

Gregory B. Dudley, Ph.D.

Associate Professor	Office: 5007 CSL
Department of Chemistry and Biochemistry	Phone: (850) 644-2333
Florida State University	Fax: (850) 644-8281
Tallahassee, FL 32306-4390	Email: gdudley@chem.fsu.edu

Professional Appointments

Florida State University, Tallahassee, FL

- Associate Professor of Organic Chemistry, 2008–present
Raymond Cottrell Family Professor, 2008–2011
- Assistant Professor of Organic Chemistry, 2002–2008
- <http://www.chem.fsu.edu/dudley/index.html>

Sloan-Kettering Institute for Cancer Research, New York, NY

- NIH Postdoctoral Fellow, 2000–2002
- Research Topic: *Total Synthesis of Guanacastepene A*
- *Advisor*: Professor Samuel J. Danishefsky

Education

Massachusetts Institute of Technology, Cambridge, MA

- September 1995 to August 2000
- Ph.D. in Organic Chemistry
- Thesis: *A Total Synthesis of (-)-Ascochlorin*
- *Research Advisor*: Professor Rick L. Danheiser

Florida State University, Tallahassee, FL

- August 1991 to May 1995
- B.A. degree in Chemistry, with Honors - *magna cum laude*
- *Research Advisor*: Professor Martin A. Schwartz

University of Kansas, Lawrence, KS

- June 1994 to August 1994
- NSF Research Experience for Undergraduates Program
- *Research Advisor*: Professor Richard S. Givens

Honors and Awards

- Raymond Cottrell Family Professorship, 2008–2011
- FSU Research Foundation GAP Award, 2008
- FSU Innovator Award, 2007, 2008
- Featured in Tallahassee Magazine, The New Establishment, 2006
- Thieme Publishers Journal Award, 2006
- ORAU Ralph E. Powe Junior Faculty Enhancement Award, 2004
- Research Corporation Research Innovation Award, 2004
- FSU First-Year Assistant Professor Award, 2003
- NIH Postdoctoral Fellowship, 2000–2002
- Bristol-Myers Squibb Predoctoral Fellowship, 1999–2000
- Roche Award for Excellence in Organic Chemistry, 1999
- Boehringer Ingelheim Predoctoral Fellowship, 1997–1998
- MIT Chemistry Outreach Fellowship, 1997

Teaching

- FSU Chemistry Outreach, 2004–present
Initiated and currently serve as faculty mentor for a program in which graduate students visit area high schools, interact with students in the chemistry classes, and perform demonstrations
- Instructor: General Chemistry I, CHM 1045C
Course Description: introductory chemistry course for science majors (2004–2005, 2007)
- Instructor: Honors Organic Chemistry I, CHM 2210
Course Description: undergraduate organic chemistry course for honors students (2007–2008)
- Instructor: Honors Organic Chemistry II, CHM 2211
Course Description: undergraduate organic chemistry course for honors students (2008–2009)
- Instructor: Advanced Organic Chemistry — Reactions, CHM 5226
Course Description: graduate-level course covering important organic reactions (2002–2006)

Research Associates

Postdoctoral Associates

Dr. Jumreang Tummatorn, Ph.D. Chulalongkorn Univ, Thailand, arriving Dec 2009

Graduate Students

David M. Jones, 6th year student (Barry University, Florida)
Jingyue Yang, 5th year student (Tianjin University, China)
Sami Fahd Tlais, 4th year student (Lebanese University, Beirut)
Susana S. Lopez, 4th year student (Barry University, Florida)
Michael R. Rosana, 2nd year student (The College of New Jersey)
Marilda P. Lisboa, 2nd year student (Federal University of Minas Gerais, Brazil)
Tung Thanh Hoang, 1st year student (Vietnam National University, Hanoi)
Rimantas Slegieris, 1st year student (Vilnius University, Lithuania)

Undergraduate Students

Cecelia C. O’Leary, Jan 2008 to present	Matthew W. Mahony, Aug 2009 to present
Claudia R. Avalos, Aug 2008 to present	Lucas P. Paladino, Aug 2009 to present
Sarah B. Schmidt, Aug 2009 to present	

