

40th National Organic Chemistry Symposium

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Duke University
Durham, North Carolina
June 3 - 7, 2007

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Welcome to Duke University

On behalf of the Executive Committee of the **Division of Organic Chemistry** of the **American Chemical Society** and the **Department of Chemistry at Duke University**, we welcome you to the *40th National Organic Chemistry Symposium*. The goal of this biannual event is to present a distinguished roster of speakers that represents the current status of the field of organic chemistry, in terms of breadth and creative advances.

The first symposium was held in Rochester NY, in December 1925, under the auspices of the Rochester Section of the Division of Organic Chemistry. The early meetings were held in December but this was later changed to June. There was an interruption during WWII but the symposium was resumed in Boston in 1947 and continued to be held biannually. In 1959 the Roger Adams Award was established and the Award Address become a key focus of the symposium.

The *National Organic Chemistry Symposium* is the premier event sponsored by the Division of Organic Chemistry of the American Chemical Society to highlight recent advances in organic chemistry. The 40th Symposium consists of 13 invited speakers, plus the 2007 Roger Adams Awardee, Professor S. J. Danishefsky. The lectures will be presented during morning and evening sessions at the elegant Page Auditorium on the Duke University campus.

The poster sessions have greatly increased in popularity and impact in recent years, and will take place in the evenings (Sunday to Wednesday) from approximately 9:00 pm – 12:00 am in the newly completed French Family Science Center. The conference barbeque on Wednesday evening is open to all registered attendees and guests.

The Raleigh/Durham area offers many recreational opportunities for everyone's taste. The Conference Services at Duke University have arranged extracurricular activities during and after the symposium, so you may visit and enjoy many of these attractions.

We thank the organizing committee, conference services, and all the student volunteers from institutions in Research Triangle Area for assisting with the organization of this event. Finally, thank you for attending, and being a part of the 40th National Organic Symposium.

P. Andrew Evans

Executive Officer for NOS 2007
University of Liverpool

Ross A. Widenhoefer

Local Chair for NOS 2007
Duke University

40th National Organic Chemistry Symposium

Sponsors

We acknowledge and appreciate the unrestricted generous financial support and sponsorship by the following organizations.

Abbott Laboratories
Allergan, Inc.
ACS Division of Organic Chemistry
ACS Publications
Amgen
Asymchem
Boehringer Ingelheim Pharmaceuticals, Inc.
Bristol-Myers Squibb
CEM
ChemBridge Research Laboratories
Duke University
DuPont
Eli Lilly and Company
Gilead Sciences, Inc.
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Parion Science, Inc.
Pfizer, Inc.
Roche
Schering-Plough
Sepracor, Inc.
Sigma-Aldrich
Scynexis
Strem Chemicals, Inc.
Thomson Instrument Company
Wyeth

Exhibitors

The following organizations will have booths at the evening poster sessions.

ACS Publications
Asymchem
Boropharm
CEM
John Wiley and Sons, Inc.
Key Organics Ltd.
Pfizer, Inc.
RSC Chemical Communications
Sigma-Aldrich
Strem Chemicals, Inc.
Scynexis
Thomson Instrument Company

Events Sponsorship

The following organizations have kindly agreed to sponsor specific events during the meeting.

ACS Publications
Asymchem
Amgen
Duke University
Eli Lilly and Company
Gilead Sciences, Inc.
GlaxoSmithKline
Organic Reactions, Inc.
Organic Syntheses, Inc.
Scynexis

The following organizations are acknowledged for gratis advertising of the meeting.

ACS Publications
John Wiley and Sons, Inc.
RSC Chemical Communications

40th National Organic Chemistry Symposium
Schedule of Events

-----National Chemistry Symposium • Schedule of Events-----

SATURDAY, JUNE 2

7:00 am	Sandhills/Pinehurst Golfing	Depart from Bryan Center
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SUNDAY, JUNE 3

1:00 pm - 9:00 pm	Registration	Bryan Center
1:00 pm	Nasher Museum Tour	Depart from Bryan Center
	Cox Mountain Hiking	
8:00 pm - Midnight	Opening Mixer and Poster Session A Exhibitor Booths	French Family Science Center

Sponsored by ACS Publications

MONDAY, JUNE 4 *Presiding: P. Andrew Evans (The University of Liverpool)*

7:30 am - Noon	Registration	Bryan Center
8:30 am - 9:00 am	Opening Remarks	Page Auditorium
9:00 am - 10:00 am	E. J. Corey Harvard University	Page Auditorium

Chiral Cations as Catalysts for Enantioselective Synthesis: Pathways and Applications

10:00 am - 10:15 am	Questions
10:15 am - 10:45 am	Break

Sponsored by Amgen

10:45 am - 11:45 am	Scott E. Denmark University of Illinois, Urban-Champaign	Page Auditorium
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Asymmetric Catalysis in Main Group Chemistry: A New Frontier?

11:45 am - Noon	Questions	
12:30 pm	Durham Bulls Baseball Picnic	Depart from Bryan Center

Sponsored by Scynexis

1:00 pm	Duke Lemur Center Morehead Planetarium	Depart from Bryan Center
4:30 pm - 6:30 pm	<i>Research and Careers in Medicinal and Process Chemistry in the Pharmaceutical Industry</i> <i>Pizza, Cookies and Soda Provided</i>	French Family Science Center Room 2231

Workshop Sponsored by GlaxoSmithKline

-----National Chemistry Symposium • Schedule of Events-----

MONDAY EVENING *Presiding: Alan Millar (GlaxoSmithKline)*

7:00pm - 8:00 pm **David R. Liu** Page Auditorium
Harvard University

Synthesis and Discovery Enabled by Nucleic Acid-Templated Chemistry

8:00 pm - 8:15 pm Questions

8:15 pm - 9:15 pm **Joanne Stubbe** Page Auditorium
Massachusetts Institute of Technology

Radical Enzymes with Suicidal Tendencies: Lessons from Nature

9:15 pm - 9:30 pm Questions

9:30 pm - Midnight Mixer and Poster Session B French Family Science Center
Sponsored by GlaxoSmithKline

TUESDAY, JUNE 5 *Presiding: Stephen L. Craig (Duke University)*

6:30 am - 7:30 am 5K Run Wahington Duke Hotel

8:20 am - 8:30 am Introductory Remarks Page Auditorium

8:30 am - 9:30 am **Karen L. Wooley** Page Auditorium
Washington University in Saint Louis

*Application of Synthetic Organic Chemistry Concepts and Methodologies Toward the
Construction of Nanoscopic Target Molecules*

9:30 am - 9:45 am Questions

9:45 am - 10:30 am Break

Sponsored by Scynexis

10:30 am - 11:30 am **Ben L. Feringa** Page Auditorium
University of Groningen

The Art of Building Small; From Molecular Switches to Molecular Motors

11:30 am - 11:45 am Questions

11:45 am - 12:45 pm **J. Fraser Stoddart** Page Auditorium
University of California, Los Angeles

Integrated Systems-Oriented Approach to Molecular Electronics

12:45 pm - 1:00 pm Questions

1:00 pm Three Rivers Paddling Depart from Bryan Center
North Carolina Museum of Art
Sarah P. Duke Gardens Tour

-----National Chemistry Symposium • Schedule of Events-----

5:00 pm - 6:30 pm *Undergraduates Students: Understanding
the Seminars at NOS 2007* French Family Science Center
Room 2231
Pizza, Cookies and Soda Provided

Workshop Sponsored by Pfizer

TUESDAY EVENING *Presiding: Barry Snider (Division of Organic Chemistry Chair)*

7:30 pm - 8:45 pm **Samuel J. Danishefsky** Page Auditorium
Columbia University and The Memorial Sloan-Kettering Cancer Institute
Applications of Total Synthesis to Problems of Biological Consequence

8:45 pm - Midnight Mixer and Poster Session C French Family Science Center
Sponsored by Asymchem

WEDNESDAY, JUNE 6 *Presiding: Ross A. Widenhoefer (Duke University)*

8:20 am - 8:30 am Introductory Remarks Page Auditorium

8:30 am - 9:30 am **F. Dean Toste** Page Auditorium
University of California, Berkeley

Gold(I) Catalysts for Organic Synthesis: Development, Applications and Asymmetric Catalysis

9:30 am - 9:45 am Questions

9:45 am - 10:30 am Break

Sponsored by Eli Lilly

10:30 am - 11:30 am **Bruce Roth** Page Auditorium
Pfizer,GRD
The Discovery and Development of Lipitor

11:30 am - 11:45 am Questions

11:45 am - 12:45 pm **Tohru Fukuyama** Page Auditorium
University of Tokyo
Synthetic Studies on Nitrogen-Containing Natural Products

12:45 pm - 1:00 pm Questions

1:00 pm Cox Mountain Hiking Depart from Bryan Center
Duke Lemur Center
Morehead Planetarium

5:00 pm - 7:00 pm Conference Banquet Wilson Recreation Center
Sponsored by GlaxoSmithKline

-----National Chemistry Symposium • Schedule of Events-----

WEDNESDAY EVENING *Presiding: Paul L. Feldman (GlaxoSmithKline)*

7:30 pm - 8:30 pm **Barry M. Trost** Page Auditorium
Stanford University

*Cycloadditions via TMM-PdL₂ Intermediates: New Strategies for Total Synthesis and
Asymmetric Induction*

8:30 pm - 8:45 pm Questions

8:45 pm - Midnight Mixer and Poster Session D French Family Science Center
Sponsored by Duke University

THURSDAY, JUNE 7 *Presiding: Mukund P. Sibi (2009 NOS Executive Officer)*

8:50 am - 9:00 am Introductory Remarks Page Auditorium

9:00 am - 10:00 am **Brian M. Stoltz** Page Auditorium
California Institute of Technology

Natural Products as a Driving Force for Discovery in Organic Chemistry

10:00 am - 10:15 am Questions

10:15 am - 10:45 am Break

Sponsored by Gilead Sciences, Inc.

10:45 am - 11:45 am **Erik J. Sorensen** Page Auditorium
Princeton University

Rapid Formation of Molecular Complexity in Natural Product Synthesis

11:45 am - Noon Questions

Noon Closing Remarks

1:00 pm Nasher Museum Tour Depart from Bryan Center

ACS Division of Organic Chemistry

Executive Committee Members

	2006	2007
Chair	Kathy A. Parker	Barry B. Snider
Chair Elect	Barry B. Snider	Robert A. Volkmann
Past Chair	Huw M. L. Davies	Kathy A. Parker
Secretary/Treasurer	Gary A. Molander	Gary A. Molander
National Program Chair	Robert D. Larsen	William J. Greenlee
National Program Chair Elect	William J. Greenlee	Scott McN. Sieburth
40 th NOS Executive Officer	P. Andrew Evans	P. Andrew Evans
41 st NOS Executive Officer	Mukund P. Sibi	Mukund P. Sibi
Regional Meeting Liaison	Franklin A. Davis	Franklin A. Davis
Members-at-Large	Kevin Burgess	Kevin Burgess
	Donna M. Huryn	Franklin A. Davis
	Marisa C. Kozlowski	Kelly George
	Lisa McElwee-White	Molly E. Hoke
	Peter G. M. Wuts	Donna M. Huryn
	Steven C. Zimmerman	Marisa C. Kozlowski
		Cynthia A. Maryanoff
		Peter G. M. Wuts
Councilors	Michael P. Doyle	Michael P. Doyle
	Kathy A. Parker	Scott D. Rychnovsky
	Scott D. Rychnovsky	Barry B. Snider
	Barry B. Snider	Christopher J. Welch
Alternate Councilors	Kay M. Brummond	Kay M. Brummond
	Paul L. Feldman	Mark D. Distefano
	Cynthia A. Maryanoff	Paul L. Feldman
	Robert A. Volkmann	Robert J. McMahon
Division Web Master	Brian J. Myers	Brian J. Myers

40th National Organic Chemistry Symposium

Organizers

P. Andrew Evans – *The University of Liverpool*
Symposium Executive Officer

Ross A. Widenhoefer – *Duke University*
Local Symposium Chair

Organizing Committee

Stephen L. Craig – *Duke University*

Paul L. Feldman – *GlaxoSmithKline*

Alan Millar – *GlaxoSmithKline*

Conference Service

Jim Hodges – *Duke University*

40th National Organic Chemistry Symposium

The Roger Adams Award in Organic Chemistry

The Roger Adams Award in Organic Chemistry is sponsored jointly by the American Chemical Society, Organic Reactions, Inc., and Organic Synthesis, Inc. The award recognizes the distinguished career of Roger Adams, who played a vital role in each of these three organizations. He was Chairman of the Board of Directors as well as President of the American Chemical Society, and he co-founded Organic Syntheses and Organic Reactions.

The award is made biannually to an individual, without regard to nationality, for outstanding contributions to research in organic chemistry. The award consists of a gold medal, a sterling silver replica of the medal, and an honorarium of twenty-five thousands dollars. It is presented at the biannual National Organic Chemistry Symposium of the Division of Organic Chemistry of the American Chemical Society. The awardee is a featured lecturer in the program of the symposium.

The recipient of this year's Roger Adams Award is Professor Samuel J. Danishefsky of Columbia University and the Memorial Sloan-Kettering Cancer Center in recognition of outstanding contributions to research in organic chemistry sponsored by Organic Syntheses and Organic Reactions. Professor Danishefsky's Award Address entitled *Applications of Total Synthesis to Problems of Biological Consequence*, which will be delivered on Tuesday evening.



Roger Adams Awardee

Professor Samuel Danishefsky

Columbia University & the Memorial Sloan-Kettering
Cancer Center

Department of Chemistry
New York, NY 10027, USA

Presenting: Tuesday, June 5, 7:30 p.m.

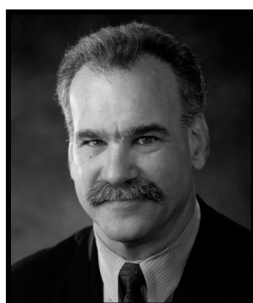
40th National Organic Chemistry Symposium

Plenary Speakers



Professor E. J. Corey

Harvard University
Department of Chemistry and Chemical Biology
12 Oxford Street
Cambridge, MA 02138, USA
Presenting: Monday, June 4, 9:00 a.m.



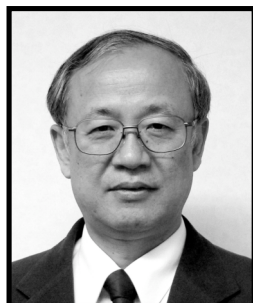
Professor Scott E. Denmark

University of Illinois at Champaign-Urbana
Department of Chemistry
600 South Mathews Avenue
Urbana, IL 61801, USA
Presenting: Monday, June 4, 10:45 a.m.



Professor Ben L. Feringa

University of Groningen
Department of Organic Chemistry
Nijenborgh 4
9747 AG Groningen, NL
Presenting: Tuesday, June 5, 10:30 a.m.



Professor Tohru Fukuyama

University of Tokyo
Graduate School of Pharmaceutical Sciences
7-3-1 Hongo
Bunkyo-ku, Tokyo 113-0033, JP
Presenting: Wednesday, June 6, 11:45 a.m.



Professor David R. Liu

Harvard University
Department of Chemistry and Chemical Biology
12 Oxford Street
Cambridge, MA 02138, USA
Presenting: Monday, June 4, 7:00 p.m.



Dr. Bruce Roth

Pfizer Global Research and Development
Ann Arbor Laboratories
2800 Plymouth Road
Ann Arbor, MI 48105, USA
Presenting: Wednesday, June 6, 10:30 a.m.



Professor Erik J. Sorensen

Princeton University
Department of Chemistry
67 Frick Laboratory
Princeton, NJ 08544, USA
Presenting: Thursday, June 7, 10:45 a.m.



Professor J. Fraser Stoddart

University of California at Los Angeles
Department of Chemistry and Biochemistry
607 Charles E Young Drive East
Los Angeles, CA 90095, USA
Presenting: Tuesday, June 5, 11:45 a.m.

	Professor Brian M. Stoltz California Institute of Technology Division of Chemistry and Chemical Engineering Mail Code 164-30 Pasadena, CA 91125, USA <i>Presenting: Thursday, June 7, 9:00 a.m.</i>
	Professor Joanne Stubbe Massachusetts Institute of Technology Department of Chemistry 77 Mass. Ave Cambridge, MA 02139, USA <i>Presenting: Monday, June 4, 8:15 p.m.</i>
	Professor F. Dean Toste University of California, Berkeley Department of Chemistry Berkeley, CA 94720, USA <i>Presenting: Wednesday, June 6, 8:30 a.m.</i>
	Professor Barry M. Trost Stanford University Department of Chemistry Stanford, CA 94305, USA <i>Presenting: Wednesday, June 6, 7:30 p.m.</i>
	Professor Karen L. Wooley Washington University in St. Louis Department of Chemistry One Brookings Drive St. Louis, MO 63130, USA <i>Presenting: Tuesday, June 5, 8:30 a.m.</i>

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40th National Organic Chemistry Symposium NOS 2007 Travel Awardees

Travel Awards for Faculty at Undergraduate Institutions

Dr. Carolyn Anderson, Calvin College
Dr. Ronald Bribois, Maclester College
Dr. Julie Cong-Dung Lee, Rhodes College
Dr. R. David Crouch, Dickinson College
Dr. Timothy Curran, Trinity College
Dr. M. B. Goli, Mississippi Valley
Dr. Nancy Mills, Trinity College
Dr. Tomoko Mineno, SoJo University
Dr. Richard Mullins, Xavier University
Dr. Timothy Peelen, Lebanon Valley College
Dr. Ralph Salvatore, Lehman College
Dr. Robert Sammelson, Ball State University
Dr. Kevin Shea, Smith College
Dr. Emmanuel Talla, University of Ngaoundere
Dr. David Vosburg, Harvey Mudd College

Travel Awards for Undergraduates

Mr. Andrew Anzalone, Brown University
Ms. Anik Chartrand, University of Ottawa
Ms. Lindsey Cullen, University of Detroit Mercy
Ms. Caitlyn Edgley, University of Maryland, College Park
Mr. Matthew Eibling, Rutgers University
Mr. Victor Fitzjarald, Colorado College
Ms. Siko Fujii, Smith College
Ms. Isabella Garcia, The University of Texas-Pan American
Ms. Amanda Glover, University of Alabama at Birmingham
Ms. Emma Handy, Trinity College
Mr. Evan Horn, University of California, Davis

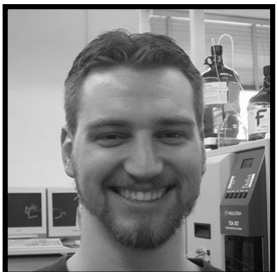
Mr. Kenneth Houser, Lebanon Valley College
Mr. Jason Hovland, Lehman College
Mr. Jason Jacobsen, University of Wisconsin-Madison
Mr. Robert Kutz, The College of New Jersey
Mr. Tom Lam, Occidental College
Mr. Bassam Lamale, East Tennessee State University
Mr. Daniel Le, California Polytechnic State University
Mr. Andrew Lohse, Calvin College
Mr. Ambrosio Lopez, University of the Incarnate Word
Mr. Jacob Lowring, Louisiana State University in Shreveport
Ms. Autumn Maruniak, University of California, Irvine
Mr. Daniel Nielsen, Brigham Young University
Ms. Laura Nielsen, Brigham Young University
Mr. Adeleke Oni, Xavier University
Ms. Priscilla Owusu, Claflin University
Mr. Zak Page, Juniata College
Ms. Rebecca Parkhurst, Hamilton College
Ms. Swayamprabh Patel, University of Alabama at Birmingham
Mr. Timothy Ramadhar, University of Waterloo
Ms. Maureen Reilly, Smith College
Mr. Brian Rich, University of California, Santa Barbara
Mr. Doug Rooke, Colby College
Mr. Kagiroy Rustam, Kazan State University
Mr. Aaron Sather, University of Oregon
Ms. Christine Schulte, San Diego State University
Ms. Katharine Spencer, Trinity College
Ms. Durann VanGorder, Westminster College
Ms. Gyte Vilkauskaite, Kaunas University of Technology
Ms. Kittikhun Wangkanont, University of Wisconsin, Madison
Ms. Holly Williams, California University of Pennsylvania

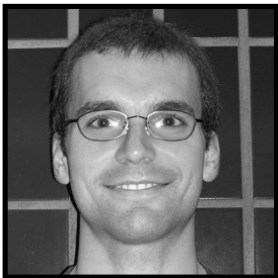
40th National Organic Chemistry Symposium
ACS Organic Division Graduate Fellows and Sponsors

Listed below are the advanced graduate students who were awarded a Division of Organic Chemistry Graduate Fellowships in the past two years. All of these students are presenting a poster at the symposium. Also listed are the names of their institution, faculty research advisor, and the company that sponsored the specific award. The Division of Organic Chemistry is pleased to honor these extraordinary students and to gratefully acknowledge the substantial financial support provided by their generous sponsors.

