buck, A. Grouiller, H. Essadiq, J.-M. Vial and J. Chattopadhyaya, *Receuil des Travaux Chimiques des Pays-Bas*, **107** (4), 343-346 (1988).
147. Distinction of ¹⁵N resonances based on differences in small ¹⁵N, ¹H coupling constants. An application of ¹H-decoupled INEPT experiments. C. Glemarec, G. Remaud and J. Chattopadhyaya, *Magnetic Resonance in Chemistry*, **26**, 307-310 (1988).
146. ¹⁵N-NMR spectra of wyosine (Y-nucleoside) triacetate and its 7-methyl congener. Chemical shifts and ¹⁵N, ¹H coupling constants. C. Glemarec, G. Remaud and J. Chattopadhyaya, *Magnetic Resonance in Chemistry*, **26** (5), 435-438 (1988).
145. 270 MHz ¹H-NMR Studies of Four "Branched" Tetraribonucleotides: $U_{3'p5'}A_{3'p5'}^{2'p5'}G$, $U_{3'p5'}A_{3'p5'}^{2'p5'}C$, $A_{3'p5'}A_{3'p5'}^{2'p5'}G$ and $A_{3'p5'}A_{3'p5'}^{2'p5'}C$ which are Formed as the Lariat Branch-Point in the pre-mRNA Processing Reactions (Splicing). X.-X. Zhou, A. Nyilas, G. Remaud and J. Chattopadhyaya, *Tetrahedron*, **44** (2), 571-589 (1988).
144. Lariat Formation in Splicing of pre-messenger RNA. Conformation and Base Stacking at the Lariat Branch Point Studied Using 500-MHz ¹H NMR and CD Spectroscopy. L. H. Koole, N. Balgobin, H. M. Buck, W. H. A. Kuijpers, A. Nyilas, G. Remaud, J.-M. Vial and J. Chattopadhyaya, *Receuil des Travaux Chimiques des Pays-Bas* **107** (12), 663-667 (1988).
143. An assessment of electronic properties of pyrimidine and purine nucleosides by ¹⁵N-NMR spectroscopy. G. Remaud, C. J. Welch, X.-X. Zhou and J. Chattopadhyaya, *Nucleosides & Nucleotides*, **7** (2), 167-179 (1988).
- 1987**
142. (\overline{H})adenine is a better leaving-group than its (*H*) isomer in the hydrolysis of purine nucleosides. G. Remaud, X.-X. Zhou, J. Chattopadhyaya, M. Oivanen and H. Lönnberg, *Finnish Chemical Letters*, **14**, 143 (1987).
141. Kinetics and mechanism for the acidic hydrolysis of purine 2'-deoxyribonucleosides and their acyclic analogues. M. Oivanen, X.-X. Zhou, J. Chattopadhyaya and H. Lönnberg, *Finnish Chemical Letters*, **14** (3-4), 141-144 (1987).
140. The influence of N⁶-protecting groups on acid-catalyzed depurination of 2'-deoxyadenosine. G. Remaud, X.-X. Zhou, J. Chattopadhyaya, M. Oivanen and H. Lönnberg, *Nucleic Acids Research, Symposium Series*, **18**, 145-148 (1987).