Group Alumni

Graduate students:

Douglas A. Engel, Ph.D. 2009
Mariya V. Kozytska, Ph.D. 2008
Susana S. Lopez, M.S. 2009
Samuel G. Salamone, M.S. 2005
Daniella M. Barker, non-thesis M.S. 2009
Dena R. Hodges, non-thesis M.S. 2008
Ernest O. Nwoye, non-thesis M.S. 2008

Undergraduate students:

Sarah E. House, B.S. Honors 2005
James D. Sunderhaus, B.S. Honors 2003
Maureen K. Reilly, B.S. (Smith) 2008
Shawn M. Amisial, B.S. 2007
Jeananne A. Singletary, B.S. 2004

Postdoctoral and visiting scientists:

Dr. Philip A. Albiniak, 08/2006 – 02/2009
Dr. Jeannie H. Jeong, 08/2007 – 12/2008
Dr. Jumreang Tummatorn, 05/2007 – 05/2008
Dr. Sreenivas Katukojvala, 08/2005 – 07/2006
Dr. Wing C. (Kevin) Poon, 01/2004 – 06/2006
Dr. Shin Kamijo, 01/2004 – 03/2006
Dr. Timothy F. Briggs, 10/2003 – 10/2005
Dr. Hubert T.-C. Lam, 01/2003 – 09/2005

CHM 1051L (honors freshmen) students:

Margaret E. Matthews, Joseph P. Hernandez,
Alyson W. West, Edward F. Kuester

Publications

Dudley Lab Original Research Publications:

- (32) Tlais, S. F.; Clark, R. J.; Dudley, G. B. A striking exception to the chelate model for acyclic diastereocontrol: efficient access to a versatile propargyl alcohol for chemical synthesis. *Molecules* in press. (invited contribution to for special issue on asymmetric synthesis)
- (31) Jones, D. M.; Dudley, G. B. Synthesis of the C1–C15 region of palmerolide A using refined Claisen-type addition / bond cleavage methodology. *Synlett* in press.
- (30) Yang, J.; Dudley, G. B. [1,2]-Anionic rearrangement of 2-benzyloxy pyridine and related pyridyl ethers. *J. Org. Chem.* **2009**, *74*, 7998–8000.
- (29) Engel, D. A.; Dudley, G. B. The Meyer–Schuster rearrangement for the synthesis of α,β -unsaturated carbonyls. *Org. Biomol. Chem.* **2009**, *7*, 4149–4158.
(invited Perspective article)
- (28) Tlais, S. F.; Lam, H.; House, S. E.; Dudley, G. B. New strategies for protecting group chemistry: synthesis, reactivity, and indirect oxidative cleavage of *para*-silylbenzyl (PSB) ethers. *J. Org. Chem.* **2009**, *74*, 1876–1885.
- (27) Lopez, S. S.; Dudley, G. B. Convenient method for preparing benzyl ethers and esters using 2-benzyloxy pyridine. *Beilstein J. Org. Chem.* **2008**, *4*, No. 44; doi:10.3762/bjoc.4.44.
- (26) Tummatorn, J.; Dudley, G. B. Ring opening / fragmentation of dihydropyrones for the synthesis of homopropargyl alcohols. *J. Am. Chem. Soc.* **2008**, *130*, 5050–5051.
- (25) Kozytska, M. V.; Dudley, G. B. On the intramolecular pyrone Diels–Alder approach to basiliolide B. *Tetrahedron Lett.* **2008**, *49*, 2899–2901.
- (24) Engel, D. A.; Lopez, S. S.; Dudley, G. B. Lewis acid-catalyzed Meyer–Schuster reactions: methodology for the olefination of aldehydes and ketones. *Tetrahedron* **2008**, *64*, 6988–6996.
(invited contribution to Symposium in Print special issue)
- (23) Albiniak, P. A.; Amisial, S. M.; Dudley, G. B.; Hernandez, J. P.; House, S. E.; Matthews, M. E.; Nwoye, E. O.; Reilly, M. K.; Tlais, S. F. Stable oxypyridinium triflate (OPT) salts for the synthesis of halobenzyl ethers. *Synth. Commun.* **2008**, *38*, 656–665.
Dedicated to Prof Ken Goldsby for his support of undergraduate research at FSU.
- (22) Tummatorn, J.; Albiniak, P. A.; Dudley, G. B. Synthesis of benzyl esters using 2-benzyloxy-1-methylpyridinium triflate. *J. Org. Chem.* **2007**, *72*, 8962–8964.
- (21) Albiniak, P. A.; Dudley, G. B. Thermally generated phenylcarbenium ions: acid-free and self-quenching Friedel–Crafts reactions. *Tetrahedron Lett.* **2007**, *48*, 8097–8100.
- (20) Yang, J.; Dudley, G. B. Conjugate addition of organocopper reagents in dichloromethane to α,β -unsaturated esters. *Tetrahedron Lett.* **2007**, *48*, 7887–7889.
- (19) Dudley, G. B.; Engel, D. A.; Ghiviriga, I.; Lam, H.; Poon, K. W. C.; Singletary, J. A. Synthesis of dihydro-*epi*-deoxyarteannuin B. *Org. Lett.* **2007**, *9*, 2839–2842.
- (18) Poon, K. W. C.; Albiniak, P. A.; Dudley, G. B. Protection of alcohols using 2-benzyloxy-1-methylpyridinium trifluoromethanesulfonate: methyl (*R*)-(-)-3-benzyloxy-2-methyl propanoate. *Org. Synth.* **2007**, *84*, 295–305.
Title reagent manufactured and marketed by Sigma–Aldrich Chemical Co, catalog #679674
- (17) Lopez, S. S.; Engel, D. A.; Dudley, G. B. The Meyer–Schuster rearrangement of ethoxyalkynyl carbinols. *Synlett* **2007**, 949–953.
- (16) Nwoye, E. O.; Dudley, G. B. A method for the synthesis of *para*-methoxybenzyl (PMB) ethers under effectively neutral conditions. *Chem. Commun.* **2007**, 1436–1437.