2005 – 2006 Fellowship Winners

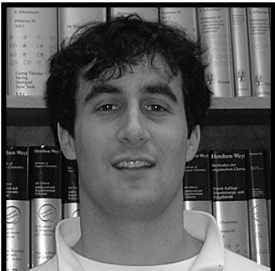
	Timothy E. Barter <i>Sponsor: Novartis Pharmaceuticals</i> University: Massachusetts Institute of Technology <i>Advisor: Stephen Buchwald</i>
	M. Kevin Brown <i>Sponsor: Schering-Plough Research Institute</i> University: Boston College <i>Advisor: Amir Hoveyda</i>
	Daniel D. Caspi <i>Sponsor: Merck Research Laboratories</i> University: California Institute of Technology <i>Advisor: Brian M. Stoltz</i>
	Arthur Catino <i>Sponsor: Emmanuil Troyansky Fellowship</i> University: University of Maryland <i>Advisor: Michael Doyle</i>

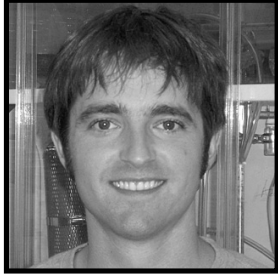
	Juan Diaz <i>Sponsor: Organic Syntheses, Inc.</i> University: University of California at Irvine <i>Advisor: Gregory Weiss</i>
	Matthew B. Harney <i>Sponsor: The Proctor and Gamble Company</i> University: University of Maryland <i>Advisor: Lawrence Sita</i>
	Robert M. Hughes <i>Sponsor: Albany Molecular Research, Inc.</i> University: University of North Carolina <i>Advisor: Marcey Waters</i>
	Jason Lowe <i>Sponsor: Bristol-Myers Squibb</i> University: Boston University <i>Advisor: James Panek</i>
	Anita E. Mattson <i>Sponsor: Eli Lilly and Company</i> University: Northwestern University <i>Advisor: Karl Scheidt</i>
	Steven Mennen <i>Sponsor: Abbott Laboratories</i> University: Boston College <i>Advisor: Scott Miller</i>

	Joshua E. Ney Sponsor: GlaxoSmithKline University: University of Michigan Advisor: John Wolfe
	Brian Northrop Sponsor: Nelson J. Leonard ACS DOC Fellowship sponsored by Organic Syntheses, Inc. University: University of California, Los Angeles Advisors: Fraser Stoddart and Ken Houk
	Izzat Raheem Sponsor: Pfizer, Inc. University: Harvard University Advisor: Eric Jacobsen
	Valentin Rodionov Sponsor: Boehringer Ingelheim University: Scripps Research Institute Advisor: M. G. Finn
	Thomas Snyder Sponsor: Organic Reactions, Inc. University: Harvard University Advisor: David Liu
	Benjamin D. Stevens Sponsor: Sanofi-Aventis University: University of Pittsburgh Advisor: Scott Nelson

	Mark Tichenor <i>Sponsor: Roche Pharmaceuticals</i> University: Scripps Research Institute <i>Advisor: Dale Boger</i>
	Ryan Yoder <i>Sponsor: Wyeth Research</i> University: Indiana University <i>Advisor: Jeffrey Johnston</i>

2006 – 2007 Fellowship Winners

	Emily P. Balsku <i>Sponsor: Schering-Plough Research Institute</i> University: Harvard University <i>Advisor: Eric Jacobsen</i>
	Megan L. Bolla <i>Sponsor: Proctor and Gamble Company</i> University: University of California at Irvine <i>Advisor: Scott Rychnovsky</i>
	Matthew B. Boxer <i>Sponsor: Novartis Pharmaceuticals</i> University: University of Chicago <i>Advisor: Hisashi Yamamoto</i>

	Anthony A. Estrada <i>Sponsor: Boehringer Ingelheim</i> University: University of California, San Diego and Scripps Research Institute <i>Advisor: K. C. Nicolaou</i>
	David J. Gorin <i>Sponsor: Merck Research Laboratories</i> University: University of California, Berkeley <i>Advisor: Dean Toste</i>
	Kami L. Hull <i>Sponsor: Eli Lilly and Company</i> University: University of Michigan <i>Advisor: Melanie Sanford</i>
	Luke D. Lavis <i>Sponsor: Genentech Foundation Fellow</i> University: University of Wisconsin, Madison <i>Advisor: Ronald T. Raines</i>
	Jean-Philip G. Lumb <i>Sponsor: Pfizer, Inc.</i> University: University of California, Berkeley <i>Advisor: Dirk Trauner</i>

	Matthew Myers <i>Sponsor: Organic Reactions, Inc.</i> University: Columbia University <i>Advisor: Colin Nuckolls</i>
	Jason M. Nichols <i>Sponsor: Bristol-Myers Squibb</i> University: University of Maryland, College Park <i>Advisor: Michael Doyle</i>
	Joshua G. Pierce <i>Sponsor: Wyeth Research</i> University: University of Pittsburgh <i>Advisor: Peter Wipf</i>
	Christopher C. Scarborough <i>Sponsor: Nelson J. Leonard Fellowship, sponsored by Organic Syntheses, Inc.</i> University: University of Wisconsin, Madison <i>Advisor: Shannon S. Stahl</i>
	Joshua D. Siber <i>Sponsor: Organic Syntheses, Inc.</i> University: Boston College <i>Advisor: J. P. Morken</i>



Andrew H. Weiss

Sponsor: GlaxoSmithKline

University: Stanford University

Advisor: Barry M. Trost

40th National Organic Chemistry Symposium
Lecture Abstracts

Applications of Total Synthesis to Problems of Biological Consequence

Samuel J. Danishefsky

Department of Chemistry, Columbia University and the Memorial

Sloan-Kettering Cancer Institute

sjd15@columbia.edu

The lecture will focus on new challenges and opportunities for the field of target-oriented chemical synthesis. The power of chemical synthesis has increased enormously, largely as a consequence of huge advances in the field of synthetic methodology. These advances in turn arose by detailed understanding of mechanism. The talk will attempt to show how mechanisms have served to enable new undertakings in our laboratory directed to molecules of high biological potential. The way in which total synthesis serves as a resource in the hope for progression of certain natural products to clinical application will be noted.

Notes

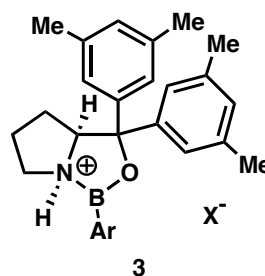
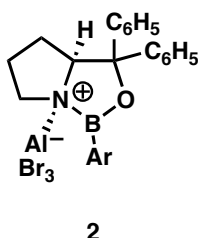
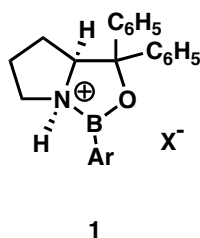
Chiral Cations as Catalysts for Enantioselective Synthesis: Pathways and Applications

E. J. Corey

Department of Chemistry and Chemical Biology, Harvard University

corey@chemistry.harvard.edu

Chiral oxazaborolidinium ions such as **1** - **3** are extraordinarily interesting and useful catalysts for enantioselective synthesis. This presentation will cover a number of aspects of research in this area. These include: (1) rationale for the design and use of the catalysts, (2) mechanistic pathways, (3) applications to the synthesis of complex molecular targets and (4) directions for future studies.



Notes

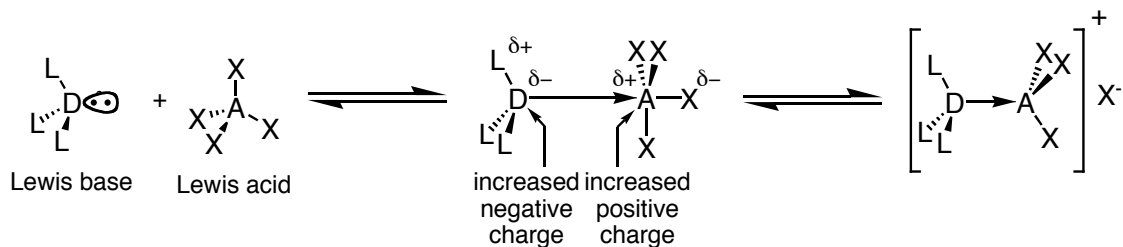
Asymmetric Catalysis in Main Group Chemistry: A New Frontier?

Scott E. Denmark

Department of Chemistry, University of Illinois, Urbana-Champaign

denmark@scs.uiuc.edu

The concept of electron pair bond formulated by G. N. Lewis, provides the foundation for our understanding of chemical structure and reactivity. The consequences of the donor-acceptor interactions between bases and acids are manifest in the spectacular diversity of transformations that form the basis for chemical synthesis. By systematic analysis of the origins of these phenomena, it is possible to gain a unified picture of how electron pair donors (Lewis bases) can modulate and influence chemical reactions by enhancing either (or both) electrophilic and nucleophilic character.



This lecture will provide the theoretical foundation for these concepts and illustrate a number of reactions in Group 14, 16 and 17 that are susceptible to catalysis by Lewis bases which, heretofore, were not recognized as candidates for catalysis.



G. N. Lewis (1875-1946)

1. Denmark, S. E.; Beutner, G. L. *Angew. Chem., Int. Ed.* **2007**, *in press*.
2. Denmark, S. E.; Fujimori, S. In *Modern Aldol Reactions* (R. Mahrwald, Ed.) Volume 2, Chapt. 7, Wiley-VCH, 2004.
3. Denmark, S. E.; Stavenger, R. A. *Acc. Chem. Res.* **2000**, *33*, 432.

Notes

The Art of Building Small: From Molecular Switches to Molecular Motors

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In our body a fascinating collection of ingenious molecular motors make it possible that our cells divide, that we can use our muscles and that the consumption of ATP can be used to generate force and mobility. The ability to harness chemical energy to generate mechanical motion is one of the most intriguing aspects of many biological systems and one of the most challenging functions for chemist to imitate.

We design molecular systems such as switches and motors in which the control of molecular dynamics is coupled to specific functions. Our efforts toward the bottom up construction of smart materials with a focus on *molecular switches* for control of chirality, self-assembly and nanomechanical systems are presented.

In current efforts to design molecular machines and control molecular motion, *molecular motors* stand out. They will provide ample opportunity for molecular design and discovery as precise control of molecular motion is to be achieved. Both linear and rotary motors are shown as well as the principle of a chemical powered molecular motor. Progress in the construction of an artificial nanoscale “windmill park” powered by light and the application of molecular motors to perform useful functions is discussed.

Notes

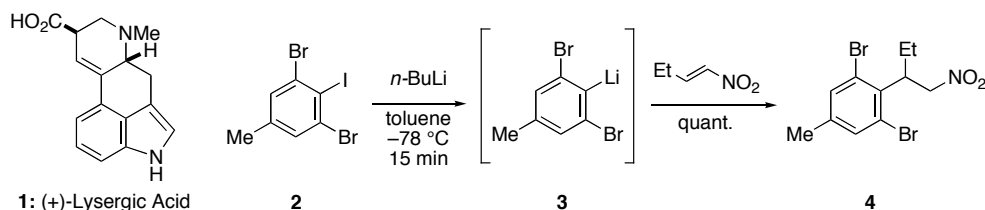
Synthetic Studies on Nitrogen-Containing Natural Products

Tohru Fukuyama

Graduate School of Pharmaceutical Sciences, University of Tokyo

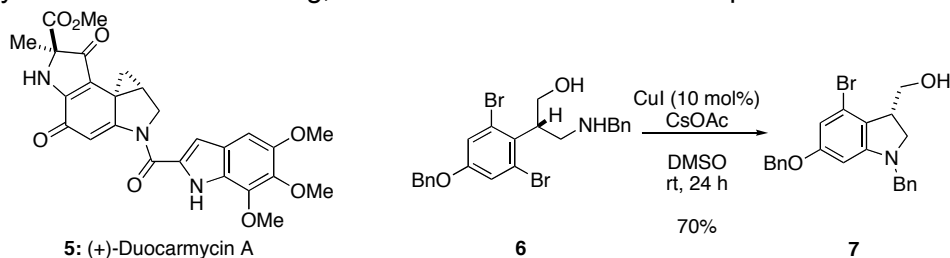
fukuyama@mol.f.u-tokyo.ac.jp

During the course of the total synthesis of (+)-lysergic acid (**1**), we discovered that selective metallation of 1,3-dibromo-2-iodo-5-methylbenzene **2** with *n*-butyllithium proceeds to give rather stable 2,6-dibromo-4-methylphenyllithium **3** which, upon addition of 1-nitro-1-butene, furnished the adduct **4** without forming the benzyne-derived side products. Using this reaction as the key step, we have completed the total synthesis of (+)-lysergic acid (**1**).

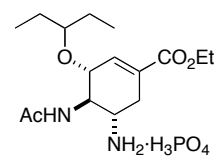
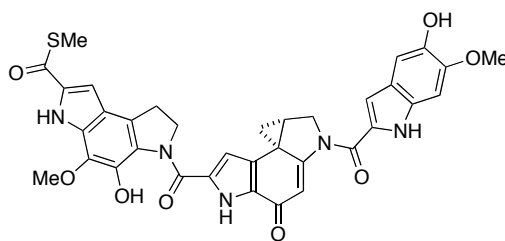


Since this chemistry could be applied to the synthesis of indolines, we next undertook the total synthesis of (+)-duocarmycin A (**5**). Our initial idea was to employ the palladium-mediated arylation, developed by Buchwald and Hartwig, for the construction of the requisite indoline skeleton.

Although the attempted arylation of **6** with a variety of palladium catalysts did not give **7** in high yields, addition of CuI



dramatically improve the yield of this reaction. After extensive investigations, we found that a combination of CuI and CsOAc in



DMSO gives the best yield for this transformation.

In this lecture, application of the copper iodide-mediated arylation to the total syntheses of (+)-duocarmycin A (**5**) and (+)-yatakemycin (**8**) will be discussed. In addition, a brief account of the practical synthesis of oseltamivir phosphate (Tamiflu) (**9**) will be provided.

Notes

Synthesis and Discovery Enabled by Nucleic Acid-Templated Chemistry

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Chemical methods and synthetic molecules have been widely used to study biological problems. In contrast, fundamental features of biological systems have been less widely used to address problems in the chemical sciences. In this lecture I will briefly overview the development of an approach to controlling chemical reactivity and to evaluating synthetic molecules that exploits powerful principles of living systems. This DNA-templated synthesis approach differs fundamentally from the strategies most frequently taken by chemists, and enables reactivity to be controlled and molecules to be evaluated in ways that are not accessible by conventional synthesis and screening methods. I will present examples of the application of this approach to small-molecule synthesis, small-molecule library evaluation, and reaction discovery. Finally, I will also describe our recent efforts to discover examples of naturally occurring small molecule-nucleic acid conjugates that may be playing previously unknown biological roles.

Notes

The Discovery and Development of LIPITOR® (Atorvastatin Calcium)

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Atorvastatin calcium, currently marketed in the United States as LIPITOR®, was the first totally synthetic inhibitor of HMG-CoA reductase, the rate-limiting enzyme in cholesterol biosynthesis, to be marketed as a single stereoisomer. This inhibitor was designed based on molecular modeling comparisons of the fungal metabolites and other synthetically derived inhibitors. In addition to development of the structure-activity relationships that led to atorvastatin calcium, another critical aspect of the development of this compound was the parallel improvement in the chemistry required to prepare compounds of the increased synthetic complexity needed to potently inhibit this enzyme. Ultimately, the development of several syntheses of enantiomerically pure atorvastatin calcium were accomplished through a close collaboration between discovery and development chemists. The final synthesis employed the Pall-Knorr condensation of an amine that contained the fully elaborated, protected lactone side-chain with a highly functionalized 1,4-diketone that assembled atorvastatin in protected form in one convergent step. It was only with the development of the enantioselective synthesis with the potential for producing bulk drug of sufficient purity and scale to support clinical trials that the decision was made to advance atorvastatin calcium into clinical trials. With the initiation of clinical trials, it was found that atorvastatin calcium was more potent and efficacious than any of the available statins, producing reductions in LDL-cholesterol ranging from 35% at the low dose to greater than 60% at the high dose of 80mg, a reduction not attainable by any cholesterol lowering agent available at that time. This remarkable ability to lower LDL-cholesterol has resulted in LIPITOR® (atorvastatin calcium) becoming the largest selling drug in the history of the pharmaceutical industry. The development atorvastatin from bench to market, including the SAR leading up to atorvastatin calcium and the development of the various enantioselective syntheses will be described.

Notes

Rapid Formation of Molecular Complexity in Natural Product Synthesis

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To our research laboratory, the often remarkable molecular structures of natural products represent a permanent source of inspiration for the development of new ideas and methods for the benefit of the field of complex chemical synthesis. In the course of our studies in this area, we concentrate on the problem of maximizing the level of molecular complexity that is generated in each laboratory operation. This lecture will describe our continuing efforts to make use of multi-bond forming transformations in syntheses of several different types of natural products. This lecture will have a particular focus on fundamental carbonyl-dependent reactions and the Diels-Alder process in complex molecular settings.

Notes

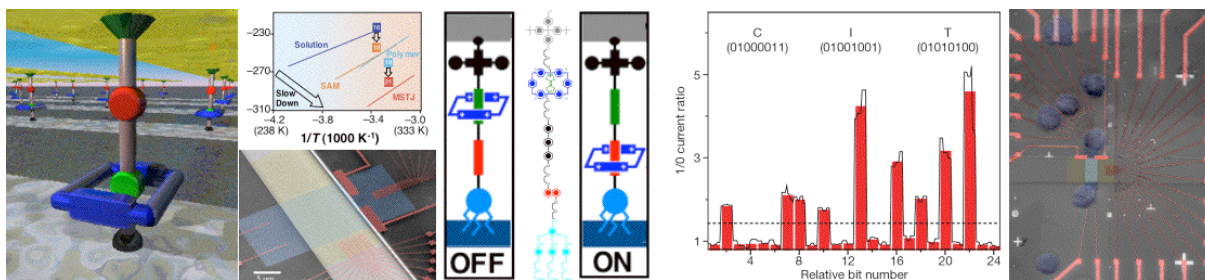
Integrated Systems-Oriented Approach to Molecular Electronics

J. Fraser Stoddart

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The development of molecular electronic devices for memory and logic applications in computing presents one of the most exciting contemporary challenges in nanoscience and nanotechnology. One basis for such a device is a two-terminal molecular switch tunnel junction that can be electrically switched between high- and low-conductance states. Towards this end, the concepts of molecular recognition and self-assembly have been pursued actively for synthesizing two families of redox-controllable mechanically interlocked molecules—bistable catenanes and bistable rotaxanes—as potential candidates for solid-state molecular switch tunnel junctions. In the case of a two-terminal molecular switch tunnel junction, the objective is to design a molecule that, at a specific voltage, switches from a stable structure (isomer) to another, metastable isomer with a different conductivity: the molecule needs to remain in the metastable state until either another voltage pulse is applied or thermal fluctuations cause a return to the ground state. The two states of the molecule correspond to the ON and OFF states of the switch and the finite stability of the metastable state leads to a hysteretic current/voltage response that forms the basis of the switch.



A Collage of Form and Function

Molecular switch tunnel junction devices that contain a monolayer of bistable mechanically interlocked molecules—both [2]catenanes and [2]rotaxanes that are bistable—have been sandwiched between silicon (or carbon nanotubes) and metallic electrodes. These devices can be voltage-switched between a stable Off and a metastable On state. We attribute these observations to an electrochemically driven translation of a viologen-containing ring from a tetrathiafulvalene recognition site to a dioxynaphthalene one to form the metastable state. The free energy barrier for relaxation back to the ground state provides an opportunity to correlate the devices with molecular properties in solution. To establish this correlation, we have performed

variable temperature electrochemical measurements to quantify the metastable-to-ground state relaxation of these molecular switches not only in solution, but also in self-assembled monolayers and in polymer matrices, as well as in the molecular switch tunnel junctions. The free energy barriers to relaxation of the switches in these four different environments are, respectively, 16, 18, 18, and 21 kcal mol⁻¹ at room temperature. Thus, although the corresponding relaxation rates slow down by a factor of 10000 as the molecules are increasingly confined, the mechanism remains the same. IT IS UNIVERSAL.

Notes

Natural Products as a Driving Force for Discovery in Organic Chemistry

Brian M. Stoltz

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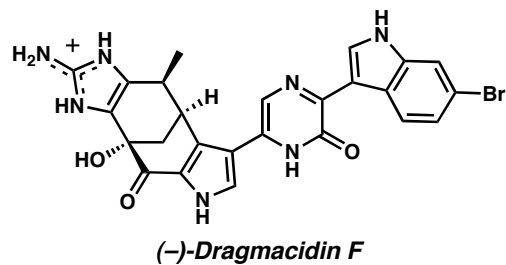
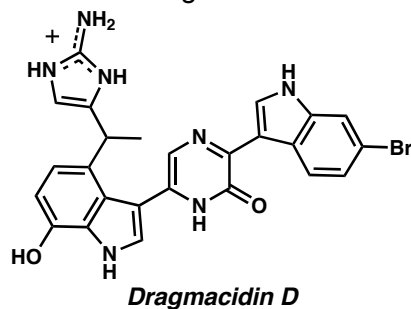
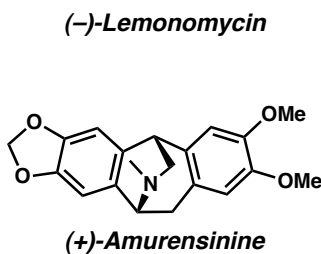
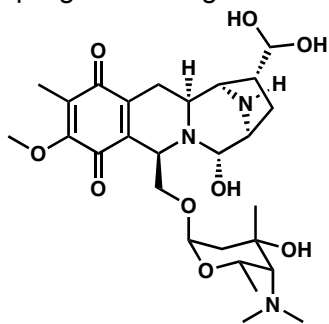
Our laboratory is deeply interested in the discovery and development of new reaction methodology *en route* to the chemical synthesis of complex bioactive molecules. Research in our group at the California Institute of Technology is centered in the general area of synthetic chemistry, with a focus on the development of new strategies for the preparation of complex molecules, including natural products that possess interesting structural, biological, and physical properties. Concurrent to this program of target driven synthesis is a strong effort directed toward

the development of new techniques and reaction methods, which we hope will be useful for a range of applications. Typically, the complex target structure is used as an inspiration for the discovery of new reactions and technologies that may eventually be regarded as general synthetic

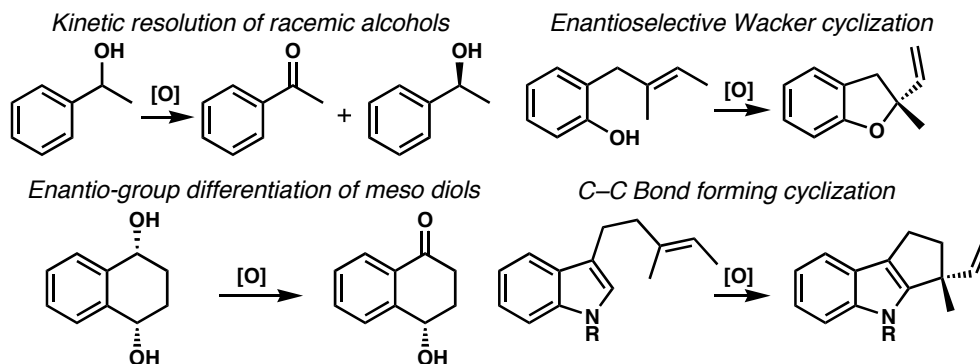
methodology. Consequently, this approach provides access to a) novel, medically relevant structures, b) a general method for their synthesis, and c) new synthetic methods that will be beneficial for a host of applications.

