

## Gregory B. Dudley, Ph.D.

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<b>Eberly Family Distinguished Professor</b>	and	<b>Department Chair</b>
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West Virginia University		Email: <a href="mailto:gregory.dudley@mail.wvu.edu">gregory.dudley@mail.wvu.edu</a>
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### Professional Appointments

#### West Virginia University, Morgantown, WV

- Chair, C. Eugene Bennett Department of Chemistry 2016–present
  - Eberly Family Distinguished Professor of Chemistry 2016–present
- <https://www.chemistry.wvu.edu/directory/chair-and-leadership/gregory-dudley>

#### Florida State University, Tallahassee, FL

- Professor of Chemistry and Biochemistry 2015–2016
- Associate Department Chair 2012–2016
- Associate Professor of Organic Chemistry 2008–2015
- Raymond Cottrell Family Professor 2008–2012
- Assistant Professor of Organic Chemistry 2002–2008

#### Florida A&M University, Tallahassee, FL

- Graduate Faculty of Pharmacy and Pharmaceutical Sciences 2016

#### University of Ottawa, Canada

- Visiting Professor of Organic Chemistry 2011

### Education and Professional Development

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

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

#### Massachusetts Institute of Technology, Cambridge, MA

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

#### 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-REU (Research Experience for Undergraduates) Program
- *Research Advisor*: Professor Richard S. Givens

## Honors and Awards

- ACS DOC Executive Committee, Member-at-Large, 2019–present
- Brodie Research Innovation Award, 2019–2020
- Eberly Family Distinguished Professorship, West Virginia University, 2016–present
- *Syngenta* Lecturer, Groupe D'Etudes de Chemie Organique 57, Ascain, France, 2016
- *CEM Corporation* Lecturer, Georgia State University, 2015
- *Organic Syntheses* Lecturer, University of New Hampshire, 2012
- Raymond Cottrell Family Professor, 2008–2012
- Highlighted in Florida Trend Magazine, “Person to Watch”, 2010
- FSU Developing Scholar Award, 2010
- FSU Undergraduate Teaching Award, 2010
- FSU Research Foundation GAP Award, 2008
- FSU Innovator Award, 2006, 2007, 2008, 2010, 2012
- 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

## Professional Activities

- Department Chair: Bennett Department of Chemistry, 2016–present  
Responsible for management and leadership direction of the chemistry department in keeping with the mission and vision of WVU.
- ACS DOC Executive Committee, Member-at-Large, 2019–present  
Serve on the Executive Committee for the American Chemical Society Division of Organic Chemistry, with duties including strategic planning and coordination of ACS DOC activities.
- Conference Organizer: Enabling Technology for Reactions and Processes, 2015–2017  
Initiated and coordinated an annual workshop for synthetic and physical organic chemists on modern tools and methods for chemical synthesis. This workshop was part of the Telluride Science Research Center (TSRC) summer conference series in Telluride, CO.
- Professional Member of the AAAS, 2014–present  
American Association for the Advancement of Science
- Member of the ACS, 1996–present  
American Chemical Society
- Associate Chair: FSU Department Curriculum, 2012–2016

Responsible for curriculum design, teaching assignments, instructor supervision, course creation and approval, and other duties.

- Faculty Advisor: FSU Chemistry Outreach, 2004–2013  
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
- Faculty Advisor: FSU Alpha Phi Omega, 2007–2013  
Serve as faculty advisor and mentor for the FSU chapter of Alpha Phi Omega (ΑΦΩ), the national undergraduate service fraternity
- Faculty Advisor: FSU BioDiesel Initiative, 2008–2010  
Served as faculty advisor and mentor for a group of undergraduate students as they built a reactor for converting used fry grease into usable biodiesel fuel for campus vehicles
- Faculty Advisor: FSU ChemPreneurs pilot program, 2009  
Led a ChemPreneur team, comprising a chemistry graduate student and a business school entrepreneur student, in the development of a business plan based on chemical technology

## Classroom Teaching

### *Florida State University*

- Instructor: General Chemistry I, CHM 1045C  
Course Description: introductory chemistry course for science majors (2004–2005, 2007)
- Instructor: Survey of Organic Chemistry, CHM 2200  
Course Description: one-semester organic chemistry for allied health majors (2011–2013)
- Instructor: Organic Chemistry I, CHM 2210  
Course Description: introductory undergraduate organic chemistry course (2010, 2015x2)
- Instructor: Organic Chemistry II, CHM 2211  
Course Description: second-semester undergraduate organic chemistry course (2009)
- 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 course on important organic methodology (2002–2006, 2011)
- Instructor: Synthetic Organic Chemistry, CHM 5250  
Course Description: graduate course on organic reactions and synthesis (2014x2)
- Instructor: Chemical Reactivity — Bioorthogonal Chemistry, CHM 5555  
Course Description: graduate course on a cutting-edge topic in the chemical sciences (2012)

### *University of Ottawa*

- Instructor: Advanced Topics in Organic Chemistry: Alkynes, CHM 8304J (2011)  
Course Description: graduate course on modern alkyne chemistry (2011)

## Research Associates

### *Postdoctoral Associates and Visiting Scientists*

Michael P. Frasso                      Ph.D. 2020 (expected) from University of Pittsburgh

### *Graduate Students*

Harvey Fulo                              4<sup>th</sup> year student, from University of the Philippines  
Alexa Martin                             3<sup>rd</sup> year student, from University of Pittsburgh  
Amir Tavakoli                            2<sup>nd</sup> year student, from Sharif Univ. of Technology, Iran

Bobby Gaston 2<sup>nd</sup> year student, from Franklin & Marshall College  
Kristen Nerbecki 1<sup>st</sup> year student

*Undergraduate Students*

Alex Ziegelmeier 4<sup>th</sup> year WVU student  
Gabriella Wabler 3<sup>rd</sup> year WVU student

*Previous Group Members*

*Former postdoctoral associates:*

Dr. Paratchata “Tae” Batsomboon, 06/2017–12/2019  
Prof. Gaspar Diaz Muñoz, 01/2012–01/2013  
Dr. Jumreang Tummatorn, 12/2009–06/2011  
Dr. Philip A. Albiniaak, 08/2006 – 02/2009  
Dr. Jeannie H. Jeong, 08/2007 – 12/2008

Dr. Sreenivas Katukojvala, 08/2005–07/2006  
Dr. Kevin Wing C. 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

*Former graduate students:*

Ron R. Ramsubhag, Ph.D. 2017  
Alec Morrison, Ph.D. 2017  
Paratchata “Tae” Batsomboon, Ph.D. 2016  
Tung Hoang, Ph.D. 2015  
Rimantas Slegieris, Ph.D. 2015  
Michael R. Rosana, Ph.D. 2014  
Marilda P. Lisboa, Ph.D. 2013  
Jingyue Yang, Ph.D. 2011  
Sami F. Tlais, Ph.D. 2011

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

*Selected former undergraduate students:*

Chelsea Massaro, B.S. Honors 2016  
Apiwat Wangweerawong, B.S. Honors 2011  
Cecelia C. O’Leary, B.S. Honors 2010  
Sarah E. House, B.S. Honors 2005  
James D. Sunderhaus, B.S. Honors 2003  
Andrew Janeczek, B.S. 2016  
Christina Dadich, B.S. 2015  
Taylor Southworth, B.S. 2013  
Colleen Keohane, B.S. 2013  
Rojay Gordon, B.S. 2013  
Janet Simon, B.S. 2012  
Claudia R. Avalos, B.S. 2010  
Shawn M. Amisial, B.S. 2007  
Jeananne A. Singletary, B.S. 2004