- Title reagent manufactured and marketed by Sigma–Aldrich Chemical Co, catalog #701440
- (15) Engel, D. A.; Dudley, G. B. Olefination of ketones using a gold(III)-catalyzed Meyer–Schuster rearrangement. *Org. Lett.* **2006**, *8*, 4027–4029.
 - (14) Kamijo, S.; Dudley, G. B. Cyclic vinylogous triflate hemiacetals as new surrogates for alkynyl aldehydes. *Tetrahedron Lett.* **2006**, *47*, 5629–5632.
 - (13) Kamijo, S.; Dudley, G. B. Tandem nucleophilic addition/fragmentation reactions and synthetic versatility of vinylogous acyl triflates. *J. Am. Chem. Soc.* **2006**, *128*, 6499–6507.
 - (12) Poon, K. W. C.; Dudley, G. B. Mix-and-heat benzylation of alcohols using a bench-stable pyridinium salt. *J. Org. Chem.* **2006**, *71*, 3923–3927.
Featured in *ChemFiles* **2007**, *7*(3), 3.
 - (11) Jones, D. M.; Kamijo, S.; Dudley, G. B. Grignard-triggered fragmentation of vinylogous acyl triflates: synthesis of (*Z*)-6-heneicosen-11-one, the Douglas fir tussock moth sex pheromone. *Synlett* **2006**, 936–938.
 - (10) House, S. E.; Poon, K. W. C.; Lam, H.; Dudley, G. B. *p*-Siletanylbenzylidene acetal: oxidizable protecting group for diols. *J. Org. Chem.* **2006**, *71*, 420–422.
 - (9) Kamijo, S.; Dudley, G. B. Claisen-type condensation of vinylogous acyl triflates. *Org. Lett.* **2006**, *8*, 175–177.
 - (8) Poon, K. W. C.; House, S. E.; Dudley, G. B. A bench-stable organic salt for the benzylation of alcohols. *Synlett* **2005**, 3142–3144.
 - (7) Briggs, T. F.; Dudley, G. B. Synthesis of the floresolide B hydroquinone lactone core using ring-closing metathesis. *Tetrahedron Lett.* **2005**, *46*, 7793–7796.
 - (6) Salamone, S. G.; Dudley, G. B. A ring expansion approach to roseophilin. *Org. Lett.* **2005**, *7*, 4443–4445.
 - (5) Kozytska, M. V.; Dudley, G. B. Siletanylmethylolithium: an ambiphilic organosilane. *Chem. Commun.* **2005**, 3047–3049.
 - (4) Lam, H.; House, S. E.; Dudley, G. B. The *para*-siletanylbenzyl (PSB) ether: a peroxide-cleavable protecting group for alcohols and phenols. *Tetrahedron Lett.* **2005**, *46*, 3283–3285.
 - (3) Kamijo, S.; Dudley, G. B. A tandem carbanion addition/carbon–carbon bond cleavage reaction yields alkynyl ketones. *J. Am. Chem. Soc.* **2005**, *127*, 5028–5029.
 - (2) Singletary, J. A.; Lam, H.; Dudley, G. B. A succinct method for preparing the Stork–Jung vinylsilane Robinson annulation reagent. *J. Org. Chem.* **2005**, *70*, 739–741.
 - (1) Sunderhaus, J. D.; Lam, H.; Dudley, G. B. Oxidation of carbon–silicon bonds: the dramatic advantage of strained siletanes. *Org. Lett.* **2003**, *5*, 4571–4573.

