KATERI AHRENDT, Ph.D.

Associate Professor of Chemistry, Regis University
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HIGHLIGHTS

- Thirteen years academic experience
- Five years pharmaceutical industry experience
- Cross-collaborations within and external to pharmaceutical and academic organizations
- Author and co-author of 14 peer-reviewed publications, eight patent applications, and three funded research grants

EDUCATION

Ph.D., Organic Chemistry; University of California, Berkeley, 2003
B.S., Chemistry; St. Cloud State University, Minnesota, 1998

SCIENTIFIC EXPERIENCE

Regis University, Denver, Colorado 2015 – present
Associate Professor, Tenured

- Teaching undergraduate courses in organic chemistry, general chemistry, advanced synthesis and characterization laboratory, chemistry for health-related sciences, and course for non-science majors on psychoactive drugs
- Research on complex generic drug development and syntheses of egregiously over-priced drugs in the undergraduate laboratory

Corden Pharma, Boulder, Colorado 2015 – 2018
Scientific Consultant

- Interfaced with scientists, management, and external clients in providing guidance for the development of a generic version of the complex drug glatiramer acetate
- Comprehensively reviewed the patent and peer-reviewed literature, performed complex data analysis, applied mechanistic rationale towards the synthesis of glatiramer acetate
- Prepared summary reports for inclusion in the abbreviated new drug application for submission to the FDA

Regis University, Denver, Colorado 2009 – 2015
Assistant Professor, Tenure Track

- Taught undergraduate courses in organic chemistry, advanced organic chemistry, advanced synthesis and characterization laboratory, chemistry for health-related sciences, and course for non-science majors on psychoactive drugs
- Advised >50 undergraduate students in laboratory research and coursework
- Collaborated with researchers at Denver University on development of *M. tuberculosis* fructose 1,6-bisphosphate aldolase inhibitors

Array BioPharma, Boulder, Colorado 2005 – 2009

Senior Research Scientist

- Designed and synthesized novel and potent small molecule inhibitors of B-Raf kinase and mitotic kinesin as part of the oncology medicinal chemistry program
- Developed viable multistep synthetic routes amenable for scale-up of target compounds
- Interfaced with enzymology, cell biology, pharmacology, drug metabolism, pharmacokinetics, and molecular modeling groups to progress projects forward
- Mentored undergraduate interns in the summers of 2006, 2007, and 2008

Colorado State University, Fort Collins 2003 – 2005

National Institutes of Health Post-Doctoral Fellow

- Developed NIH funded research proposal for the total synthesis of nakadomarin A
- Synthesized the ADE fragment of nakadomarin A, a cytotoxic marine natural product

University of California, Berkeley 1998 – 2003

Graduate Researcher

- Developed C-H activation chemistry for the synthesis of aromatic heterocycles and applied towards the concise synthesis of a mescaline analog
- Designed and synthesized vancomycin analogs active against resistant bacteria
- Discovered first-generation imidazolidinone organocatalyst and applied towards highly enantioselective Diels-Alder reactions

GRANTS AND AWARDS

- Identification of *Mycobacterium tuberculosis* fructose 1,6-bisphosphate aldolase (MtFBA) inhibitors, Regis University, 2012, $5,000
- Identification of MtFBA inhibitors, Colorado Center for Drug Discovery, in collaboration with Prof. Scott D. Pegan from Denver University, 2012, $20,000
- NIH Post-doctoral Research Fellowship, two years stipend and additional research expenses, 2003-2005, >$50,000
- Outstanding Graduate Student Instructor Award, University of California Berkeley, 2000
- National Science Foundation Summer Undergraduate Research Fellow, 1997
- National Science Foundation Summer Undergraduate Research Fellow, 1996

CONTINUING EDUCATION & PROFESSIONAL SERVICE

- Journal reviewer for *Medicinal Chemistry*, 2019
- Book reviewer for *Introduction to General, Organic,and Biochemistry, by Bettelheim, 2016*
- Understanding Clinical Research: Behind the Statistics, University of Cape Town; online non-credit course from Coursera.org, 2017
- Drugs and the Brain, Caltech; online, non-credit course from Coursera.org, 2014
- Doctoral dissertation committee member, University of Colorado, Boulder, Department of Chemistry and Biochemistry, 2012
- Journal reviewer for *European Journal of Medicinal Chemistry*, 2012
- Session Chair, Gordon Research Conference in Medicinal Chemistry, 2007

PUBLICATIONS & PATENTS

Pegan, S. D.; Ahrendt, K. A.; Capodagli, G. C.; Cowen, B. Antibiotic and Anti-Parasitic Agents that Modulate Class II Fructose 1,6-Bisphosphate Aldolase. PCT Int. Appl. (2014) WO 2014182954.

Capodagli, G. C.; Sedhom, W. G.; Jackson, M.; Ahrendt, K. A.; Pegan, S. D. A Noncompetitive Inhibitor for *Mycobacterium tuberculosis's* Class IIa Fructose 1,6-Bisphosphate Aldolase. *Biochemistry* **2014**, *53*, 202-213.