*Visiting, exchange, and REU students:*

Chuthamat Duangkamol (RGJ Scholar, 2018-2019), Maria Vidaca (REU 2018), Morgan Vincent (REU 2018), Perez Youmbi (REU 2017), Mélodie Birepinte (2016), Suzan Al-Anwar (2015), Vincent Vedovato (2014), Andrew Royappa (2013), Vitchaphol “Ton” Motaneeyachart (2012), Sanpitcha “Jae” Siangsuebchart (2012), Cristiano Leandro (2012), Teng-wei Wang (2011), Tanit Intaranukulkit (2011), Thitiya “Whan” Patarakosol (2009), Viriya “Joy” Boonmuang (2009), Jumreang Tummatorn (RGJ Scholar, 2007–2008), Maureen K. Reilly (2006)

*CHM 1051L (honors freshmen) students:*

Margaret E. Matthews (2007), Joseph P. Hernandez (2007), Alyson W. West (2008), Edward F. Kuester (2008), James Hoang (2013), Jillian Jones (2013)

### *Student Dissertations and Theses (with type and title)*

- Nicholas Kramer (PhD, 2017) “Reaction discovery using neopentylene-tethered coupling partners: methodology and applications of diene cycloisomerizations.”
- Ron Ramsubhag (PhD, 2017) “Applications of alkynogenic fragmentation products derived from vinylogous acyl triflates.”
- Alec Morrison (PhD, 2017) “Thermal cycloisomerizations of 1,6-enynes for the synthesis of illudinine and other high-value polycyclic aromatic structures.”
- Paratchata “Tae” Batsomboon (PhD, 2016) “Part I: Fragmentation reactions generating acyclic and cyclic alkynes. Part II: A second-generation formal synthesis of palmerolide A.”
- Tung Hoang (PhD, 2015) “Tandem processes involving an alkynogenic fragmentation and applications in sesquiterpene syntheses”
- Rimantas Slegieris (PhD, 2015) “Process improvements in the total chemical synthesis of progesterone, and other synthetic studies”
- Michael R. Rosana (PhD, 2014) “Selective heating of polar solutes in a homogeneous solution: evidence of microwave-specific effects and a method to quantify these effects”
- Marilda P. Lisboa (PhD, 2013) “Formal synthesis of palmerolide A using fragmentation methodology”
- Jingyue Yang (PhD, 2011) “Anionic rearrangement of 2-benzoyloxy pyridine derivatives and a synthetic approach to aldingenin B”
- Sami F. Tlais (PhD, 2011) “I. para-Siletanylbenzyl (PSB) protecting group II. Stereocontrol of 5,5-spiroketal in the synthesis of cephalosporolides H, E, and F”
- David M. Jones (PhD, 2009) “Addition / C–C bond cleavage reactions of vinylogous acyl triflates and their application to natural products synthesis”
- Douglas A. Engel (PhD, 2009) “Organic synthesis and methodology related to the malaria drug artemisinin”
- Mariya V. Kozytska (PhD, 2008) “I. Siletanylmethyl lithium, an ambiphilic siletane. II. Synthetic approach to basiliolide B”
- Susana S. Lopez (MS, 2009) “Methodology for the olefination of aldehydes and ketones via the Meyer-Schuster reaction”
- Samuel G. Salamone (MS, 2005) “A ring expansion approach to roseophilin”
- Chelsea Massaro (BS, Honors 2016) “gem-Dimethylcyclopentane-fused pharmacophores”
- Apiwat Wangweerawong (BS, Honors 2011) “Scope of a novel [1,2]-anionic rearrangement of 2-benzoyloxy pyridine derivatives”
- Cecelia C. O’Leary (BS, Honors 2010) “A novel protocol for the synthesis of aryl Grignard reagents at low heat”
- Sarah E. House (BS, Honors 2005) “para-Siletanylbenzyl: a novel hydroxyl protecting group”

## Publications

### ***Dudley Lab Original Research Publications:*** (undergraduate co-authors underlined)

- Martin, A. C.; Rogers, J. A.; Batsomboon, P.; Morrison, A. E.; Ramsubhag, R.; Popp, B. V.; Dudley, G. B. Benzannulation and hydrocarboxylation methods for the synthesis of a neopentylene-fused analogue of ibuprofen. *Manuscript submitted.*
- (84) Fulo, H. F.; Vincent, M. A.; Stiegman, A. E.; Dudley, G. B. Cooperative application of conventional and microwave heating. *Asian J. Org. Chem.* **2020**, in press.  
<https://onlinelibrary.wiley.com/doi/abs/10.1002/ajoc.202000157>
- (83) Frasso, M. A.; Stiegman, A. E.; Dudley, G. B. International perspectives on microwave heating in organic synthesis. *Kagaku to Kogyo (Chemistry and Chemical Industry)* **2020**, 73, 244–245. (invited contribution to special issue on microwave chemistry)

- (82) McCullough, B. S.; Batsomboon, P.; Hutchinson, K. B.; Dudley, G. B.; Barrios, A. M. Synthesis and PTP inhibitory activity of illudalic acid and its methyl ether, with insights into selectivity for LAR PTP over other tyrosine phosphatases under physiologically relevant conditions. *J. Nat. Prod.* **2019**, *82*, 3386–3393.  
<https://pubs.acs.org/doi/full/10.1021/acs.jnatprod.9b00663>
- (81) Yang, J.; Guo, Y.; Wang, J.; Dudley, G. B.; Sun, K. DFT study on the reaction mechanism and regioselectivity for the [1,2]-anionic rearrangement of 2-benzyloxy pyridine derivatives. *Tetrahedron* **2019**, *75*, 4451–4457.  
<https://www.sciencedirect.com/science/article/pii/S0040402019306787>
- (80) Duangkamol, C.; Batsomboon, P.; Stiegman, A. E.; Dudley, G. B. Microwave heating outperforms conventional heating for a thermal reaction that produces a thermally labile product: Observations consistent with selective microwave heating. *Chem.–Asian J.* **2019**, *14*, 2594–2597.  
<https://onlinelibrary.wiley.com/doi/abs/10.1002/asia.201900625>
- (79) Yang, J.; Hoang, T. T.; Dudley, G. B. Alkynogenic fragmentation. *Org. Chem. Front.* **2019**, *6*, 2560–2569.  
<https://pubs.rsc.org/en/content/articlelanding/2019/qo/c9qo00266a/>
- (78) Fulo, H. F.; Albinia, P. A.; Dudley, G. B. Discussion Addendum for Protection of Alcohols using 2-Benzyloxy-1-methylpyridinium Trifluoromethanesulfonate: Methyl (*R*)-(-)-3-Benzyloxy-2-methyl Propanoate. *Org. Synth.* **2019**, *96*, 124–136.  
<http://orgsyn.org/Content/pdfs/procedures/v96p0124.pdf>
- (77) Hayes, K.; Batsomboon, P.; Chen, W.-C. Becker, A.; Escherich, S.; Yang, Y.; Robart, A. R.; Dudley, G. B.; Geldenhuys, W. J.; Hazlehurst, L. A. Inhibition of the FAD containing ER oxidoreductin 1 (Ero1) protein by EN-460, a strategy for treatment of multiple myeloma. *Bioorg. Med. Chem.* **2019**, *27*, 1479–1488.  
<https://www.sciencedirect.com/science/article/pii/S0968089618318856>
- (76) dos Passos Gomes, G.; Morrison, A. E.; Dudley, G. B.; Alabugin, I. V. Optimizing amine-mediated alkyne-allene isomerization to improve benzannulation cascades: synergy between theory and experiments. *Eur. J. Org. Chem.* **2019**, *2/3*, 512–518.  
(Special Issue: Organic Reaction Mechanisms)  
<https://onlinelibrary.wiley.com/doi/10.1002/ejoc.201801052>
- (75) El Anwar, S.; Laila, Z.; Ramsubhag, R.; Tlais, S.; Safa, A.; Dudley, G.; Naoufal, D. Synthesis and characterization of click-decahydrodecaborate derivatives by the copper(I) catalyzed [3+2] azide-alkyne cycloaddition reaction. *J. Organomet. Chem.* **2018**, *865*, 89–94.  
(Special Issue: Organometallic Chemistry of Boranes and Carboranes)  
<https://www.sciencedirect.com/science/article/pii/S0022328X18300482>
- (74) Dudley, G. B.; Stiegman, A. E. Changing perspectives on the strategic use of microwave heating in organic synthesis. *Chem. Rec.* **2018**, *18*, 381–389.  
<http://onlinelibrary.wiley.com/doi/10.1002/tcr.201700044/abstract>
- (73) Kramer, N. J.; Hoang, T. T.; Dudley, G. B. Reaction discovery using neopentylene-tethered coupling partners: cycloisomerization/oxidation of electron-deficient dienyne. *Org. Lett.* **2017**, *19*, 4636–4639.  
<http://pubs.acs.org/doi/abs/10.1021/acs.orglett.7b02261>
- (72) Morrison, A. E.; Hoang, T. T.; Birepinte, M.; Dudley, G. B. Synthesis of illudinine from dimedone. *Org. Lett.* **2017**, *19*, 858–861.  
<http://pubs.acs.org/doi/abs/10.1021/acs.orglett.6b03887>