139. Regiospecific synthesis of branched tetranucleotides, $U_{3'p5'}A_{2'p5'}G_{3'p5'}U$, $U_{3'p5'}A_{2'p5'}G_{3'p5'}C$, $A_{3'p5'}A_{2'p5'}G_{3'p5'}U$ and $A_{3'p5'}A_{2'p5'}G_{3'p5'}C$.
X.-X. Zhou, A. Nyilas, G. Remaud and J. Chattopadhyaya, *Tetrahedron*, **43** (20), 4685-4698 (1987).
138. The ^{15}N -NMR spectroscopy of wyosine-triacetate and its congener.
C. Glemarec, G. Remaud, H. Bazin, X.-X. Zhou and J. Chattopadhyaya, *Nucleic Acids Research, Symposium Series*, **18**, 73-76 (1987).
137. A 270 MHz 1H -NMR Study of Three "Branched" Ribonucleotides $A_{2'p5'}U_{3'p5'}G$, $A_{2'p5'}C_{3'p5'}G$ and $A_{2'p5'}G_{3'p5'}G$ The Importance of Being Branched with a $2' \rightarrow 5'$ Phosphodiester Bond in the pre-mRNA Processing Reactions (Splicing).
J.-M. Vial, G. Remaud, N. Balgobin and J. Chattopadhyaya, *Tetrahedron*, **43** (17), 3997-4006 (1987).
136. A regio and stereoselective synthesis of 2',2'',3',4'-tetradeuterio-2'-deoxynucleosides.
T. Pathak and J. Chattopadhyaya, *Tetrahedron*, **43** (18), 4227-4234 (1987).
135. Some Studies on the Negative Ion Fast Atom Bombardment Mass Spectroscopy of Nucleic Acids.
A. Sandström and J. Chattopadhyaya, *Nucleic Acids Research, Symposium Series*, **18**, 173-176 (1987).
134. The application of ^{15}N -NMR spectroscopy in the problems of nucleoside and nucleotide chemistry.
G. Remaud, X.-X. Zhou, C. J. Welch and J. Chattopadhyaya, *Nucleic Acids Research, Symposium Series*, **18**, 169-172 (1987).
133. Regiospecific synthesis of deuterium-labelled 2'-deoxyribonucleosides.
J.-C. Wu, T. Pathak, H. Bazin and J. Chattopadhyaya, *Nucleic Acids Research, Symposium Series*, **18**, 21-24 (1987).
132. Syntheses of Branched Trinucleotides and Their Conformational Analysis by 1H -NMR Spectroscopy.
J.-M. Vial, G. Remaud, N. Balgobin and J. Chattopadhyaya, *Nucleic Acids Research, Symposium Series*, **18**, 109-112 (1987).
131. A regiospecific synthesis of branched tetranucleotides: $U_{3'p5'}A_{2'p5'}G_{3'p5'}U$ and $U_{3'p5'}A_{2'p5'}G_{3'p5'}C$.
X.-X. Zhou, A. Nyilas and J. Chattopadhyaya, *Nucleic Acids Research, Symposium Series*, **18**, 93-96 (1987).
130. A versatile strategy for the O^4 -protection and modification of the lactam function of uridine and uridylic acid.
A. Nyilas, X.-X. Zhou, C. J. Welch and J. Chattopadhyaya, *Nucleic Acids Research, Symposium Series*, **18**, 157-160 (1987).
129. Conformational studies of 3'-C-methyl and 2'-C-methyl analogues of cordycepin.
L. H. Koole, H. M. Buck, H. Bazin and J. Chattopadhyaya, *Tetrahedron*, **43** (13), 2989-2997 (1987).
128. An efficient synthesis of Y-nucleoside (Wyosine) by regiospecific methylation of N^4 -desmethylwyosine using organozinc reagent.
H. Bazin, X.-X. Zhou, C. Glemarec and J. Chattopadhyaya, *Tetrahedron Letters*, **28** (28), 3275-3278 (1987).
127. Phosphitylation of guanine or inosine bases during the preparation of nucleoside phosphoramidites. Isolation of model products as thiophosphoric amide derivatives and structure elucidation by ^{15}N -NMR spectroscopy.
J. Nielsen, O. Dahl, G. Remaud and J. Chattopadhyaya, *Acta Chemica Scandinavica*, **B41**, 633-639 (1987).
126. The effect of protecting groups of the nucleobase and the sugar moieties on the acidic hydrolysis of glycosidic bond of 2'-deoxyadenosine: a kinetic and ^{15}N -NMR spectroscopic study.
G. Remaud, X.-X. Zhou, M. Oivanen, H. Lönnberg and J. Chattopadhyaya, *Tetrahedron*, **43** (19), 4453-4461 (1987).
125. Regiospecific synthesis of 2-deoxy-2',2''-dideuterio nucleosides.
J.-C. Wu, H. Bazin and J. Chattopadhyaya, *Tetrahedron*, **43** (10), 2355-2368 (1987).
124. Structural properties of modified deoxyadenosine structures in solution. Impact of *gauche* and anomeric effects on the furanose conformation.
L. H. Koole, H. M. Buch, A. Nyilas and J. Chattopadhyaya, *Canadian Journal of Chemistry*, **65**, 2089-2094 (1987).
123. Acidic hydrolysis of 6-substituted 9-(2'-deoxy- β -D-erythro-pentofuranosyl)purines and their 9-(1-alkoxyethyl) counterparts: Kinetics and mechanism.
M. Oivanen, H. Lönnberg, X.-X. Zhou and J. Chattopadhyaya, *Tetrahedron*, **43** (6), 1133-1140 (1987).
122. Enhancement of Molecular Ion Intensity of Nucleic Acids in Negative Ion Fast-atom Bombardment Mass Spectroscopy.
A. Sandström and J. Chattopadhyaya, *Journal of the Chemical Society, Chemical Communications*, 862-864 (1987).
121. A 270 MHz 1H -NMR study of two "branched" ribonucleotides $A_{2'p5'}G_{3'p5'}U$ and $A_{2'p5'}G_{3'p5'}C$ which are products of pre-mRNA processing ("splicing") reactions.
G. Remaud, J.-M. Vial, A. Nyilas, N. Balgobin and J. Chattopadhyaya, *Tetrahedron*, **43** (5), 947-958 (1987).
120. An ^{15}N -NMR studies of isomeric N^1 and N^3 substituted 7-methyl-10-oxo-9,10-dihydro-pyrimido[1,2-a]purines and 9-oxo-8,9-dihydro-5-alkyl-imidazo[1,2-a]purines in neutral and acidic medium.
G. Remaud, J. Kjellberg, N. G. Johansson and J. Chattopadhyaya, *Tetrahedron*, **43** (2), 365-376 (1987).
119. Building Blocks for Oligonucleotide Syntheses with Uniformly Fragmentable β -Halogenated Protecting Groups.
P. Lemmen, R. Karl, I. Ugi, N. Balgobin and J. Chattopadhyaya, *Zeitschrift fuer Naturforschung*, **42C**, 442-445 (1987).
118. Solid Phase Synthesis of DNA Under a Non-Depurinating Condition with a Base Labile 5'-Protecting Group (Fmoc) Using Phosphiteamide Approach.
N. Balgobin and J. Chattopadhyaya, *Nucleosides & Nucleotides*, **6** (1-2), 461-463 (1987).
117. Inhibition of hepatitis B virus DNA polymerase by 3'-azido-3'-deoxythymidine-5'-triphosphate but not by its *threo* analogue.