Our group has been heavily involved in the synthesis of complex alkaloids such as lemonomycin, amurensinine, and the dragmacidins. These naturally occurring molecules possess promising biological properties ranging from activity against antibiotic-resistant bacteria to anti-HIV action. Furthermore, they are structurally novel and are inherently a challenge to the state-of-the-art in synthetic chemistry.

In the process of completing the synthesis of these and other compounds, we have developed a number of new methods that enabled their access. Much of the group's methodological research has focused on new catalytic methods for aerobic chemical oxidation. Specifically, we have developed a palladium-catalyzed oxidative kinetic resolution of secondary alcohols that



relies on molecular oxygen as the sole stoichiometric oxidant. Additionally, we have discovered a host of oxidative bond-forming transformations that provide simple access to ring containing products.



These topics among others will be discussed in the lecture.

Notes

Radical Enzymes with Suicidal Tendencies: Lessons from Nature

JoAnne Stubbe

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Ribonucleotide reductases (RNRs) catalyze the conversion of nucleotides to deoxynucleotides in all organisms playing an essential role in DNA replication and repair. The class I RNRs are composed of two homodimeric subunits: R1 (α_2) and R2(β_2). R2 contains the di-iron tyrosyl radical (Y122•) cofactor essential for activity. R1 contains the active site where nucleotide reduction occurs and the effector sites that control the specificity and rate of nucleotide reduction. An unresolved mechanistic issue is how the Y• in R2 generates a transient thiyl radical on R1 to initiate the reduction process. This initiation is thought to occur over a 35 Å distance and involve generation of aromatic amino acid radical intermediates. Direct evidence for the long distance has recently been provided by PELDOR experiments.¹ Experiments using unnatural amino acids ((F)_n-tyrosines (n = 2, 3, 4), 3-hydroxytyrosine, nitrotyrosine, and benzophenone) in position 356 of R2 have been carried out. These R2s were made semisynthetically using intein-mediated protein ligations. These studies provide direct evidence for intermediacy of the Y356• on the propagation pathway. We have also incorporated unnatural amino acids into the R1 subunit using a suppressor tRNA/tRNA synthetase pair that incorporates 3-aminotyrosine into a stop codon of the gene for R1⁴. These studies have demonstrated the importance of Y730 and Y731 within R1 for the radical propagation process and the importance of substrate/effector conformational gating of this process. Our studies provide direct evidence for hole migration through amino acid radical intermediates over a long distance. Hydroxyurea (HU) is a drug used clinically in combination chemotherapies that inactivates RNR by reduction of the Y122• within R2. Our studies suggest that HU may well target an aromatic amino acid radical intermediate within the propagation pathway, closer to the surface of the two subunits.

[1] M. Bennati, J.H. Robblee, V. Mugnaini, J. Stubbe, J. H. Freed, P. Borbat, "EPR distance measurements support a model for long-range radical initiation in E.coli ribonucleotide reductase" *J. Am. Chem. Soc.* **2005**, 127, 15014.

[2] M. Seyedsayamdost, S. Reece, D. J. Nocera, and J. Stubbe, "Mono-, Di-, Tri- and Tetra-substituted fluorinated tyrosines: New Probes for Enzymes that use Tyrosyl Radicals in Catalysis" *J. Am. Chem. Soc.* **2006**, 128, 1569.

[3] M. Seyedsayamdost, S. Reece, D. J. Nocera, and J. Stubbe, "pH Rate Profiles of F_nY356-R2s (n = 2, 3, 4) in Escherichia coli Ribonucleotide Reductase: Evidence that

Y356 is a Redox-Active Amino Acid along the Radical Propagation Pathway” *J. Am. Chem. Soc.* **2006**, 128, 1562.

[4] M. Seyedsayamdost, J. Stubbe, J. Xie, and P. Schultz, manuscripts in preparation.

Notes

Gold(I) Catalysts for Organic Synthesis: Development, Applications and Asymmetric Catalysis

F. Dean Toste

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This lecture will focus on the use of cationic phosphinegold(I) complexes as catalysts for cycloisomerization, rearrangement, ring expansion and addition reactions. The development of these reactions stemmed from the hypothesis that the strong relativistic effects governing the electronic structure of gold render it unique among the electrophilic late transition metals, and, specifically, that the 5d orbitals might be accessible for backbonding to stabilize cationic intermediates in the course of Au(I)-catalyzed reactions. Thus, a number of reactions which proceed by mechanisms in which gold(I) serves to activate π -bonds towards nucleophilic addition and in some cases to donate electron density back into an electron deficient π -system will be presented.

In addition, strategies towards developing gold(I) complexes for enantioselective catalysis will be presented. Most prominently the use of dinuclear bisphosphine digold(I) complexes as catalysts. The application of these complexes as catalysts for enantioselective olefin cyclopropanation, allene hydroamination, and cycloaddition reactions will be discussed.

Notes

Cycloadditions via TMM-PdL₂ Intermediates: New Strategies for Total Synthesis and Asymmetric Induction

Barry M. Trost

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bmtrost@stanford.edu

The generation of metal complexed trimethylenemethane intermediates in a catalytic cycle provides entry into the formation of 5 (via [3+2]), 6 (via [3+3]), 7 (via [4+3]) and 9 (via [6+3]) membered rings, both all carbon as well as heterocyclic. A novel version of this process involves use of a conjunctive reagent wherein the departing carboxylate group initially carboxylates the TMM-PdL₂ as well as effect cycloaddition. The power of this method to simplify the total synthesis of complex biologically active targets is illustrated in a concise total synthesis of the complex heptacyclic marcfortines (and potentially the related paraherquamides), natural products isolated from *Penicillium* species and possessing potent anthelmintic activity. To make this synthesis asymmetric, the development of asymmetric Pd catalysts for these cycloadditions is required. The great difficulty in this task stems from the fact that the acceptor partner approaches the TMM on the face opposite from where the Pd, and thus the chiral environment, resides (i.e. the bond forming events occur outside the coordination sphere of the metal). Efforts to design suitable ligands have begun and are leading to quite promising results.

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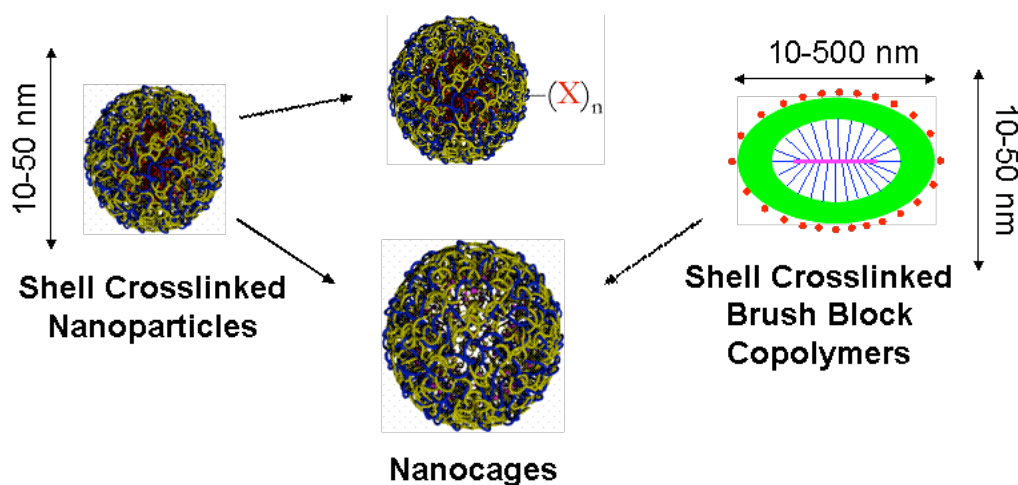
Application of Synthetic Organic Chemistry Concepts and Methodologies Toward the Construction of Nanoscopic Target Molecules

Karen L. Wooley

*Center for Materials Innovation, Department of Chemistry and Department of Radiology,
Washington University in Saint Louis*

klwooley@artsci.wustl.edu

Over the past several years, synthetic methodologies have advanced significantly, allowing for the preparation and manipulation of complex polymer particles. In this presentation will be described the formation of discrete nanoscale objects by two distinct approaches – in one case involving the intermolecular assembly of amphiphilic block copolymers into micelles of various morphologies together with the establishment of covalent bonds to afford robust products that can then undergo subsequent physical and chemical manipulation, and in the other case involving the construction of nanoscopic single molecules of controlled composition and structure by sequential application of compatible and complementary polymerization reactions and chemical modifications to afford block brush copolymers. Various combinations of living polymerization processes (ring opening metathesis, reversible addition fragmentation chain transfer, atom transfer radical and nitroxide mediated radical polymerizations) are used to construct the block copolymers or brush block copolymer frameworks, with accurate control over the backbone lengths, the side chain graft lengths, and the compositions.



This work emphasizes the development of synthetic methodologies for the preparation of uniform nanostructures and also routes to transform them from polymer materials to functional objects, specifically for medical applications. Of particular interest is crosslinking within the shell

of each of the supramolecular and covalent constructs, followed by excavation of their core materials to afford nanocages. Excavation of the core by selective chemistries provides for unique external and internal chemical functionalities, which are being utilized to increase the complexity of structure and function, using viral capsids as a guide. Recent results will be highlighted, and applications for these materials will be suggested.

Notes

40th National Organic Chemistry Symposium
Poster Abstracts

Schedule of Presenters – Poster Session A
Sunday, June 3, 2007

A1 AU(I)-CATALYZED INTRAMOLECULAR HYDROAMINATION OF N-ALKENYL CARBOXAMIDES AND UREAS

Christopher F. Bender and Ross A. Widenhoefer

Duke University

Department of Chemistry, French Family Science Center, Durham, NC 27708

A2 GOLD-CATALYZED INTRAMOLECULAR ENANTIOSELECTIVE HYDROAMINATION OF N-ALLENYL CARBAMATES

Zhibin Zhang, Christopher F. Bender, and Ross A. Widenhoefer

Duke University

Department of Chemistry French Family Science Center, Durham, NC 27708

A3 PUTTING TOGETHER AND TEARING APART CATENATED POLYMERS

Sung Lan Jeon and Stephen L. Craig

Duke University

Department of Chemistry and Center for Biologically Inspired Materials and Material Systems, Durham, NC 27708

A4 FLUORESCENT SENSING PROPERTIES OF BENZO-18-CROWN-6 ETHERS CONTAINING THIAZOLES

Hong-Seok Kim, O-Seok Kwon, Aasif Helal, and Young Mee Jung

Kyungpook National University

Department of Applied Chemistry, Daegu 702-701, Republic of Korea

A5 ORGANIC CHEMISTRY AS A SECOND LANGUAGE: A METHOD TO TRY TO ENHANCE FLUENCY IN CHEMISTRY

I. David Reingold and David Widman

Juniata College

Department of Chemistry, Huntingdon, PA 16652

A6 STUDIES TOWARD A BIOMIMETIC SYNTHESIS OF DAVANONE

David A. Vosburg, Kathryn L. Poindexter, Paul D. Dossa, and Karen C. Brown

Harvey Mudd College

Department of Chemistry, 301 Platt Blvd., Claremont, CA 91711

A7 ASYMMETRIC CATALYSIS AND MECHANISTIC UNDERSTANDING OF PYRROLE AND INDOLE CYCLIZATIONS INVOLVING N-ACYLIMINIUM IONS: TOWARD A BETTER UNDERSTANDING OF THE PICTET-SPENGLER REACTION

Izzat T. Raheem, Parvinder S. Thiara, and Eric N. Jacobsen

Harvard University

Department of Chemistry and Chemical Biology, 12 Oxford St., Cambridge, MA 02138

A8 DEVELOPMENT OF PALLADIUM-CATALYZED METHODS FOR THE SYNTHESIS OF SUBSTITUTED PYRROLIDINES

Joshua E. Ney and John P. Wolfe

University of Michigan

Department of Chemistry, 930 N. University Ave., Ann Arbor, MI 48109

A9 TOTAL SYNTHESIS OF ROTTLERIN

Marc J. Adler and Steven W. Baldwin

Duke University

Department of Chemistry, French Family Science Center, Durham, NC 27708

A10 HIGHLY STEREOSELECTIVE [4 + 3] CYCLOADDITIONS OF NITROGEN-STABILIZED OXYALLYL CATIONS WITH PYRROLES

Jennifer E. A. Al-Rashid, Richard P. Hsung, Jian Huang, Zhenlei Song, and Gang Li

University of Wisconsin–Madison

Division of Pharmaceutical Sciences, School of Pharmacy, Madison, WI 53705

A11 DMDO OXIDATION OF CHIRAL YNAMIDES: EVIDENCE FOR AN α -AMIDO OXOCARBENE

Ziyad F. Al-Rashid, Richard P. Hsung, Jennifer E. Antoline, Changhong Ko, Yonggang Wei, and Jin-Haek Yang

University of Wisconsin–Madison

Division of Pharmaceutical Sciences and Department of Chemistry, Madison, WI 53706

A12 ENZYMATIC KINETIC RESOLUTION OF α -SILYL ALCOHOLS

Ilhwan An, Edith N. Onyeozili, and Robert E. Maleczka, Jr.

Michigan State University

Department of Chemistry, East Lansing, MI 48824

A13 SYNTHESIS OF N-ALKYL PYRIDONES VIA AN INTRAMOLECULAR REARRANGEMENT OF BENZYLOXYPYRIDINES

Carolyn E. Anderson

Calvin College

Department of Chemistry and Biochemistry, 1726 Knollcrest Circle SE, Grand Rapids, MI 49546

A14 TOWARD A BIOMIMETIC SYNTHESIS OF GOPHERENEDIOL

Scott J. Anderson, Joshua Brooks, Jaclyn Mueller, and José-L. Giner

SUNY-ESF

Department of Chemistry, Syracuse, NY 13210

A15 HIGHLY CONVERGENT ENANTIOSELECTIVE FORMAL TOTAL SYNTHESIS OF LEUCASCANDROLIDE A

William J. Andrews^a and P. Andrew Evans^b

^aIndiana University, Department of Chemistry, 800 E. Kirkwood, Bloomington, IN 47405 and ^bThe University of Liverpool, Department of Chemistry, Crown St., Liverpool, L69 7ZD, UK

A16 RHODIUM(I) QUINONOIDS IN ASYMMETRIC SYNTHESIS

Andrew Anzalone, William C. Trenkle, Marcus D. Faust, and Samuel Searle

Brown University

Department of Chemistry, Providence, RI 02912

A17 HYDROFORMYLATION: EXTENDING AN ESTABLISHED TECHNOLOGY

Robert Appell

Dowpharma Contract Manufacturing

The Dow Chemical Company, 1710 Building, Midland, MI 48674

A18 SYNTHESIS OF TETRAHYDROISOQUINOLINE ANTITUMOR ANTIBIOTICS: THE TOTAL SYNTHESIS OF (–)-LEMONOMYCIN AND PROGRESS TOWARD THE TOTAL SYNTHESIS OF (+)-CYANOCYCLINE A

Eric R. Ashley, Kevin Allan, and Brian M. Stoltz

Harvard University

Department of Chemistry and Chemical Biology, 12 Oxford St., Cambridge, MA 02138

A19 PROGRESS IN THE DEVELOPMENT OF NEW SYNTHETIC METHODS FOR ALKYLGUANIDINES

Janet A. Asper, Asako Kubota, Rebecca Funkhouser, and Jennifer Yox

University of Mary Washington

Department of Chemistry, 1301 College Avenue, Fredericksburg, VA 22401

A20 PARALLEL SYNTHESIS OF ISOQUINOLINE DERIVATIVES

Emelia Awuah and Fred Capretta

McMaster University
Department of Chemistry, Hamilton, Ontario L8S 4M1, Canada

A21 HIGH-PRESSURE-PROMOTED BIGINELLI-TYPE MULTICOMPONENT CONDENSATION OF UREAS WITH CARBONYL COMPOUNDS

Saleha Azad and Hiyoshizo Kotsuki

Kochi University
Laboratory of Natural Product Chemistry, Faculty of Science, Akebono-cho, Kochi 780-8520, Japan

A22 TRANSANNULAR ASYMMETRIC CATALYSIS: DEVELOPMENT OF AN ENANTIOSELECTIVE TRANSANNULAR DIELS–ALDER REACTION AND APPLICATIONS IN TOTAL SYNTHESIS

Emily P. Balskus

Harvard University
Department of Chemistry and Chemical Biology, 12 Oxford St., Cambridge, MA 02138

A23 A NEW SYNTHETIC ROUTE TO CYCLIC HYDROXAMIC ACIDS

Ranjan Banerjee and S. Bruce King

Wake Forest University
Department of Chemistry, Winston-Salem, NC 27109

A24 STRUCTURAL STUDIES ON BIARYL PHOSPHINES AND PD COMPLEXES COMPOSED OF BIARYL PHOSPHINES

Timothy E. Barder and Stephen L. Buchwald

Massachusetts Institute of Technology
Department of Chemistry, 77 Massachusetts Ave., Cambridge, MA 02139

A25 STUDIES TOWARDS THE TOTAL SYNTHESIS OF (+)-OKILACTOMYCIN

Kallol Basu, Todd Bosanac, and Amos B. Smith, III

Department of Chemistry
University of Pennsylvania, Philadelphia, PA 19104

A26 CONJUGATE ADDITION/IRELAND-CLAISEN REARRANGEMENTS OF ALLYL FUMARATES: SIMPLE ACCESS TO TERMINALLY DIFFERENTIATED SUCCINATES

Cory C. Bausch and Jeffrey S. Johnson

Department of Chemistry
University of North Carolina, Chapel Hill, NC 27599

A27 UNUSUAL UNSATURATED AMINO ACIDS VIA N-ACYLIMINIUM ION CHEMISTRY

M. Berkheij,¹ S. Warsink,¹ J.H. van Maarseveen,¹ H. E. Schoemaker,^{1,2} and H. Hiemstra¹

¹University of Amsterdam, Van 't Hoff Institute for Molecular Sciences, Faculty of Science, Nieuwe Achtergracht 129, 1018 WS Amsterdam, The Netherlands and ²DSM Research, LS-ASC&D, P.O. Box 18, 6160 MD, Geleen, The Netherlands

A28 TOTAL SYNTHESIS OF (+)-LYCONADIN A AND (-)-LYCONADIN B

Douglas C. Beshore and Amos B. Smith, III

University of Pennsylvania
Department of Chemistry, Laboratory for Research on the Structure of Matter, Monell Chemical Senses Center, Philadelphia, PA 19104

A29 DIASTEREOTOPIC GROUP SELECTIVE ENOLIZATION: TOWARDS THE SYNTHESIS OF CALOUNDRIN B

Garrison E. Beye and Dale E. Ward

University of Saskatchewan
110 Science Place, Saskatoon, SK S7K5A2, Canada

A30 NOVEL DIASTEREOSELECTIVE SYNTHESIS OF 1-TRIMETHYLGGERMYL-1-ALKENES BY HYDROLYSIS OF α -TRIMETHYLGGERMYLZIRCONACYCLOPENTENES

Narayan G. Bhat and Maria M. Villarreal

The University of Texas-Pan American

Department of Chemistry, 1201 West University Drive, Edinburg, TX 78541

A31 PROGRESS TOWARD THE TOTAL SYNTHESIS OF ($\pm$)-ROSEOPHILIN

Abdallah Y. Bitar and Alison J. Frontier

University of Rochester

Department of Chemistry, Rochester, NY 14627

A32 MYCOBACTIN FRAGMENT ANALOGS AS POTENTIAL SMALL-MOLECULE TB GROWTH INHIBITORS: DISCOVERY OF A NOVEL METHOD FOR IMIDAZOLE SYNTHESIS

Brian S. Bodnar, Garrett Moraski, and Marvin J. Miller

University of Notre Dame

Department of Chemistry and Biochemistry, 251 Nieuwland Science Hall, Notre Dame, IN 46556