- (71) Wu, Y.; Gagnier, J.; Dudley, G. B.; Stiegman, A. E. The “chaperone” effect in microwave-driven reactions. *Chem. Commun.* **2016**, 52, 11281–11283.  
<http://pubs.rsc.org/en/content/articlelanding/2016/cc/c6cc06032c#!divAbstract>
- (70) Ramsubhag, R. R.; Massaro, C. L.; Dadich, C. M.; Janeczek, A. J.; Hoang, T. T.; Mazzio, E. A.; Eyunni, S.; Soliman, K. F. A.; Dudley, G. B. Synthesis of “neoprofen”, a rigidified analogue of ibuprofen, exemplifying synthetic methodology for altering the 3-D topology of pharmaceutical substances. *Org. Biomol. Chem.* **2016**, 14, 7855–7858.  
 (Themed collection: Contemporary Synthetic Chemistry in Drug Discovery)  
<http://pubs.rsc.org/en/content/articlelanding/2016/ob/c6ob01351a>
- (69) Morrison, A. E.; Hrudka, J. J.; Dudley, G. B. Thermal cycloisomerization of putative allenylpyridines for the synthesis of isoquinoline derivatives. *Org. Lett.* **2016**, 18, 4104–4107.  
<http://pubsdc3.acs.org/doi/abs/10.1021/acs.orglett.6b02034>
- (68) Batsomboon, P.; Dudley, G. B. Synthesis of C1-C15 of palmerolide A: tactical advances that can lead to better design strategies for polyketide synthesis. *Tetrahedron Lett.* **2016**, 57, 3757–3759.  
<http://www.sciencedirect.com/science/article/pii/S0040403916308358>
- (67) Hoang, T. T.; Birepinte, M.; Kramer, N. J.; Dudley, G. B. Six-step synthesis of alcyopterosin A, a bioactive illudalane sesquiterpene with a *gem*-dimethylcyclopentane ring. *Org. Lett.* **2016**, 18, 3470–3473.  
<http://pubsdc3.acs.org/doi/abs/10.1021/acs.orglett.6b01665>
- (66) Slegeris, R.; Dudley, G. B. Alternative synthetic approaches to *rac*-progesterone by way of the classic Johnson cationic polycyclization strategy. *Tetrahedron* **2016**, 72, 3666–3672.  
 (Special issue: Tetrahedron Young Investigator Award Symposium in Print)  
<http://www.sciencedirect.com/science/article/pii/S0040402016301739>
- (65) Ramsubhag, R. R.; Dudley, G. B. Orthogonal dual-click diyne for CuAAC and/or SPAAC couplings. *Org. Biomol. Chem.* **2016**, 14, 5028–5031.  
<http://pubs.rsc.org/en/content/articlelanding/2014/ob/c6ob00795c>
- (64) Wright, A. K.; Batsomboon, P.; Dai, J.; Hung, I.; Zhou, H.-X.; Dudley, G. B.; Cross, T. A. Differential binding of rimantadine enantiomers to influenza A M2 proton channel. *J. Am. Chem. Soc.* **2016**, 138, 1506–1509.  
<http://pubs.acs.org/doi/abs/10.1021/jacs.5b13129>
- (63) Ferrari, A.; Hunt, J.; Stiegman, A. E.; Dudley, G. B. Microwave-assisted superheating and/or microwave-specific superboiling (nucleation-limited boiling) of liquids occurs under certain conditions but is mitigated by stirring. *Molecules* **2015**, 20, 21671–21680.  
 (Special Issue: Microwave-Assisted Organic Synthesis)  
<http://www.mdpi.com/1420-3049/20/12/19793>
- (62) Diaz Muñoz, G.; Dudley, G. B. Synthesis of 1,2,3,4-tetrahydroquinolines including angustureine and congeneric alkaloids. *Org. Prep. Proc. Intl.* **2015**, 47, 179–206.  
<http://dx.doi.org/10.1080/00304948.2015.1025012>
- (61) Dudley, G. B.; Richert, R.; Stiegman, A. E. On the Existence of and Mechanism for Microwave-Specific Reaction Rate Enhancement. *Chem. Sci.* **2015**, 6, 2144–2152.  
<http://pubs.rsc.org/en/content/articlelanding/2015/sc/C4SC03372H>
- (60) Rizkallah, R.; Batsomboon, P.; Dudley, G. B.; Hurt, M. The Oncogenic Kinase TOPK/PBK is a Master Mitotic Regulator of C2H2 Zinc Finger Proteins. *Oncotarget* **2015**, 6, 1446–1461.  
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4359306/>

FSU Press Releases:

“Researchers collaborate to identify 'master regulator' in cell division”

<http://medicalxpress.com/news/2015-03-collaborate-master-cell-division.html>

“Working together to unmask 'Enzyme X'”

[http://issuu.com/fsumed/docs/fsu\\_med\\_spring\\_2015\\_final/?e=0](http://issuu.com/fsumed/docs/fsu_med_spring_2015_final/?e=0)

