

R. Nathan Daniels, Ph.D.

Department of Pharmaceutical Sciences
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Education:

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| 2010 - 2012 | Post Doctoral Fellowship, Vanderbilt University, Nashville, TN |
| 2006 - 2010 | Ph.D., Vanderbilt University, Nashville, TN |
| 1998 - 2003 | B.S., Chemistry, The Ohio State University, Columbus, OH |

Research Experience:

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|---------------|---|
| 03/13-present | Assistant Professor
<i>Lipscomb University College of Pharmacy, Nashville, TN</i> <ul style="list-style-type: none">• Developing novel T-type calcium channel inhibitors as possible therapeutics for Parkinson's disease• Mentored and trained professional and undergraduate students in the laboratory |
| 08/13-present | Adjunct Assistant Professor of Pharmacology
<i>Vanderbilt University, Nashville, TN</i> |
| 02/13-08/13 | Visiting Scholar
<i>Vanderbilt University, Nashville, TN</i> <ul style="list-style-type: none">• Developing novel T-type calcium channel inhibitors as possible therapeutics for Parkinson's disease |
| 08/10-11/12 | Postdoctoral Fellow with Professor Stephen Fesik
<i>Vanderbilt University, Nashville, TN</i> <ul style="list-style-type: none">• Utilized structure-based design for the discovery and optimization of novel MCL-1 inhibitors with nanomolar activity• Discovered novel KRas activators using fragment-based methods• Maintained the prep-HPLC purification systems• Utilized modern synthesis equipment such as LS-MS, microwave reactor, automated chromatography equipment, and prep-HPLC systems |
| 04/07-08/10 | Graduate Research with Professor Craig Lindsley
<i>Vanderbilt University, Nashville, TN</i> <ul style="list-style-type: none">• Completed multiple total syntheses and structural revisions of natural products• Optimized existing chemistry methodology to be amenable to iterative library synthesis• Used medicinal chemistry to drive multiple collaborative chemical biology projects to develop<ul style="list-style-type: none">○ Highly selective and potent bone morphogenetic protein (BMP) inhibitor○ Selective KDR inhibitors |

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- Selective muscarinic allosteric modulators (both agonist and antagonist)
- Mentored and trained undergraduate and rotational students in the lab

03/04-08/06

Research and Development Technician

Hospira Inc., Ashland, OH

- Identified impurities and diagnosed source of impurities in products
- Developed new procedures for analysis techniques

06/00-06/03

Undergraduate Research with Professor Robert Coleman

The Ohio State University, Columbus, OH

- Assisted with the total synthesis of Azinomycin A
- Participated in OSU REU program summer of 2000, 2001, 2002

Teaching Experience:

2013 – present

Assistant Professor

Lipscomb University College of Pharmacy, Nashville, TN

2006 – 2012

Undergraduate and Graduate Student Mentor

Vanderbilt University, Nashville, TN

Lindsley and Fesik Laboratories

2006 – 2007

Graduate Teaching Assistant

Vanderbilt University, Nashville, TN

Organic Chemistry Laboratory

Professional Memberships:

- American Chemical Society
- American Association of Colleges of Pharmacy
- Tennessee Pharmacists Association
- Academic Drug Discovery Consortium
- American Association of Pharmaceutical Scientists

Manuscript Reviewer:

- Journal of Medicinal Chemistry
- ACS Chemical Neuroscience

Book Reviewer:

- Women in Chemistry (Science Wide Open series - Book 2)

Awards and Honors:

- Second prize for poster at the Vanderbilt Ingram Cancer Center 2012 Retreat

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- Collaborative chemical biology project highlighted in the *Chemical and Engineering News*, *CENEAR*. **2010**, 88, 29
- Collaborative chemical biology project featured on *ScienceDaily.com*, January 25, 2010
- Collaborative chemical biology project highlighted in the Vanderbilt University Medical Center *Reporter*, January 22, 2010
- Featured in ACS Chemical Biology Introducing Our Authors, *ACS Chem. Bio.* **2010**, 5, 151.
- Most Cited Paper 2008 Award, *J. Comb. Chem.* (reference 3)
- Dawson Fellowship Recipient, 2006-2008

Publications:

