

American Chemical Society
Division of Carbohydrate Chemistry

NEWSLETTER



Celebrating
80 Years
1921-2001

Spring 2005

**DIVISION OF CARBOHYDRATE CHEMISTRY
OFFICERS AND EXECUTIVE COMMITTEE FOR 2004-2005**

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**DIVISION OF CARBOHYDRATE CHEMISTRY
OFFICERS AND EXECUTIVE COMMITTEE FOR 2004-2005**

Councilor(2004-06)	Derek Horton	202-885-1750 202-885-1752 (fax) carbchm@american.edu
Councilor (2002-05)	Walter Szarek	613-533-2643 fax: (215) 533-6532 szarekw@chem.queensu.ca
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Executive Committee (members-at-large)	(03-05) C. Allen Bush (03-05) Geert-Jan Boons (04-06) Doug Van Thorre (04-06) Maarten H.D. Postema	

Other Upcoming Symposia

San Diego, CA March 13-17, 2005, please see complete program (pages 11-18)

XVIII International Symposium on Glycoconjugates. August 28th-Sept. 2nd, 2005, Florence, Italy

PACIFICHEM 2005 - Honolulu, Hawaii, December 15-20, 2005; see: www.pacificchem.org/symposia.htm

A BIG THANK YOU TO THE SPONSORS OF OUR PROGRAM !

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* Special thanks for supporting the Awards Banquet.

Wolfrom and Isbell Award Nominations

The Division of Carbohydrate Chemistry seeks nominations for the Horace S. Isbell Award and the Mellville L. Wolfrom Award. The Isbell Award recognizes a younger carbohydrate scientist, under the age of 41, who has demonstrated excellence in the field and shows promise of continuing to make quality contributions to carbohydrate chemistry and biochemistry. The Wolfrom Award is intended to recognize those individuals who have provided outstanding service to the Division of Carbohydrate Chemistry and/or to the field of Carbohydrate Chemistry. Please nominate those who are most deserving by completing the attached forms or visit the carbohydrate division web site

<http://membership.acs.org/c/carb/> to download the forms.

**ACS- Innovative Projects Fund
Young Faculty/Postdocs/Graduate students Fellowship
in Carbohydrate Chemistry**

The Division of Carbohydrate Chemistry was recently awarded \$1,500 from the ACS for a new Innovative Project Fund to recognize the outstanding contribution of two young professors, postdoctoral fellows, or graduate students who are pursuing careers in carbohydrate chemistry. Colleagues and professors are therefore invited to submit the candidacy of potential awardees by filling out the attached fellowship. The selection committee will transmit the names of the recipients who are expected to give an oral presentation of their work at one of the ACS meeting.

Deadline for submission for new items for the Summer Newsletter:
July 15, 2005.

Please Update Your Address

As we prepare to more efficiently deliver the Newsletter and other information please take a moment to verify your home address, telephone and most importantly your email address by sending this information via email to:

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For
The ACS Division of Carbohydrate Chemistry

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CARB
DIVISION OF CARBOHYDRATE CHEMISTRY
Final Program, 229th ACS National Meeting, San Diego, CA,
March 13-17 , 2005

M. Manoharan, *Program Chair*

SOCIAL EVENT:

Dinner: Mon

Section A

SUNDAY MORNING

Section A

San Diego Marriott — San Diego A

Frontiers in Modern Carbohydrate Chemistry

Dedicated to the Memory of Professor Jacques van Boom

A. V. Demchenko, Organizer

8:30 Introductory Remarks.

8:40 1. Paulsen's Donor/Acceptor "Match" and selectivities in oligosaccharide synthesis. B. Fraser-Reid, A. M. Gomez, J. C. Lopez

9:10 2. Uncommon sugars and their conjugates to natural products. P. G. Wang

9:40 3. New aspects of recent work on glycoconjugate synthesis. R. R. Schmidt

10:10 Intermission.