- (59) Chen, P.-K.; Rosana, M. R.; Dudley, G. B.; Stiegman, A. E. Parameters affecting the microwave-specific acceleration of a chemical reaction. *J. Org. Chem.* **2014**, *79*, 7425–7436.  
<http://pubs.acs.org/doi/abs/10.1021/jo5011526>  
Featured in *Chemical and Engineering News* **2014**, *92*, issue 32, 23.  
<http://cen.acs.org/articles/92/i32/Microwaves.html>  
Featured in *Chemistry World*:  
<http://www.rsc.org/chemistryworld/2014/09/debate-over-microwave-specific-heating-rumbles>
- (58) Rosana, M. R.; Hunt, J.; Ferrari, A.; Southworth, T.; Tao, Y.; Stiegman, A. E.; Dudley, G. B. Microwave-Specific Acceleration of a Friedel–Crafts Reaction: Evidence for Selective Heating in Homogeneous Solution. *J. Org. Chem.* **2014**, *79*, 7437–7450.  
<http://pubs.acs.org/doi/abs/10.1021/jo501153r>  
Featured in *Chemical and Engineering News* **2014**, *92*, issue 32, 23.  
<http://cen.acs.org/articles/92/i32/Microwaves.html>  
Featured in *Chemistry World*:  
<http://www.rsc.org/chemistryworld/2014/09/debate-over-microwave-specific-heating-rumbles>  
GEOSET <<http://www.geoset.info/>> video presentations on selective microwave heating:  
<http://goo.gl/jVhVSC>, <http://goo.gl/nbECVU>, <http://goo.gl/o3qN3U>, <http://goo.gl/OdXeY0>
- (57) Gold, B. A.; Batsomboon, P.; Dudley, G. B.; Alabugin, I. V. Alkynyl crown ethers as a scaffold for hyperconjugative assistance in non-catalyzed azide-alkyne click reactions: ion sensing through enhanced transition state stabilization. *J. Org. Chem.* **2014**, *79*, 6221–6232.  
<http://pubs.acs.org/doi/abs/10.1021/jo500958n>
- (56) Lisboa, M. P.; Dudley, G. B. Synthesis of cytotoxic palmerolides. *Chem.–Eur. J.* **2013**, *19*, 16146–16168.  
<http://onlinelibrary.wiley.com/doi/10.1002/chem.201302167/abstract>
- (55) Hoang, T. T.; Dudley, G. B. Synthesis of high-value 1,6-enynes by tandem fragmentation / olefination. *Org. Lett.* **2013**, *15*, 4026–4029.  
<http://pubs.acs.org/doi/abs/10.1021/ol401839e>
- (54) Dudley, G. B.; Stiegman, A. E.; Rosana, M. R. Correspondence on microwave effects in organic synthesis. *Angew. Chem. Int. Ed.* **2013**, *52*, 7918–7923.  
<http://onlinelibrary.wiley.com/doi/10.1002/anie.201301539/abstract>  
A response to the Essay: Kappe, C. O.; Pieber, B.; Dallinger, D. Microwave Effects in Organic Synthesis—Myth or Reality? *Angew. Chem. Int. Ed.* **2013**, *52*, 1088–1094.  
<http://onlinelibrary.wiley.com/doi/10.1002/anie.201204103/full>  
Featured in *Chemical and Engineering News* **2014**, *92*, issue 4, 26–28.  
<http://cen.acs.org/articles/92/i4/Microwave-Chemistry-Remains-Hot-Fast.html>
- (53) Lisboa, M. P.; Jones, D. M.; Dudley, G. B. Formal synthesis of palmerolide A, featuring alkynogenic fragmentation and *syn*-selective vinylogous aldol chemistry. *Org. Lett.* **2013**, *15*, 886–889.  
<http://pubs.acs.org/doi/abs/10.1021/ol400014e>
- (52) Gold, B.; Dudley, G. B.; Alabugin, I. V. Moderating strain without sacrificing reactivity: Design of fast and tunable noncatalyzed alkyne-azide cycloadditions via



- stereoelectronically controlled transition state stabilization. *J. Am. Chem. Soc.* **2013**, *135*, 1558–1569.  
<http://pubs.acs.org/doi/abs/10.1021/ja3114196>
- (51) Tummatorn, J.; Diaz Muñoz, G.; Dudley, G. B. Synthesis of (–)-(R)-angustureine by formal alkynylation of a chiral β-amino ester. *Tetrahedron Lett.* **2013**, *54*, 1312–1314.  
<http://www.sciencedirect.com/science/article/pii/S0040403913000099#>
- (50) Tlais, S. F.; Dudley, G. B. On the proposed structures and stereocontrolled synthesis of the cephalosporolides. *Beilstein J. Org. Chem.* **2012**, *8*, 1287–1292.  
<http://www.beilstein-journals.org/bjoc/single/articleFullText.htm?publicId=1860-5397-8-146>
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**Book Chapters, Reference Works, and Other Manuscripts:**

- (VII) Hoang, T. T.; Dudley, G. B.; Williams, L. J. Fragmentation Reactions. In *Comprehensive Organic Synthesis*, 2<sup>nd</sup> Edition; Molander, G., Knochel, P., Eds.; Elsevier: Oxford, 2014; Vol. 6, Chap. 30, 842–860.
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### **Patents:**

- (ii) Dudley, G. B. Reagent for synthesis of para-methoxybenzyl (PMB) ethers and associated methods. U.S. Patent No. 7,960,553 (2011).  
1 patent, licensed from FSU by Sigma–Aldrich Chemical Company.
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## **Research and Scholarly Presentations**

### **upcoming**

Natural Products Gordon Conference  
International Microwave Power Institute  
IMPI 54 Symposium, Savannah, GA  
University of Arkansas, Fayetteville

### **2019**

181. ACS Southeast Meeting, Savannah, GA  
(Microwave Chemistry Symposium)

### **2018**

180. Japan Society of Electromagnetic Wave Energy Applications (JEMEA) Symposium, Kitakyushu, Japan  
179. Keio University, Tokyo, Japan  
178. EYELA Corp, Tokyo, Japan  
177. Asia-Pacific Microwave Conf., Kyoto, Japan  
176. JSPS 188 Committee, Kyoto, Japan  
175. WVU Health Sciences, Morgantown, WV  
174. Kasetsart University, Bangkok, Thailand  
173. IUPAC Green Chem. Conf., Bangkok, Thailand  
172. National Fed. Sentencing Seminar, Orlando, FL  
171. Yanshan University, Qinhuangdao, China

170. East China University of Science and Technology (ECUST), Shanghai

### **2017**

169. ACS Southeast Meeting, Charlotte, NC  
(Organic Chemistry)  
168. ACS Southeast Meeting, Charlotte, NC  
(Chemistry and the Law)  
167. ACS Southeast Meeting, Charlotte, NC  
(CEM Microwave Chemistry Symposium)  
166. ACS Southwest Meeting, Lubbock, TX  
(Rising Stars in Organic Chemistry)  
165. ACS Southwest Meeting, Lubbock, TX  
(Enabling Techniques for Organic Synthesis)  
164. Youngstown State University, OH  
163. National Fed. Sentencing Seminar, Tampa, FL  
162. TSRC Enabling Technology for Reactions and Processes Conference, Telluride, CO  
161. 18<sup>th</sup> RGJ PhD Congress, Bangkok, Thailand  
160. Chulabhorn Research Institute, Thailand  
159. Chiang Mai University, Thailand  
158. Middle Florida Federal Defenders, Orlando, FL  
157. ACS National Meeting (ORGN), San Fran, CA

156. ACS National Meeting (CHAL), San Fran, CA  
155. ACS National Meeting (ORGN), San Fran, CA  
154. University of Pittsburgh, PA

#### 2016

153. WVU Health Sciences, Morgantown, WV  
152. 57th Groupement d'Etude de Chimie Organique (GECO), Basque Region, Ascain, France  
151. TSRC Enabling Technology for Reactions and Processes Conference, Telluride, CO  
150. West Virginia University, Morgantown  
149. Rensselaer Polytechnic Institute, Troy, NY  
148. Mona Symposium on Natural Products and Medicinal Chemistry, Kingston, Jamaica