A33 THE APPLICATION OF SIMPLIFIED PACKED-BED MICROREACTORS TO ORGANIC SYNTHESIS

Andrew R. Bogdan and D. Tyler McQuade

Cornell University

Department of Chemistry and Chemical Biology, Baker Laboratory, Ithaca, NY 14853

A34 CATALYTIC SYNTHESIS OF PROTECTED ENAMINES

Andrew Bolig and Maurice Brookhart

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A35 A LEWIS ACID PROMOTED HETERO DIELS–ALDER, AND REARRANGEMENT FOR THE SYNTHESIS OF SUBSTITUTED TETRAHYDROPYRAN RINGS

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A36 “SUPER SILYL” GROUP FOR DIASTEREOSELECTIVE REACTIONS

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A37 APPLICATION OF RHODIUM CATALYZED C-H ACTIVATION/COPE METHODOLOGY IN THE SYNTHESIS OF PSEUDOPTEROSINS AND ELISABETHETRIENE

Jonathan Brekan and Huw M. L. Davies

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A38 KINETIC STUDY OF THE STEREOISOMERIZATION OF A DIPHENOQUINONE

Kimberly Brien and Tracy Hanna

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A39 APPLICATION OF THE CYCLOPENTADIENYL-Co-CYCLOBUTADIENYL (CpCoCb) METALLOCENE SCAFFOLD IN THE CONSTRUCTION OF A MACROCYCLIC CYCLOPHANE/DEHYDROANNULENE SCAFFOLD

Ronald G. Brisbois, Allison Baczynski, Marc Rodwogin, Anna Michel, and Stephanie Fiedler

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A40 DEVELOPMENT OF NEW CATALYSTS AND METHODS FOR ASYMMETRIC CONJUGATE ADDITION. FORMATION OF ALL-CARBON QUATERNARY STEREOGENIC CENTERS

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A41 STUDIES TOWARD THE TOTAL SYNTHESIS OF PHOMACTIN A

Daniel P. Canterbury and Alison J. Frontier

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A42 PROBING THE AFFINITY OF IMMOBILIZED MULTIVALENT LIGAND-RECEPTOR SYSTEMS

David A. Carlson,¹ Monica Rivera,² Robert Clark,² and Eric J. Toone¹

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A43 SYNTHESIS AND STRUCTURE ACTIVITY RELATIONSHIPS OF THE 2-H-BENZOPYRAN, 2H-BENZOTHIOPYRAN AND 1,2-DIHYDROQUINOLINE SERIES OF SELECTIVE COX-2 INHIBITORS

Jeffery S. Carter, Matthew Graneto, David Brown, Jane L. Wang, D. Joseph Rogier, David Limburg, Karl Aston, John Springer, Ann Hallinan, Francis Koszyk, Steven W. Kramer, Sofya Tsymbalov, Renee Huff, Yi Yu, Cathleen Hanau, Suzy Hartmann, B. Devades, Srinivasan Nagarajan, Bruce Hamper, Subo Liao, Angela Scates, Theresa Fletcher, Thomas Dice, Li Xing, James Kiefer, Ravi Kurumbail, Jennifer Pawlitz, Teena Stults, John J. Talley, Karen Seibert, Mark O'Bukowicz, Timothy Maziasz, Yan Zhang, Jim Gierse, Carol Koboldt, Ben Zweifel, and Jaime Masferrer

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A44 PROGRESS TOWARDS THE TOTAL SYNTHESIS OF DIHYDROLYCOLUCINE

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A45 PALLADIUM-MEDIATED STRATEGIES TOWARD THE TOTAL SYNTHESSES OF DRAGMACIDIN F AND TELOMESTATIN

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A46 DIRHODIUM CAPROLACTAMATE AS A GENERAL CATALYST FOR OXIDATIVE FUNCTIONALIZATION

Arthur J. Catino, Jason M. Nichols, and Michael P. Doyle

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A47 SYNTHESIS OF PRODRUGS OF PROLI/NO, A NITRIC OXIDE DONOR

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A48 BINAPHTHOL-CATALYZED ALKENYLBORATION OF ACYLIMINES AS A STEREOSELECTIVE ROUTE TO ALLYLIC AMINES

Alice S. H. Chan, J. Michael Chong, and T. Robert Wu

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A49 DIRECT C-ARYLATION OF β -ENAMINO ESTERS AND KETONES WITH ARYNES

Anik Chartrand

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Ottawa, Ontario K1N 6N5, Canada

A50 TOTAL SYNTHESIS OF (-)-INDOLIZIDINE 209B VIA AZA-PRINS CYCLIZATION

Hin-Soon Cheng and Teck-Peng Loh

Nanyang Technological University

Division of Chemistry and Biological Chemistry, School of Physical and Mathematical Sciences, Singapore

A51 A SIMPLE BIOMIMETIC SYNTHETIC APPROACH TO THE D RING OF THE KINAMYCIN ANTIBIOTICS AND INFLUENCE OF STRUCTURAL FEATURES ON THEIR DIAZONIUM CHARACTER

N. Chen, M. B. Carrière, R. S. Laufer, N. J. Taylor, and G. I. Dmitrienko

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A52 STUDIES TOWARD THE ASYMMETRIC SYNTHESIS OF SECODOLASTANES AND DOLASTANES: INDICOL AND DOLATRIOL

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A53 SYNTHESIS AND EVALUATION OF 5'-SUBSTITUTED-7-BENZYL-GUANOSINES AS POTENTIAL ANTAGONISTS FOR EUKARYOTIC INITIATION FACTOR 4E

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A54 ANIONIC C-C BOND FORMING REACTIONS VIA PALLADIUM-MEDIATED DECARBOXYLATION OF ALLYL DIPHENYLGLYCINATE IMINES

Jason J. Chruma and Andrew A. Yeagley

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A55 STEREOSPECIFIC RHODIUM-CATALYZED ALLYLIC AMINATION WITH AN YLIDE PRONUCLEOPHILE

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A56 MODIFICATION OF F43C-CD4 WITH CHEMICAL PROBES: EXPLORING A KEY RECOGNITION CAVITY FOR HIV ENTRY

Joel R. Courter,[†] Hui Xie,[§] Danny Ng,[†] Sergey N. Savinov,[†] Barna Dey,[#] Richard Wyatt,[#] Peter D. Kwong,[¶] Wayne A. Hendrickson,[‡] and Amos B. Smith, III^{†,‡}

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A57 UNEXPECTED REGIOSELECTIVITY IN THE PALLADIUM-CATALYZED SYNTHESIS OF PYRROLES FROM SUBSTITUTED 1-PHENYL-2-(TRIMETHYLSILYL)ACETYLENES AND 2-ACETAMIDO-3-iodoacrylate

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A58 PRECIPITONS IN AQUEOUS SYSTEMS

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A59 MODIFIED GLASER-TYPE HOMOCOUPPLINGS: ONE-POT SYNTHESIS OF SYMMETRICAL BISARYLBUTADIYNES USING 1,5-DIAZABICYCLO[4.3.0] NON-5-ENE (DBN), CuI AND WATER

Lindsey R. Cullen, Joseph B. Gianino, Amy M. Hamlin, Jessica A. Heidt, Bryan P. Vos, and Matthew J. Mio

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A60 SYNTHESIS AND CONFORMATIONAL PROPERTIES OF ORGANOMETALLIC PEPTIDES DERIVED FROM TUNGSTEN-ALKYNE COORDINATION

Timothy P. Curran, Richard S. H. Yoon, Adam B. Lesser, Rebecca A. Lucht, Alicia L. Grant, Craig Yennie, Whitney E. Smith, Jessica Leandre, Sarah G. Pitts, Neena T. Chakrabarti, Peter C. Hendrickson, Lilia Zhahalyak, Brian R. Volk, and C. Morgan Warner

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A61 TEMPORARY SILICON – TETHERED RING-CLOSING METATHESIS APPROACH TO POLYKETIDE FRAGMENTS: ASYMMETRIC SYNTHESIS OF THE C16 – C30 FRAGMENT OF AMPHIDINOL 3

Alen Cusak and P. Andrew Evans

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A62 STEREOSELECTIVE SYNTHESIS OF FIVE AND SIX MEMBERED RINGS FUSED TO OXANORBORNENE VIA A MICHAEL ADDITION-INTRAMOLECULAR DIELS-ALDER FURAN REACTION STRATEGY

Mamta Dadwal and I. N. N. Namboothiri

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A63 SECOND-GENERATION TOTAL SYNTHESIS OF (14S)- AND (14R)-METHYL EPOTHILONE D

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A64 REGIOSELECTIVE RHODIUM-CATALYZED ALLYLIC OXIDATION

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A65 DEVELOPMENT OF AN EFFICIENT, SCALEABLE PROCESS FOR THE TETRAZOLE CORE OF BMS-317180, A GROWTH HORMONE SECRETAGOGUE

Akin H. Davulcu, Zhongmin Xu, Jollie D. Godfrey, Mark D. Schwinden, Rita Fox, Bharat P. Patel, Wendel W. Doubleday, and Rodney L. Parsons, Jr.

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A66 PROGRESS TOWARD THE TOTAL SYNTHESIS OF ACTINOPHYLLIC ACID

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A67 DESIGN AND SYNTHESIS OF AN AFFINITY REAGENT FOR DEMETHYLASTERRIQUINONE B1

Liu Deng, Yufa Liu, Diana K. Halstead, Zhitao Li, John F. May, Michael Wedel, Darrell A. Austin, Nicholas J. G. Webster, and Michael C. Pirrung

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A68 ENANTIOSELECTIVE SYNTHESIS OF TRIFLUOROMETHYL-SUBSTITUTED AND CYANO-SUBSTITUTED CYCLOPROPANES

Justin R. Denton and H. M. L. Davies

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A69 PALLADIUM CATALYZED C-H FUNCTIONALIZATION/C-C BOND FORMATION AND MECHANISTIC INSIGHTS

Nicholas R. Deprez, Dipannita Kalyani, Lopa Desai, and Melanie S. Sanford

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A70 COMBINATORIAL APPROACHES TO ENGINEERING THERMOSTABLE TERPENE CYCLASES

Juan E. Diaz,¹ Ryan Lin,¹ Kazuyoshi Kunishiro,¹ Jeff Saven,³ and Gregory A. Weiss^{1,2}

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A71 PHOTOCROMIC INDOLYLFULGIMIDES FOR THE PHOTO-CONTROL OF BIOMOLECULAR ACTIVITY

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A72 A NEW ROTE TO ABCD-PORPHYRINS

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A73 METAL-MEDIATED SYNTHESIS OF N-HETEROAROMATIC COMPOUNDS FROM VINYL AZIDES

Tom G. Driver, Benjamin J. Stokes, Huijun Dong, Ashley L. Pumphrey, and Brooke E. Leslie

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A74 ORGANIC SYNTHESIS AND METHODOLOGY INSPIRED BY ARTEMISININ

Gregory B. Dudley

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A75 USE OF SILYLGLYOXYLATES IN A TANDEM ALKENYLATION/BROOK REARRANGEMENT/ALDOL REACTION TOWARDS THE TOTAL SYNTHESIS OF ALTERNARIC ACID

Rebecca A. Dueñas, Xin Linghu, and Jeffrey S. Johnson

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A76 CHIRAL NUCLEOPHILIC CATALYSIS: SYNTHESIS AND REARRANGEMENT OF O-ACYLATED OXINDOLES

Trisha A. Duffey, Scott A. Shaw and Edwin Vedejs

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A77 GOLD(I)-CATALYZED INTRAMOLECULAR ENANTIOSELECTIVE HYDROARYLATION OF ALLENES WITH INDOLES

Alethea Duncan, Cong Liu, and Ross A. Widenhoefer

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A78 ELECTRONIC EFFECTS IN THE REGIOSELECTIVITY OF PYRAZOLE SYNTHESIS

Nathan C. Duncan, Charles M. Garner, and Tim Nguyen

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A79 THE PALLADIUM-CATALYZED ENANTIOSELECTIVE OXIDATION OF SECONDARY ALCOHOLS: SCOPE, APPLICATIONS, AND LIGAND DEVELOPMENT

David C. Ebner, Uttam K. Tambar, Zoltán Novák, Raissa M. Trend, Jeffrey T. Bagdanoff, Eric M. Ferreira and Brian M. Stoltz

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A80 ORGANIC SYNTHESIS IN THE RESEARCH OF MICROPOROUS METAL-ORGANIC FRAMEWORKS

Matthew Eibling,^a Kunhao Li,^a Hyuna Lim,^a George Henedy,^a Jeongyong Lee,^a Wenhua Bi,^a David H. Olson,^a Thomas Emge,^a Michael M. King,^b and Jing Li^a

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A81 SELECTIVE N-1 ARYLATION OF 3-SUBSTITUTED-PYRAZOLE-5-CARBOXYLATES BY BORONIC ACIDS IN THE PRESENCE OF Cu(OAc)₂

Carol L. Ensinger, Torsten Haack, William C. Patt, Yu Mi Ahn, Lakshminarayana Vogeti, Michael D. Kaufman, and Daniel L. Flynn

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A82 N-HYDROXYINDOLE AND TRIMETHYLTIN HYDROXIDE METHODOLOGY INSPIRED BY SYNTHETIC EFFORTS TOWARDS THE THIOPEPTIDE ANTIBIOTICS THIOSTREPTON AND NOCATHIACIN I

Anthony A. Estrada and K. C. Nicolaou

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A83 FLUOROCLIPS - MOLECULAR TWEEZERS WITH FLUOROARENE PINCERS

Markus Etzkorn, Do T. Nguyen, Sarah C. Hill, and Daniel S. Jones

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A84 REGIOSELECTIVE 15-BROMINATION AND FUNCTIONALIZATION OF A STABLE SYNTHETIC BACTERIOCHLORIN

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A85 EP₄ RECEPTOR AGONISTS AS OCULAR HYPOTENSIVE AGENTS

Julie Farand, Yongxin Han, John Colucci, Deborah Slipetz, Marie-Claude Mathieu, Danielle Denis, Gillian Greig, Jean-François Lévesque, Mark Wrona, Robert Houle, Qingping Wang, Nathalie Chauret, Miller Ogidigben, Lynn A. O'Neill-Davis, Lisa A. Hettrich, Robert L. Peiffer, and William Cook

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A86 FACILE AND DIRECT SYNTHESIS OF PHENYL ESTERS DERIVED FROM BENZOIC ACIDS VIA THE MITSUNOBU REACTION

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A87 TOWARD THE TOTAL SYNTHESIS OF (+)-RIMOCIDIN AGLYCON

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A88 SYNTHESIS OF A NOVEL DIELS-ALDER DIENE

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A89 BISMUTH NITRATE-CATALYZED SYNTHESIS OF PYRROLE-SUBSTITUTED β -LACTAMS

Isabella Garcia and Bimal K. Banik

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A90 C₂-ASYMMETRIC PYRYLIUM SALTS: PRECURSORS TO CHIRAL LIGANDS

Charles M. Garner and Jason R. Bell

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Schedule of Presenters – Poster Session B

Monday, June 4, 2007

B1 MECHANISM FOR THE INTRAMOLECULAR HYDROAMINATION OF UNACTIVATED OLEFINS WITH SECONDARY ALKYLAMINES

Christopher F. Bender and Ross A. Widenhoefer

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B2 GOLD-CATALYZED ENANTIOSELECTIVE HYDROALKOXYLATION

Zhibin Zhang and Ross A. Widenhoefer

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B3 SYNTHESIS AND PROPERTIES OF MAIN-CHAIN REVERSIBLE COORDINATION POLYMERS

Sung Lan Jeon and Stephen L. Craig

Duke University

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B4 SILYL DIENES AND THEIR REACTIONS IN CONSECUTIVE TRANSMETALLATION/DIELS-ALDER/CROSS-COUPPLING SEQUENCES

Ramakrishna R. Pidaparthi and Mark E. Welker

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Reynolda Campus, Department of Chemistry, Winston-Salem, NC 27109

B5 THE DEVELOPMENT OF A NOVEL CONTINUOUS-FLOW HYDROGENATION REACTOR AS A TOOL TOWARDS FURTHERING EDUCATION AND RESEARCH

Richard Jones, Bill Heilman, Laszlo Üрге, and Ferenc Darvas

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B6 ASSESSMENT: A STRATEGY FOR SUCCESS IN ORGANIC CHEMISTRY

Patricia C. Thorstenson

University of the District of Columbia

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B7 A NOVEL AND CONCISE APPROACH TO SYNTHESIS OF POLYCYCLIC GUANIDINES: TOTAL SYNTHESIS OF (–)-BATZELLADINE D

John E. Robinson,^a P. Andrew Evans,^b Jun Qin,^a and Bérangère Bazin^a

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B8 SYNTHESIS AND CHARACTERIZATION OF SEVERAL POTENTIAL INHIBITORS OF THE ENZYME ASPARTATE-β-SEMIALDEHYDE DEHYDROGENASE (ASADH)

Cory J. Bottone, Christopher Halkides, Brandon Hey, Nathan Hifko, J. Ronald Huffman, and David Jansen

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B9 THE SYNTHESIS OF FACIAL AMPHIPHILE 3α,7α-DIAMINOCHOLESTANE

Hong-Seok Kim, Sharaf N. Khan, and Young Mee Jung

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Department of Applied Chemistry, Daegu 702-701, Republic of Korea

B10 SYNTHESIS OF ¹⁴C- LABELED AND ¹³C, ¹⁵N-LABELED DASATINIB AND ITS PIPERAZINE N-DEALKYL METABOLITE

Alban J. Allentoff, Michael W. Lago, Marc Ogan, Bang-Chi Chen, Rulin Zhao, J. Kent Rinehart, and Samuel J. Bonacorsi

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B11 BIOORGANIC FIRST: A NEW MODEL FOR THE CHEMISTRY CURRICULUM

I. David Reingold

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B12 AN APPROACH TO THE SYNTHESIS OF BIOACTIVE NATURAL PRODUCTS. SYNTHESIS OF STERICALLY HINDERED RETINOID.

Michael H. Silveira and Erin E. Templet

Our Lady of the Lake College
Forensic Science Program, Department of Sciences, 5345 Brittany Drive, Baton Rouge, LA 70808

B13 CHIRAL LEWIS BASE-DEPENDENT ASYMMETRIC BIFUNCTIONAL CATALYSIS—HOW TO PREDICT THE R/S ABSOLUTE CONFIGURATION?

Yun-Ming Lin, Zhongtao Li, and Sridhar Chidara

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B14 A MULTIKILO SCALE SYNTHESIS OF (R)-Boc- α -METHYL-PROLINE UTILIZING A MEMORY OF CHIRALITY (MOC) CYCLIZATION

Lawrence Kolaczowski, David M. Barnes, Bruce J. Gaede, Jufang H. Barkalow, Anthony R. Haight, Albert W. Kruger, Michael J. Rozema, Shailendra V. Bordawekar, and David R. Willcox

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B15 SYNTHESIS OF MODIFIED BISANTHROQUINONES THROUGH CASCADE REACTIONS

Jared L. Piper, K. C. Nicolaou, Yee Hwee Lim, and Charles D. Papageorgiou

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B16 TEACHING ORGANIC SYNTHESIS: A COMPARATIVE CASE STUDY APPROACH

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B17 DEVELOPMENT OF METALLO- β -LACTAMASE AND OXACILLINASE BROAD-SPECTRUM COMPETITIVE INHIBITORS

Timothy R. Ramadhar,[†] Jarrod W. Johnson,[†] Laura Marrone,[†] Darryl P. Evanoff,[†] Valerie J. Goodfellow,[†] James Spencer,[‡] Timothy R. Walsh,[‡] Thammaiah Viswanatha,[†] and Gary I. Dmitrienko[†]

[†]University of Waterloo, Department of Chemistry, Waterloo, ON N2L 3G1, Canada and [‡]University of Bristol, Department of Cellular and Molecular Medicine, School of Medical Sciences, Bristol, BS8 1TD, United Kingdom

B18 CONDITIONS FOR ENHANCED REGIOSELECTIVITY AND STEREORELECTIVITY AND CYCLOADDITIONS OF INDOLE 2,3 QUINODIMETHANES

Glenn, L. Abbott, Justin Y.J. Wu, Olga Jakiwczyk, Susan F. Vice, Nicholas G. Taylor, and Gary I. Dmitrienko

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B19 TOTAL SYNTHESIS OF ISOPRIKINAMYCIN: STRUCTURAL EVIDENCE FOR ENHANCED DIAZONIUM ION CHARACTER

Wei Liu, Matthew Buck, Nan Chen, Muhong Shang, Nicholas J. Taylor, and Gary I. Dmitrienko

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B20 THE RAPID SCALABLE PREPARATION OF EP4 ANTAGONIST 1VIA A HIGHLY REGIOSELECTIVE SUCCINIMIDE REDUCTION

Danny Gauvreau, Rémy Angelaud, Ian Davies, Scott R. Hoerrner, Greg Hughes, Jacob M. Janey, Stephen Lau, Sophie Lauzon, Carmela Molinaro, Paul O'Shea, Michael Palucki, and Conrad E. Raab

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B21 EXPLOITING THE REACTIVITY OF ARYNES: REACTION METHODOLOGY AND TOTAL SYNTHESIS

Christopher D. Gilmore, Pamela M. Tadross, Uttam K. Tambar, David C. Ebner, and Brian M. Stoltz

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B22 DESIGN AND SYNTHESIS OF INHIBITORS OF BACTERIAL ENZYME STAPHYLOCOCCUS AUREUS SORTASE A

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B23 PROS AND CONS OF MICROWAVE OVEN USE IN ORGANIC SYNTHESIS AND ITS USE IN UNDERGRADUATE ORGANIC CHEMISTRY LABORATORY