10:30 4. Stereoselective glycosylations using chiral auxiliaries. G -J. Boons, J -H. Kim, H. Yang

11:00 5. Carbohydrate nanoscience: A new realm for biochemical and therapeutic applications. J. J. Barchi Jr.

11:30 6. Chemical tools for glycobiology. C. R. Bertozzi

SUNDAY AFTERNOON

Section A San Diego Marriott — San Diego A

Frontiers in Modern Carbohydrate Chemistry

Dedicated to the Memory of Professor Jacques van Boom

A. V. Demchenko, Organizer, Presiding

1:30 7. Sequential glycosylation strategies: A focus on thioglycosides as donors and acceptors. G. A. van der Marel

2:00 8. Thioimidate approach to saccharide synthesis. A. V. Demchenko

2:30 9. Advanced technologies applied to glycosyltransferase development. J. Gervay-Hague, L. Ying, J. H. Wong

3:00 Intermission.

3:20 10. Sialoside probes of Siglec-ligand interactions. S. Han, B. E. Collins, T. Islam, P. Bengtson, N. Bovin, O. Blixt, J. Paulson

3:50 11. Chemical approaches to bacterial carbohydrate antigens. V. Pozsgay, J. Kubler-Kielb, A. Fekete, P. Hoogerhout, B. Coxon

4:20 12. Stereocontrolled glycosylation: Recent advances. D. Crich

4:50 Concluding Remarks.

MONDAY MORNING

Section A San Diego Marriott — San Diego A Hudson Award

Symposium R. Roy, Organizer

8:30 Introductory Remarks.

8:40 13. Award Address (Claude S. Hudson Award in Carbohydrate Chemistry, sponsored by Merck Research Laboratories). Synthetic glycoconjugate vaccines. D. R. Bundle, H. Yu, J. Rich, M. Nitz, X. Wu, C.-C. Ling

9:25 14. Novel approaches for the design and synthesis of selective glycosidase inhibitors. G.-J. Boons

10:00 Intermission.

10:15 15. Chemo, regio, and stereoselective synthesis of a lipoarabinomannan from *Mycobacterium tuberculosis* using arabinose and mannose-pentenyl orthoesters. B. Fraser-Reid, K. N. Jayaprakash, J. Lu

10:50 16. Progress towards a chemical approach to carbohydrate recognition and sensing under physiological conditions. D. G. Hall

11:25 17. Automated Synthesis and Microreactors as Basis for Biological and Medical Research. P. H. Seeberger

Pectins: Health and Agrichemical Applications
Structure, Biosynthesis and Commercial Production

Cosponsored with CELL
MONDAY AFTERNOON

Section A

San Diego Marriott — San Diego A

Hudson Award Symposium

R. Roy, Organizer

- 1:45 18. Recent investigations on the use of 2,3-anhydrosugar glycosylating agents. T. L. Lowary, Y. Bai, D. Hou
2:20 19. A fragment based NMR approach to understand carbohydrate-protein recognition. T. Peters
2:55 Intermission.
3:10 20. The evolution of chemical diversity in sialic acids. A. Varki
3:45 21. Proteomics and the discovery of biocatalysts for glycobiology. N. L. Pohl
4:20 22. Chemical approaches to understanding protein glycosylation in the brain. L. C. Hsieh-Wilson

Pectins: Health and Agrichemical Applications
Tools for Structure/Function Analysis and Modification

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MONDAY EVENING

Section A

Convention Center — Sails Pavilion

Sci-Mix

M. Manoharan, Organizer

8:00 - 10:00

48, 51-53, 55-57, 59-64, 68, 70-72, 74, 76-77, 79, 85-86, 88. See subsequent listings.