#### 2015

147. Pacificchem 2015, Honolulu, HI (*organic*)  
146. Pacificchem 2015, Honolulu, HI (*clean energy*)  
145. TSRC Enabling Technology for Reactions and Processes Conference, Telluride, CO  
144. ACS Florida Meeting, Tampa (*chem ed*)  
143. ACS Florida Meeting, Tampa (*organic*)  
142. Georgia State University, Atlanta  
141. University of California, San Francisco  
140. Rigel Pharmaceuticals, San Francisco  
139. Auburn University, AL  
138. Rutgers University, Piscataway, NJ

#### 2014

137. University of Kansas, Lawrence  
136. North Carolina Federal Defenders, Raleigh, NC  
135. CEM Corporation, Matthews, NC  
134. University of North Carolina, Greensboro  
133. Wake Forest University, Winston-Salem, NC  
132. University of California, Merced  
131. Utah State University, Logan  
130. Brigham Young University, Provo, UT  
129. Cubist Pharmaceuticals, Lexington, MA  
128. Ensemble Pharmaceuticals, Cambridge, MA  
127. TSRC Accelerating Reaction Discovery Conference, Telluride, CO  
126. Natural Products Gordon Conference  
125. Organic Reactions Gordon Conference  
124. National Federal Defenders Convention, Cleveland, OH  
123. Florida Heterocyclic Conference, Gainesville  
122. Florida State University, Tallahassee

#### 2013

121. Lebanese University, Beirut  
120. University of New Mexico, Albuquerque  
119. New Mexico State University, Las Cruces  
118. University of South Alabama, Mobile

117. University of West Florida, Pensacola

#### 2012

116. Max Plank Institute, Potsdam, Germany  
115. University of Hannover, Germany  
114. Technical University, Dortmund, Germany  
113. Louisiana State University, Baton Rouge  
112. Notre Dame University, South Bend, IN  
111. University of Chicago, IL  
110. University of Illinois, Chicago  
109. University of New Hampshire, Durham  
108. Dartmouth College, Hanover, NH  
107. University of the South, Sewanee, TN  
106. University of Tennessee, Knoxville  
105. Middle Tenn State Univ, Murfreesboro, TN  
104. ACS National Meeting, Philadelphia, PA  
103. ACS National Meeting, Philadelphia, PA  
102. ACS Florida Meeting, Tampa  
101. Organic Faculty of Florida Conference  
100. FAMU-FSU Engineering, Tallahassee  
99. FSU Biomedical Sciences Symposium

#### 2011

98. University of Virginia, Charlottesville  
97. Univ of Mary Washington, Fredericksburg, VA  
96. ACS Southeast Meeting, Richmond, VA  
95. NanoFlorida Conference, Miami, FL  
94. University of Houston, TX  
93. University of Texas, San Antonio  
92. University of Minnesota, Twin Cities  
91. University of Minnesota, Duluth  
90. North Dakota State University, Fargo  
89. NSERC-CREATE Program, Ottawa, Canada  
88. University of Ottawa, Canada  
87. Florida Heterocyclic Conference, Gainesville

#### 2010

86. Federal University of Ouro Preto, Brazil  
85. Federal University of Minas Gerais, Brazil  
84. Federal University of Fluminense, Brazil  
83. Federal University of Rio de Janeiro, Brazil  
82. UNICAMP, Campinas, Brazil  
81. University of Sao Paulo, Brazil  
80. Sunrise Rotary Club, Tallahassee, FL  
79. Tallahassee Economic Develop. Council, FL

#### 2009

78. University of Toledo, Ohio  
77. Wayne State University, Detroit, MI  
76. University of California, Berkeley  
75. Rigel Pharmaceuticals, San Francisco, CA  
74. FSU College of Medicine, Tallahassee  
73. Univ of Southern Mississippi, Hattiesburg

72. University of South Florida, Tampa
71. Natural Products Gordon Conference
70. Innovation Park, Tallahassee, FL
69. University of Oregon, Eugene
68. Oregon State University, Corvallis
67. Berry College, Mt Berry, GA

#### 2008

66. BioFine Chemical Process Design Conference, Sanibel Island, FL
65. ACS Southeast Meeting, Nashville, TN
64. University of Vermont, Burlington
63. Schering–Plough Research, Cambridge, MA
62. Nanyang Technical University, Singapore
61. A\*Star Institute of Chemical and Engineering Sciences, Singapore
60. National University of Singapore
59. Chulabhorn Research Institute, Thailand
58. Chulalongkorn Univ, Bangkok, Thailand
57. Schering–Plough Research, Kenilworth, NJ
56. ACS Florida Meeting, Orlando
55. U of British Columbia, Vancouver, Canada
54. Simon Fraser University, Burnaby, Canada
53. University of Washington, Seattle
52. Organic Faculty of Florida Conference
51. Texas Christian University, Fort Worth
50. University of Texas, Arlington
49. U of Texas Southwestern Med Center, Dallas

#### 2007

48. Florida State University, Tallahassee
47. International Conference on the Chemistry of Antibiotics (ICCA-X), Nashville, TN
46. ACS Florida Meeting, Orlando
45. University of Wisconsin, Milwaukee
44. Marquette University, Milwaukee, WI
43. ACS National Meeting, Chicago, IL
42. University of Pennsylvania, Philadelphia
41. University of California, Santa Barbara
40. University of California, San Diego
39. Emory University, Atlanta, GA
38. Tennessee State University, Nashville

#### 2006

37. University of Arkansas, Fayetteville
36. University of Delaware, Wilmington
35. Temple University, Philadelphia, PA
34. ACS Southeast Meeting, Augusta, GA
33. East Carolina Univ, Greenville, NC
32. ACS National Meeting, San Francisco, CA
31. Organic Reactions Gordon Conference
30. Eli Lilly Pharmaceuticals, Indianapolis, IN
29. ACS Florida Meeting, Orlando
27. Organic Faculty of Florida Conference
27. Univ of North Florida, Jacksonville
26. Vanderbilt University, Nashville, TN
25. Austin Peay State Univ, Clarksville, TN
24. Merck Research, Rahway, NJ
23. Univ of North Carolina, Chapel Hill
22. GlaxoSmithKline, RTP, NC
21. Duke University, Durham, NC

#### 2005

20. Univ of Massachusetts, Amherst
19. Smith College, Northampton, MA
18. University of Connecticut, Storrs
17. University of Houston, TX
16. University of Florida, Gainesville
15. University of Georgia, Athens
14. Gulf Coast Chemistry Conference
13. Natural Products Gordon Conference
12. University of Alabama, Tuscaloosa
11. University of West Florida, Pensacola

#### 2004

10. Rutgers University, New Brunswick, NJ
9. Barry University, Miami, FL
8. Southern University, Baton Rouge, LA
7. Kennesaw State University, Kennesaw, GA
6. ACS Florida Meeting, Orlando
5. Organic Faculty of Florida Conference

#### 2003

4. Florida Institute of Technology, Melbourne
3. College of Charleston, SC
2. Florida International University, Miami
1. University of Miami, FL

## Financial Support

### Current Funding

- 08/2017–07/2020 *Dielectric Loss Processes and Microwave Effects on Reactions in Homogeneous Solutions*

Source: National Science Foundation

Award (Amount): NSF-CHE 1665029 (\$470,000 total; \$382,432 direct)