Book Chapters, Reviews, and Other Manuscripts:

- (34) Jones, D. M.; Lisboa, M. P.; Kamijo, S.; Dudley, G. B. Ring opening of cyclic vinylogous acyl triflates using stabilized carbanion nucleophiles: Claisen condensations that break carbon–carbon bonds. *in preparation*.
- (33) Albiniak, P. A.; Dudley, G. B. New reagents for the synthesis of arylmethyl ethers and esters. *submitted*.
(invited *Synlett* Account)
- (IV) Dudley, G. B. 2-Benzyloxy-1-methylpyridinium trifluoromethanesulfonate. In *Electronic Encyclopedia of Reagents for Organic Synthesis*; Paquette, L., Fuchs, P., Crich, D., Molander, G., Eds., John Wiley & Sons: Chichester. DOI: 10.1002/047084289X.rm00906, Article Online Posting Date: September 15, 2008.

- (III) Kozytska, M. V.; Dudley, G. B. Four-membered rings with one silicon, germanium, tin, or lead atom. In *Comprehensive Heterocyclic Chemistry III*; Katritzky, A. R., Ramsden, C. A., Scriven, E. F. V., Taylor, R. J. K., Eds., Elsevier: Oxford, 2008; vol 2, pp 513–554.
- (II) Danheiser, R. L.; Dudley, G. B.; Austin, W. F. Product class 13: alkenylketenes. In *Science of Synthesis: Houben–Weyl Methods of Molecular Transformation*. Bellus, D., Danheiser, R. L., Eds., Thieme: Stuttgart, 2006; Vol. 23, Chapter 13, pp 492–568.
- (I) Austin, W. F.; Kowalczyk, J. J.; Dudley, G. B.; Danheiser, R. L. Product class 7: alkylideneketenes. In *Science of Synthesis: Houben–Weyl Methods of Molecular Transformation*. Bellus, D., Danheiser, R. L., Eds., Thieme: Stuttgart, 2006; Vol. 23, Chapter 7, pp 245–258.

Patents:

- (ii) Dudley, G. B. Reagent for synthesis of para-methoxybenzyl (PMB) ethers and associated methods. U.S. Patent Appl. 11/865,952 (2007).
Licensed from FSU by Sigma–Aldrich Chemical Company.
- (i) Dudley, G. B. Compounds and methods of arylmethylation (benzylation) as protection for alcohol groups. U.S. Patent Appl. 11/399,300 (2006).
Licensed from FSU by Sigma–Aldrich Chemical Company.