TUESDAY MORNING

Section A

San Diego Marriott — San Diego A

Synthesis of Carbohydrates

M. Manoharan, Organizer

K. N. Jayaprakash and J. Lu, Presiding

8:30 23. Chemo and regio selective synthesis of Mycobacterium Tuberculosis Lipomannan dodecasaccharide. K. N. Jayaprakash, B. Fraser Reid

8:50 24. The convergent synthesis of Manno-furanoarabinan of Mycobacterium species from n-pentenylglycosides. J. Lu, B. Fraser-Reid

9:10 25. Iterative one-pot oligosaccharide synthesis. X. Huang, L. Huang, Z. Wang, Y. Jing, X.-S. Ye

9:30 26. Oligosaccharide synthesis for Helicobacter Pylori assay. O. M. Cociorva, P. H. Seeberger

9:50 27. Regiochemistry revisited: The whats and whys of PMHS-mediated reductions. C. L. Humphrey, S. T. Deal

10:10 28. Synthesis and antibody recognition of chlamydial LPS epitopes. P. Kosma, H. Brade, S. Evans

10:30 29. Synthesis and characterization of hyaluronic acid-based hydrogels for vocal fold regeneration. X. Jia, J. Kobler, R. J. Clifton, T. Jiao, S. M. Zeitels, R. Langer

10:50 30. Synthesis and proinflammatory responses of peptidoglycan part structures. A. Roychowdhury, M. Wolfert, G.-J. Boons

11:10 31. Synthesis of lactose-terminated glycodendrimers as models for novel anti-viral agents. J. A. Langston, K. D. McReynolds

11:30 32. Synthesis of the branched-chain sugar aceric acid. R. A. Field, N. A. Jones, S. A. Nepogodiev, D. L. Hughes

11:50 33. Synthesis of XylNAc-isofagomine. S. Pabbaraja, C. Yang, S. Knapp

12:10 34. Synthesis, characterization and biological application of gamma-sugar amino acid oligomers derived from neuraminic acid. Y. Lu, J. Gervay-Hague

Pectins: Health and Agrichemical Applications

Nutritional and Biomedical Uses

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TUESDAY AFTERNOON

Section A

San Diego Marriott — San Diego A

Nucleosides and Nucleotides

M. Manoharan, Organizer

A. P. Guzaev and S. F. Wnuk, Presiding

1:30 35. S-Adenosylhomocysteine and S-ribosylhomocysteine analogues with sulfur atom replaced by the vinyl unit. S. F. Wnuk, J.

Lalama, D. Andrei, C. A. Garmendia, J. Robert

1:50 36. Novel advanced universal solid supports for oligonucleotide synthesis. A. P. Guzaev

2:10 37. A library of specific oligonucleotide probes conjugated with distinguishable fluorescent dyes for rapid detection and quantification of microRNAs on The TrilogySM Single Molecule Analysis Platform. W. Q. Zhou

2:30 38. Conformationally constrained aminoglycoside analogues and the understanding of small molecule-RNA binding. F. Zhao, K. Blount, Y. Tor

2:50 39. Replication and repair of the oxidative DNA lesions 8-oxoG and FaPyG. M. Ober, G. W. Hsu, L. S. Beese, F. Coste, S. Boiteux, C. Zelwer, B. Castaing, T. Carell

3:10 40. Synthesis and anti-HIV activity of α -unsaturated nucleosides and deoxyribofuranosyl nucleosides. S. Gadthula, R. F. Schinazi, C. K. Chu

3:30 41. Synthesis of fluorinated DNAs for solid state NMR studies. N. Barhate, R. Barhate, G. Drobny, S. T. Sigurdsson

3:50 42. A short synthesis of L-ribose and its utility to L-fluoroneplanocin A. M. Yun, H. R. Moon, K. M. Lee, H. Park, H. P. Kim, L. S. Jeong