WVU subcontract: \$221,750 total; \$154,500 direct

Role: co-PI (50%); PI: Al Stiegman (50%)

- 07/2018–06/2020 *Experimental therapeutics synthesis collaborative*  
Source: The Estate of Dr. William Price Bittinger  
Award (Amount): WVU-SOM Foundation (\$96,626 total; \$96,626 direct)  
Role: PI; co-PI: Paul Lockman
- 05/2019–05/2020 *Neopentylene-based synthetic building blocks for organic and medicinal chemistry*  
Source: Don and Linda Brodie Resource Fund for Innovation, WVU  
Award (Amount): \$38,000 direct  
Role: PI (50%); co-PI: Brian Popp (50%)

### Pending Funding

- 05/2020–05/2021 *Chemical synthesis for future pharmaceuticals based on illudalic acid*  
Source: Don and Linda Brodie Resource Fund for Innovation, WVU  
Award (Amount): \$50,000 direct  
Role: PI (90%); co-PI: Justin Legleiter (10%)
- 08/2020–07/2022 *Illudalic acid as a potential chemotherapeutic agent*  
Source: WV INBRE Center for Natural Products Research  
Award (Amount): \$91,200 total; \$60,000 direct  
Role: PI (80%); co-Is: Justin Legleiter (10%) and Aaron Robart (10%)
- 08/2020–07/2022 *Design and synthesis of phosphatase inhibitors as potential chemotherapeutics for chronic disease*  
Source: WV INBRE Chronic Disease Research Program (CDRP)  
Award (Amount): \$91,200 total; \$60,000 direct  
Role: PI (90%); co-I: Justin Legleiter (10%)

### Prior Funding

- 09/2013–09/2018 *Synthesis of high-value alkynes*  
Source: National Science Foundation  
Award (Amount): NSF-CHE 1300722 (\$450,000 total; \$336,615 direct)  
Role: PI (80%); co-PI: Igor Alabugin (20%)
- 07/2011–08/2013 *New fragmentation reactions and strategies for chemical synthesis*  
Source: FSU Research Foundation  
Award (Amount): FSU-BRIDGE (\$84,814)  
Role: PI
- 07/2008–06/2011 *New fragmentation reactions and strategies for chemical synthesis*  
Source: National Science Foundation  
Award (Amount): NSF-CHE 0749918 (\$378,000 total; \$272,677 direct)  
Role: PI
- 05/2011–08/2011 *Microwave-actuated organic reagents*  
Source: FSU Committee on Faculty Research Support (COFRS)  
Award (Amount): Faculty Summer Awards (\$14,000)  
Role: PI
- 04/2010–03/2011 *Developing scholar award*  
Source: FSU Council on Research Creativity (CRC)  
Award (Amount): Developing Scholars 2010 Award (\$10,000)  
Role: PI
- 01/2008–12/2008 *Organic Reagents for Current and Future Markets*

- Source: FSU Research Foundation  
Award (Amount): GAP award (\$46,400)  
Role: PI
- 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 total; \$429,618 direct)  
Role: PI
  - 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)  
Role: PI
  - 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)  
Role: PI
  - 05/2004 *Synthesis of Cytotoxic Cyclophanes: Haouamine A*  
Source: Oak Ridge Associated Universities  
Award (Amount): Ralph E. Powe Junior Faculty Enhancement Award (\$10,000)  
Role: PI
  - 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)  
Role: PI

## Expert Witness and Legal Consulting

### **Representative Reports:**

- *Brief Of Expert Forensic Scientists As Amici Curiae In Support Of Petitioner Stephen McFadden* (Stephen Dominick McFadden v. United States of America)
  - Amicus Brief to the Supreme Court of the United States
  - Counsel of Record: Prof. Gerald M. Finkel, Charleston School of Law  
<http://supremecourtreview.com/pdfs/Nt4MXYEHAhbo.pdf>
- *Opinion testimony before the US Sentencing Commission*
  - Corresponding oral testimony at the public hearing on April 18, 2017 available at: <https://www.ussc.gov/policymaking/meetings-hearings/public-hearing-april-18-2017>
- *Opinion testimony on synthetic cathinones for the public hearing on October 4, 2017*
  - Oral testimony available at: <https://www.ussc.gov/policymaking/meetings-hearings/public-hearing-october-4-2017>
- *Scientific analysis and opinion on the “substantially similar” standard for Prong One of the definition of Controlled Substance Analogues*
- *Scientific considerations relevant to the Analogue statute*
- *Sentencing guideline considerations for synthetic cannabinoids*

- *Sentencing guideline considerations for methylone*
- *Is dibutylone a “positional isomer” of pentylone?*
- *Structural analysis of PB-22 as a possible analogue of JWH-018*
- *The chemical structure of AB-Pinaca and its status as a possible controlled substance analogue of ADB-Pinaca*
- *Expert opinion [on] the comparative pharmacology of JWH-018 and XLR-11*
- *Expert opinion [on] the comparative pharmacology of AB-FUBINACA and FUB-AMB*
- *Expert opinion [on] the comparative pharmacology of AM-694 and AM-2233*
- *Comparative analysis of JWH-018, UR-144, and XLR-11 (5F-UR-144)*
- *Summary of scientific opinion on chemical structures*

### ***Expert Witness Experience:***

40. United States Federal Court, District of Nevada, Las Vegas, 2020-01-10  
Case 2:15-cr-00285-APG-GWF: *Sentencing hearing for a criminal proceeding*  
Defendant: Burton Ritchie  
Provided expert testimony and opinion on the chemical structure and sentencing guideline considerations for synthetic cannabinoid substances including XLR-11.
39. United States Federal Court, Middle District of Florida, Tampa, 2019-08-27  
Case 8:13-cr-00269-JDW-CPT: *Sentencing hearing for a criminal proceeding*  
Defendant: Mobashar Z. Tahir  
Provided expert testimony and opinion on the chemical structures of synthetic cannabinoids including JWH-018, UR-144, and XLR-11 for considerations relevant to regulatory controls of controlled substances and controlled substance analogues.
38. United States Federal Court, Northern District of New York, Albany, 2019-08-20  
Case 1:18-cr-00150-GLS: *Sentencing hearing for a criminal proceeding*  
Defendant: Mansoor A. Ghaleb  
Provided expert testimony and opinion on the chemistry, pharmacology, and sentencing guideline considerations for synthetic cannabinoids including AMB-FUBINACA (aka FUB-AMB) compared to actual marijuana and THC.
37. United States Federal Court, District of Nevada, Las Vegas, 2019-06-26  
Case 2:15-cr-00285-APG-GWF: *Criminal trial by jury*  
Defendant: Burton Ritchie  
Provided expert testimony and opinion on the chemical structure of synthetic cannabinoid substances including XLR-11, which was alleged to be a Controlled Substance Analogue of JWH-018.
36. United States Federal Court, Southern District of Florida, Miami, 2018-12-12  
Case 1:17-CR-20904-Ungaro/O’Sullivan: *Sentencing hearing for a criminal proceeding*  
Defendant: Danny Rodriguez  
Provided expert testimony and opinion on the chemistry and pharmacology of synthetic cannabinoids including ADB-FUBINACA as compared to actual marijuana and THC.
35. United States Federal Court, Northern District of Georgia, Gainesville, 2018-10-10  
Case 2:16-CR-032-03-RWS: *Sentencing hearing for a criminal proceeding*  
Defendant: Lora Pace  
Provided expert testimony and opinion on the preparation, composition, molecular structure and pharmacology, and effects on the central nervous system of the synthetic cannabinoids