Research publications from pre- and post-doctoral studies:

- Mandal, M.; Yun, H.; Dudley, G. B.; Lin, S.; Tan, D. S.; Danishefsky, S. J. Total synthesis of guanacastepene A: a route to enantiomeric control. *J. Org. Chem.* **2005**, *70*, 10619–10637.
- Dudley, G. B.; Danishefsky, S. J.; Sukenick, G. On the use of deuterium isotope effects in chemical synthesis. *Tetrahedron Lett.* **2002**, *43*, 5605–5606.
- Lin, S.; Dudley, G. B.; Tan, D. S.; Danishefsky, S. J. A stereoselective route to guanacastepene A via a surprising epoxidation. *Angew. Chem., Int. Ed.* **2002**, *41*, 2185–2188.
- Tan, D. S.; Dudley, G. B.; Danishefsky, S. J. Synthesis of the functionalized tricyclic skeleton of guanacastepene A: a tandem epoxide opening β -elimination–Knoevenagel cyclization. *Angew. Chem., Int. Ed.* **2002**, *41*, 2188–2191.
- Dudley, G. B.; Tan, D. S.; Kim, G.; Tanski, J. M.; Danishefsky, S. J. Remarkable stereoselectivity in the alkylation of a hydroazulenone: progress towards the total synthesis of guanacastepene. *Tetrahedron Lett.* **2001**, *42*, 6789–6791.
- Dudley, G. B.; Danishefsky, S. J. A four-step synthesis of the hydroazulene core of guanacastepene. *Org. Lett.* **2001**, *3*, 2399–2402.
- Dudley, G. B.; Takaki, K. S.; Cha, D. C.; Danheiser, R. L. Total synthesis of (–)-ascochlorin via a cyclobutenone-based benzannulation strategy. *Org. Lett.* **2000**, *2*, 3407–3410.
- Gee, K. R.; Kueper, L. W., III; Barnes, J.; Dudley, G. B.; Givens, R. S. Desyl esters of amino acid neurotransmitters. Phototriggers for biologically active neurotransmitters. *J. Org. Chem.* **1996**, *61*, 1228–1233.

Financial Support

Current Funding

- 07/2008–06/2011 *New fragmentation reactions and strategies for chemical synthesis*
Source: National Science Foundation
Award (Amount): NSF-CHE 0749918 (\$378,000)

Prior Funding

- 01/2008–12/2008 *Organic Reagents for Current and Future Markets*
Source: FSU Research Foundation
Award (Amount): GAP award (\$46,400)
- 07/2005–06/2008 *Organic Synthesis and Methodology for Roseophilin, A Pharmacologically Active Natural Product*
Source: James and Ester King Biomedical Research Program, Florida Department of Health
Award (Amount): FBRP-DOH, 016272 (\$450,000)
- 01/2004–12/2007 *Ring Expansion Strategies for Preparing Cyclophanes: Concise Syntheses of Roseophilin and Floresolide A*
Source: Research Corporation
Award (Amount): Research Innovation Award, RI1161 (\$35,000)
- 06/2005–08/2007 *An Allene-Centered Pericyclic Reaction Sequence for the Synthesis of the Cyathane Diterpenes*
Source: American Chemical Society, Petroleum Research Fund
Award (Amount): PRF Type G, 42180-G1 (\$35,000)
- 05/2004 *Synthesis of Cytotoxic Cyclophanes: Haouamine A*
Source: Oak Ridge Associated Universities
Award (Amount): Ralph E. Powe Junior Faculty Enhancement Award (\$10,000)
- 05/2003–08/2003 *New Reagents for Organic Synthesis: Strained Silacycles*
Source: FSU Council for Research and Creativity (CRC)
Award (Amount): First Year Assistant Professor Award (\$12,000)