4:10 43. Synthesis of 3-deoxy-3-fluoro-calystegine B2. R. Csuk, S. Reissmann

6:00 - 8:00

44. Stereoselective synthesis of 2-amino-2-deoxy-D-glucopyranosides employing N-substituted ring-fused 2,3-oxazolidinone protected glycosyl donors. R. J. Kerns, P. Wei
45. The influence of microwave irradiation on the structures of tapioca starch. J. Xiong, J. Ye, W -F. He
46. Preparation of Caragana Korshinskii cellulose in acetic acid/nitric acid system. F. Xu, R. Sun, X. Zhong, C. Liu
47. A nanoprobe-based affinity mass spectrometry approach for direct target protein identification. C -C. Lin, Y -J. Chen, P -C. Lin, Y -Y. Chien, S -H. Chen, Y -W. Chang
48. Stereoselective Heck reaction of C-glycosides: Application to the synthesis of glycocoumarins for glycomimetics. R. Patnam, J. M. Juárez-Ruiz, R. Roy
49. Investigating the role of O-linked glycosylation in Notch: A chemical approach. C. A. Valdez, A. Eastoak-Siletz, C. R. Bertozzi
50. A new approach for the stereoselective introduction of alpha-glycosides. H. Yang, J -H. Kim, G -J. Boons
51. A novel catalytic reaction induced by rhizobial exopolysaccharides. S. Jung, S. Kang, S. Kyung
52. Application of S-Box methodology to the synthesis of 2-amino-2-deoxy glycosides. A. F. G. Bongat, A. V. Demchenko
53. Development of novel glycosylation methodology based on S-thiazolyl glycosides. P. Pornsuriyasak, A. V. Demchenko
54. Synthesis of deoxy- trehalose analogs for biochemical characterization of mycobacterial sulfotransferase Stf0. F. L. Lin, C. R. Bertozzi
55. Carbohydrate binding and sugar nucleotidyltransferases: Nanoelectrospray ionization mass spectrometry versus isothermal titration microcalorimetry. E. L. Fisher, C. Zea, N. L. Pohl
56. S-Benzoxazolyl (SBox) glycosides in oligosaccharide synthesis. M. N. Kamat, A. V. Demchenko
57. S-Thiazolyl (STaz) glycosides in the inverse armed-disarmed strategy. J. T. Smoot, A. V. Demchenko
58. Synthesis of sulfone analogs of cytidine-monophospho-N-acetylneuraminic acid. J. H. Wong, J. Gervay-Hague
59. Chemical characterization of heparan sulfate from a special liver tissue. W. Mao

60. Scope of novel glycosyl thioimidates. A. Ramakrishnan, P. Pornsuriyasak, A. V. Demchenko
61. Chemical modification of sugarcane bagasse with phthalic anhydride. C. Liu, J. Ye, F. Xu, R. Sun, J. Ren
62. Determination of aminoglycoside antibiotics using eluent generation with anion-exchange chromatography and integrated pulsed amperometric detection. V. P. Hanko, J. S. Rohrer
63. Determination of sucralose in reduced-carbohydrate carbonated beverages using high-performance anion-exchange chromatography with pulsed amperometric detection. T. T. Christison, V. P. Hanko, J. S. Rohrer
64. Enzymatic synthesis of sialyloligosaccharides containing Neu5Ac, KDN and their derivatives. H. Yu, C. Young, L. Ng, H. Yu, X. Chen
65. Facile one-pot acetobromination of sugars and hydrobromination of alkenes via in situ generation of HBr. M. Hunsen, D. A. Long, C. R. Dâ•™Ardenne, K. L. Bente
66. Facile synthesis toward the construction of an activity probe library for glycosidases. L -C. Lo, T -H. Shie
67. Identification of key beta-1,3-glucan synthesis enzymes in *Agrobacterium* sp. ATCC31750. J -H. Lee, L -H. Jin
68. Molecular Modeling for the chiral separation and solubilization of various guest molecules on beta-cyclodextrins. S. Jung, H. Kim, K. Jeong, E. Jung, H. Park
69. pH-Dependent inclusion complexation of carboxymethylated cyclodextrins to N-acetylphenylalanine. S. Jung, H. Park, E. Cho
70. Prediction of chiral discrimination by beta-cyclodextrins using grid-based Monte Carlo docking simulations. S. Jung, Y. Choi, K. Jeong, H. Park
71. Prediction of solubility in flavonoid-cyclodextrin system. S. Jung, Y. Choi, H. Kim, K. Jeong
72. Preparation and application of oligosaccharides from seaweed. W. Mao
73. Rapid discovery of potent and selective fucosidase inhibitors. C - H. Lin
74. Selective reductions of C-(4,6-O-benzylidene-beta-D-glucopyranosyl) nitromethane. P. H. Gross, O. Å imo, K. Michael, W. Yoshida, V. Chertkov

