American Chemical Society
Division of Carbohydrate Chemistry

NEWSLETTER

Celebrating
80 Years
1921-2001

Summer 2003

DIVISION OF CARBOHYDRATE CHEMISTRY
OFFICERS AND EXECUTIVE COMMITTEE FOR 2002-2003

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	(02-04) Peter Seeberger	617-253-3986 Fax 617-253-7929 seeberg@mit.edu

Other Upcoming Symposia

Annual Conference of The Society for Glycobiology
Dec 3-6 2003, San Diego, CA
conference@glycobiology.org

Annual Conference of The Society for Glycobiology / Japan Society of Carbohydrate Research, Nov 17-20 2004, Honolulu, HI
conference@glycobiology.org

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

XXIInd INTERNATIONAL CARBOHYDRATE SYMPOSIUM
University of Warwick, UK 25-30 July 2004

A BIG THANK YOU TO THE SPONSORS OF OUR PROGRAM !

The following companies provided financial support for our program:

*Biorefining Inc. Golden Valley, Minnesota
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* Special thanks for supporting the NY Awards Banquet.

The Wolfrom/Isbell Banquet dinner honoring our awardees:

Professor Rene Roy - Melville L.Wolfrom awardee
Professor Peter H. Seeberger - Horace S.Isbell awardee
Professor Maarten H.D. Postema - New Investigator awardee,
will be held on Monday September 8, 2003, 6:00PM at The Sky Club on 200 Park Avenue, NY in Met Life Building at 56 floor.
Tickets at $ 50.00 available at the social events desk in the registration area. Please join us.

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 carbohydate 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 forms available at http://membership.acs.org/C/CARB/.

ACS- Innovative Projects Fund

New Investigator/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. Colleages 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 Spring Newsletter: March 1, 2004.

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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NEW MEMBERSHIP APPLICATION
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PROGRAM FOR NY ACS MEETING

M. Manoharan, *Program Chair*
SUNDAY MORNING

Section A

Javits Convention Center — 1B03

General Papers

Synthesis of Carbohydrates

R. J. Linhardt and K. Monde, *Presiding*
M. Manoharan, *Organizer*
9:00 —1. Synthesis and characterization of functional glycolipid LB Membrane. **N. Nagahori**, R. Sadamoto, K. Niikura, K. Monde, S. Nishimura

9:20 —2. Application of 6,1-lactones in glycoside synthesis. **P. V. Murphy**, M. Tosin, M. Polakova, N. Pitt

9:40 —3. Progress in the synthesis of C-glycoside analogues of biologically important glycoconjugates. R. J. Linhardt, **D. K. Ress**, S. A. Sikkander, C. Chen

10:00 —4. Disaccharide approach for the synthesis of glycosaminoglycan oligosaccharides. **T. F. Islam**, F. Y. Avci, N. A. Karst, J. Zhang, R. J. Linhardt

10:20 —5. Versatile bifunctional glycopolymer for glycosciences. **X. Sun**, E. L. Chaikof

10:40 —6. Trifluoroethylsulfonate-protected monosaccharide building blocks: New tools for oligosaccharide synthesis. **N. A. Karst**, T. F. Islam, R. J. Linhardt

11:00 —7. Enzymatic synthesis of D- and L-carbocyclic oxetanocin-A. **G. Gumina**, L. Bondada, R. Nair, C. K. Chu

11:20 —8. Starch nanoparticles: their enzymatic modification and solution properties. **S. Chakraborty**, B. Sahoo, I. Teraoka, R. A. Gross

11:40 —9. Study on the interaction between heparin and virus envelope proteins using SPR. **F. Zhang**, M. Warda, T. F. Baumert, R. Marks, R. J. Linhardt

Javits Convention Center — 1B03

Isbell and Wolfrom Awards Symposium

Z. J. Witczak, *Organizer, Presiding*
1:00 —10. A decade of glycodendrimer chemistry. **R. Roy**

1:30 —11. Total syntheses of bioactive resin glycosides and related glycolipids. **A. Fürstner**

2:00 —12. The first human bacterial vaccine with a synthetic antigen. **V. Verez-Bencomo**, V. Fernandez-Santana, E. Hardy, M. E. Toledo, R. Roy, M. C. Rodriguez, A. Rodriguez, L. Heynngnezz, A. Baly, M. Izquierdo, A. Villar, Y. Valdes, K. Kosme, L. Deler, M. Montane, E. Garcia, A. Ramos, A. Aguilar, E. Medina, G. Torano, I. Sosa, Y. Carbonell, I. Hernandez, R. Martinez, A. Mussachio, A. Carmenate, L. Costa

2:30 — Intermission.