Mudlagiri Goli,¹ Yingquan Song,² Charles Pittman²

¹Mississippi Valley State University, Department of Chemistry, Itta Bena, MS 38941 and ²Mississippi State University, Department of Chemistry, Mississippi State, MS 39762

B24 CHEMOENZYMATIC SYNTHESIS OF FURAN ANALOGS VIA LIPASE CATALYZED DESYMMETRIZATION

Joseph Vincent Gomes, Pasha M Khan, and Kirpal S Bisht

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B25 NITRATED FATTY ACIDS: THEIR SYNTHESSES, PPAR γ ACTIVATION, AND GLUTATHIONE CONJUGATION

Michael J. Gorczynski, S. Bruce King, Darcy J.P. Bates, and Charles S. Morrow

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Department of Chemistry, Winston-Salem, NC 27109 and Department of Biochemistry, School of Medicine, Winston-Salem, NC 27157

B26 GOLD-STABILIZED CATIONIC REACTION INTERMEDIATES: THE Au(I)-CATALYZED ACETYLENIC SCHMIDT REACTION

David J. Gorin,¹ Paul Ha-Yeon Cheong,² Nicole R. Davis,¹ Laura Muehl,¹ K. N. Houk,² and F. Dean Toste¹

¹University of California - Berkeley, Department of Chemistry, Berkeley, CA 94720 and ²University of California - Los Angeles, Department of Chemistry Chemistry and Biochemistry, Los Angeles, CA 90095

B27 PALLADIUM-CATALYZED [3+2] CYCLOADDITION OF CARBON DIOXIDE AND TRIMETHYLENEMETHANE UNDER MILD CONDITIONS

George E. Greco, Brittany L. Gleason, Tiffany A. Lowery, Matthew J. Kier, Lisa B. Hollander, Shoshanah A. Gibbs, and Amanda D. Worthy

Goucher College

Department of Chemistry, 1021 Dulaney Valley Road, Baltimore MD 21204

B28 NOVEL INHIBITORS OF PEROXISOMAL IMPORT

Sarah Gunn, Stuart Warriner, and Alison Baker

University of Leeds

Department of Chemistry, Leeds LS2 9JT, United Kingdom

B29 ROLE OF THE HALOGEN ATOM IN 5-ENDO-TRIG CYCLIZATIONS OF α -HALOENAMIDES

David B. Guthrie and Dennis P. Curran

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Department of Chemistry, Chevron Science Center, Pittsburgh, PA 15260

B30 SILOXACYCLOPENTENES AS DIRECTING GROUPS IN INTRAMOLECULAR DIELS-ALDER REACTIONS

Geoff T. Halvorsen and William R. Roush

Scripps Florida

Department of Chemistry, Jupiter, FL 33458

B31 CORRELATION OF KETO-ENOL EQUILIBRIUM AND ACID DISSOCIATION CONSTANTS

Christian S. Hamann, James W. DeBlasio, and Sherri C. Young

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B32 SYNTHESIS AND CONFORMATIONAL ANALYSIS OF A HELICAL METALLACYCLICPEPTIDE

Emma L. Handy and Timothy P. Curran

Trinity College

Department of Chemistry, Hartford, CT 06106

B33 NOVEL POLYPROPENE ELASTOMERS AND FUNDAMENTALLY NEW ARCHITECTURES VIA MODULATED DEGENERATIVE TRANSFER LIVING ZIEGLER-NATTA POLYMERIZATION

Matthew B. Harney, Yonghui (Felix) Zhang, Wei Zhang, and Lawrence R. Sita

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B34 SYNTHETIC MULTIVALENT GLYCOCONJUGATES FOR FRONT END CAPTURE OF *E. COLI*

Duane M. Hatch, Agnese Jurkevica, Ramesh R. Kale, Kevin T. Schlueter, Brian H. Halsall, William R. Heineman, and Suri S. Iyer

University of Cincinnati

UC Chemical and Biosensors Group, Department of Chemistry, Cincinnati, OH 45221

B35 STUDIES TOWARD THE TOTAL SYNTHESIS OF AMPHIDINOLIDE P

Martin Herold,[†] Mark Hilfiker,[†] and James A. Marshall[‡]

[†]GlaxoSmithKline, Philadelphia and [‡]University of Virginia, Department of Chemistry, McCormick Road, Charlottesville, VA 22904

B36 ONE-POT, THREE-COMPONENT MUKAIYAMA ALDOL/SILYL-PRINS REACTIONS TO DIHYDROPYRANS

Robert J. Hinkle, Kristie M. Schmidt, Yajing Lian, Heather E. Stevenson, H. Danielle Johnson, and Christine Forgues

College of William & Mary

Department of Chemistry, Williamsburg, VA 23187

B37 STUDIES TOWARDS THE SYNTHESIS OF EUNICELLIN

J. F. Hooper,¹ R. Gilmour,² J. W. Burton,³ and A. B. Holmes¹

¹University of Melbourne, Bio21 Institute and School of Chemistry, Melbourne, Australia, ²University of Cambridge, School of Chemistry, Cambridge, United Kingdom, and ³University of Oxford, Chemistry Research Laboratory, Oxford, United Kingdom

B38 INVESTIGATION INTO AN EFFICIENT SYNTHETIC SCHEME LEADS TO THE DISCOVERY OF NEW SIALIC ACID DIMERS

Evan J. Horn, Jonel P. Saludes, and Jacquelyn Gervay-Hague

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B39 TOTAL SYNTHESIS OF CLATHCULINS A AND B

Rebecca C. Hoye, Gretchen L. Anderson, and Susan G. Brown

Macalester College

Department of Chemistry, 1600 Grand Avenue, Saint Paul, MN 55105

B40 FREEZE FRAME OBSERVATION OF STEREOCHEMICAL INFORMATION TRANSFER TO AND FROM TRANSIENTLY NON-RACEMIC ENOLATES

Danny C. Hsu and Paul R. Carlier

Virginia Tech,

Department of Chemistry, Blacksburg, VA 24061

B41 IMPROVED SYNTHESIS OF INDANE-FUSED PYRAZOLE COMPOUND: AN ANTI-PROLIFERATIVE AGENT FOR THE TREATMENT OF SOLID TUMORS

Zhiyong Hu, Umar Maharoof, Jeremy Travins, Michael Reuman, Ronald Russell, and Robert Galembo

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B42 NAZAROV CYCLIZATION/WAGNER-MEERWEIN REARRANGEMENT SEQUENCE FOR THE STEREOSELECTIVE SYNTHESIS OF SPIROCYCLES

Jie Huang and Alison Frontier

University of Rochester

Department of Chemistry, Rochester, NY 14627

B43 OXIDATIVE ENTRY TO α -OXY N-ACYL AMINALS AND HEMIAMINALS

Xianhai Huang, Ning Shao, Anandan Palani, and Robert Aslanian

Schering-Plough Research Institute

Department of Chemical Research, 2015 Galloping Hill Road, Kenilworth, NJ 07033

B44 A NOVEL CHEMICAL TRANSFORMATION DURING THE REACTION OF GLYCERALDEHYDE WITH AMINES

Yande Huang, Qingmei Ye, Charles Pathirana, Venkatapuram Palaniswamy, and John A. Grosso

Bristol-Myers Squibb Company

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B45 NON-COVALENT INTERACTIONS IN β -HAIRPIN PEPTIDES

Robert M. Hughes and Marcey L Waters

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B46 PALLADIUM-CATALYZED OXIDATIVE COUPLING REACTIONS: DIRECTED SELECTIVE FORMATION OF C-C BONDS

Kami L. Hull, Erica L. Lanni, and Melanie S. Sanford

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B47 ELECTRONIC PERTURBATION OF THE COPPER(II)-CATALYZED AMINOHYDROXYLATION OF ALKENES: MECHANISTIC INSIGHTS AND SYNTHETIC IMPROVEMENTS

Ashley C. Jacobsen, David J. Michaelis, and Tehshik P. Yoon

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B48 SYNTHESIS AND CHARACTERIZATION OF IRON CORE-GOLD SHELL NANOGLYCOCONJUGATES

Shalyajit V. Jadhav and Suri S. Iyer

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B49 A CYCLOPROPANOL FRAGMENTATION APPROACH TO THE SYNTHESIS OF CIS- AND TRANS-OXEPANES

Kevin Jellerson, R. Stephen Andrews, and Kevin P. C. Minbiole

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Department of Chemistry, Harrisonburg VA 22807

B50 PSEUDOPERICYCLIC ELIMINATION OF CIS-PENT-3-EN-2-YL ACETATE

Hua Ji, Li Li, and David M. Birney

Texas Tech University

Department of Chemistry and Biochemistry, Lubbock, TX 79409

B51 DIASTEREOSELECTIVE HYDROGENATION OF PYRROLE DERIVATIVES SUBSTITUTED WITH α -KETOESTER

Chao Jiang and Alison J. Frontier

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B52 TEMPLATED SYNTHESIS OF LIGANDS FOR MACROMOLECULAR COMPLEXES

Catherine Maria Joce, Adam S. Nelson, and Stuart L. Warriner

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B53 STUDIES IN C-H INSERTION ON SULFONYL COMPOUNDS

Jinu P. John and Alexei V. Novikov

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B54 CYCLOBUTANONE ANALOGS OF PENICILLINS AND EFFECTS OF SUBSTITUTION ON CONFORMATION AND HEMIACETAL FORMATION

Jarrod W. Johnson, Darryl P. Evanoff, Timothy R. Ramadhar, Nicolas J. Taylor, and Gary I. Dmitrienko

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B55 STUDIES TOWARD THE TOTAL SYNTHESIS OF IRCINIASTATIN A AND B

Jon A. Jurica, Won-Suk Kim, Cheon-Gyu Cho, Shawn P. Walsh, and Amos B. Smith, III

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B56 FUNCTIONAL OLIGOMERS BASED ON 1,4-DISUBSTITUTED TRIAZOLES

Hemraj Juwarker and Stephen L. Craig

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B57 KINETIC AND DYNAMIC KINETIC RESOLUTION OF 1-ARYLALLYL ACETATES *via* LIPASE-CATALYZED HYDROLYSIS AND ALCOHOLYSIS

Ekaterina N. Kadnikova and Vikalp A. Thakor

University of Missouri-Kansas City

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B58 SYNTHESIS OF WATER STABLE BORANE AND ITS APPLICATION IN HYDROBORATION OF ALLYLIC ALCOHOLS

Venkata A. Kallepalli, Robert E. Maleczka, Jr., and Milton R. Smith III,

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B59 PROCESS DEVELOPMENT OF LY573636•Na

Neil Kallman, Christopher Ley, Jeffrey Wei, and Matthew Yates

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Chemical Product Research and Development, Indianapolis, IN 46285

B60 FUNCTIONALIZED DIENEDIYNES AND TRIENEDIYNES: SYNTHESIS, REACTIVITY AND KINETICS OF BERGMAN CYCLIZATION

Grigori V. Karpov and Vladimir V. Popik

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B61 OXACALIXARENE-BASED MOLECULAR TRIANGLES, SQUARES, AND TWEEZERS

Jeffrey L. Katz, Bram J. Geller, W. Christian Crannell, Douglas A. Rooke, and Michael S. Abers

Colby College

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B62 ACTIVATING CHEMICAL REACTIONS WITH MECHANICAL FORCE

Farrell R. Kersey and Stephen L. Craig

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B63 SYNTHESIS AND ANTICANCER ACTIVITY OF COUMARIN INTEGRATED BENZOPHENONE ANALOGUES

Shaukath Ara Khanum,¹ Noor Fatima Khanum,² and Aiysha Firdouse³

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B64 A VERSATILE SYNTHESIS OF CYCLIC DIPHENYL ETHER-TYPE DIARYLHEPTANOIDS: ACEROGENINS, (±)-GALEON AND (±)-PTEROCARINE

Dong Hyeon Kim, Byeong-Seon Jeong, Qian Wang, Jong Keun Son, Eung Seok Lee, and Yurngdong Jahng

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B65 ALLOMERIZATIONS TOWARD THE SYNTHESIS OF 3-KETO PETROMYZONOL SULFATE, A POTENT MALE SEA LAMPREY PHEROMONE

Soong-Hyun Kim, Andrea Pellerito, and Robert E. Maleczka, Jr.

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B66 A STEREOSELECTIVE BROMO-ETHERIFICATION OF CHIRAL ENAMIDES

Changhong Ko, Richard P. Hsung*, Ziyad F. Al-Rashid, John B. Feltenberger, Ting Lu, Yonggang Wei, Jin-Haek Yang, and Craig A. Zifcick

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B67 2-(HYDROXYARYL)METHYL DERIVATIVES: TOWARD NOVEL PHOTOREMOVABLE PROTECTING GROUP

Alexey Kostikov and Vladimir Popik

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B68 SYNTHETIC APPROACH TOWARDS BASILIOLIDE B

Mariya V. Kozytska and Gregory B. Dudley

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B69 SYNTHESIS OF 2-QUINUCLIDONIUM BY ELIMINATING WATER: EXPERIMENTAL QUANTIFICATION OF THE HIGH BASICITY OF EXTREMELY TWISTED AMIDES

Michael R. Krout,[†] Tony Ly,[‡] Don K. Pham,[‡] Kousuke Tani,[†] Ryan R. Julian,[‡] and Brian M. Stoltz[†]

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B70 PROCESS RESEARCH FOR THE SYNTHESIS OF A NEW NAPHTHALENOID H-3 RECEPTOR ANTAGONIST 1

Yi-Yin Ku, Timothy Grieme, Yu-Ming Pu, and Ashok Bhatia

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Chemical Process Research and Development, Global Pharmaceutical Research and Development, North Chicago, IL 60064

B71 NOVEL DEVELOPMENTS IN BISMUTH-CATALYSIS: EFFECTIVE FUNCTIONALIZATION OF ARENES AND 1,3-DICARBONYL COMPOUNDS

Alexander Kuenkel, Boris J. Nachtsheim, Winai Leawsuwan, and Magnus Rueping

Johann Wolfgang Goethe University Frankfurt am Main

Institute of Organic Chemistry and Chemical Biology, Max-von-Laue-Str. 7, D-60439 Frankfurt am Main, Germany

B72 FLUORESCENT TETRAMERIC GLYCOCONJUGATES FOR PATHOGEN DETECTION

Ashish A. Kulkarni, Ramesh R. Kale, and Suri S. Iyer

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B73 THE CHEMISTRY OF FUNCTIONALIZED 10-MEMBERED RING ENEDIYNES. KINETIC STUDIES OF CYCLOAROMATIZATION

Alexander V. Kuzmin and Vladimir V. Popik

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B74 SYNTHESIS AND UTILITY OF SF5-CONTAINING ORGANIC COMPOUNDS

G. Sankar Lal, Robert Syvret, and Kristen Minnich

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7201, Hamilton Blvd. Allentown, PA 18195

B75 SUBSTITUTION REACTIONS OF 1,4-NAPHTHOQUINONES

Tom Lam, Nathan Adkins, Liliana Castelblanco, Heather Crump, Joshua Geleris, Cameron Iverson, Carolyn Lauzon, Chain Lee, Sergio Sanchez, Michael Sfregola, Bryanne Still, and Tetsuo Otsuki

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B76 SYNTHESIS AND CHARACTERIZATION OF DNA BASE RECEPTORS

Bassam Lamale,¹ Lee M. Daniels,² and Yu Lin Jiang¹

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B77 HYBRID INORGANIC-PEPTIDE NUCLEIC ACID COMPLEXES CONTAINING Ni²⁺ AND Cu²⁺

Mark R. Langille, Yury Skorik, and Catalina Achim

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B78 DESIGN AND SYNTHESIS OF A FLUOROGENIC LABEL

Luke D. Lavis,¹ Tzu-Yuan Chao,² R. Jeremy Johnson,¹ And Ronald T. Raines^{1,2}

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B79 CYCLOPROPANE-FRAGMENTATION APPROACHES TO THE SYNTHESIS OF AZEPINES

Marita C. Lawler and Kevin P. C. Minbiole

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B80 ENANTIOSELECTIVE RHODIUM-CATALYZED ALLYLATIONS OF α -ALKOXY KETONE ENOLATES

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B81 RING EXPANSION via RADICAL FRAGMENTATION

Daniel D. Le, Keegan Q. Barry-Holson, Caleb J. Hunt, Jessica P. Lee, Lauren A. Ross, and Eric J. Kantorowski

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B82 SMALL MOLECULE SYNTHESIS: A PRECURSOR FOR α -GLUCOSIDASE INHIBITOR, GABOSINE I AND ANTIMALARIAL AGENT, FEBRIGUGINE

Julie Cong-Dung Le, Shurti Acharya, Lane Lovett, and Ke Qi

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B83 IMAGING AND DRIVING BIOLOGICAL NEEDS THROUGH SYNTHESIS

Martin J. Lear

National University of Singapore

Department of Chemistry and Medicinal Chemistry Program, 3 Science Drive-3, Singapore 117543

B84 CHEMICAL SYNTHESIS OF UDP-GLUCOSE

Eung-Seok Lee,¹ Dong-Hyun Kim,¹ Yurngdong Jahng,¹ David C. Johnson,² and Theodore S. Widlanski²

¹Yeungnam University, College of Pharmacy, Kyongsan 712-749, Korea and ²Indiana University, Department of Chemistry, Bloomington, IN 47405

B85 POLYMETHYLHYDROSILOXANE (PMHS) IN Pd-MEDIATED REACTIONS WITH ACID CHLORIDES

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B86 SYNTHESSES OF GANGLIOSIDE MIMETICS AS BOTULINUM TOXIN INHIBITORS

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B87 HIGH ENANTIOPURITY *N*-PROTECTED α -AMINO KETONE SYNTHESIS UNDER NEUTRAL CONDITIONS BY THIOL ESTER AND ORGANOSTANNANE CROSS-COUPLING

Hao Li, Hao Yang, and Lanny S. Liebeskind

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B88 PRACTICAL AND CONVENIENT SYNTHESIS OF ARYL TETRAFLUOROETHYL ETHERS

Jianqing Li,¹ **Jennifer X. Qiao**,² **Daniel Smith**,¹ **Bang-Chi Chen**,³ **Mark E. Salvati**,² **Jacques Y. Roberge**,² and **Balu N. Balasubramanian**³

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B89 GOLD(I)-CATALYZED INTRAMOLECULAR ENANTIOSELECTIVE HYDROARYLATION OF ALLENES WITH INDOLES

Cong Liu, **Alethea Duncan**, and **Ross A. Widenhoefer**

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B90 SYNTHESIS AND BIOLOGICAL EVALUATION OF NOVEL HISTAMINE H3 ANTAGONISTS

Huqing Liu, **D. Fernando**, **R. Altenbach**, **T. A. Esbenshade**, and **M. Cowart**

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Schedule of Presenters – Poster Session C

Tuesday, June 5, 2007

C1 SYNTHESIS OF 3-METHYL-4-(1-METHYLETHENYL)PYRROLIDINE ON A SOLID SUPPORT

Ryan M. Esser, Nandeo Choony, Travis J. Ptacek, and Ryan T. Hajek

Mount Marty College

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C2 SPIRASTRELLOLIDES SYNTHETIC STUDIES. DEVELOPMENT OF A ROUTE TO THE C25-C40 DEF TRICYCLIC SYSTEM OF SPIRASTRELLOLIDE B.

Dmitriy A. Bondar and Amos B. Smith, III

University of Pennsylvania

Department of Chemistry, Monell Chemical Senses Center and Laboratory for Research on the Structure of Matter, Philadelphia, PA 19104

C3 PROGRESS TOWARD THE TOTAL SYNTHESIS OF AUTOLYTIMYCIN, PART 1

A. Monica Norberg, Luis Sanchez, Feng Shi, Milton R. Smith, III, Robert E. Maleczka, Jr.

Michigan State University

Department of Chemistry, East Lansing, MI 48824

C4 PROGRESS TOWARD THE TOTAL SYNTHESIS OF AUTOLYTIMYCIN, PART 2

Luis Sanchez, A. Monica Norberg, Feng Shi, Milton R. Smith, III, and Robert E. Maleczka, Jr.