- XLR-11, AB-CHMINACA, and FUB-AMB as ingredients of “synthetic marijuana” (aka smokeable synthetic cannabinoids) as compared to actual marijuana and THC.
34. United States Federal Court, Middle District of Florida, Jacksonville, 2018-09-28  
Case 3:17-cr-00086-TJC-JRK: *Evidentiary Daubert-type hearing for a criminal proceeding*  
Defendant: Kevin Clark  
Provided expert testimony and opinion on the chemical structure, molecular pharmacology, and stimulant effects of MPHP as related to other stimulants including pyrovalerone,  $\alpha$ -PVP, cocaine, and methamphetamine in connection to criminal indictment under the Controlled Substance Analogue Enforcement Act.
33. United States Federal Court, Eastern District of California, Fresno, 2018-06-28  
15-cr-101-DAD: *Criminal trial by jury*  
Defendant: Douglas Jason Way  
Provided expert testimony and opinion on the chemical structure of synthetic cannabinoid substances including XLR-11, which was alleged to be a Controlled Substance Analogue of JWH-018.
32. United States Federal Court, Northern District of Texas, Dallas, 2018-06-18  
Case 3:14-cr-00298-M: *Daubert hearing for expert witnesses in a criminal proceeding*  
Defendant: Gas Pipe, Inc.  
Provided expert testimony and opinion on the synthetic cannabinoid substances AM-2201, XLR-11, JWH-250, and PB-22, which were alleged to be Controlled Substance Analogues of JWH-018; 5F-PB-22 and THJ-2201, which were alleged to be Controlled Substance Analogues of AM-2201; and FUB-PB-22, which was alleged to be a Controlled Substance Analogue of 5F-PB-22.
31. United States Federal Court, Middle District of Florida, Orlando, 2018-01-24  
6:17-CR-165-Orl-40KRS-Byron: *Criminal trial by jury*  
Defendant: Jeremy Achey  
Provided expert testimony and opinion on the chemical structure of synthetic substances including 4-AcO-DMT and tetrahydrofuranlyl fentanyl, which were alleged to be Controlled Substance Analogues of psilocin and fentanyl, respectively.
30. United States Federal Court, Northern District of Texas, Dallas, 2017-12-21  
Case 3:16-CR-00419-Fitzwater: *Sentencing hearing for a criminal proceeding*  
Defendant: Gabrielle Armstrong  
Provided expert testimony and opinion on the chemical structure of *N*-ethylpentylone (a structural analogue of pentylone) and its putative pharmacological effects (based on the structure-activity relationship in medicinal chemistry) relative to substances referenced in the Sentencing Guidelines for the purposes of sentencing considerations.
29. United States Sentencing Commission, Washington, DC, 2017-10-04  
Review of Sentencing Guidelines: *Public hearing on synthetic cathinones*  
Provided invited written opinion report and oral testimony on revisions to the Guidelines being considered in light of emerging synthetic cathinone drugs of abuse. Testimony included recommendations for specific and categorical coverage of cathinone drugs. Written report and video of panel testimony and discussion (Panel 3) available at the link provided below:  
<https://www.ussc.gov/policymaking/meetings-hearings/public-hearing-october-4-2017>
28. United States Sentencing Commission, Washington, DC, 2017-04-18  
Review of Sentencing Guidelines: *Public hearing on synthetic drugs*

Provided invited written opinion report and oral testimony on revisions to the Guidelines being considered in light of emerging synthetic drugs of abuse. Testimony included recommendations for improving the consistency and clarity of the Guidelines and for the addition of new synthetic cannabinoid and cathinone substances. Written report and video of panel testimony and discussion (Panel 5) available at the link provided below:

<http://www.ussc.gov/policymaking/meetings-hearings/public-hearing-april-18-2017>

27. United States Federal Court, Northern District of West Virginia, Clarksburg, 2017-03-27  
Case 1:16-cr-00065-IMK-JES: *Daubert hearing for experts in a criminal proceeding*  
Defendant: Graziano  
Prepared expert testimony and opinion on the chemical structures of synthetic substances including UR-144, XLR-11, AB-FUBINACA, STS-135, and FUB-PB-22, which were alleged to be Controlled Substance Analogues (*plea agreement reached prior to hearing*).
26. United States Federal Court, District of Kansas, Topeka, 2017-03-07  
Case 5:14-cr-40005-DDC: *Criminal trial by jury*  
Defendant: Craig Broombaugh  
Provided expert testimony and opinion on the chemical structure of synthetic cannabinoid, cathinone, and amphetamine substances including JWH-122, AM-2201, JWH-210, MAM-2201, JWH-081, RCS-4, JWH-250, UR-144, XLR-11, MePPP, MXE, 5-MeO-DALT, pentedrone, 4-FMC, and 4-FA, which were alleged to be Controlled Substance Analogues.
25. United States Federal Court, Southern District of Florida, West Palm Beach, 2017-01-31  
Case 2:16-14002-CR-Rosenberg: *Sentencing hearing for a criminal proceeding*  
Defendant: Julius Reason  
Provided expert testimony and opinion on the chemical structures of ethylone and dibutylone, the putative pharmacological effects of ethylone, and their respective similarities and differences with respect to substances referenced in the Sentencing Guidelines for the purposes of sentencing considerations.
24. United States Federal Court, Eastern District of Virginia, Norfolk, 2017-01-19  
Case 4:15-cr-0018-Jackson: *Criminal trial by jury (re-trial after hung jury in October)*  
Defendant: Burton Ritchie  
Provided expert testimony and opinion on the chemical structure of synthetic cannabinoid substances including UR-144 and XLR-11, which were alleged to be Controlled Substance Analogues of JWH-018.
23. United States Federal Court, Eastern District of Virginia, Norfolk, 2016-10-14  
4:15-cr-0018-Jackson: *Criminal trial by jury*  
Defendant: Burton Ritchie  
Provided expert testimony and opinion on the chemical structure of synthetic cannabinoid substances including UR-144 and XLR-11, which were alleged to be Controlled Substance Analogues of JWH-018.
22. United States Federal Court, District of New Jersey, 2016-10-13  
Case 2:14-cr-00186-KSH: *Sentencing hearing for a criminal proceeding*  
Defendant: Pedro Arroyo  
Provided expert testimony and opinion on the chemical structure, pharmacological effects, and potency of the controlled substance, methylenedioxymethcathinone (methylyone).
21. United States Federal Court, Middle District of Florida, Orlando, 2016-09-14  
6:16-cr-00024-GAP-DAB: *Criminal trial by jury*  
Defendant: Jason Phifer

Provided expert testimony and opinion on the chemical structures of butylone and ethylone as to whether or not ethylone qualifies as a positional isomer of butylone based on various definitions of the term “positional isomer”.