75. Structural analyses of novel glycerophosphorylated alpha-cyclophorohehexadecaoses isolated from *X. campestris* pv. *campestris*. S. Jung, H. Park, Y. Jung, E. Cho
76. Structural features of sugar-backbone modified DNA:RNA hybrid duplexes: Functional implications for RNase-H1 recognition. D. Venkateswarlu
77. Sucrose-based epoxies and reactions with amines, anhydrides, and amino acids. A. A. Lambert III, N. D. Sachinvala, N. T. Prevost, S. Chang
78. Synthesis and structures of pyranose N-glycosyl amides and triazoles. P. Norris, D. Temelkoff, C. Smith, M. Zeller, M. Hunsen
79. Synthesis of 2-deoxyglycosides by conjugate addition. J. L. Koviach, J. R. Perrie, D. R. Pitts
80. Synthesis of C-linked 1,2,3-triazole carbohydrate mimics. P. Norris, T. Weaver, M. Maust
81. Synthesis of glycolipopeptide as vaccine against cancer. S. Ingale, T. Buskas, G -J. Boons
82. Synthesis of multivalent peptidoglycan derivatives utilizing a branched polyethylene glycol scaffold. D. Miller, A. RoyChowdhury, G -J. Boons
83. Thioimidoyl approach to the synthesis of sialosides. C. De Meo, O. Parker
84. Use of cellulase-Jeffamine networks in place of the free enzyme may alleviate the problem of lost fiber strength during textile processing. G. Bayram Akcapinar, I. Bahtiyari, A. Taralp, O. U. Sezerman, A. Ekmekci, K. Duran
85. Water-soluble and highly fluorescent naphthalene-based boronic acid compound for carbohydrate sensing at physiological pH. X. Gao, Y. Zhang, B. Wang
86. Synthetic monophosphoryl lipid A: A promising TLR 4 ligand. D. Yalamati, Z -H. J. Jiang, R. R. Koganty
87. Withdrawn.
88. Synthesis and metal binding ability of thioglycoside dendrimers. M. J. Panigot, A. Bowman, J. Brands, J. Buck, N. Folts, S. Kent, M. Rand, R. Sebourn, S. Shannon, M. Draganjac, N. Andersen, P. Blankenship, B. Hyman, B. Lies, B. Perry

Pectins: Health and Agrichemical Applications : Nutritional and Biomedical Uses - Mechanism of Action Cosponsored with CELL
WEDNESDAY MORNING

Section A San Diego Marriott — San Diego A Carbohydrate Vaccines
R. Roy, Organizer

8:30 Introductory Remarks.

8:40 89. Experimental PADRE-carbohydrate vaccines composed of the universal helper T-lymphocyte epitope (PADRE) and *Streptococcus pneumoniae* capsular polysaccharides. J. Alexander, M -F. del Guercio, B. Stewart, A. Maewal, M. Beebe, M. H. Nahm, M. J. Newman

9:15 90. Development of a conjugate vaccine against *Haemophilus influenzae* type b base on synthetic antigens: Lessons for the future. V. Verez-Bencomo, V. Fernandez-Santana, R. Roy, E. Hardy, M. E. Toledo, M. C. Rodriguez, L. Heynngnezz, A. Baly, M. Izquierdo, A. Villar, Y. Valdes, K. Cosme, E. Garcia, A. Ramos, A. Aguilar, E. Medina, G. ToraÑ±o, I. Sosa, I. Hernandez, R. Martinez, A. Musacchio, A. Carmenate, L. Costa, O. L. Garcia, L. Herrera

9:50 Intermission.