Newhouse, B. J.; Wenglowsky, S.; Grina, J.; Laird, E.; Voegtli, W.; Ren, L.; Ahrendt, K.; Buckmelter, A.; Gloor, S.; Klopfenstein, N. ; Rudolph, J.; Wen, Z.; Li, X.; Feng, B. Imidazo[4,5-*b*]Pyridine Inhibitors of B-Raf Kinase. *Bioorg. Med. Chem. Lett.* **2013**, *23*, 5896-5899.

Ren, L.; Ahrendt, K.A.; Grina, J.; Laird, E.R.; Buckmelter, A.J.; Hansen, J.D.; Newhouse, B.; Moreno, D.; Wenglowsky, S.; Dinkel, V.; Gloor, S.L.; Hastings, G.; Rana, S.; Rasor, K.; Risom, T.; Sturgis, H.L.; Voegtli, W.C.; Mathieu, S. The Discovery of Potent and Selective Pyridopyrimidin-7-one Based Inhibitors of B-RafV600E Kinase. *Bioorg. Med. Chem. Lett.* **2012**, *22*, 3387-3391.

Wenglowsky, S.; Moreno, D.; Rudolph, J.; Ran, Y.; Ahrendt, K.A.; Arrigo, A.; Colson, B.; Gloor, S.L.; Hastings, G. Pyrazolopyridine Inhibitors of B-RafV600E. Part 3: An Increase in Aqueous Solubility via the Disruption of Crystal Packing. *Bioorg. Med. Chem. Lett.* **2012**, *22*, 912-915.

Wenglowsky, S.; Ahrendt, K.A.; Buckmelter, A.J.; Feng, B.; Gloor, S.L.; Gradl, S.; Grina, J.; Hansen, J.D.; Laird, E.R.; Lunghofer, P.; Mathieu, S.; Moreno, D.; Newhouse, B.; Ren, L.; Risom, T.; Rudolph, J.; Seo, J.; Sturgis, H.L.; Voegtli, W.C.; Wen, Z. Pyrazolopyridine Inhibitors of B-RafV600E. Part 2: Structure-Activity Relationships. *Bioorg. Med. Chem. Lett.* **2011**, *21*, 5533-5537.

Hatzivassiliou, G.; Liu, B.; Malesky, K.; Mathieu, S.; Newhouse, B.; Raddatz, N.J.; Ran, Y.; Rana, S.; Randolph, N.; Risom, T.; Rudolph, J.; Savage, S.; Selby, L.T.; Shrag, M.; Song, K.; Sturgis, H.L.; Voegtli, W.C.; Wen, Z.; Willis, B.S.; Woessner, R.D.; Wu, W.-I.; Young, W.B.; Grina, J. Pyrazolopyridine Inhibitors of B-Raf^{V600E}. :Part 1: The Development of Selective, Orally Bioavailable, and Efficacious Inhibitors. *ACS Med. Chem. Lett.* **2011***, 2*, 342-347.

Ahrendt, K. A.; Buckmelter, A. J.; Grina, J.; Hansen, J. D.; Laird, E. R.; Newhouse, B.; Ren, L.; Wenglowsky, S. M.; Feng, B.; Malesky, K.; Mathieu, S.; Rudolph, J.; Wen, Z.; Young, W. B.; Moreno, D. A. *N*-(6-Aminopyridin-3-yl)-3-(Sulfonamide)Benzamide Derivatives as B-Raf Inhibitors for the Treatment of Cancer and Their Preparation. PCT Int. Appl. (2009) WO 2009111280.

Ahrendt, K. A.; Buckmelter, A. J..; De Meese, J.; Grina, J.; Hansen, J. D.; Laird, E. R.; Lunghofer, P.; Moreno, D.; Newhouse, B.; Ren, L.; Seo, J.; Tian, H.; Wenglowsky, S. M.; Feng, B.; Gunzner, J.; Malesky, K.; Mathieu, S.; Rudolph, J.; Wen, Z.; Young, W. B. *N*-Pyrazolo[3,4-β]pyridinyl Benzamide Derivatives as Raf Inhibitors and Their Preparation, Pharmaceutical Compositions and Use in the Treatment of Diseases. PCT Int. Appl. (2009) WO 2009111279.

Ahrendt, K. A.; Buckmelter, A. J.; Grina, J.; Hansen, J. D.; Laird, E. R.; Moreno, D.; Newhouse, B.; Ren, L.; Wenglowsky, S. M.; Feng, B.; Gunzner, J.; Malesky, K.; Mathieu, S.; Rudolph, J.; Wen, Z.; Young, W. B. *N*-Pyrrolo[2,3-β]pyridinyl Benzamide Derivatives as Raf Inhibitors and Their Preparation, Pharmaceutical Compositions and Use in the Treatment of Disease. PCT Int. Appl. (2009) WO 2009111278.