Pending Applications

- 09/2010–08/2015 *Nanoplatforms for cancer cell targeting and imaging*
PI: Hedi Mattoussi (40%), co-PI: Gregory B. Dudley (35%), co-PI: Q.X. Amy Sang (25%)
Source: National Institutes of Health
Award (Total costs): NIH-RFA-CA 09-013 (\$2,914,492)
- 01/2010–12/2014 *Strategies for polyketide synthesis*
PI: Gregory B. Dudley
Source: National Institutes of Health
Award (Total costs): NIH-R01 GM087741 (\$1,464,181)
- 05/2010–04/2013 *Microfluidic device for automated sample preparation of organic reactions*
PI: Michael G. Roper (65%), co-PI: Gregory B. Dudley (35%)
Source: National Science Foundation
Award (Total costs): NSF-CHE 0957274 (\$689,699)

Research Presentations

2009

- University of Toledo, Ohio
- Wayne State University, Detroit, MI
- University of California, Berkeley
- Rigel Pharmaceuticals, San Francisco, CA
- FSU College of Medicine, Tallahassee
- Univ of Southern Mississippi, Hattiesburg
- University of South Florida, Tampa
- Natural Products Gordon Conference
- Innovation Park, Tallahassee, FL
- University of Oregon, Eugene
- Oregon State University, Corvallis
- Berry College, Mt Berry, GA

2008

- BioFine Chemical Process Design Conference, Sanibel Island, FL
- ACS Southeast Meeting, Nashville, TN
- University of Vermont, Burlington
- Schering–Plough Research, Cambridge, MA
- Nanyang Technical University, Singapore
- A*Star Institute of Chemical and Engineering Sciences, Singapore
- National University of Singapore
- Chulabhorn Research Institute, Thailand
- Chulalongkorn Univ, Bangkok, Thailand
- Schering–Plough Research, Kenilworth, NJ
- ACS Florida Meeting, Orlando
- U of British Columbia, Vancouver, Canada
- Simon Fraser University, Burnaby, Canada
- University of Washington, Seattle
- Organic Faculty of Florida Conference
- Texas Christian University, Fort Worth
- University of Texas, Arlington
- U of Texas Southwestern Med Center, Dallas

2007

- Florida State University, Tallahassee
- International Conference on the Chemistry of Antibiotics (ICCA-X), Nashville, TN
- ACS Florida Meeting (FLACS), Orlando
- University of Wisconsin, Milwaukee
- Marquette University, Milwaukee, WI
- ACS National Meeting, Chicago, IL
- University of Pennsylvania, Philadelphia
- University of California, Santa Barbara
- University of California, San Diego

- Emory University, Atlanta, GA
- Tennessee State University, Nashville

2006

- University of Arkansas, Fayetteville
- University of Delaware, Wilmington
- Temple University, Philadelphia, PA
- ACS Southeast Meeting, Augusta, GA
- East Carolina Univ, Greenville, NC
- ACS National Meeting, San Francisco, CA
- Organic Reactions Gordon Conference
- Eli Lilly Pharmaceuticals, Indianapolis, IN
- Florida Section of the ACS (FLACS)
- Organic Faculty of Florida Conference
- Univ of North Florida, Jacksonville
- Vanderbilt University, Nashville, TN
- Austin Peay State Univ, Clarksville, TN
- Merck Research, Rahway, NJ
- Univ of North Carolina, Chapel Hill
- GlaxoSmithKline, RTP, NC
- Duke University, Durham, NC

2005

- Univ of Massachusetts, Amherst
- Smith College, Northampton, MA
- University of Connecticut, Storrs
- University of Houston, TX
- University of Florida, Gainesville
- University of Georgia, Athens
- Gulf Coast Chemistry Conference
- Natural Products Gordon Conference
- University of Alabama, Tuscaloosa
- University of West Florida, Pensacola

2004

- Rutgers University, New Brunswick, NJ
- Barry University, Miami, FL
- Southern University, Baton Rouge, LA
- Kenesaw State University, Kenesaw, GA
- Florida Section of the ACS (FLACS)
- Organic Faculty of Florida Conference

2003

- Florida Institute of Technology
- College of Charleston, SC
- Florida International University, Miami
- University of Miami, FL