- E. Nordenfeldt, B. Löfgren, J. Chattopadhyaya and B. Öberg, *Journal of Medical Virology*, **22**, 231 (1987).
116. A Convergent Regiospecific Synthesis of the Lariat-trinucleotides $A_{3'p5'U}^{2'p5'G}$ and $A_{3'p5'C}^{2'p5'G}$ from a Q^4 -(2-Nitrophenyl)-Uridine Building Block.
J.-M. Vial, N. Balgobin, G. Remaud, A. Nyilas and J. Chattopadhyaya, *Nucleosides & Nucleotides*, **6**, (1-2), 209-227 (1987).
115. Some aspects of reactivity and protection of the imide functions of uridine and guanosine in nucleic acid synthesis.
C. J. Welch, X.-X. Zhou, A. Nyilas, G. Remaud and J. Chattopadhyaya, in "*Biophosphates and Their Analogues-Synthesis, Structure, Metabolism and Activity*", Eds. K. S. Bruzik and W. J. Stec, Elsevier, Amsterdam, 1987, p. 107-126.
114. Different Patterns of Inhibition of Avian Myeloblastosis Virus Reverse Transcriptase Activity by 3'-Azido-3'-Deoxythymidine-5'-Triphosphate and Its *threo* Isomer.
B. Eriksson, L. Vrang, H. Bazin, J. Chattopadhyaya and B. Öberg, *Antimicrobial Agents and Chemotherapy*, **31** (4), 600-604 (1987).
113. Inhibition of reverse transcriptase from HIV by 3'-azido-3'-deoxythymidine triphosphate and its *threo* analogue.
L. Vrang, H. Bazin, G. Remaud, J. Chattopadhyaya and B. Öberg, *Antiviral Research*, **7**, 139-149 (1987).
- 1986**
112. Site-specific modification of pyrimidine residue during the deprotection of the fully-protected diuridylic acid.
X.-X. Zhou and J. Chattopadhyaya, *Tetrahedron*, **42** (18), 5149-5156 (1986).
111. Synthesis of O^2 -methyluridine, O^2 -methylcytidine, N^4 , O^2 -dimethylcytidine and N^4 , N^4 , O^2 -trimethylcytidine from a common intermediate.
A. Nyilas and J. Chattopadhyaya, *Acta Chemica Scandinavica*, **B40**, 826-830 (1986).
110. The use of ^{15}N -NMR spectroscopy for assigning structures of isomeric N^7 - and N^9 -substituted purines.
G. Remaud, J. Kjellberg, H. Bazin, N. G. Johansson and J. Chattopadhyaya, *Tetrahedron*, **42** (18), 5073-5080 (1986).
109. Synthesis of 2'-deoxy-2'(S)-deuterio and 2'-deoxy- 2'(R)-deuterio- β -D-nucleosides.
T. Pathak, H. Bazin and J. Chattopadhyaya, *Tetrahedron*, **42** (19), 5427-5441 (1986).
108. Bioteknologi, bioorganisk och biologisk kemi - dagens forskningsfront, morgondagens utmaning.
J. Chattopadhyaya, in "*Information nr. 564*", Eds. Swedish National Board for Technical Development (STU), 1986.
107. An assessment of the reactivity of guanosine and some of its derivatives to electrophiles by ^{15}N -NMR spectroscopy.
G. Remaud, X.-X. Zhou, C. J. Welch and J. Chattopadhyaya, *Tetrahedron*, **42** (14), 4057-4067 (1986).
106. Synthesis of an mRNA Fragment of Alanyl-tRNA Synthetase Gene in *Escherichia coli* Using the 6-methyl-3-pyridyl Group for Protection of the Imide Functions of Uridine and Guanosine.
C. J. Welch, X.-X. Zhou and J. Chattopadhyaya, *Acta Chemica Scandinavica*, **B40**, 817-825 (1986).
105. Pyridyl groups for protection of the imide functions of uridine and guanosine. Exploration of their displacement reactions for site-specific modifications of uracil and guanine bases.
X.-X. Zhou, C. J. Welch and J. Chattopadhyaya, *Acta Chemica Scandinavica*, **B40**, 806-816 (1986).
104. The Cordycepin Analogue of 2,5-A and Its *Threo* Isomer. Chemical Synthesis, Conformation and Biological Activity.
A. Nyilas, L. Vrang, A. F. Drake, B. Öberg and J. Chattopadhyaya, *Acta Chemica Scandinavica*, **B40**, 678-688 (1986).
103. The Reaction of 9-(2',3'-Dideoxy- β -D-glycero-pent-2-Enofuranosyl)-adenine Derivatives with Arene- and Alkanesulfonyl Chlorides. An Unusual Ring Opening Reaction of Thiirenium Ions.
C. J. Welch, H. Bazin and J. Chattopadhyaya, *Acta Chemica Scandinavica*, **B40**, 343-357 (1986).
102. New phosphorylating reagents and protective group techniques for oligonucleotide synthesis, as well as computer assistance in the design of reagents.
I. Ugi, J. Bauer, E. Fontain, J. Götz, G. Hering, P. Jakob, B. Landgraf, R. Karl, P. Lemmen, R. Schneiderwind-Stöcklein, R. Schwarz, P. Sluka, N. Balgobin, T. Pathak, X.-X. Zhou and J. Chattopadhyaya, *Chemica Scripta*, **26**, 205-215 (1986).
101. A Convenient Preparation of 2-N-(4-*t*-butylbenzoyl)-6-*O*-(2-Nitrophenyl)guanosine and Its Application in the Synthesis of 5' (GpGpGpU)3' Constituting the 3'-Anticodon Stem of *E.coli* tRNA^{Ile}.
X.-X. Zhou, A. Sandström and J. Chattopadhyaya, *Chemica Scripta*, **26**, 241-249 (1986).
100. Some Observations on the ^{13}C -NMR Assignments of the Pentofuranose Moiety of β -D-Nucleosides.
H. Bazin, X.-X. Zhou, C. J. Welch, T. Pathak, A. Nyilas and J. Chattopadhyaya, *Chemica Scripta*, **26**, 17-19 (1986).
99. Preparation of 2'-*O*-methyl Ethers of Adenosine and Uridine Using 2',3'-*O*-(dibutylstannylene) Nucleosides and Diazomethane.
T. Pathak and J. Chattopadhyaya, *Chemica Scripta*, **26**, 135-139 (1986).
98. A Convenient Preparation of 9-(3'-Deoxy- β -D-*threo*-pentofuranosyl)-adenine and 9-[3'-Deoxy-3'(S)-deuterio- β -D-2'-(S)-pentafuranosyl]-adenine.
A. Nyilas and J. Chattopadhyaya, *Synthesis*, **3**, 196-198 (1986).
97. The Synthesis of 9-(5-Hydroxymethylfuran-2-yl)adenine and Its 8-Methyl Analogue.
J.-M. Vial and J. Chattopadhyaya, *Chemica Scripta*, **26**, 225-227 (1986).
96. Preparation of 9- β -D-(3'-deoxy-3'(R)-C-methyl Ribofuranosyl)-adenine - a 3'-C-methyl Analogue of Cordycepin.
H. Bazin and J. Chattopadhyaya, *Chemica Scripta*, **26**, 13-15 (1986).
- 1985**
95. Use of 2-phenylsulfonyl ethyl as a phosphate protecting group in DNA synthesis using the phosphite-triester approach.