10:05 91. Potential synthetic carbohydrate-protein conjugate vaccines against *Streptococcus pneumoniae* serotypes. J. P. Kamerling

10:40 92. Design, synthesis and biological evaluation of oligosaccharide-based conjugates as potential vaccines against *Shigella flexneri* 2a infection. L. A. Mulard

11:15 93. Carbohydrate antigens in parasitic worms and generation of candidate vaccines. R. Cummings

WEDNESDAY AFTERNOON

Section A San Diego Marriott — San Diego A Carbohydrate Vaccines
R. Roy, Organizer

1:30 94. Synthetic glycopeptides for the construction of anticancer vaccines. H. Kunz

2:05 95. Development of carbohydrate based cancer vaccines: Role of synthesis and structural definition. R. R. Koganty

2:40 96. Toward an AIDS vaccine: Progress in the synthesis of complex glycopeptides. S. J. Danishefsky

3:15 Intermission.

3:30 97. Bacterial polysaccharides antigens and their peptide-mimetics: Potential for discriminating vaccines. B. M. Pinto

4:05 98. Role of glycopeptides from type II collagen in rheumatoid arthritis. J. Kihlberg, R. Holmdahl

4:40 99. Automated Oligosaccharide Synthesis to Create Vaccines for Malaria, Leishmaniasis, HIV-AIDS, and Tuberculosis. P. H. Seeberger

THURSDAY MORNING

Section A San Diego Marriott — San Diego A

General Papers M. Manoharan, Organizer

B. G. Davis, C. P. Hackenberger, and D. I. Freedberg, Presiding

8:30 100. Ammonium carbamate-mediated \hat{I}^2 -amination of crude

chitobiose and its implication in glycopeptide synthesis. C. P.

Hackenberger, B. Imperiali

8:50 101. An in vitro cytotoxicity study of native antifreeze glycoprotein

8 and c-linked antifreeze glycoprotein analogues. S. Liu, W. Wang,

J. L. Jackman, E. von Moos, R. N. Ben

9:10 102. How chair-like is the structure of glucose? R. S. Negin, D. I.

Freedberg

9:30 103. Carbohydrate polymeric fiber-based drug delivery system

and release behavior. D -L. Li, H -G. Ding, Q. Shen

9:50 104. The utility of residual dipolar couplings in detecting motion

in carbohydrates. R. M. Venable, D. I. Freedberg

10:10 105. Theoretical investigation of cellulose Ib hydrogen bonding

network: A Comparison with experimental results. X. Qian, S -Y. Ding,

M. R. Nimlos, D. K. Johnson, M. E. Himmel

10:30 106. Computational studies of sugar-protein interactions. C. J.

Margulis

10:50 107. Family of mycothiol analogues. B. Amorelli, S. Knapp

11:10 108. Fluorescent azido-LacNac derivatives for the generation of

combinatorial libraries. Q. Wang, A. K. Sanki, K. Michael

11:30 109. Functional rotaxanes and polyrotaxanes from cyclodextrins.

G. Wenz, A. M \ddot{A} lller

11:50 110. Sugars and enzymes: Exploring and exploiting protein-

carbohydrate interactions. B. G. Davis

12:10 111. Elucidation of the molecular structure of the core oligosac-

charides isolated from a rough mutant and wild strains of *Aeromonas*

salmonicida lipopolysaccharides using electrospray ionization quadru-

pole time-of-flight tandem mass spectrometry. J. H. Banoub

12:30 112. Two new anthochlor pigment from *Pterocarpus santalinus*.

A. N. Kesari, R. K. Gupta, G. Watal

12:50 113. Entropic regulation of the conformational flexibility in

cyclic- \hat{I}^2 -(1->2)-glucan containing an \hat{I}^\pm -(1->6)-glycosidic linkage (\hat{I}^\pm -

C16) produced by *Xanthomonas campestris*. S. Jung, Y. Choi