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C5 APPROACH TO C6-C8 BRIDGED EPOTHILONE ANALOGUES

Weiqiang Zhan, Dennis C. Liotta, and James P. Snyder

Emory University

Department of Chemistry, 1515 Dickey Drive, Atlanta, GA 30322

C6 THE FIRST TOTAL SYNTHESIS OF PHOMOPSIN B

Joshua S. Grimley, Andrew M. Sawayama, Hiroko Tanaka, Michelle M. Stohlmeyer, Thomas F. Woiwode, and Thomas J. Wandless

Stanford University

Departments of Chemistry and Chemical and Systems Biology, Stanford, CA 94305

C7 SYNTHESIS OF THE LEAVING GROUP TRICHLOROMETHANESULFONATE, A PROBABLE GENERAL ROUTE TO SULFONIC ESTERS

Cory J. Bottone, Christopher Halkides, and Thomas Netscher

University of North Carolina at Wilmington and DSM Nutritional Products

Department of Chemistry and Biochemistry, 601 S. College Rd., Wilmington, NC 28403

C8 METAL TRIFLIMIDE AS A LEWIS ACID CATALYST FOR MICHAEL ADDITION REACTIONS IN WATER

Yuko Suzumura, Ichiro Suzuki, and Kei Takeda

Hiroshima University

Department of Synthetic Organic Chemistry, Graduate School of Biomedical Sciences, 1-2-3, Kasumi, Minami-Ku, Hiroshima 734-8553, Japan

C9 NOVEL AROMATIC COMPOUNDS BY TANDEM MICHAEL-CLAISEN REACTIONS

I. David Reingold, Anna Butterfield, Katrina Kratz, Anh Nguyen, Dan Wendekier, Geoffrey Kozak, and Zak Page

Juniata College

Department of Chemistry, Huntingdon, PA 16652

C10 HETEROGENEOUS PHOTO-CATALYTIC OXIDATIONS

Anton W. Jensen, Xingyi Yang, George Kirby, George Draughn, and Erik Black

Central Michigan University

Department of Chemistry, Mt. Pleasant, MI 48859

C11 ASYMMETRIC TOTAL SYNTHESIS OF YATAKEMYCIN: STRUCTURE REVISION AND ANALOGUE STUDIES

Mark S. Tichenor, David B. Kastrinsky, and Dale L. Boger

The Scripps Research Institute

Department of Chemistry, 10550 North Torrey Pines Road, BCC 483, La Jolla, CA 92037

C12 PREPARATION OF A CHEMILUMINESCENT VANCOMYCIN CONJUGATE

Jonathan Grote,¹ Yon-Yih Chen,¹ David Wilson,² Ben Sanchez,² and Katharine Qiu²

Abbott Laboratories

¹Core R & D Life Science Organic Chemistry and ²OEM Product Development, Abbott Diagnostic Division, 100 Abbott Park Rd. Abbott Park, IL 60064

C13 DESIGN AND SYNTHESIS OF PALDOXINS FOR BLACKLEG CONTROL: TOWARDS ENVIRONMENTALLY SUSTAINABLE TREATMENT OF PLANT FUNGAL DISEASES

M.S.C. Pedras, M. Okeola, O.G. Jha, and V. Sarma-Mamillapalle

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C14 IMPROVED SYNTHESIS OF DIQUINONES

Brian E. Love,¹ Lori A. Forrest,² and Jeffrey Bonner-Stewart²

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C15 THE TOTAL SYNTHESIS OF (+)-ISOMIGRASTATIN

Isaac J. Krauss, Mihirbaran Mandal, and Samuel J. Danishefsky

Memorial Sloan Kettering Cancer Center

411 E67th St. RRL 1361, New York, NY 10021

C16 SUBSTITUENT EFFECTS IN THE NAZAROV CYCLIZATION OF ARYL DIENYL KETONES

Amy S. Lee, Andrew P. Marcus, and Richmond Sarpong

University of California–Berkeley

Department of Chemistry, 610 Latimer Hall, Berkeley, CA 94720

C17 PALLADIUM-CATALYZED REACTIONS OF ARYL CHLORIDES IN IONIC LIQUIDS

Margaret E. Logan, Cory J. Charbonneau, and Mark E. Oinen

SUNY Brockport

Department of Chemistry, 350 New Campus Drive Brockport, NY 14420

C18 SYNTHESIS OF β -ALKYNALS VIA PHOTOLYSIS OF ANTHRAQUINONES

Andrew G. Lohse, David Rubush and Ron Blankespoor

Calvin College,

Department of Chemistry and Biochemistry, Grand Rapids, MI 49546

C19 TOWARD THE TOTAL SYNTHESIS OF 20-DEOXYAPOPTOLIDIN

Vince M. Lombardo, William D. Paquette, David J. Guseilla, Nathan A. Ross, and Richard E. Taylor

University of Notre Dame

Department of Chemistry and Biochemistry, 251 Nieuwland Science Hall, Notre Dame, IN 46556

C20 CAPTURE, ROMP, CUPRATE-RELEASE VIA A NORBORNENYL-TAGGED MONOCHLOROPHOSPHATE

Toby Long,¹ Josh Waetzig,¹ Maria Jimenez,¹ Paul R. Hanson,¹ and Daniel Flynn²

¹University of Kansas, Department of Chemistry, 1251 Wescoe Hall Dr, NIH Center of Excellence in Chemical Methodologies and Library Development (KU-CMLD), Lawrence, KS 66045 and ²Deciphera Pharmaceuticals LLC, 4950 Research Park Way, Lawrence, KS 66047

C21 USING REACTION MECHANISMS TO DICTATE MECHANICAL RESPONSES IN GRAFTED POLYMERS AND HYBRID ORGANOGELS

David Loveless and Stephen L. Craig

Duke University

Department of Chemistry, French Family Science Center, Durham, NC 27705

C22 TOTAL SYNTHESIS OF THE MARINE METABOLITE BISTRAMIDE A

Jason T. Lowe, Iwona E. Wrona, and James S. Panek

Boston University

Department of Chemistry and Center for Chemical Methodology and Library Development, Metcalf Center for Science and Engineering, 590 Commonwealth Avenue, Boston, MA 02215

C23 SYNTHESIS OF A FLUORESCENT α -TOCOPHERYL SUCCINATE ANALOG TO INVESTIGATE MITOCHONDRIAL LOCALIZATION

Jacob B. Lowring, Elahe Mahdavian, and Brian A. Salvatore

Louisiana State University

Department of Chemistry and Physics, Shreveport, LA 71115

C24 PROGRESS IN THE SYNTHESIS OF QUINONE DERIVED NATURAL PRODUCTS: TOTAL SYNTHESIS OF RUBICORDIFOLIN AND MICROPHYLLAQUINONE

Jean-Philip Lumb and Dirk Trauner

University of California – Berkeley

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C25 LIGHT-ACTIVATED NUCLEOTIDES AS PROBES FOR BIOLOGICAL FUNCTION

Hrvoje Lusic, Douglas Young, and Alexander Deiters

North Carolina State University

Department of Chemistry, 2620 Yarborough Drive, Raleigh, NC 27695

C26 SYNTHESIS OF Gb3 ANALOGUES AS SHIGA TOXIN BINDERS

Sujit Mahajan and Suri S. Iyer

University of Cincinnati

Department of Chemistry, Cincinnati, OH 45221

C27 TOWARDS THE TOTAL SYNTHESIS OF ($\pm$)-ROCAGLAMIDE A

John A. Malona and Alison J. Frontier

University of Rochester

Department of Chemistry, Rochester, NY 14627

C28 AN EFFICIENT SYNTHESIS OF 2H-1,3-OXAZINES VIA A FORMAL CARBENOID N-O BOND INSERTION

James R. Manning and Huw M. L. Davies

University at Buffalo

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C29 IMIDAZOLE ALKALOIDS AS POTENTIAL AGROCHEMICALS

Eric A. Marshall and Thomas M. Stevenson

DuPont Crop Protection

Stine Haskell Research Center, Newark, DE 19714

C30 ORTHOGONAL SILANE PROTECTING GROUP METHODS FOR MODIFIED SONOGASHIRA COUPLINGS

Matthew J. Mio, Salette Martinez, Andrew L. Ward, and Branden J. Yaldou

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C31 NEW CASCADE REACTIONS FOR THE SYNTHESIS OF HIGHLY SUBSTITUTED TETRAHYDROPYRAN RINGS

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C32 NEW THIAZOLIUM-BASED STRATEGIES FOR ACYL ANION ADDITION REACTIONS

Anita E. Mattson and Karl A. Scheidt

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C33 SINGLE COMPONENT PHOSPHORESCENT MATERIALS FOR HIGH EFFICIENCY OLEDs

Georgia E. McCluskey,¹ Robert J. Borthwick,¹ Khai Leok Chan,^{1,2} Sung Yong Cho,^{1,2} Nicholas R. Evans,³ David J. Jones,¹ Chris Mak,² Scott E. Watkins,¹ and Andrew B. Holmes¹

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C34 SYNTHESIS OF SELECTIVELY DEUTERATED PROPYLENE OXIDE FOR USE AS A PROBE OF DYNAMICS WITHIN A CLATHRATE HYDRATE CAGE

Silas McKee, Gregory Nizialek, Camille Y. Jones, and Ian J. Rosenstein

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C35 SYNTHESIS OF PEPTIDE NUCLEIC ACID ANALOGS USING CLICK CHEMISTRY

Brian J. McNelis, Robert Thomas, Gregory Stettler, Christine Donohoe, and Denver Lough

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C36 MULTIVALENT ACTIVATION IN PHOSPHATE TETHERS: APPLICATION TO THE SYNTHESIS OF FOSTRIECIN

James P. McParland, DeAnna M. Travis and Paul R. Hanson

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C37 TIN-FREE RADICAL REACTIONS EMPLOYING TRIALKYLBORANES AND WATER

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C38 CATIONIC 1,2-DISUBSTITUTED CYCLOPROPANE FORMATIONS AND A BIOMIMETIC MODEL FOR CYCLOPROPANE SYNTHESIS VIA POLYKETIDE SYNTHASE

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C39 DEVELOPMENT OF A BIO INSPIRED ACYL ANION EQUIVALENT MACROCYCLIZATION AND SYNTHESIS OF A TRANS-RESORCYLIDE PRECURSOR

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C40 PROGRESS TOWARDS THE ASYMMETRIC COPPER(II)-CATALYZED AMINOHYDROXYLATION OF OLEFINS

David Michaelis, Christopher Shaffer, and Tehshik Yoon

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C41 SYNTHESIS OF AZOBENZENES – VIA EFFICIENT PREPARATION OF NITROSOARENES

Fabian Michalik and Karola Rück-Braun

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Institut für Chemie, Strasse des 17. Juni 135, D 10623 Berlin, Germany

C42 MESOPOROUS SILICA NANOPARTICLE-SUPPORTED RUTHENIUM CATALYSTS FOR ENANTIOSELECTIVE HYDROGENATION OF KETONES

David J. Mihalcik and Wenbin Lin

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C43 DICATIONS AND DIANIONS OF 3-PHENYLINDENYLIDENE DIBENZOTROPENE. THE AROMATICITY/ANTIAROMATICITY CONTINUUM FOR INDENYL SPECIES

Nancy Mills, Abraham Yousef, Francine Cheng, and Joseph Baylan

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Department of Chemistry, San Antonio, TX 78212

C44 MILD CHEMOSELECTIVE REACTIONS OF THE TRICHLOROETHYL GROUP USING INDIUM METAL

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¹Sojo University, Laboratory of Organic Chemistry, Faculty of Pharmaceutical Sciences, 4-22-1 Ikeda, Kumamoto 860-0082, Japan and ²University of Mississippi, Department of Medicinal Chemistry, School of Pharmacy, University, MS 38677

C45 ENANTIOSELECTIVE REACTIONS WITH PALLADIUM ENOLATES

Justin T. Mohr, Douglas C. Behenna, Andrew M. Harned, Toyoki Nishimata, Kousuke Tani, Sandy Ma, Michael R. Krout, Ryan M. McFadden, Nathaniel H. Sherden, Smaranda C. Marinescu, John A. Enquist, David E. White, and Brian M. Stoltz

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C46 A PRACTICAL SYNTHESIS OF α -ARYL METHYL KETONES VIA A TRANSITION-METAL FREE MEERWEIN ARYLATION

Carmela Molinaro,[†] Jeffrey Mowat,[†] Francis Gosselin,[†] Paul D. O'Shea,[†] Jean-François Marcoux,[‡] Rémy Angelaud,[‡] and Ian W. Davies[‡]

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C47 A CONVENIENT SYNTHESIS OF ORTHOGONALLY PROTECTED 1,4,7,10-TETRAAZACYCLODODECANE-BASED BIFUNCTIONAL CHELATES

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C48 PROGRESS TOWARD THE SYNTHESIS OF DIMER OROIDIN ALKALOIDS

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C49 PROGRESS TOWARDS THE TOTAL SYNTHESIS OF CERCOPSORIN

Barbara J. Morgan, Carol Mulrooney, Erin O'Brien, and Marisa Kozlowski

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C50 PROGRESS IN THE STEREOSELECTIVE SYNTHESIS OF Δ^2 -ISOXAZOLINES

Amber L. Norman, Khriesto A. Shurrush, Michael D. Mosher

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C51 EFFORTS TOWARD THE SYNTHESIS OF (+)-KALKITOXIN AND SOME ANALOGS

Richard J. Mullins, Michael T. Corbett, Adeleke Oni, Michael Hellmann, and Dawn Makley

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C52 SYNTHESIS OF ISOTOPICALLY LABELED PORPHYRINS FOR ARTIFICIAL PHOTOSYNTHESIS STUDIES

Ana Z. Muresan and Jonathan S. Lindsey

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C53 CURVED POLYCYCLIC AROMATIC HYDROCARBONS: MOLECULAR ELECTRONICS AND CARBON NANOTUBE SYNTHESIS

Matthew Myers and Colin Nuckolls

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C54 CONFORMATIONAL ANALYSIS OF COMPLEX POLYKETIDES

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C55 PROGRESS TOWARD THE TOTAL SYNTHESIS OF (+)-HASUBANONINE

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C56 PROGRESS TOWARD THE TOTAL SYNTHESIS OF (+)-RUNANINE

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C57 SYNTHESIS OF C-GLUCOSYL- α - OR β -SERINE FROM A COMMON LACTONE INTERMEDIATE

Ernest G. Nolen, Lawrence Donahue, and Rebecca Greaves

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C58 EFFICIENT ROUTES TO NOVEL MOLECULAR ARCHITECTURES: TEMPLATE-DIRECTED SYNTHESIS OF MECHANICALLY INTERLOCKED SUITANES

Brian H. Northrop,[‡] Avril R. Williams,[‡] Fabio Aricó,[‡] Theresa Chang,[‡] Nick Tangchaivang,[‡] Jovica D. Badjic,[‡] Andrew J. P. White,[§] David J. Williams,[§] J. Fraser Stoddart[‡]

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C59 STUDIES IN THE SYNTHESIS OF PLAKORTETHERS

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C60 PHOTOACTIVATED GLYCOSYL DONORS

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C61 ENANTIOSELECTIVE TOTAL SYNTHESIS OF (+)-PROSOPHYLLINE USING PROLINE-CATALYZED ASYMMETRIC ALDOL REACTIONS

Atsushi Okuyama and Hiyoshizo Kotsuki

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C62 INVESTIGATIONS INTO LEWIS ACID PROMOTED REACTIONS OF ALLENES

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C63 WOMEN'S CONTRIBUTION TO NAMED ORGANIC REACTIONS

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C64 ADVANCES IN ALKOXY DERIVATIVES OF (S)-NICOTINE

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C65 THE LEWIS ACID PROMOTED [3+2] CYCLOADDITION REACTION OF CYCLOHEXENYLSILANES WITH ELECTRON-DEFICIENT DOUBLE BONDS

Crina Maria Orac and Stephen C. Bergmeier

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C66 ENANTIOSELECTIVE REDUCTION OF KETONES WITH THE NOVEL SPIROBORATE ESTER DERIVED FROM DIPHENYL PROLINOL AND ETHYLENE GLYCOL

Margarita Ortiz-Marciales, Melvin De Jesús, Viatcheslav Stepanenko, Wildeliz Correa, Irisbel Guzmán, Cindybeth Vázquez, Wilanet de la Cruz, and Lymaris Ortiz

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C67 TOWARDS THE SYNTHESIS OF DEPSILAIRDIN

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C68 AZIDE MEDIATED DETOSYLATION OF N-TOSYLINDOLE-4,7-QUINONES AND N-TOSYLPYRROLOIMINOQUINONES

Swayamprabha Patel, Jason King, and Sadanandan Velu

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C69 REGIOSELECTIVE SYNTHESIS AND APPLICATION OF 7-BORYLATED INDOLE VIA IR-CATALYZED C-H ACTIVATION/BORYLATION

Sulagna Paul, Robert E. Maleczka Jr., and Milton R. Smith III

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C70 THE DIRECT SYNTHESIS OF Fmoc-PROTECTED AMINES USING Fmoc- IMINIUM IONS

Timothy J. Peelen, Alison E. Hartman, Julia A. Cupp, and Cheryl L. Brophy

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C71 PROCESS DEVELOPMENT ON A CONFORMATIONALLY RESTRICTED GLUTAMIC ACID ANALOG

Michael L. Phillips, Eric D. Moher,* Marvin M. Hansen, David W. Hoard, Michael E. LeTourneau, Kevin A. Sullivan, Jeffrey A. Ward, Chaoyu Xie, Tricia E. Aust, David Barlow, Erica L. Buxton, Guy J. Hansen, Richard D. Miller, Jacob R. Rémacle, Gary A. Rhodes, Joshua M. Schenck, Angela D. Thurnall, David D. Anderson, Brian P. Axe, Cheryl A. Bye, Mindy B. Forst, Robert M. Montgomery, and Timothy L. Shelbourn

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C72 PROGRESS TOWARD AN ASYMMETRIC TOTAL SYNTHESIS OF TUBEROSTEMONONE

Joshua G. Pierce and Peter Wipf

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C73 MICROCAPSULES AND MICROREACTORS: TWO APPROACHES TO MULTISTEP ONE-POT REACTIONS

Sarah L. Poe, Muris Kobašljica, and D. Tyler McQuade

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C74 IMINYL RADICAL GENERATION FROM DIOXIME OXALATES: PREPARATION OF NITROGEN HETEROCYCLES

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C75 CAPROLACTAM CGRP RECEPTOR ANTAGONISTS: SAR STUDIES OF THE 4-SUBSTITUTED PIPERIDINE PRIVILEGED STRUCTURE

Craig Potteiger,¹ Christopher Burgey,¹ James Deng,¹ Daniel Paone,¹ Anthony Shaw,¹ Diem Nguyen,¹ Stefanie Kane,² Victor Johnston,² Scott Mosser,² Chris Salvatore,² Sean Yu,³ Shane Roller,³ Joseph Vacca,¹ Harold Selnick,¹ and Theresa Williams¹

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C76 COPPER-CATALYZED AMIDATION OF ALLYLIC AND BENZYLIC C–H BONDS

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C77 EPOXIDE BASED APPROACH FOR CONSTRUCTION OF THE ANSA CHAINS OF STREPTOVARICINS D AND U

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C78 INTRAMOLECULAR CYCLIZATION REACTIONS OF AZIRIDINES WITH π -NUCLEOPHILES

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C79 A GENERAL SYNTHESIS OF PYRROLOQUINOLIZIDINES: SYNTHESIS OF A HOMOLOGUE OF THE PYRROLOINDOLIZIDINE MYRMICARIN 215B

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C80 EFFICIENT SYNTHESIS OF N-SUBSTITUTED 1,2,3-TRIAZOLES FROM AMINES

Yuping Qiu, Nathan Reising, Wenhao Hu, Chung-Ping Chen, Nachimuthu Soundararajan, and Yadagiri R. Pendri

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C81 AN ALKYNE BASED STRATEGY TO MERGE DOS AND TARGET ID, RESULTING IN THE DIRECT Silylation OF TERMINAL ALKYNES WITH CATALYTIC ZINC TRIFLATE

Ronald J. Rahaim, Jr. and Jared T. Shaw

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C82 o-FLUORANIL: A HIGHLY REACTIVE AND VERSATILE QUINONE

Sudharsanam Ramanathan and David M. Lemal

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C83 SYNTHESIS OF 3H-1-BENZAZEPINES

Keith Ramig,¹ Shaan Alli,¹ Myra Cheng,¹ Richard Leung,¹ Fahima Mahir,¹ Rabail Razi,¹ Michelle Washington,¹ Linas V. Kudzma²

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C84 CARBOCATIONS STABILIZED BY COBALT-ALKYNE COMPLEXES AS DIENOPHILE WITHDRAWING GROUPS IN DIELS-ALDER REACTIONS

Maureen K. Reilly, Florina A. Voica, and Kevin M. Shea

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C85 SIMPLIFICATION OF THE MISUNOBU REACTION. DI-P-CHLOROBENZYL AZODICARBOXYLATE: A NEW AZODICARBOXYLATE

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C86 PROGRESS TOWARDS THE GRAM-SCALE SYNTHESIS OF (+)-SPONGISTATIN 1

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C87 COPPER (I)-CATALYZED AZIDE-ALKYNE [3+2] CYCLOADDITION: NEW ACCELERATING LIGANDS AND MECHANISTIC REPORT

Valentin O. Rodionov, Stanislav Presolski, Sean Gardinier, Yeon-Hee Lim, David Diaz Diaz, and M.G. Finn

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C88 STUDIES TOWARD THE CONVERGENT SYNTHESIS OF THE C1-C15 POLYPROPIONATE CHAIN OF LANKANOLIDE USING A SECOND GENERATION EPOXIDE CLEAVAGE APPROACH

Raúl R. Rodríguez Berrios and José A. Prieto

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C89 STUDYING BIOSYNTHETIC RELATIONSHIPS AMONG FURANOCEMBRANOIDS AND THE TOTAL SYNTHESIS OF ARHAZOLID B

Paul A. Roethle, Ingrid T. Chen, Paul T. Hernandez, and Dirk Trauner

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C90 PROGRESS TOWARD THE ENANTIOSELECTIVE TOTAL SYNTHESIS OF INELEGANOLIDE: APPLICATION OF A NEW WOLFF/COPE REARRANGEMENT

Jennifer L. Roizen, Masaki Seto, and Brian M. Stoltz

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Schedule of Presenters – Poster Session D

Wednesday, June 6, 2007

D1 CATALYTIC NUCLEOPHILIC ACTIVATION OF ACETONITRILE VIA A COOPERATIVE CATALYSIS OF CATIONIC Ru COMPLEX, DBU, AND NaPF₆

Naoya Kumagai, Shigeki Matsunaga, and Masakatsu Shibasaki

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D2 SOLID PHASE SYNTHESIS OF “3+1” TYPE ASYMMETRIC PHTHALOCYANINES AND POSSIBLE PHOTODYNAMIC THERAPY APPLICATIONS