2:45 —13. Automated oligosaccharide synthesis as a driving force for medical research: Synthesis of heparin in solution and on solid support. **P. H. Seeberger**

3:15 —14. Toward fully synthetic vaccines. **S. J. Danishefsky**

3:45 —15. Understanding and inhibiting galactofuranose residue incorporation. **L. L. Kiessling**, M. Soltero-Higgin, J. H. Phillips, E. E. Carlson

4:15 —16. Synthesis of stable carbohydrate mimics via RCM. **M. H. D. Postema**, J. L. Piper, V. Komanduri

MONDAY MORNING

Section A

Javits Convention Center — 1B03

Carbohydrate Drug Development in the Pharmaceutical Industry and Biotech

P. H. Seeberger, *Organizer*
9:00 —17. Studies in the total synthesis of asparagine linked glycopeptides. **S. J. Danishefsky**

9:35 —18. Recent advances in automated solid-phase carbohydrate synthesis. **O. J. Plante**

10:10 —19. Short interfering RNA: A new paradigm for drug discovery based on a natural mechanism. **M. Manoharan**

10:45 —20. Automated solid phase oligosaccharide synthesis as a versatile platform for drug discovery. **P. H. Seeberger**

11:20 —21. Novel glycolipid mimics as TLR4 agonists and antagonists. **L. D. Hawkins**, J. Chow, B. deCosta, M. Genest, S. T. Ishizaka, P. M. McGuinness, J. Rose, H. Yang, D. Young, H. Zhang, K. Brandenburg

Mechanism of RNA Processing

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MONDAY EVENING

Section A

Javits Convention Center — North Pavillion

Sci-Mix

M. Manoharan, *Organizer*
8:00 - 10:00
34, 37-39, 41, 43-44, 46-47, 50, 56-57, 59. See subsequent listings.

TUESDAY MORNING

Section A

Javits Convention Center — 1B03

Glycobiology Symposium
C. F. Brewer, *Organizer*

9:00 —22. A modular approach to the synthesis of motifs from all serotypes of the *Cryptococcus neoformans* GXM capsular polysaccharide. **S. Oscarson**
9:30 —23. Progress toward a polysaccharide-based vaccine against Cryptococcus neoformans. **A. Casadevall**
10:00 —24. O-linked ß-D-N-acetylglucosamine is a highly dynamic nutrient sensor that regulates signaling, stress responses, transcription and the cytoskeleton. **G. W. Hart**, N. Zachara, L. Wells, K. Vosseller, S. P. N. Iyer, K. Kamemura, T. Lakshmanan, K. Sakabe, W. Cheung, C. Slawson, S. Whelan, S. Shimoji, M. Yang
10:30 — Intermission.
10:45 —25. Roles for O-fucose glycans in Notch receptor signaling. **P. Stanley**, S. Shi, J. Chen, K. Uemura
11:15 —26. X-ray crystallographic analysis of N-Acetylglucosaminyltransferase I (GnT I) substrate complexes. **J. M. Rini**, R. G. Gordon, P. Sivarajah, M. Satkunarajah, D. Ma, C. A. Tarling, D. Vizitiu, S. G. Withers

TUESDAY AFTERNOON

Section A

Javits Convention Center — 1B03

Glycobiology Symposium
C. F. Brewer, *Organizer*

2:00 —27. Synthesis of new galactoside ligands by [1,3]-dipolar cycloadditions for the selective inhibitions of galectins. **R. Roy**, R. Patnam, D. Giguère, S. Béha
2:30 —28. Multivalency and the mode of action of bacterial sialidases. **G. Boons**, B. Ember, S. Thobhani, A. Siriwardena
3:00 —29. Sialylated, multiply fucosylated polylactosaminyl glycosphingolipids (myeloglycans) isolated from human neutrophils are highly potent E-selectin, but not P-selectin ligands. L. Nimrichter, W. Laroy, M. M. Burdick, A. S. Woods, S. A. Hudson, B. S. Bochner, K. Konstantopoulos, **R. L. Schnaar**
3:30 — Intermission.
3:45 —30. Comparative studies of the physical properties of Galectins-1, -3 and -7. **F. Brewer**, N. Ahmad, H. Gabius, S. Oscarson, R. Roy, M. Brenowitz
4:15 —31. Thermodynamic studies of multivalent lectin-carbohydrate interactions. **T. K. Dam**, F. Brewer, R. Roy, S. Oscarson

M. Manoharan, *Organizer*

2:00 - 5:00

32. Highly effective magnesium catalyzed deacetylation in methanol. **W. Priebe**, S. Kosinski

33. Lab. on a chip: Glycosylated high density lipoprotein apoA-1 (HDL-apoA-1) protein profiles by surface enhanced laser desorption ionization-time of flight mass spectrometry (SELDI-TOF): (ProteinChip® Technology). **B. Dayal**, N. H. Ertel