- N. Balgobin and J. Chattopadhyaya, *Acta Chemica Scandinavica*, **B39** (10), 883-888 (1985).
94. A convenient preparation of 3'-deoxyadenosine (cordycepin) and 9-[3'(R)-deuterio-β-D-2'(R)-pentofuranosyl]-adenine.
H. Bazin and J. Chattopadhyaya, *Synthesis*, **12**, 1108-1111 (1985).
93. A Convenient Preparation of N-Protected Nucleosides with the 2,2,2-Trichloro-*t*-butyloxycarbonyl (TCBOC) Group. Structural Assignment of *N,N*-bis-(TCBOC) Guanoside and Its 2'-Deoxy Analogue.
X.-X. Zhou, I. Ugi and J. Chattopadhyaya, *Acta Chemica Scandinavica*, **B39**, 761-765 (1985).
92. The 2'-Hydroxyl Function Assisted Cleavage of the Internucleotide Phosphotriester Bond of a Ribonucleotide Under Acidic Conditions.
T. Pathak and J. Chattopadhyaya, *Acta Chemica Scandinavica*, **B39**, 799-806 (1985).
91. Kärnspinsresonansspektroskopi för bestämning av biologisk struktur.
B. Eriksson, A. Sandström and J. Chattopadhyaya, *Läkartidningen*, **82** (22), 2061-2063 (1985).
90. Chemical Synthesis of a Pentaribonucleoside Tetrphosphate Constituting the 3'-Acceptor Stem Sequence of *E.coli* tRNA^{Ile} Using 2'-*O*-(3-Methoxy-1,5-dicarbomethoxypentan-3-yl)-ribonucleoside Building Blocks. Application of a New Achiral and Acid-labile 2'-Hydroxyl Protecting Group in tRNA Synthesis.
A. Sandström, M. Kwiatkowski and J. Chattopadhyaya, *Acta Chemica Scandinavica*, **B 39**, 273-290 (1985).
89. Some aspects of ribonucleoside chemistry.
S. Juntunen, H. Essadiq, A. Grouiller and J. Chattopadhyaya, *Nucleosides & Nucleotides*, **4**, (1&2), 187-189 (1985).
88. Preparation and Properties of Chloro-*N,N*-dialkylamino-2,2,2-trichloroethoxy- and Chloro-*N,N*-dialkylamino-2,2,2-trichloro-1,1-dimethylethoxyphosphines and their Deoxynucleoside Phosphiteamidites.
G. Hering, R. Stöcklein-Schneiderwind, I. Ugi, T. Pathak, N. Balgobin and J. Chattopadhyaya, *Nucleosides & Nucleotides*, **4** (1&2), 169-171 (1985).
87. The Protection of the 2'-Hydroxyl Function in Oligoribonucleotide Synthesis.
A. Sandström, M. Kwiatkowski and J. Chattopadhyaya, *Nucleosides & Nucleotides*, **4** (1-2), 177-181 (1985).
86. Some Aspects of the Reaction of Arenesulfonyl chlorides with Hydroxyl Functions of Ribonucleosides.
H. Bazin, J. Heikkilä and J. Chattopadhyaya, *Acta Chemica Scandinavica*, **B39**, 391-400 (1985).
85. An Efficient Conversion of a Ribonucleoside to the Corresponding 2'-Keto-3'-deoxyribonucleoside by a Grignard reagent.
S. Juntunen and J. Chattopadhyaya, *Acta Chemica Scandinavica*, **B39**, 149-155 (1985).
84. Synthesis of 3'-*C*-methyl-2'-deoxyribonucleoside with methylmagnesium iodide.
A. Grouiller, H. Essadiq, H. Pacheco, S. Juntunen and J. Chattopadhyaya, *Angew. Chem. Internat. Edit.*, **24**, 52 (1985).
83. Some aspects of oligoribonucleotide chemistry.
- M. Kwiatkowski, J. Heikkilä, C. J. Welch and J. Chattopadhyaya, in "*Natural Products Chemistry 1984*", Eds. R. I. Z. a. J. J. Skolik, Elsevier Science Publisher, Amsterdam, 1985, p. 259-274.
82. Synthesis of C-5 and N-3 Arenesulfonyl Uridines. Preparation and Properties of a New Class of Uracil Protecting Group.
C. J. Welch, H. Bazin, J. Heikkilä and J. Chattopadhyaya, *Acta Chemica Scandinavica*, **B39**, 203-212 (1985).
81. Interaction between 2',5'-A core analogues and 2',5'-specific phosphodiesterase.
L. Vrang, A. F. Drake, J. Chattopadhyaya and B. Öberg, *Acta Chemica Scandinavica*, **B39**, 751 (1985).
80. Synthesis of Adenylyl-(3'Ø5')-guanosine and some Analogues as Probes to Explore the Molecular Mechanism of Stimulation of Influenza Virus RNA Polymerase.
J. Heikkilä, S. Stridh, B. Öberg and J. Chattopadhyaya, *Acta Chemica Scandinavica*, **B39**, 657-669 (1985).
79. The chemical synthesis and antiviral properties of an Acyclovir-phospholipid conjugate.
C. J. Welch, A. Larsson, A. C. Ericsson, B. Öberg, R. Datema and J. Chattopadhyaya, *Acta Chemica Scandinavica*, **B39**, 47 (1985).