Ahrendt, K. A.; Buckmelter, A. J.; Grina, J.; Hansen, J. D.; Laird, E. R.; Newhouse, B.; Ren, L.; Wenglowsky, S. M.; Feng, B.; Malesky, K.; Mathieu, S.; Rudolph, J.; Wen, Z.; Young, W. B.; Moreno, D. A. Imidazo[4,5-β]pyridine Derivatives as Raf Inhibitors and Their Preparation and use in the Treatment of Diseases. PCT Int. Appl. (2009) WO 2009111277.

Ahrendt, K. A.; Delisle, R. K.; Hans, J.; Lyssikatos, J. P.; Robinson, J. E.; Wallace, E. M.; Zhao, Q. Preparation of Difluorophenylcarbonylphenyldihydrothiadiazole Derivatives for Use as Mitotic Kinesin Inhibitors. PCT Int. Appl. (2008) WO 2008042928.

Thalji, R. K.; Ahrendt, K. A.; Bergman, R. G.; Ellman, J. A. Annulation of Aromatic Imines via Directed C-H Bond Activation. *J. Org. Chem.* **2005**, *70*, 6775.

Ahrendt, K. A; Williams, R. M. A Concise Asymmetric Synthesis of the ADE Fragment of Nakadomarin A. *Org. Lett*. **2004**, *6*, 4539.

Ahrendt, K. A.; Bergman, R. G.; Ellman, J. E. Synthesis of a Tricyclic Mescaline Analogue by Catalytic C-H Bond Activation. *Org. Lett.* **2003**, *5*, 1301.

Ahrendt, K. A.; Olsen, J. A.; Wakao, M.; Trias, J.; Ellman, J. A. Identification of Potent and Broad Spectrum Antibiotics from SAR Studies of a Synthetic Vancomycin Analogue. *Bioorg. Med. Chem. Lett.* **2003**, *13*, 1683.

Thalji, R. K.; Ahrendt, K. A.; Bergman, R. G.; Ellman, J. A. Annulation of Aromatic Imines via Directed C-H Activation with Wilkinson's Catalyst. *J. Am. Chem. Soc*. **2001**, *123*, 9692.

MacMillan, D. W. C.; Ahrendt, K. A. Chemical Synthesis Using Nonmetallic Organic Catalyst Compositions. PCT Int. Appl. (2001) WO 2001053241.

MacMillan, D. W. C.; Ahrendt, K. A. Preparation of Imidazolidinone Acid Salts as Reaction Catalysts. PCT Int. Appl. (2001) WO 2001053269.

Ahrendt, K. A.; Borths, C. J.; MacMillan, D. W. C. New Strategies for Organic Catalysis: The First Highly Enantioselective Organocatalytic Diels-Alder Reaction. *J. Am. Chem. Soc.* **2000**, *122*, 4243.

Fischer, P. J.; Ahrendt, K. A.; Young, V. G., Jr.; Ellis, J. E. Trityltitanium Complexes. X-ray Structural Characterization of $[Ti(CO)_4\{\eta^5\text{-}C(4\text{-}C_6H_4R)_3\}]^-$ (R = H, OCH_3). *Organometallics* **1998**, *17*, 13.

COURSES TAUGHT

Regis University, Denver, Colorado, 2009-present

Organic Chemistry I (CH 250)
Organic Chemistry I Laboratory (CH 251)
Organic Chemistry II (CH 420)
Organic Chemistry II Laboratory (CH 421)
Advanced Organic Chemistry (CH 448)
Synthesis and Characterization Laboratory (CH 428)
General Chemistry I (CH 210)
Chemistry for the Health Related Sciences (CH 206A)
Chemistry for the Health Related Sciences Laboratory (CH 207A)
Drugs of Use and Abuse (CH 204)
Drugs and Use and Abuse Laboratory (CH 205)

ACADEMIC COMMITTEE, DEPARTMENTAL AND STUDENT SERVICE

Regis University, Denver, Colorado, 2009-present

Academic Advising, 2009-present
Academic Care Team, 2017-2018
Affiliate Faculty Hiring, 2009-present
Chemistry Seminar Co-Coordinator, 2011-2012, 2020-2021
Dean Search in School of Physical Therapy, 2014
Faculty Development Committee, 2020-2022
Faculty Searches in Department of Chemistry, 2010-2014, 2021
Faculty Searches in School of Pharmacy, 2010 – 2013
Honors Student Thesis Advising, 2014-2015, 2018-2019
NMR instrument maintenance, repair, and operational instructions, 2010 – present
Pre-Science Living Learning Community Faculty Friend, 2011-2013
Regis College Academic Policies and Standards Committee, 2011
Regis College Faculty Senate, 2013-2014, 2020-2022
Regis University Compensation Project Advisory Committee, 2021-2022
Science Scholarship Weekends, 2009-present
Sophomore IN Program, 2016-2017
School of Pharmacy Community Engagement Committee, 2010 – 2012
University Research and Scholarship Committee, 2013 – 2015