15. Whitfield, A. C.; Moore, B. T.; **Daniels, R. N.**; 'Classics in Chemical Neuroscience: Levodopa' *ACS Chem. Neurosci.* **2014**, 5, 1192.
14. Burns, M. C.; Sun, Q; **Daniels, R. N.**; Camper, D; Kennedy, J. P.; Phan, J.; Olejniczak, E. T.; Lee, T.; Waterson, A. G.; Rossanese, O. W.; Fesik, S. W. 'Approach for targeting Ras with small molecules that activate SOS-mediated nucleotide exchange' *Proc. Natl. Acad. Sci. USA.* **2014**, 111, 3401.
13. Sheffler, D. J.; Nedelovych, M. T.; Williams, R.; Turner, S. C.; Duerk, B. B.; Robbins, M. R.; Jadhav, S. B.; Niswender, C. M.; Jones, C. K., Conn, P. J.; **Daniels, R. N.***; Lindsley, C. W.* 'Novel GlyT1 inhibitor chemotypes by scaffold hopping. Part 2: development of a [3.3.0]-based series and other piperidine bioisosteres' *Bioorg. Med. Chem. Lett.* **2014**, 24, 1062. (*co-corresponding author)
12. Friberg, A.; Vigil, D.; Zhao, B.; **Daniels, R. N.**; Burke, J. P.; Garcia-Barrantes, P. M.; Camper, D.; Chauder, B. A.; Lee, T.; Olejniczak, E. T.; Fesik, S. W. 'Discovery of potent Mcl-1 inhibitors using fragment-based methods and structure-based design' *J. Med. Chem.* **2013**, 56, 15.
11. Miller, N. R.*; **Daniels, R. N.***; Lee, D.; Conn, P. J.; Lindsley, C. W. 'Synthesis and SAR of N-(4-(4-alkylpiperazin-1-yl)phenyl)benzamides as muscarinic acetylcholine receptor subtype 1 (M1) antagonists' *Bioorg. Med. Chem. Lett.* **2010**, 20, 2174. (*co-first author).
10. Hao, J.; Ho, J. N.; Lewis, J. A.; Karim, K. A.; **Daniels, R. N.**; Gentry, P. R.; Hopkins, C. R.; Lindsley, C.W.; Hong, C. C. 'In vivo structure-activity relationship study of Dorsomorphin analogues identifies selective VEGF and BMP inhibitors' *ACS Chem. Bio.* **2010**, 5, 245.
9. **Daniels, R. N.**; Melancon, B. J.; Wang, E. A.; Crews, B. C.; Marnett, L. J.; Sulikowski, G. A.; Lindsley, C. W. 'Progress towards the total synthesis of Lucentamycin A: total synthesis and biological evaluation of 8-epi-Lucentamycin A' *J. Org. Chem.* **2009**, 74, 8852.
8. Fadeyi, O. O.; **Daniels, R. N.**; DeGuire, S. M.; Lindsley, C. W. 'Total synthesis of Polemannones B and C' *Tetrahedron Lett.* **2009**, 50, 3084.
7. Miller, N. R.*; **Daniels, R. N.***; Bridges, T. M.; Brady, A. E.; Conn, P. J.; Lindsley, C. W. 'Synthesis and SAR of analogs of the M1 allosteric agonist TBPB. Part II: Amides, sulfonamides and ureas-the effect of capping the distal basic piperidine nitrogen' *Bioorg. Med. Chem. Lett.* **2008**, 18, 5443. (*co-first author)
6. Bridges, T. M.; Brady, A. E.; Kennedy, J. P.; **Daniels, R. N.**; Miller, N. R.; Kwango, K.; Dreininger, M. L.; Gentry, P.R.; Brogan, J. T.; Jones, C. K.; Conn, P. J.; Lindsley, C. W. 'Synthesis and SAR of analogues of the M1 allosteric agonist TBPB. Part I: Exploration of alternative benzyl and privileged structure moieties' *Bioorg. Med. Chem. Lett.* **2008**, 18, 5439.

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5. Lewis, J. A.; **Daniels, R. N.**; Lindsley, C. W. 'Total synthesis of Ciliatamides A-C: stereochemical revision and the natural product-guided synthesis of unnatural analogs' *Org. Lett.* **2008**, *10*, 4545.
4. **Daniels, R. N.**; Fadeyi, O. O.; Lindsley, C. W. 'A new catalytic Cu(II)/Sparteine oxidant system for β,β -phenolic couplings of styrenyl phenols: synthesis of Carpanone and unnatural analogs' *Org. Lett.* **2008**, *10*, 4097.
3. Kennedy, J. P.; Williams, L.; Bridges, T. M.; **Daniels, R. N.**; Weaver, D.; Lindsley, C. W. 'Application of combinatorial chemistry science on modern drug discovery' *J. Comb. Chem.* **2008**, *10*, 345.
2. **Daniels, R. N.**; Kwangho, K.; Lebois, E. P.; Muchalski, H.; Hughes, M.; Lindsley, C. W. 'Microwave-assisted protocols for the expedited synthesis of pyrazolo[1,5-*a*] and [3,4-*d*] pyrimidines' *Tetrahedron Lett.* **2008**, *49*, 305.
1. **Daniels, R. N.**; Lindsley, C. W. 'A new, non-SSRI mechanism of action for Prozac' *Curr. Top. Med. Chem.* **2007**, *7*, 1039.