1984

78. Purification of DNA fragments and monomeric components of RNA by reverse phase ion pair chromatography.
M. Kwiatkowski, A. Sandström, N. Balgobin and J. Chattopadhyaya, *Nucleic Acids Research, Symposium Series*, Issue 14, 301-302 (1984).
77. A new acid-labile protective group geared to the preparation of pure oligoribonucleotide blocks using preparative reverse phase chromatography.
M. Kwiatkowski and J. Chattopadhyaya, *Nucleic Acids Research, Symposium Series*, Issue 14, 299-300 (1984).
76. Synthesis of branched-chain deoxy sugar nucleoside with Grignard reagent.
A. Grouiller, H. Essadiq, H. Pacheco and J. Chattopadhyaya, *Nucleic Acids Research, Symposium Series*, Issue 14, 249-250 (1984).
75. Purification of oligonucleotides by a combination of gel electrophoresis and Isotachophoresis.
N. Balgobin, K. Hammarström, B.-M. Carlberg, U. Pettersson and J. Chattopadhyaya, *Nucleic Acids Research, Symposium Series*, Issue 14, 303-304 (1984).
74. Synthesis of an Acyclovir-phospholipid conjugate.
C. J. Welch and J. Chattopadhyaya, *Nucleic Acids Research, Symposium Series*, Issue 14, 261-262 (1984).
73. Use of Reverse Phase Ion Pair Chromatography to Fractionate and Purify DNA Fragments and Monomeric Components of RNA.
M. Kwiatkowski, A. Sandström, N. Balgobin and J. Chattopadhyaya, *Acta Chemica Scandinavica*, **B 38** (9), 721-733 (1984).
72. The 9-(4-Octadecyloxyphenylxanthen)-9-yl- Group. A New Acid-labile Hydroxyl Protective Group and Its Application in the Preparative Reverse-Phase Chromatographic Separation of Oligoribonucleotides.
M. Kwiatkowski and J. Chattopadhyaya, *Acta Chemica Scandinavica*, **B38**, 657-671 (1984).

71. Rapid and quantitative recovery of DNA fragments from gels by displacement electrophoresis (Isotachopheresis). L.-G. Öfverstedt, K. Hammarström, N. Balgobin, S. Hjertén, U. Pettersson and J. Chattopadhyaya, *Biochimica et Biophysica Acta*, **782**, 120 (1984).
70. Synthesis of D-psico- and D-fructofuranosyl nucleosides. A. Grouiller and J. Chattopadhyaya, *Acta Chemica Scandinavica*, **B38**, 367 (1984).

1983

69. 2-Nitrophenylsulfenyl (Nps) group for the protection of amino functions of cytidine, adenosine, guanosine and their 2'-deoxysugar derivatives. J. Heikkilä, N. Balgobin and J. Chattopadhyaya, *Acta Chemica Scandinavica*, **B37**, 857-864 (1983).
68. The 9-Fluorenylmethoxycarbonyl (Fmoc) Group for the Protection of Amino Functions of Cytidine, Adenosine, Guanosine and Their 2'-Deoxysugar Derivatives. J. Heikkilä and J. Chattopadhyaya, *Acta Chemica Scandinavica*, **B37**, 263-265 (1983).
67. 3-*N*-acyl uridines: Preparation and properties of a new class of uracil protecting group. C. J. Welch and J. Chattopadhyaya, *Acta Chemica Scandinavica*, **B37**, 147 (1983).
66. Two New and Efficient Routes to the Preparation of Oligoribonucleotides of Defined Sequence H. Seliger, D. Zeh, G. Azuru and J. B. Chattopadhyaya, *Chemica Scripta*, **22**, 95-101 (1983).
65. Chemical synthesis and molecular cloning of a STOP oligonucleotide encoding an UGA translation terminator in all three reading frames. R. F. Pettersson, K. Lindström, J. Chattopadhyaya, S. Josephson, L. Philipson, L. Kääriäinen and I. Palva, *Gene*, **24**, 15 (1983).
64. Chemical Synthesis of an Undecaribonucleoside Decaphosphate Constituting the 3'-Terminal Acceptor Stem Sequence of Yeast tRNA^{Phe}. M. Kwiatkowski, J. Heikkilä, S. Björkman, J. B. Chattopadhyaya and H. Seliger, *Chemica Scripta*, **22**, 30-48 (1983).