34. Oligonucleotides with 2'-sugar modified 2-thiopyrimidines. **K. G. Rajeev**, T. P. Prakash, M. Manoharan

35. Isolation, structural characterization, and immunological evaluation of a high molecular weight exopolysaccharide from Staphylococcus aureus. **J. G. Joyce**, C. Abeygunawardana, Q. Xu, J. C. Cook, R. Hepler, C. T. Przysiecki, K. M. Grimm, K. Roper, C. C. Yu Ip, L. Cope, D. Montgomery, M. Chang, S. Campie, M. Brown, T. B. McNeely, J. Zorman, T. Maira-Litrán, G. B. Pier, P. M. Keller, K. U. Jansen, G. E. Mark III

36. Engineering of cell surface sialic acids: Synthesis of analogs of 2-N-acylamido-2-deoxy-αβ-D-mannopyranose and studies on their efficacy of uptake and toxicity. **S. Sampathkumar**, M. B. Jones, K. J. Yarema

37. Progress towards branched and cyclic polysaccharides on a polystyrene resin. **J. Ferguson**, C. H. Marzabadi

38. Stereospecific C-H bond activation for deuterium and tritium incorporation into glycosylated bioconjugates. **E. A. Cioffi**, **M. L. Cook**

39. Synthesis and characterization of polyvalent bioconjugates of peptides with alginic acid and dextran. **N. K. Sharma**, K. Levon

40. Synthesis and properties of carbohydrate- and glycopeptide-bearing nanoparticles. **J. J. Barchi Jr.**, S. Svarovsky

41. Synthesis of C-glycoside analogs via a one-pot Julia-Kocienski olefination reaction. **G. Chen**, R. W. Franck

42. Altered ribose ring hydroxyl patterns in cADPR. **K. B. Turner**, A. E. Romano, S. M. Graham

43. Effect of 2'- and 3'-methoxy groups on cADPR conformation. **D. J. Macaya**, R. N. Sengupta, S. M. Graham

44. Guar Galactomannans: Enzymatic depolymerization, characterization and biostability. **E. M. Baldaro**, C. Formantici, C. Rinaldi, L. Viganò

45. On the *in silico* structure of cADPR. **C. A. Zaborskis**, S. M. Graham

46. Progress toward the total synthesis of *Mycobacterium tuberculosis* Sulfolipid-I. **C. D. Leigh**, M. R. Pratt, C. R. Bertozzi

47. Absorption and fluorescence properties of CMC/Eu/TTA. J. Ye, **J. Xiong**, H. Wu

48. Characterization and protective effect in radiotherapy of red algae polysaccharides and derived oligosaccharides. **Y. Li**, **W. Mao**, H. Wang

49. Chemoenzymatic synthesis of pseudosugars from iodobenzene. **N. Martinez-Llamas**, D. R. Boyd, N. D. Sharma, J. F. Malone, C. R. O'Dowd, C. C. R. Allen

50. Conformation and dynamics of 3,6-anhydrosugars. **M. Hunsen**

51. Oxidation and metal ion affinities of a novel cyclic tetrasaccharide. **C. A. Dunlap**, G. L. Côté, F. A. Momany

52. Progress toward the synthesis of novel oligonucleotide-carbohydrate conjugates. **C. Antonacci**, C. H. Marzabadi, R. D. Sheardy

53. Solid-phase approaches to cyclic oligonucleosides. **I. Negrete**, C. H. Marzabadi

54. Synthesis of novel sugar based heterocycles. **M. De Castro**, C. H. Marzabadi

55. Transition state inhibitors of methylthioadenosine/S-adenosylhomocysteine nucleosidase. **G. B. Evans**, R. H. Furneaux, P. L. Howell, J. E. Lee, V. Singh, V. L. Schramm, P. C. Tyler

56. Use of stable isotope labeled chiral selones in a potentially general method for the synthesis of [2H, 13C] labeled ribose and deoxyribose. **D. Kimball**, P. Silks III, M. Ollivault-Shiflett, R. Michalczyk, E. Moody

57. Structural characteristics of heparan sulfate and its role in oncogenic process. **W. Mao**

58. Characterization of natural fiber treated with different conditions by 13C NMR and FTIR. **S. O. Han**, Y. J. Yoo, Y. S. Ahn, M. H. Han

59. Enzymatic modification of cellulose fiber surfaces. **M. T. Gustavsson**, P. V. Persson, T. Iversen, M. Martinelle, K. Hult, T. T. Teeri, H. Brumer