S. Sibel Erdem, Timothy Jensen, Irina Nesterova, Steven A. Soper, and Robert P. Hammer

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D3 SYNTHESIS AND UTILITY OF A CHEMILUMINESCENT PHENYTOIN TRACER

Jonathan Grote,¹ Yon-Yih Chen,¹ Richard Himmelsbach,¹ David Wilson,² and Gail Sumerdon²

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D4 DESIGN AND SYNTHESIS OF PALDOXINS FOR STEM ROT CONTROL, A PLANT FUNGAL DISEASE OF CRUCIFER OILSEEDS

M.S.C. Pedras and M. Hossain

University of Saskatchewan

Department of Chemistry, 110 Science Place, Saskatoon, SK S7N 5C9, Canada

D5 CHIRALITY TRANSFER FROM EPOXIDE TO α -NITRILE ALLYLIC CARBANION VIA EPOXYSILANE REARRANGEMENT

Michiko Sasaki, Yuri Shirakawa, Eiji Kawanishi, and Kei Takeda

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D6 FORMAL SYNTHESIS OF LAURALLENE USING BROOK REARRANGEMENT-MEDIATED [3 + 4] ANNULATION

Azusa Hashimoto, Michiko Sasaki, Koudai Tanaka, and Kei Takeda

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D7 SYNTHESIS OF NOVEL POLY(*p*-PHENYLENEVINYLENE)S WITH WELL DEFINED CONJUGATED SEGMENT LENGTH

Camila S. Gonçalves and Jonas Gruber

Universidade de São Paulo

Instituto de Química, Av. Lineu Prestes, 748 – 05508-900 - São Paulo, Brazil

D8 FACILE SYNTHESIS OF 3-ARYLIDENE CAMPHOR DERIVATIVES

Brian E. Love

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Department of Chemistry, Greenville, NC 27858

D9 SYNTHESIS OF AZAHETEROCYCLIC PARA-OXACYCLOPHANES AND BICYCLOOXACALIXARENES

Douglas A. Rooke, Jeffrey L. Katz, and Michael S. Abers

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D10 USE OF PROCESS ANALYTICAL TECHNOLOGY IN THE DEVELOPMENT OF A “ONE POT” SYNTHESIS OF 4-METHYLBENZYLSEMICARBAZIDE, AN INTERMEDIATE FOR THE PREPARATION OF A PPAR- α AGONIST

Roger R. Rothhaar, John A. Werner, Christopher R. Schmid, Timothy Braden, Jeffrey Wei, Edward Conder, and Robert Roginski

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D11 SYNTHESIS OF SKELETALLY DIVERSE NATURAL PRODUCT-LIKE SMALL MOLECULES

Catherine Rourke, Adam Nelson, and Jerome Hayes

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D12 ENANTIOSELECTIVE BRØNSTED ACID-CATALYZED AZA-FRIEDEL-CRAFTS REACTION

Emily Rowland, Gerald B. Rowland, Yuxue Liang, and Jon C. Antilla

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D13 ENANTIOSELECTIVE BRØNSTED ACID-CATALYZED ADDITION OF IMIDES TO IMINES

Gerald B. Rowland, Yuxue Liang, Emily B. Rowland, and Jon C. Antilla

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D14 A NOVEL METHOD TO SYNTHESIZE UNNATURAL CYSTEINE ANALOGS

Kinkini Roy and Douglas S. Masterson

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D15 LEWIS BASE-MEDIATED REARRANGEMENT OF CYCLOPROPENYLMETHYL PHOSPHINATES INTO PHOSPHOROUS-CONTAINING METHYLENOCYCLOPROPANES

Michael Rubin, Marina Rubina, and Eric W. Woodward

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D16 SYNTHESIS AND SPECTROSCOPY OF PUSH-PULL [14]-PYRIDOANNULENES

KC Russell, Amber Bisch, Lindsey Easthon, Matthew Lauer, Ashley Mynar, Jason Ferayorni, Jackie Bowman, Ashley Tepe, and Senai Negassi

Northern Kentucky University

Department of Chemistry, Highland Heights, KY 41099

D17 SYNTHESIS AND EVALUATION OF ANTITUMOR ANNONACEOUS ACETOGENINS WITH A COMMON BIS-THF CORE UNIT

Jesse J. Sabatini and James A. Marshall

University of Virginia

Department of Chemistry, Charlottesville, VA 22904

D18 STEREOSELECTIVE SYNTHESIS OF QUATERNARY α -AMINO ACIDS CARRYING THE HYDRINDANE SKELETON

Algirdas Sackus,¹ Sonata Krikstolaityte,¹ Gerald Giester,² and Wolfgang Holzer³

¹Kaunas University of Technology, Institute of Synthetic Chemistry, Kaunas, Lithuania, ²University of Vienna, Faculty of Geosciences, Geography and Astronomy, Institute of Mineralogy and Crystallography, Vienna, Austria and ³University of Vienna, Vienna, Austria

D19 APPLICATION OF CHIRAL N-ACYLPYRIDINIUM SALT CHEMISTRY TOWARDS THE TOTAL SYNTHESIS OF ALKALOID NATURAL PRODUCTS: (+)-HYPERASPINE AND SPIROLUCIDINE

James J. Sahn, Bharathi Pandi, Al Williams, and Daniel L. Comins

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D20 EFFICIENT ONE-POT PROCEDURE USING SODIUM BOROHYDRIDE FOR THE REDUCTIVE ALKYLATION OF AROMATIC ALDEHYDES WITH MALONONITRILE

Robert E. Sammelson, Fariba Tayyari, and Dwight E. Wood

Ball State University

Department of Chemistry, Muncie, IN 47306

D21 POLYETHER SUBSTITUTED POLY(PHENYLENEVINYLENES) FOR USE IN LIGHT EMITTING ELECTROCHEMICAL CELLS

Elizabeth M. Sanford, Jonathan D. Barrus and Matthew J. Kryger

Hope College

Department of Chemistry, Holland, MI 49422

D22 PHOTOINDUCED ELECTRON TRANSFER IN 1-SUBSTITUTED-9,10 ANTHRAQUINONES

Saurav J. Sarma and Paul B. Jones

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Department of Chemistry, Winston-Salem, NC 27109

D23 DIASTEREOSELECTIVITY IN THE SELF-ASSEMBLY OF AS₂L₂CL₂ MACROCYCLES IS DIRECTED BY THE AS- π INTERACTION

Aaron C. Sather, Virginia M. Cangelosi, Lev N. Zakharov, Orion B. Berryman, and Darren W. Johnson

University of Oregon

Department of Chemistry, Eugene, OR 97403

D24 SYMBIOTIC REAGENT ACTIVATION: MEERWEIN-PONNDORF-VERLEY REDUCTION OF SILYLGLYOXYLATES BY MAGNESIUM ALKOXIDES TRIGGERS SECOND-STAGE ALDOLIZATION

Andrew D Satterfield, Jeffrey S. Johnson, and Xin Linghu

University of North Carolina

Department of Chemistry, Chapel Hill, NC 27599

D25 KILOGRAM-SYNTHESIS OF A SELECTIVE SEROTONIN RE-UP TAKE INHIBITOR

Justin Sausker, Robert Anthes, Osagie Bello, Serge Benoit, Chien K. Chen, Elisabeth Corbett, Richard M. Corbett, Albert J. DelMonte, Stephane Gingras, Robert Livingston, and Maxime Soumeillant

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D26 REGIO- AND ENANTIOSELECTIVE RHODIUM-CATALYZED [2+2+2] CARBOCYCLIZATION REACTIONS

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D27 DEVELOPMENT OF AXIALLY-CHIRAL 7-MEMBERED N-HETEROCYCLIC CARBENE LIGANDS

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Song, Yingquan	B23	Taniguchi, Masahiko	A84
Song, Zhenlei	A10, D37	Tantillo, Dean J.	D66
Soper, Steven A.	D2	Tarr, James C.	D46
Soumeillant, Maxime	D25	Tarselli, Michael A.	D47
Soundararajan, Nachimuthu	C80	Taylor, Carol M.	D48
Spencer, James	B17	Taylor, N. J.	A51
Sperry, Jeffrey B.	C86	Taylor, Nicholas G.	B18
Spiegel, David A.	C37	Taylor, Nicholas J.	B19, B54
Springer, Jasper	D38	Taylor, Richard E.	A63, C19,
Springer, John	A43	C38, C54	
Stahl, Shannon S.	D27	Tayyari, Fariba	D20
Stepanenko, Viatcheslav	C66	Tedrow, Jason S.	D49
Stettler, Gregory	C35	Temple, Katherine H.	D50
Stevens, Benjamin D.	D39	Templet, Eric E.	B12
Stevenson, Heather E.	B36	Teng, B.	D43
Stevenson, Thomas M.	C29	Tenniswood, Martin	D29
Sthanam, Narayana	B22	Tepe, Ashley	D16
Still, Bryanne	B75	Teske, Jesse A.	D51
Stivala, Craig	D84	Thakor, Vikalp A.	B57
Stockdill, Jennifer L.	D40	Theissmann, T.	D52
Stoddart, J. Fraser	C58	Thiara, Parvinder S.	A7
Stoeckel, M.	D52	Thomas, Christopher D.	D53
Stohlmeyer, Michelle M.	C6	Thomas, Robert	C35
Stoker, Paul	D41	Thorstenson, Patricia	B6
Stokes, Benjamin J.	A73	Thurnall, Angela D.	C71
Stoltz, Brian M.	A18, A45,	Tian, Zhenping	D67
A79, B21, B69, C45, C90, D40		Tichenor, Mark S.	C11
Stults, Teena	A43	Tobey, Suzanne L.	C62, D50
Sui, Zhihua	D80	Tomioka, Takashi	C86
Suk, Dae-Hwan	D42	Toone, Eric J.	A42, D31,
Sulima, A.	D43	D62, D64, D73	
Sullivan, Kevin A.	C71	Torres, Nicole M.	D54
Sumerdon, Gail	D3	Torres, Wildeliz	C77
Sünnemann, Hans Wolf	D44	Toste, F. Dean	B26
Sunsdahl, Bryce	D45	Tran, Kristy	D55
Suzuki, Ichiro	C8	Trauner, Dirk	C24, C89
Suzumura, Yuko	C8	Travins, Jeremy	B41
Syvret, Robert	B74	Travis, DeAnna M.	C36
T		Trend, Raissa M.	A79
Tadross, Pamela M.	B21	Trenkle, William C.	A16
Takahashi, Yoshikazu	D69	Trost, Barry M.	D70
Takeda, Kei	C8, D5, D6	Truong, Vouy Linh	D56
Takeuchi, Kenichi	D57	Tschaen, David	D76

Tse, Brian N.	D36	Ward, Jeffrey A.	C71
Tsuchikawa, Hiroshi	D57	Warner, C. Morghan	A60
Tsymbolov, Sofya	A43	Warriner, Stuart	B28, B52
Turnbull, Bruce	D71	Warsink, S.	A27
U		Washington, Michelle	C83
Umezawa, Yoji	D69	Watanabe, Takumi	D69
Unwalla, Ray	A57	Waters, Marcey L.	B45
Ürge, Laszlo	B5	Watkins, Scott E.	C33
V		Webster, Nicholas J. G.	A67
Vacca, Joseph	C75	Wedel, Michael	A67
Valdez, S. Corey	D58	Wei, Jeffrey	B59, D10
Van Arman, Scott A.	D59	Wei, Jeffrey	D10
van Maarseveen, Jan H.	A27, D38	Wei, Younggang	A11, B66
Vaslatiy, O.	D43	Weiss, Andrew H.	D70
Vázquez, Cindybeth	C66	Weiss, Gregory A.	A70
Vedejs, Edwin	A76	Welker, Mark E.	B4
Velu, Sadanandan	B22, C68	Wendekier, Dan	C9
Venukadasula, Phanindra	D53	Werner, John A.	D10
Vice, Susan F.	B18	White, Andrew J. P.	C58
Vilkauskaitė, Gytė	D60	White, David E.	C45
Villarreal, Maria M.	A30	White, Rebecca	D70
Viswanatha, Thammaiah	B17	Whitehead, Alan	D53
Viswanathan, Rajesh	D61	Whitney, Simon J.	D72
Vogen, Briana	D62	Widenhoefer, Ross A.	A1, A2, A77,
Vogeti, Lakshminarayana	A81	B1, B2, B89	
Voica, Florina	C84	Widlandski, Theodore S.	B84
Volk, Brian R.	A60	Widman, David	A5
Vos, Bryan P.	A59	Wilcox, Craig S.	A58
Vosburg, David A.	A6, B16	Wilfong, Erin M.	D73
W		Willcox, David R.	B14
Waetzig, Joshua D.	C20, D53	Williams, Al	D19
Wagner, Carston R.	A53	Williams, Avril R.	C58
Wagner, Florence	A44	Williams, David J.	C58
Walczak, Maciej A. A.	D63	Williams, Theresa	C75
Walker, Shawn D.	D49	Wilson, C.	D43
Walsh, Shawn P.	B55, D44	Wilson, David	C12, D3
Walsh, Timothy R.	B17	Wipf, Peter	C72, D63
Walters, Matthew J.	D64	Woiwode, Thomas F.	C6
Walton, John C.	C74	Wolfe, John P.	A8
Wandless, Thomas J.	C6	Woo, Jacqueline	D49
Wang, Jane L.	A43	Wood, Dwight E.	D20
Wang, Qian	B64	Wood, John L.	A66, C37
Wang, Qingping	A85	Woodward, Eric W.	D15
Wang, Selina C.	D66	Worthy, Amanda D.	B27
Wang, Xiao	D65	Wrobel, Jay	A57
Wang, Xiu	D67	Wrona, Iwona E.	C22
Wangkanont, Kittikhun	D68	Wrona, Mark	A85
Ward, Andrew L.	C30	Wu, H.	D43
Ward, Dale E.	A29, C67	Wu, Junjun	D74

Wu, Justin Y. J.	B18	Young, Douglas D.	D81
Wu, T. Robert	A48	Young, Sherri C.	B31, D82
Wuest, William M.	D75	Yousef, Abraham	C43
Wyatt, Richard	A56	Yox, Jennifer	A19
X		Yu, Sean	C75
Xhang, Zhibin	A2	Yu, Su	D67
Xian, Ming	D75	Yu, Yi	A43
Xie, Chaoyu	C71	Z	
Xie, Hui	A56	Zafiropoulos, Nicholas A.	D83
Xing, Li	A43	Zakarian, Armen	D84
Xu, B.	D43	Zakharov, Lev N.	D23
Xu, Feng	D76	Zhahalyak, Lilia	A60
Xu, Zhongmin	A65	Zhan, Weiqiang	C5
Y		Zhang, Fuyao	D85
Yaldou, Branden	C30	Zhang, Haiming	A45
Yamamoto, Hisashi	A36	Zhang, Tony Y.	D85
Yamamoto, Tetsuya	D77	Zhang, Wei	B33
Yang, Dexi	D78	Zhang, Yan	A43, D86
Yang, Hao	B87	Zhang, Yonghui (Felix)	B33
Yang, Jin-Haek	A11, B66	Zhang, Zhibin	B2
Yang, Xingyi	C10	Zhao, Matthew	D87
Yates, Matthew	B59	Zhao, Rulin	B10
Ye, Qingmei	B44	Zhou, Casey	D67
Yeagley, Andrew A.	A54	Zhu, Junyi	D29
Yennie, Craig	A60	Zificsak, Craig A.	B66
Yoder, Ryan A.	D79	Zigterman, Jamie	D49
Yoon, Richard S. H.	A60	Zou, Yan	D88
Yoon, Tehshik P.	B47, C40	Zweifel, Ben	A43
Youells, Scott	D80		
Young, Douglas	C25		

40th National Organic Chemistry Symposium
General Information/Activities

Information Desk:

The Duke Information Desk, located on the third floor of the Bryan Center is staffed by a by a Duke employee Monday - Friday, 9am - 4pm. University Lost and Found is located at the Bryan Center information desk or at the Duke Police Office.

DukeCards:

All conference attendees will be issued a DukeCard at check in. Your DukeCard is your means of access to your residence hall and other campus buildings and you will be required to show it at every meal. Please carry your DukeCard with you at all times. If you damage or lose your DukeCard, you can obtain a new DukeCard at the conference services office (919-660-1760) while you wait for \$10 (cash only). All conference attendees must return their DukeCard at checkout.

Parking:

Conference participants must park their cars in the blue zone parking lot (please consult Campus Map). Parking passes will be on sale during check-in for \$7 (cash only). Please display your blue zone pass in your vehicle at all times. Motorcycles and other motorized vehicles are not permitted on lawns, walkways, patios, or stairwells. All vehicles must be parked in legal parking spaces. Failure to display a parking permit or parking in areas not permitted will result in parking tickets and/or towing

Computer Access:

The UserID for computer access is "dukeguest". The password changes every Monday morning, so please visit the Bryan Center Information Desk to obtain a current password. Computer clusters are located throughout campus. Locations include:

Bostock Library Main Floor
Edens 1A 109
Edens 2A 208
Perkins Library Basement
Wannamaker 01RA
Bryan Center (several locations)

ATM's:

There are ATMs located on the second floor of the Bryan Center near the student mailboxes.

Dining:

All prepaid conference meals are served in the Great Hall (located in the West Union Building). Additional on-campus dining is available in the Bryan Center and in West Union.

Bryan Center:

Alpine Atrium: M-F 9:00am-5pm; Sat & Sun 9am-3pm

Armadillo Grill: M-F 11am-3pm

McDonald's: M-F 8am-7pm; Sat & Sun 9am-5pm

West Union:

Alpine Bagels: M-F 8am-3pm

Chick-Fil-A: M-F 8am-2pm

The Loop: M-F 11am-3pm

Alcohol/Tobacco:

Legal age for consuming alcohol in the state of North Carolina is 21 years of age. All individuals will abide by North Carolina law, federal law and University regulations regarding intoxicants, narcotics and drugs. Duke University reserves the right to remove from campus conference participants who violate these laws. Smoking is prohibited in all campus buildings.

Firearms:

Firearms, weapons, ammunition, fireworks, explosives, and highly flammable materials are not allowed in campus buildings or on campus grounds.

On-Campus Shopping:

The Duke University Store, located in the Bryan Center, sells a litany of Duke souvenirs, including clothing and accessories. It is open from 8:30am - 5pm Monday-Friday, 10am - 4pm on Saturday, and closed on Sunday. The Lobby Shop, also located in the Bryan Center, sells a limited supply of snack foods, drinks, toiletries, cleaning/laundry supplies, and magazines. Store hours are 8:30am-7pm Monday-Friday, 10am-4pm on Saturday and noon-5pm on Sunday.

Gym Access/Recreation

The Wilson Recreation Center located on West Campus contains a weight room, exercise machines (which face gorgeous plasma screen TVs), basketball courts, racquetball courts, table tennis, an undersized indoor track, and an indoor swimming pool. Equipment for several of these activities (balls, racquets, etc.) is available on site free of charge. Adding gym access to your DukeCard costs an additional \$5 (cash only);

this option will be available during check-in. To add gym access from the Office, make sure to bring your DukeCard with you, and please be advised that access purchased after check-in may take up to 12 hours to take effect. Remember that you only receive four towels and there are no extras at Wilson. Additional facilities available free of charge to conference participants include the football field and the track that circumscribes it (please consult campus map). A nature course is located along the Washington-Duke Inn's Al Buehler Trail.

Gym Hours:

Monday-Thursday: 6am-12 midnight

Friday: 6am-10pm

Saturday: 9am-10pm

Sunday: 12 noon-12 midnight

Pool Hours:

Monday-Thursday: 10:30am-1:30pm; 7pm-9pm

Friday: 10:30am-1:30pm

Saturday and Sunday: 12 noon-5pm

Campus Safety:

All campus emergencies should be reported to Campus Police. Campus Police can be reached from any campus phone by dialing 911. Also, emergency phones that connect directly to the police are located throughout the campus; these phones are recognizable by their blue lights. As on any campus, walking alone after dark is not recommended. On campus, report emergencies to Duke's Campus Police Department at (919) 684-2444.

Recycling:

Recycling bins are located on the 1st floor of every building.

Bicycles:

Bicycles must not be left on sidewalks, stairways, near entryways, or other locations where they may cause harm to persons or to groundskeeping equipment.

Dorm Services:

Conference attendees staying in campus dormitories will be issued a linen pack that includes a pillow, sheets, a blanket, four washcloths, and four towels. As there are no towel "refills," make sure to allot these four accordingly. On check-out day there will be a

linen drop-off point in each building; look for signs directing you to this location. Please separate pillows from bedding/towels as directed. We ask that you leave your dorm room in the same condition that you originally found it. Housekeeping cleans the hallways and bathrooms on a daily basis, Monday through Friday. Please do not leave any of your toiletries or belongings in your hall bathroom when you are not there. To avoid climate control problems with your air-conditioned room, please do not open your windows, as this places strain on your unit and increases the temperature of all surrounding rooms. There are smoke detectors in every dorm room. The alarm will sound when there is an excessive amount of smoke or heat. For your safety, never disconnect your smoke detector! Furniture in the commons rooms and study rooms must remain in those locations. They may not be placed in individual dorm rooms.

Keys:

One room key will be issued to each resident; this key opens the hall bathroom as well. To open the bathroom door, put the key in the bathroom lock, turn, and push the door. If you lose your key, please call the conference services office (919-660-1760) to obtain a new one key. A conference services staff person remains on-call even when the office is closed. If the original key is then found before checkout, no penalty will be assessed. Keys not returned at checkout will be considered lost and you will be charged \$60.