1982

63. General methods of "one-pot" preparations of 5'-*O*-(9-phenylxanthen-9-yl)dideoxyribonucleoside(3'→5') mono phosphates. S. Josephson, N. Balgobin and J. Chattopadhyaya, "Proceedings of the 4th. International Round Table", p. 187 (1982); Antwerp University, Belgium.
62. Some aspects of the chemical synthesis of oligonucleotides. C. Gioeli, S. Josephson, N. Balgobin, M. Kwiatkowski and J. Chattopadhyaya, "Proceedings of the 4th. International Round Table", p. 155 (1982); Antwerp University, Belgium.
61. A "one-pot" synthesis of 4-*N*-benzoyl-2'-*O*-methylcytidine and its application as a key building block in tRNA chemistry. J. Heikkilä and J. Chattopadhyaya, *Chemica Scripta*, **20**, 251 (1982).
60. A novel strategy for the chemical synthesis of DNA and RNA fragments using 2-oxymethylenanthraquinone (MAQ) as a 3'-terminal phosphate protecting group.

- N. Balgobin, M. Kwiatkowski and J. Chattopadhyaya, *Chemica Scripta*, **20**, 198-200 (1982).
59. A Convenient Method of Deprotection of the β-(Trimethylsilyl)-Ethoxycarbonyl (TEOC) Amino Protecting Group. S. Björkman and J. Chattopadhyaya, *Chemica Scripta*, **20**, 201-202 (1982).
58. The Complementarity of Two β-Eliminating Protecting Groups in the Synthesis of Octathymidylic Acid Through the Phosphotriester Approach. N. Balgobin, C. J. Welch and J. Chattopadhyaya, *Chemica Scripta*, **20**, 196-197 (1982).
57. 5'-*O*-trityl group promoted directive effect in the preparation of 2'-*O*-methyl ribonucleosides. J. Heikkilä, S. Björkman, B. Öberg and J. Chattopadhyaya, *Acta Chemica Scandinavica*, **B36**, 715 (1982).
56. 2-(4-Nitrophenyl)thioethyl - A Phosphate Protecting Group and its Application in Conjunction with 5'-*O*-2,2-Dibromomethylbenzoyl-Group in the Synthesis of Dodecathymidylic Acid Through the Phosphotriester Approach. N. Balgobin and J. Chattopadhyaya, *Chemica Scripta*, **20**, 144-146 (1982).
55. Acidic Hydrolysis of Phosphoester Bonds in Adenylyl-(3'→5')-Adenosine and Adenylyl-(2'→5')-Adenosine. M. Kwiatkowski and J. B. Chattopadhyaya, *Chemica Scripta*, **20**, 193-195 (1982).
54. 5-Benzisoxazolylmethylene (BIM) A New Phosphate Protecting Group; its Application in DNA Synthesis Through the Phosphotriester Approach. N. Balgobin and J. Chattopadhyaya, *Chemica Scripta*, **20**, 142-143 (1982).
53. An Efficient Synthesis of Adenylyl-(3'→5')-Adenosine Through the Phosphotriester Approach. M. Kwiatkowski and J. B. Chattopadhyaya, *Chemica Scripta*, **20**, 139-141 (1982).
52. Geniala Maskiner tillverkar liv. J. Chattopadhyaya, S. Josephson and U. Pettersson, *Forskning och Framsteg*, **17**, 33 (1982).
51. An Efficient Chemical Synthesis of a Biologically Functional DNA Molecule, 5'd(A-T-G-G-G-T-T-T-C-T-T-C-G-C)3', Through the Phosphotriester Approach. N. Balgobin and J. Chattopadhyaya, *Chemica Scripta*, **20**, 133-138 (1982).
50. The Fluorene-9-ylmethoxycarbonyl Group for the Protection of Hydroxygroups; Its Application in the Synthesis of an Octathymidylic Acid Fragment. C. Gioeli and J. B. Chattopadhyaya, *Journal of the Chemical Society, Chemical Communications*, 672-674 (1982).
49. Leader arrangement in the adenovirus fiber mRNA. M. Uhlen, C. Svensson, S. Josephson, P. Aleström, J. Chattopadhyaya, U. Pettersson and L. Philipson, *The EMBO Journal*, **1**, (2), 249 (1982).
48. Syntetiska oligonukleotider in molekylär biologisk forskning. S. Björkman and J. Chattopadhyaya, *Kemisk tidskrift*, **94**, (6), 54 (1982).
- 47.2. Den Kemiska syntesens utveckling inom DNA området. (Part 1)