Book Chapters:

1. Manka, J.; **Daniels, R. N.**; Dawson, E.; Daniels, J. S.; Southall, N.; Jadhav, A.; Zheng, W.; Austin, C.; Grembecka, J.; Cierpicki, T.; Lindsley, C. W.; Stauffer, S. R. "Inhibitors of the Menin-Mixed Lineage Leukemia (MLL) Interaction", In *Probe Reports from the NIH Molecular Libraries Program* Bethesda (MD), 2010

Presentations:

7. **Daniels, R. N.** 'Harnessing modern drug discovery to develop potential therapies for critical medical needs' Tennessee State University Deans lecture series, October 30, 2014 (invited oral presentation)
6. **Daniels, R. N.**; Burns, M. C.; Sun, Q.; Kim, H.-Y.; Lee, T.; Waterson, A. G.; Rossanese, O. W.; Phan, J.; Fesik, S. W. 'Discovery of interfacial binders to the K-Ras/SOS complex' Vanderbilt Ingram Cancer Center Retreat, May 8, 2012. (Poster)
5. **Daniels, R. N.**; Lindsley, C.W. 'Total synthesis and biological evaluation of 8-epi-Lucentamycin A' ACS Southeast Regional Meeting, San Juan, PR, October 21-24, 2009. (Oral Presentation)
4. **Daniels, R. N.**; Lindsley, C.W. 'Total synthesis of Lucentamycins A-D' ACS Southeast Regional Meeting, Nashville, TN, November 12-15, 2008. (Poster)
3. Wang E. A.; **Daniels, R. N.**; Melancon, B. J.; Sulikowski G. A. Lindsley, C.W. 'Efforts towards the ethyleneproline core of Lucentamycins A-D' ACS Southeast Regional Meeting, Nashville, TN, November 12-15, 2008. (Poster)
2. Lewis, J. A.; **Daniels, R. N.**; Lindsley, C.W. 'Total synthesis of Ciliatamides A-C: stereochemical revision and unnatural analogs' ACS Southeast Regional Meeting, Nashville, TN, November 12-15, 2008. (Poster)
1. **Daniels, R. N.**; Lindsley, C.W. 'Total synthesis of Lucentamycins' ACS National Meeting, New Orleans, LA, April 6-10, 2008. (Poster)

Student Presentations:

7. Naguib, M. M.; **Daniels, R. N.** 'Development of Allosteric Modulators of MC4R for the Treatment of Obesity and Cachexia' Lipscomb University Student Scholars Symposium, Nashville, TN, April 14, 2016
6. Naguib, M. M.; **Daniels, R. N.** 'Development of Allosteric Modulators of MC4R for the Treatment of Obesity and Cachexia' Lipscomb University Department of Biology Seminar, Nashville, TN, February 15, 2016
5. Hedges, W. S.; Naguib, M. M.; Lindsley, C. W.; **Daniels, R. N.** 'Development of Novel T-Type Calcium Channel Inhibitors for the Treatment of Parkinson's Diseases' Lipscomb University Student Scholars Symposium, Nashville, TN, April 16, 2015
4. Hedges, W. S.; Naguib, M. M.; Lindsley, C. W.; **Daniels, R. N.** 'Development of Novel T-Type Calcium Channel Inhibitors for the Treatment of Parkinson's Diseases' Lipscomb University Pharmacy Research Day, Nashville, TN, October 29, 2014
3. Turner, S. C.; Duerk, B. B.; Robbins, M. R.; Nedelcovych, M.; Lindsley, C. W.; **Daniels, R. N.** 'Novel GlyT1 inhibitor chemotypes by scaffold hopping. Development of a [3.3.0]-based series.' Lipscomb University Student Scholars Symposium, Nashville, TN, April 3, 2014.
2. Duerk, B. B.; Robbins, M. R.; Lindsley, C. W.; **Daniels, R. N.** 'Development of Novel T-Type Calcium Channel Inhibitors for the Treatment of Parkinson's Diseases' Lipscomb University Pharmacy Research Day, Nashville, TN, November 27, 2013
1. Duerk, B. B.; Robbins, M. R.; Lindsley, C. W.; **Daniels, R. N.** 'Development of Novel T-Type Calcium Channel Inhibitors for the Treatment of Parkinson's Diseases' Vanderbilt Summer Science Academy Poster Symposium, Nashville, TN, August 1, 2013