Maintenance:

The conference services office coordinates maintenance for the west campus facilities. To request maintenance service, please call the conference services office at any time at (919) 660-1760. Please report all maintenance problems immediately but be advised that only emergencies will be dealt with outside business hours and all maintenance requests will be handled on a priority basis. Problems or damages resulting from abuse or negligence will be fixed at the resident's expense.

Fire:

Fire extinguishers are located in every hallway. Report all fires to Campus Police by calling 911 from any campus phone. Fires that have been extinguished should still be reported to Campus Police at (919) 684-2444 so that an investigation may be conducted. Residents will be charged for damages caused by fires stemming from neglect. Contact your insurance company immediately should a fire occur.

Personal Property Insurance:

Duke University is not liable for damage, loss, or theft of personal belongings and does not carry insurance to cover such loss or damage. Personal property insurance is a wise investment for more valuable items. Your current homeowner's policy may include such coverage; contact your insurance agent for information.

Phone Service:

Telephones with complimentary local service are provided in every dorm and in a number of campus buildings. There are signs near the dorm entrances directing you to these phones, which are usually located in or around a first floor commons room. Locations include:

EDENS

- 1A—3rd Floor Commons Room
- 1C—1st Floor Commons Room
- 2C—1st Floor Commons Room
- 3A—1st Floor Commons Room

FEW

- House FF—1st Floor near Foyer
- House HH1—Basement near 04

KEOHANE

- 4A—201 Commons Room

BRYAN CENTER

- 3RD Floor near the Center Stairwell

WANNAMAKER

- Basement near 06
- Basement near 07

Laundry Facilities/Vending:

Coin-operated laundry facilities are located in every quad. A small selection of laundry detergents is sold in the Lobby Shop (see *Shopping* for hours). Many laundry rooms contain vending machines as well. Locations of Laundry facilities include:

EDENS

- 1A—through door in a corner *to the left of* main entrance (NOT through main entrance)
- 2C—207L

3B—Room 102V

FEW

FF1—Room FF111

Duke University Attractions

Duke Chapel:

Duke Chapel, the centerpiece of West Campus, is marked by a 210-foot tower (modeled after the Canterbury Cathedral), which houses a 50-bell carillon. There are 77 stained-glass windows depicting some 800 figures. Washington Duke and his sons Benjamin and James are entombed in the Memorial Chapel. In the crypt lie other Duke family members and university leaders. The Duke Memorial Flentrop Organ (built by D.A. Flentrop himself) is cased in solid mahogany and decorated with gold leaf. It is considered one of the finest and largest in the Western Hemisphere. The Chapel is open to visitors Monday through Sunday 8:00 am to 10:00 pm during the academic year (except during student breaks), and 8:00 am to 5:00 pm during the summer. Elevator trips to the Chapel tower are available intermittently. Sunday ecumenical services are held at 10:55 am. The Chapel may be closed to the public during weddings and other special events. Call 684-2572 for tour information.

Duke Forest:

The 8,300-acre Duke Forest is a rare resource dedicated to education, research, and recreation with more than 30 miles of trails and roads open for jogging, walking, horseback riding, or simply enjoying the beauty of unspoiled nature. The Forest is open to the public each day from sunrise to sunset. Public gate entrances are located along Highway 751 (Conference Services can provide directions, but same as Academy Dr. and Cameron Blvd.). Guided tours are not available, but maps may be purchased for \$1.00 each at 214 Biological Sciences 8:00 am - 5:00 pm, Monday - Friday. Please call 613-8013 for more information.

William R. Perkins Library:

The William R. Perkins Library houses over four million volumes in its seven branches and the marine laboratory at Beaufort. It ranks seventh largest among private American university libraries. Special highlights include the Rare Book Room, paneled and furnished in the style of a 17th century English gentleman's library. It contains scarce and valuable items ranging from a pre-1500 B.C. clay tablet to autographed first editions from modern authors. The University Archives is the official repository for printed and written material and photographs that chronicle Duke's past. The main branch of the library is located on the quadrangle to the right of the landmark West Campus Chapel. The library is open during the academic year, Monday-Friday from 8:00 a.m. until midnight, Saturday 9:00 a.m. to 12:00 p.m., and Sunday 10:00 a.m. until midnight.

Summer hours will vary: check with Conference Services or call 684-3009 for more information.

Nasher Museum and Sarah P. Duke Gardens:

See descriptions under "Planned Activities" below.

Cameron Indoor Stadium:

When Cameron Indoor Stadium opened in 1940 it was the largest basketball arena south of Philadelphia. The stadium was renamed in 1972 for Edmund McCullough Cameron, who served as men's basketball coach from 1929-42, football coach from 1942-45 and athletic director twice (1942-45 and 1951-72). The Blue Devils men's and women's basketball teams benefit from Cameron's intimate seating arrangements for slightly more than 9,000 fans, including bleacher-style seats alongside the court reserved for students (nicknamed the Cameron Crazies). The Athletic Department's ticket office is located in the front lobby. Outside the campus-side doors is Krzyzewskiville, where students pitch tents each basketball season to get into big games.

Duke University Medical Center:

The Duke University Medical Center, located on Erwin Road, West Campus, the Medical Center is a health care, training, and research facility. The 1,125-bed hospital treats 484,000 patients annually. The Medical Center incorporates a Comprehensive Cancer Center, an Eye Center, a general clinical research unit and other highly sophisticated research facilities. The nationally known facility is responsible for training 459 medical students and 242 certificate and degree students in nine fields in the health sciences each year. Tours of the Medical Center may be arranged for your group by calling 684-3336.

Duke Center for Living:

Duke Center for Living is a cardiac prevention and rehabilitation program. The medical staff studies heart disease and heart risk factors as well as treats patients on a daily basis. The facility, located at 1300 Morreene Road, includes a clinic building, fitness center, and nutrition center. Tours may be arranged by calling 660-6600.

Local Recreation/Shopping

WASHINGTON DUKE GOLF CLUB:

The golf club and accompanying Inn are located on the Duke University campus, at 3001 Cameron Blvd. The Duke University Golf Club's championship golf course is regarded as one of the top university golf courses in the United States. Originally designed by the late Robert Trent Jones, legendary golf course architect, the course was recently renovated by Jones' son, Rees Jones, who revived his father's masterpiece. The Duke Golf Club course was praised by coaches and golfers alike during our hosting of the NCAA Men's Golf Championships in May 2001. <<http://www.washingtondukeinn.com/golfclub.html>>

HILLANDALE GOLF CLUB:

Located less than ten minutes from the Duke campus, Hillandale Golf Course, originally designed by the legendary Donald Ross, was donated to the Durham community in 1911 through the philanthropic interests of long-time Durham resident John Sprunt Hill. The golf course was moved to its current location in 1960, and was redesigned by George Cobb. Hillandale Golf Course is called the "Granddaddy" of the Research Triangle area, playing an average of 45,000 rounds of golf annually and totaling nearly 1.7 million rounds since 1960. The par-71, 6,339-yard course layout features a user-friendly design, which provides a challenge to players of any skill level. As the oldest course in the Durham area, generations of families have grown up on the Hillandale's friendly fairways. <<http://www.hillandalegolf.com/>>

SOUTHPOINT SHOPPING CENTER:

The Streets at Southpoint is the premier shopping, dining and entertainment destination in the Triangle and was featured as one of the "10 Great Places to Spend It All in One Place" by USA Today. Among the over 140 unique shops and restaurants, The Streets at Southpoint is home to five major department stores including Hudson Belk, Macy's, JC Penney, Sears, and Nordstrom. Plus, the Streets at Southpoint has exciting specialty retail such as Apple Computer, Pottery Barn Kids, Bose, Cole Haan, Swarovski and Coach. One of many fabulous aspects of the center is its unique dining and entertainment options. Main Street, the open-air section of the center, features five superb restaurants: Maggiano's Little Italy, The Cheesecake Factory, Firebirds Rocky Mountain Grill and Rockfish Seafood Grill. After dinner, you'll want to take in a movie at the 16-screen state-of-the-art Southpoint Cinema. The entertainment does not stop

there, many evenings you'll find great local musical and theater talent to enjoy.
<<http://www.streetsatsouthpoint.com/html/index10.asp>>

AL BUEHLER CROSS COUNTRY TRAIL:

The Al Buehler Cross Country Trail is a 3.1 mile gravel running and walking course located around the perimeter of the Washington Duke Golf Course. Although not technically part of the Duke Forest, the trail is maintained by the Office of the Duke Forest as a service to the University and the Durham community. The easiest location to access the trail is at the entryway to the Washington Duke Inn, near the intersection of Cameron Blvd and Science Drive.

<http://www.env.duke.edu/forest/location/maps_downloadable.htm>

NINTH STREET DISTRICT:

Ninth Street is a pedestrian-friendly, old-fashioned shopping neighborhood. Located two blocks from Duke University's East Campus in the Old West Durham neighborhood, Ninth Street offers an exceptional blend of locally-owned specialty shops and restaurants. <<http://www.ninthst.com/>>

BRIGHTLEAF SQUARE HISTORICAL DISTRICT:

Brightleaf Square is located at the corner of Main and Gregson Streets in Downtown Durham, and is easily accessible from all major highways and nearby Duke University. Brightleaf Square occupies the former Watts and Yuille tobacco warehouses, built between 1900 and 1904. The parallel brick buildings with an interior courtyard feature such intricate exterior detail as stringcourses, dentils, pilasters, and elaborate chimneys on the parapet walls of the firewalls. Each building is seven bays wide and twenty bays long; the bays are divided by pilasters on the exterior. The interior of the warehouses was done in post-and-beam construction using two local materials, brick and heart pine timber. The courtyard has been completely redesigned and landscaped, providing a strong visual link between the two buildings without giving the feeling of insularity common to enclosed suburban malls. Restaurants and Retailers face the courtyard providing visitors easy entrance and the ability to window shop while strolling between the buildings. <<http://www.historicbrightleaf.com/>>

FRANKLIN STREET/DOWNTOWN CHAPEL HILL:

With the many restaurants, boutiques and museums, no day in downtown Chapel Hill is typical! Whether you're looking for a casual or a fine-dining restaurant for dinner, a chic

clothing store for that perfect dress, a rockin' live music venue, a relaxing gourmet coffee drink, world renown art or a UNC National Championship T-shirt, Downtown Chapel Hill has it all! Downtown Chapel Hill celebrates the diverse cultures from around the world that are attracted to town through the University of North Carolina and other large employers in the area. Experience cuisines from all over the world at one of our 26 internationally inspired restaurants. If you're searching for authentic or hard-to-find ingredients for a special recipe, visit our Hispanic or Asian markets. Downtown also offers visitors the opportunity to explore the arts, observe the stars and experience renowned dance and musical performances. Enjoy the rich culture of the South and the world beyond in Downtown Chapel Hill.

<<http://www.downtownchapelhill.com/index.php>>

PLANNED ACTIVITIES

SANDHILLS/PINEHURST GOLFING:

DESCRIPTION: Golfing excursion to the Talamore golf resort located in the famous in the Pinehurst/Sandhills areas of North Carolina. Talamore, designed by noted architect Rees Jones, has been recognized as one of the outstanding courses in the Pinehurst area, known for its golfing traditions for over a century. The 7,020 yard course that was ranked in the top five new courses in America upon its opening in 1992 by Golf Digest and the best new golf course in the South, (*Golf Digest*, 1993); voted among the top four courses in North Carolina and the Top 5 New Courses, (*Golf Digest*, 1992) and has on four occasions been listed amongst America's Best Courses (*Golf week*). Golf clubs can be rented for \$40. <<http://www.talamore.com/talamore.asp?id=299&page=6426>>

TOUR INCLUDES:

- 1) transportation
- 2) greens fees
- 3) golf cart

TOUR DURATION: 8 hours

TOUR COST: \$100

DEPARTURE TIME: 7:00 am, Bryan Center

TOUR LIMIT: 25

DURHAM BULLS BASEBALL:

DESCRIPTION: The Durham Bulls with the famous "snorting bull" mascot, was brought to national attention by the 1988 film *Bull Durham*. The Bulls are now the Triple A affiliate of the Tampa Bay Devil Rays and reside in the 10,000-seat Durham Bulls Athletic Park, which opened in 1995. The Bulls play a rare weekday home game versus the Louisville Bats on Monday, June 4 at 1:00. Enjoy an afternoon at the park in a private picnic area with a catered buffet-style lunch.

<<http://www.durhambulls.com/index.html>>

TOUR INCLUDES:

- 1) transportation
- 2) tickets
- 3) private picnic area
- 4) buffet-style lunch

TOUR DURATION: 4-5 hours

TOUR COST: \$30

DEPARTURE TIME: 12:30 p.m.

TOUR LIMIT: 140

MOREHEAD PLANETARIUM:

DESCRIPTION: The Morehead Planetarium and Science Center, one of the largest planetariums in the United States, is located on the north end of the campus of The University of North Carolina at Chapel Hill. The Morehead Center Building and grounds that includes the Star Theater, scientific exhibits, 24-inch Cassegrain reflecting telescope and observation decks, Visitor's Center, art galleries, rose gardens and the massive sundial. Central to the complex is the Star Theater that can seat up to 300 people under a 68-foot diameter dome of perforated, stainless steel. The theater is equipped with a Zeiss Model VI Planetarium Star Projector linked to the MC-10A Media Control System, one of the very few completely automated Zeiss facilities in the world. The system projects some 8,900 fixed stars down to magnitude 6.5, along with 17 star clusters and nebulae. Scattered about the theater are 53 slide projectors for displaying images among the stars, as well as over a hundred special effects. Each year more than 100,000 visitors stream through the Star Theater doors for a schedule of shows including "Destination: Space", which takes audiences on an exhilarating journey from the early pioneering days of the Space Race, through the shuttle and space station programs, to a planned return to the Moon and journey to Mars. It also examines science and technology as well as the roles of humans and robots in space exploration.

<<http://www.moreheadplanetarium.org/>>

TOUR INCLUDES:

- 1) transportation
- 2) admission to the Planetarium including Star Theater

TOUR DURATION: 3 hours

TOUR COST: \$10

TOUR LIMIT: 100

THREE RIVERS PADDLING:

DESCRIPTION: This trip is a unique paddling opportunity within the Triangle Region. In a matter of a few hours it is possible to paddle on six different bodies of water. The Eno, Little, Flat, and Neuse Rivers, Falls Lake, and Ellerbe Creek (not to mention the numerous tiny unnamed creeks). River confluences, hidden coves, tucked away creeks, swampy islands, and open lake create numerous opportunities to explore and view wildlife. Due to the distances and varied "terrain," canoes, touring kayaks, and longer recreational or hybrid kayaks are the most suited boats to explore this area. Waiver required. <<http://www.froghollowoutdoors.com/index.html>>

TOUR INCLUDES:

- 1) transportation to landing
- 2) canoe or hybrid kayak
- 3) guide

TOUR DURATION: 4 hours

TOUR COST: \$30

TOUR LIMIT: 30

DUKE LEMUR CENTER:

DESCRIPTION: The Duke Lemur Center, established in 1966, is the world's largest sanctuary for rare and endangered prosimian primates. The prosimian primates, including the lemurs, lorises, and related animals are the primates that evolved before monkeys and apes, and are representative of the early primates that existed fifty million years ago. At one time they lived in most tropical regions of the planet but today are found in the wild only in restricted parts of Africa and in particular, Madagascar. The lemurs have the most restricted range, being found only on the island of Madagascar and the nearby Comoro Islands. Nestled on 85 acres in Duke Forest, the Lemur Center houses about 250 animals, including 233 lemurs encompassing 15 species, along with lorises from India and Southeast Asia and bushbabies from Africa. The Duke Lemur Center is open to the public by appointment only and all visitors must be on a guided tour led by a staff member or docent. <<http://lemur.duke.edu/>>

TOUR INCLUDES:

- 1) transportation
- 2) admission
- 3) guided tour by trained docent

TOUR DURATION: 1.5 hours

TOUR COST: no charge

TOUR LIMIT: 50

COX MOUNTAIN HIKING:

DESCRIPTION: Located just 20 minutes from east campus the Eno River begins in northwest Orange County, flowing eastward approximately 33 miles. The valley of the river is narrow and steep-walled and the rolling landscape is carved and sculpted by swift-flowing water. Eno River State Park lies here, in the beauty of more than 2,600 acres of natural resources and approximately 21 miles of trails where you can enjoy nature at its best. Begin this hike in the Few's Ford picnic area. The trail passes beside

the picnic area down to the river and crosses the river on a suspension foot bridge. It continues gradually up hill to a sharp northerly turn where it follows the old Hillsborough Coach Road for a short distance and becomes a loop going over the top and around the base of Cox Mountain. The trail climbs 270 feet in elevation from the river to the hill top. A long steep climb and descent is required. After looping the hill, take the trail back to the bridge. In total, the hike is approximately five miles. Bring 2 liters of water to drink, sunglasses, sunscreen and any medications you might require. Waiver required.

<<http://www.enoriver.org/enoparks/ERSP/west.html#cox>>

TOUR INCLUDES:

- 1) transportation
- 2) guide
- 3) snacks and refreshments

TOUR DURATION: 4 hours

TOUR COST: \$20

TOUR LIMIT: 40

NORTH CAROLINA MUSEUM OF ART:

DESCRIPTION: The state's art collection spans more than 5,000 years, from ancient Egypt to the present. The ancient collection includes Egyptian funerary art and important examples of sculpture and vase painting from the Greek and Roman worlds. The collection of European paintings and sculpture from the Renaissance through impressionism is internationally celebrated with important works by Giotto, Sandro Botticelli, Raphael, Anthony van Dyck, Peter Paul Rubens, Antonio Canova and Monet. American art of the 18th and 19th centuries features paintings by John Singleton Copley, Thomas Cole, Winslow Homer, Thomas Eakins and William Merritt Chase. Modern art includes major works by such American artists as Marsden Hartley, Georgia O'Keeffe, Franz Kline, Frank Stella, Jacob Lawrence, Elizabeth Murray and Joel Shapiro. Modern European masters include Ernst Ludwig Kirchner, Paul Delvaux, Henry Moore, Anselm Kiefer and Gerhard Richter. The special exhibition in June will be *Temples and Tombs: Treasures of Egyptian Art from The British Museum* that will present 85 renowned masterworks and seldom-seen treasures from The British Museum's exceptional collection of ancient Egyptian art. Sculpture, relief, papyri, jewelry and cosmetic implements, as well as funerary items in a variety of media, will provide a glimpse of more than 3,000 years of Egyptian history, from the Old Kingdom's Third Dynasty (ca. 2686 BC) to the Roman occupation of the fourth century AD.

<<http://www.ncartmuseum.org/>>

TOUR INCLUDES:

- 1) transportation
- 2) admission to standing collection and special exhibition

TOUR DURATION: 4 hours

TOUR COST: \$10

TOUR LIMIT: 50

SARAH P. DUKE GARDENS

DESCRIPTION: The Sarah P. Duke Gardens, often spoken of as the "Crown Jewel of Duke University," occupies 55 acres in the heart of the University's West Campus, adjacent to Duke University Medical Center. The Gardens are recognized as one of the premier public gardens in the United States, renowned both for landscape design and the quality of horticulture, each year attracting more than 300,000 visitors from all over the world. The Gardens center around a lily pond, stone terraces and a wisteria covered pergola and consists of four major parts: the original Terraces and their immediate surroundings, the H. L. Blomquist Garden of Native Plants (a representation of the flora of the southeastern United States), and the Culberson Asiatic Arboretum (devoted to plants of eastern Asia). There are five miles of allées, walks, and pathways throughout the Doris Duke Center and surrounding gardens. The duration of the docent-led tour is approximately 1.5 hours.

Note that the gardens are also open to the public free of charge from 8:00 am to sundown. <<http://www.hr.duke.edu/dukegardens/>>

TOUR INCLUDES:

- 1) guided tour by a trained docent

TOUR DURATION: 2 hours

TOUR COST: no charge

TOUR LIMIT: 50

NASHER MUSEUM OF ART:

DESCRIPTION: The Nasher Museum of Art holdings consist of 13,000 works of art that is strong in four core areas: medieval and Renaissance art, African art, ancient American (pre-Columbian) art and Classical sculpture. The ancient American holdings are among the largest in the United States, with more than 3,300 objects encompassing nearly every culture of pre-Columbian Latin America, from Mexico to Argentina. The museum's African holdings include the George Harley Collection, a group of 174 masks and ritual objects, some of which were used by the secret Poro Society, the major

political and spiritual governing body in and around modern day Liberia. The Classical collection of objects from Greece, Rome, Etruria, Egypt and Syria covers more than 3,000 years, from 2800 BCE to 300 CE. Included are a representative survey of Greek vase painting, marble sculptural fragments and Roman glass, jewelry and coins. The museum has recently been given an important collection of Greek works ranging from the Cycladic and Mycenaean periods to the classical era. The Brummer Collection of Medieval and Renaissance art numbers about 200 objects and includes sculptures in stone, bronze, wood and ivory. This exceptional collection also contains many architectural fragments, examples of stained glass, leather and textiles and a complete illuminated manuscript. The collection spans the 800s through the 1600s and includes works from throughout Europe.

Note that the museum is also open to the public with a \$5 admission fee Sunday – noon to 5 p.m., Tuesday and Wednesday – 10 a.m. to 5 p.m., and Thursday – 10 a.m. to 9 p.m. <<http://www.nasher.duke.edu/>>

TOUR INCLUDES: guided tour by trained docent

TOUR DURATION: 2 hours

TOUR COST: \$5

TOUR LIMIT: 50