- J. Chattopadhyaya and S. Josephson, *Kemisk tidskrift*, **94**, (5), 32 (1982).
- 47.1. Den Kemiska syntesens utveckling inom DNA området. (Part 2)
J. Chattopadhyaya and S. Josephson, *Kemisk tidskrift*, **94**, (4), 38 (1982).
46. Fluorene-9-methyl-, a Phosphate Protecting Group: Its Application in the Phosphotriester Approach Through the Synthesis of Tetracosathymidylic Acid.
C. Gioeli and J. B. Chattopadhyaya, *Chemica Scripta*, **19**, 235-237 (1982).
45. Two Sulfur Containing Protecting Groups for Alcoholic Hydroxyl Function.
N. Balgobin and J. B. Chattopadhyaya, *Chemica Scripta*, **19**, 143-144 (1982).
44. Precipitation of nucleosides by calcium phosphate.
K. Stenberg, B. Öberg and J. Chattopadhyaya, *Biochimica et Biophysica Acta*, **697**, 170 (1982).
43. Chemical synthesis and conformations of "arabino analogues" of (2'→5')-isooligo-adenylates and their application as probes to determine the structural requirements of cellular exonucleases.
M. Kwiatkowski, C. Gioeli, B. Öberg, A. F. Drake and J. Chattopadhyaya, *Chemica Scripta*, **19**, 49 (1982).
42. Synthesis and properties of *ara*-adenylyl-(3'→5')-*ara*-adenylyl-(3'→5')-*ara*-A [*ara*-(A3'p5'A3'p5'A)].
C. Gioeli, J. Chattopadhyaya, B. Öberg and A. F. Drake, *Chemica Scripta*, **19**, 13 (1982).
- 1981**
41. The application of 2-(4-chlorophenyl)-sulfonylethoxycarbonyl (CPSEC) group in the synthesis of a DNA segment using the phosphotriester approach.
S. Josephson, N. Balgobin and J. Chattopadhyaya, *Tetrahedron Letters*, **22**, (45), 4537-4540 (1981).
40. The 2-phenylsulphonylethoxycarbonyl (PSEC) group for the protection of the hydroxyl function.
N. Balgobin, S. Josephson and J. Chattopadhyaya, *Tetrahedron Letters*, **22**, (37), 3667-3670 (1981).
39. The application of the 2-phenylsulphonylethyl-, a novel phosphate protecting group, in the synthesis of DNA fragments of defined sequences.
S. Josephson and J. Chattopadhyaya, *Chemica Scripta*, **18**, 184 (1981).
38. Chemical synthesis of a tetradecadeoxyribonucleoside tridecaphosphate using 2-phenylsulfonylethyl as a phosphate protecting group.
S. Josephson, N. Balgobin and J. Chattopadhyaya, *Nucleic Acids Research, Symposium Series*, Issue 9, 177-182 (1981).
37. Synthesis and properties of *ara*-adenylyl-(2'→5')-*ara*-adenylyl-(2'→5')-*ara*-A [*ara*-(A2'p5'A2'p5'A)].
M. Kwiatkowski, C. Gioeli, B. Öberg and J. Chattopadhyaya, *Chemica Scripta*, **18**, 95 (1981).
36. 2-Phenylsulfonylethyl, a new phosphate protecting group: Its application in the synthesis of dodecathymidylic acid.
N. Balgobin, S. Josephson and J. B. Chattopadhyaya, *Tetrahedron Letters*, **22** (20), 1915-1918 (1981).
35. The tetraisopropylidisiloxane-1,3-diyl: A versatile protecting group for the synthesis of adenylyl-(2'→5')-adenylyl-(2'→5')-adenosine (2-5A core).
C. Gioeli, M. Kwiatkowski, B. Öberg and J. B. Chattopadhyaya, *Tetrahedron Letters*, **22** (18), 1741-1744 (1981).
34. Reversed-Phase Ion-Pair Chromatography of Oligodeoxyribonucleotides
A. Sokolowski, N. Balgobin, S. Josephson, J. B. Chattopadhyaya and G. Schill, *Chemica Scripta*, **18** (4), 189-191 (1981).
33. Functional analysis of Influenza RNA polymerase activity by the use of Caps, oligonucleotides and polynucleotides.
S. Stridh, B. Öberg, J. Chattopadhyaya and S. Josephson, *Antiviral Research*, **1**, 97 (1981).
32. The chemical synthesis of oligodeoxyribonucleotides of defined sequences.
N. Balgobin, S. Josephson and J. Chattopadhyaya, "Proceedings of the 4th. International Round Table on Nucleosides, Nucleotides and their biological applications", p. 17 (1981); Antwerp University, Belgium.
31. Solid phase synthesis of 5'-d(AGCAAAAGCAGG)-3' using 9-phenyl xanthen-9-yl as a 5'-protecting group following the phosphotriester approach.
S. Josephson and J. Chattopadhyaya, "Proceedings of the 4th. International Round Table on Nucleosides, Nucleotides and their biological applications", p. 36 (1981); Antwerp University, Belgium.
30. Reinvestigation of "one-step" preparations of 5'-protected dinucleoside monophosphates.
S. Josephson, N. Balgobin and J. Chattopadhyaya, "Proceedings of the 4th. International Round Table on Nucleosides, Nucleotides and their biological applications", p. 7 (1981); Antwerp University, Belgium.
29. 2-(Trimethylsilyl)ethyl chloroformate: A convenient reagent for protection of hydroxyl function.
C. Gioeli, N. Balgobin, S. Josephson and J. Chattopadhyaya, *Tetrahedron Letters*, **22** (10), 969-972 (1981).
28. A General Approach to the Chemical Synthesis of Oligodeoxyribonucleotides.
N. Balgobin, S. Josephson and J. B. Chattopadhyaya, *Acta Chemica Scandinavica*, **B35** (3), 201-212 (1981).
- 1980**
27. Synthesis of adenylyl-(2'→5')-adenylyl-(2'→5')-adenosine (2-5A core).
J. Chattopadhyaya, *Tetrahedron Letters*, **21**, 4113 (1980).
26. Chemical Synthesis of a Tridecanucleoside Dodecaphosphate Sequence of SV40 DNA.
J. B. Chattopadhyaya and C. B. Reese, *Nucleic Acids Research*, **8** (9), 2039-2053 (1980).
25. Structure of 9-β-D-arabinofuranosyl-8-morpholino- adenine dihydrate. An arabinose in *syn*-conformation.
V. Swaminathan, M. Sundaralingam, J. Chattopadhyaya and C. B. Reese, *Acta Crystallographica*, **B36**, 828 (1980).
- 1979**
24. Some Observations Relating to Phosphorylation Methods in Oligonucleotide Synthesis.