20. United States Federal Court, Middle District of Florida, Tampa, 2016-07-15  
Case 8:15-cr-00410-JDW-TBM: *Sentencing hearing for a criminal proceeding*  
Defendant: Omar Zeidan Zeidan  
Provided expert testimony and opinion on the preparation, chemical structure, molecular pharmacology, and effects on the central nervous system of the synthetic cannabinoids XLR-11 and AB-FUBINACA as ingredients of so-called “synthetic marijuana” or “Spice” as compared to actual marijuana and THC.
19. United States Federal Court, Southern District of Florida, West Palm Beach, 2016-05-20  
Case 2:15-80068-CR-Rosenberg: *Sentencing hearing for a criminal proceeding*  
Defendant: Kevin Raphael Bully  
Provided expert testimony and opinion on the chemical structures of controlled substances methylenedioxyethcathinone (MDEC, ethylone) and  $\alpha$ -pyrrolidinovalerophenone ( $\alpha$ -PVP) and their respective similarities and differences with respect to substances referenced in the Guidelines Manual for the purposes of sentencing considerations.
18. United States Federal Court, Middle District of Florida, Tampa, 2016-05-18  
Case 8:15-cr-00064-CEH-TBM: *Sentencing hearing for a criminal proceeding*  
Defendant: Saher Abdullah  
Provided expert testimony and opinion on the preparation, molecular pharmacology, and pharmacological effects of so-called “synthetic marijuana” containing the controlled substance XLR-11 as compared to marijuana and THC.
17. United States Federal Court, District of New Mexico, Santa Fe, 2016-05-10  
Case 1:12-cr-001766 MCA: *Daubert hearing for expert witnesses in a criminal proceeding*  
Defendant: Hussein Al-Omari  
Prepared expert testimony and opinion on the chemical structure and pharmacological effects of synthetic substances including AM-2201, UR-144, 4-MEC, and  $\alpha$ -PVP, which were alleged to be Controlled Substance Analogues (*charges dropped prior to hearing*).
16. United States Federal Court, Middle District of Florida, Ft. Myers, 2016-03-28  
Case 2:15-cr-00004-SPC-CM: *Sentencing hearing for a criminal proceeding*  
Defendant: Travis Riddle  
Provided expert testimony and opinion on the controlled substance dimethyltryptamine (DMT): extraction from natural sources, methods of abuse, and pharmacological effects
15. United States Federal Court, District of Utah, Salt Lake City, 2016-02-29  
Case 2:13-cr-00780-CW-DBP: *Daubert hearing for experts in a criminal proceeding*  
Defendant: Muhammad Mansoor  
Prepared expert testimony and opinion on the chemical structure and pharmacological effects of synthetic substances including AM-2201, JWH-122, MAM-2201, UR-144, XLR-11, and 5-MeO-DALT, which were alleged to be Controlled Substance Analogues (*charges dropped at the start of the hearing*).
14. United States Federal Court, Southern District of Florida, West Palm Beach, 2015-12-11  
Case 2:15-cr-14034-DMM: *Sentencing hearing for a criminal proceeding*  
Defendant: Saiful Hossain

- Provided expert testimony and opinion on molecular pharmacology and pharmacological effects of so-called “synthetic marijuana” containing the controlled substance XLR-11 as compared to marijuana and THC
13. State of Florida 15<sup>th</sup> Judicial Circuit, Palm Beach County, 2015-11-05  
Case No. 2013CF009053BMB: *Criminal trial by jury*  
Defendant: William Sands  
Provided expert testimony and opinion on substances alleged to be synthetic marijuana, and on the forensic detection and analysis of the controlled substance PB-22
  12. United States Federal Court, Southern District of Florida, Miami, 2015-10-23  
Case 2:15-20350-CR: *Sentencing hearing for a criminal proceeding*  
Defendant: Mario Malespin  
Provided expert testimony and opinion on the chemical structure, pharmacological effects, and potency of the controlled substance, methylenedioxyethcathinone (MDEC, ethylone)
  11. United States Federal Court, District of New Mexico, Albuquerque, 2015-07-07  
Case 1:13-cr-00571-MCA: *Daubert hearing for expert witnesses in a criminal proceeding*  
Defendant: Nathan Coccimiglio  
Provided expert testimony and opinion on synthetic cannabinoid substances including AM-2201, AM-694, JWH-250, UR-144, and XLR-11, which were alleged to be Controlled Substance Analogues of JWH-018
  10. United States Federal Court, Middle District of Florida, Tampa, 2015-05-05  
Case 8:14-cr-00409-CEH-TBM: *Sentencing hearing for a criminal proceeding*  
Defendant: Wagner Cruz  
Provided expert testimony and opinion on the chemical structure, pharmacological effects, and potency of the controlled substance, methylenedioxyethcathinone (MDEC, ethylone)
  9. United States Federal Court, Middle District of Florida, Ft. Myers, 2015-04-28  
Case 2:14-CR-79-FIM-38DNF: *Sentencing hearing for a criminal proceeding*  
Defendant: Ferenc Palfalvi  
Provided expert testimony and opinion on the chemical structure, pharmacological effects, and potency of the controlled substance, methylenedioxyethcathinone (MDEC, ethylone)
  8. United States Federal Court, Middle District of Florida, Tampa, 2015-01-27  
Case 8:14-cr-00387-VMC-TBM: *Sentencing hearing for a criminal proceeding*  
Defendant: Donald Reche Caldwell  
Provided expert testimony and opinion on the chemical structure, pharmacological effects, and potency of the controlled substance, methylenedioxyethcathinone (MDEC, ethylone)
  7. United States Federal Court, District of Nevada, Las Vegas, 2014-12-03  
Case 2:13-cr-00255-JAD-GWF: *Sentencing hearing for a criminal proceeding*  
Defendant: Syvilay Thannavongsa  
(telephonic testimony) Provided expert testimony and opinion on the chemical structure of the controlled substance, methylenedioxymethcathinone (MDMC, methylone)
  6. United States Federal Court, Middle District of Florida, Tampa, 2014-11-18  
Case 8:13-cr-00421-MSS-TGW: *Sentencing hearing for a criminal proceeding*  
Defendant: John McGuire  
Provided expert testimony and opinion on the chemical structure of the controlled substance, methylenedioxymethcathinone (MDMC, methylone)
  5. United States Federal Court, Eastern District of New York, Brooklyn, 2014-08-20

Case 13CR00570 (JBW): *Sentencing hearing for a criminal proceeding*

Defendant: Chin Chong

(telephonic testimony) Provided expert testimony and opinion on the chemical structure of the controlled substance, methylenedioxymethcathinone (MDMC, methylone)

4. United States Federal Court, District of Minnesota, Minneapolis, 2013-09-30

CASE 0:12-cr-00305-DSD-LIB: *Criminal trial by jury*

Defendant: James Robert Carlson

Provided expert testimony and opinion on the chemical structure and pharmacological effects of synthetic cannabinoid substances including AM-2201, UR-144, and XLR-11, which were alleged to be Controlled Substance Analogues of JWH-018

3. State of Louisiana 22<sup>nd</sup> Judicial District Court, Parish of St Tammany, 2013-02-06

Case No. 524706/7 D: *Hearing on a motion to quash a criminal indictment*

Defendant: David D'Aquin

Provided expert testimony and opinion on the chemical structure and pharmacological effects of synthetic cannabinoid substances of UR-144 and XLR-11, which were alleged to be Controlled Substance Analogues of JWH-018

2. United States Federal Court, Eastern District of Wisconsin, Milwaukee, 2013-02-28

Case 2:12-cv-01186-RTR: *Hearing on a petition for return of property*

Petitioner: The Smoke Shop, LLC

Provided expert testimony and opinion on the chemical structure and pharmacological effects of UR-144 and XLR-11, alleged to be Controlled Substance Analogues of JWH-018

1. United States Federal Court, Middle District of Florida, Orlando, 2012-12-06

6:12-cr-209-Orl-37DAB: *Joint hearing on a motion to dismiss a criminal indictment and a petition for return of property*

Defendants: Ilan Fedida and Timothy Hummel

Attended the hearing and wrote a brief on scientific considerations for the Court