60. Preparation and biological activity of low molecular weight agar. **W. Mao**, Y. Li, L. Wu, F. Zhang

61. Synthesis of carbocyclic L-nucleosides from D-ribose. **D. Wu**, C. K. Chu

62. Synthesis of modified nucleoside analogues as anti-HIV agents. **V. D. Reddy**

63. Withdrawn.

WEDNESDAY MORNING

Section A

Javits Convention Center — 1B03

General Contributed Papers

Synthesis and Applications

K. W. Pankiewicz and K. S. Ramasamy, *Presiding*
M. Manoharan, *Organizer*
9:00 —64. Synthesis of WP744, a novel highly apoptotic anticancer agent. **I. D. Fokt**, W. Priebe, G. Grynkiewicz

9:20 —65. Mycophenolic acid analogues as potential agents against West Nile virus infection. J. L. Clark, C. J. Mason, S. E. Patterson, L. J. Stuyver, J. D. Morrey, M. J. Otto, **K. W. Pankiewicz**

9:40 —66. Glycosylation with 2'-thio-S-acetyl participation. B. Kirk, **E. Darout**, S. Knapp

10:00 —67. Solid phase parallel synthesis of 4-b-D-ribofuranosylpyrazolo[4,3-d]pyrimidines. **K. S. Ramasamy**, Q. Habib, F. Rong, H. An, Z. Hong

10:20 —68. Design and syntheses of focused combinatorial library for lead optimization and SAR studies of NBMPR based subversive substrates of *T. gondii* adenosine kinase. **V. Yadav**, R. Rais, F. N. M. Naguib, M. H. E. kouni, C. K. Chu

10:40 —69. Expedient syntheses of 1D-1-(D-erythro-ceramide-1-phospho)-myo-inositols. **R. Aneja**, D. T. Stoelting, W. Zhu

11:00 —70. Synthesis and biological evaluation of selective inhibitors of processing class 2 a-mannosidases. **B. Li**, S. George, S. Kawatkar, H. S. Strachan, K. Moreman, G. Boons

11:20 —71. Novel trehalose-based compounds against Mycobacterium, synthesis and antibacterial studies. **C. T. Chang**, B. Elchert, Y. Hui, J. Wang, J. Wennergren, R. Rai, J. Takemoto, M. Bensaci

11:40 —72. Synthetic glycorandomization of ring III pyranose of pyranmycin. **C. T. Chang**, B. Elchert, Y. Hui, J. Li, J. Wang, R. Rai, J. Takemoto

12:00 —73. The synthesis and structural evaluation of restricted divalent carbohydrates. **M. Tosin**, P. V. Murphy

Javits Convention Center — 1B03

General Contributed Papers: Analysis, Biochemistry and Calculations

J. Preiss and S. M. Graham, *Presiding*
M. Manoharan, *Organizer*

1:30 —74. Exploring the structure-activity requirements of transition state analogs of nucleoside phosphorylases with therapeutic applications. **P. C. Tyler**, V. L. Schramm, R. H. Furneaux, G. B. Evans, A. Lewandowicz

1:50 —75. Stereochemical chiral analysis of carbohydrates by vibrational circular dichroism. **K. Monde**, T. Taniguchi, N. Miura, S. Nishimura

2:10 —76. Escherichia coli glycogen synthase: Function of cysteine residue379. A. Yep, M. A. Ballicora, **J. Preiss**

2:30 —77. Identification of the catalytic base in a calcium-dependent phosphatidylinositol-specific phospholipase C by mutagenesis and chemical rescue. **L. Zhao**, M. Tsai

2:50 —78. An ESI-MS assay for the rapid characterization of carbohydrate polymerizing enzymes. **C. J. Zea**, N. L. Pohl

3:10 —79. Synthesis of mass-differentiated substrate libraries to discover the chemical function of putative glycosidases with ESI-MS. **Y. Yu**, P. Nicola

3:30 —80. B3LYP/6-311++G** studies on carbohydrates: Effect of explicit water molecules on the conformation and energies of selected mono- and disaccharides. **F. A. Momany**, M. D. Appell, J. L. Willett

3:50 —81. Mechanics of the glucopyranose ring by single molecule atomic force microscopy, quantum chemistry and molecular dynamics simulations. W. Nowak, G. Lee, **P. Marszalek**

4:10 —82. cADPR analogs: NMR studies, pseudorotational analysis, and *in silico* calculations of the effects of ribose ring modifications on conformation. **S. M. Graham**, D. J. Macaya, A. E. Romano, R. N. Sengupta, K. B. Turner, C. A. Zaborskis