J. B. Chattopadhyaya and C. B. Reese, *Tetrahedron Letters*, (52), 5059-5062 (1979).

23. 2-Dibromomethylbenzoyl: An Acyl Protecting Group Removable Under Exceptionally Mild Conditions. J. B. Chattopadhyaya, C. B. Reese and A. H. Todd, *Journal of the Chemical Society, Chemical Communications*, 987-988 (1979).
22. 9-β-D-Arabinofuranosyl-8-n-butylamino adenine, a C-8 substituted nucleoside in the *anti*-conformation. S. Neidle, M. R. Sanderson, A. Subbiah, J. Chattopadhyaya, R. Kuroda and C. B. Reese, *Biochimica et Biophysica Acta*, **565**, 379 (1979).

1978

21. Convenient preparations of 9-β-D-arabinofuranosyl-guanine, 9-β-D-arabinofuranosyl-hypoxanthine and derivatives. J. Chattopadhyaya and C. B. Reese, *Synthesis*, 908 (1978).
20. A synthesis of purine arabinosides. J. Chattopadhyaya and C. B. Reese, *Nucleic Acids Research special publication*, **4**, 67 (1978).
19. The 9-Phenylxanthen-9-yl Protecting Group. J. B. Chattopadhyaya and C. B. Reese, *Journal of the Chemical Society, Chemical Communications*, 639-640 (1978).
18. Reaction of methylhydrazine and hydrazine with 8-bromo-2'-O-toluene-p-sulphonyl adenosine. J. Chattopadhyaya and C. B. Reese, *Journal of the Chemical Society, Chemical Communications*, 86 (1978).

1977

17. Synthetic nucleosides. J. Chattopadhyaya and C. B. Reese, *British Provisional Patent*, 37554 (1977).
16. Reaction between 8-bromoadenosine and amines. Chemistry of 8-hydrazinoadenosine. J. Chattopadhyaya and C. B. Reese, *Synthesis*, 725 (1977).
15. Reaction of 8,2'-O-cycloadenosine with hydrazine and amines. Convenient preparations of 9-β-D-arabinofuranosyladenine and its derivatives. J. Chattopadhyaya and C. B. Reese, *Journal of the Chemical Society, Chemical Communications*, 414 (1977).

1976

14. Interconversion of 8,2'-O-cycloadenosine and 2',3'-O-anhydro-8-oxyadenosine. J. Chattopadhyaya and C. B. Reese, *Journal of the Chemical Society, Chemical Communications*, 860 (1976).
13. Phenyl dihydrogen phosphate. G. R. Owen, J. Chattopadhyaya and C. B. Reese, in *"Nucleic Acid Chemistry, Part II"*, Eds. L. B. Townsend and B. S. Tipson, John Wiley & Sons Inc., New York, 1976, p. 1003.

1975

- 12.* Infrared spectra of the molecular complexes of *p*-benzoquinone with aromatic bases: Evidence for localised charge transfer. J. Chattopadhyaya, M. N. Deshmukh and C. I. Jose, *Journal of the Chemical Society, Faraday Transactions* **11**, 1127 (1975).
11. Reaction of ethyl orthoformate with phosphorous pentasulfide and *O,O*-diethyldithio phosphoric acid. B. K. Athwale, J. Chattopadhyaya and A. V. Ramarao, *Indian J. Chem.*, **13**, 812 (1975).
10. Heterocycles: Part VII - Desulphurisation of triaryl-s-trithianes with hydrazine hydrate. J. Chattopadhyaya and A. V. Ramarao, *Indian Journal of Chemistry*, **13**, 632 (1975).
9. Heterocycles: Part V - Reactions of phenylisothiocyanate and phenylisocyanate on 2-amino-5-chloro benzophenone. R. J. Lahoti, J. Chattopadhyaya and A. V. Ramarao, *Indian Journal of Chemistry*, **13**, 458 (1975).

1974

8. Heterocycles: Part VI - An oxidative desulphurisation of s-trithianes with iodine and pyridine N-oxide. J. Chattopadhyaya and A. V. Ramarao, *Synthesis*, 865 (1974).
7. Electron-impact fragmentation of triaryl-s-trithianes: a novel skeletal rearrangement involving sulphur-sulphur bond formation. J. Chattopadhyaya and A. V. Ramarao, *Organic Mass Spectrometry*, **9**, 649 (1974).
6. Silica gel induced isomerisation of aldoximes to amides. J. Chattopadhyaya and A. V. Ramarao, *Tetrahedron*, **30**, 2899 (1974).
5. Synthesis of substituted thioureas and Schiff bases from organic isothiocyanates in dimethylsulfoxide. J. Chattopadhyaya and A. V. Ramarao, *Synthesis*, 289 (1974).

1973

4. Reaction of benzaldehyde with *O,O*-diethyldithio phosphoric acid and hydrolysis of s-trithianes with silver oxide. J. Chattopadhyaya and A. V. Ramarao, *Indian Journal of Chemistry*, **11**, 1331 (1973).
3. Synthesis through carbanions from 2,4,6-triaryl-s-trithianes and their conversion to carbonyl compounds by oxidative desulphurisation. J. Chattopadhyaya and A. V. Ramarao, "Annual Convention of Chemists", p. 181 (1973);
2. A novel oxidative desulphurisation of s-trithianes and thioacetals with iodine in dimethylsulfoxide. J. Chattopadhyaya and A. V. Ramarao, *Tetrahedron Letters*, **38**, 3735 (1973).
1. A convenient method of preparation of aromatic α-deuterioaldehydes and α,α'-dideuterio stilbenes. J. Chattopadhyaya, A. V. Ramarao and K. Venkataraman, *Indian Journal of Chemistry*, **11**, 987 (1973).