CYNTHIA S. DOWD, PH.D.

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EDUCATION

Virginia Commonwealth University, Richmond, VA
Ph.D., Medicinal Chemistry, 1999

University of Virginia, Charlottesville, VA
B.A., Chemistry, 1993

EXPERIENCE

2007-present — **GEORGE WASHINGTON UNIVERSITY**, Washington, DC
Professor, Department of Chemistry (2020-present)
Associate Professor, Department of Chemistry (2014-2020)
Assistant Professor, Department of Chemistry (2007-2014)
Research interests include medicinal chemistry, organic synthesis, anti-infective drug design, and inhibitors of important biological processes.

2001-2007 — **NATIONAL INSTITUTES OF HEALTH**, Rockville, MD
Research Fellow and **Chemistry Group Leader**
Supervisor: Clifton E. Barry, III, Ph.D.

1999 – 2001 — **UNIVERSITY OF PENNSYLVANIA**, Philadelphia, PA
Postdoctoral Researcher, Mentor: Irwin M. Chaiken, Ph.D.

1994 – 1999 — **VIRGINIA COMMONWEALTH UNIVERSITY**, Richmond, VA
Graduate Research Assistant and **AFPE Predoctoral Research Fellow**
Advisor: Richard A. Glennon, Ph.D.

1993 – 1994 — **UNIVERSITY OF VIRGINIA**, Charlottesville, VA
Laboratory Specialist

AWARDS AND HONORS

- Elected to CCAS Dean's Council, GWU, 2015 and 2018, each three-year terms
- Elected to be CCAS Dean's Council Chair, GWU, 2018-2019
- Nominated/Selected to GW's Leadership Academy, 2019-present
- CCAS Dean's Research Excellence Award for Mentoring (DREAM), 2016
- GW Academy of Distinguished Teachers, GWU, 2013
- Morton A. Bender Teaching Award, GWU, 2011
- NIH Director's Award, 2007
- NIAID Merit and Service Award, NIAID, 2005 and 2006
- Leadership Development Award from ACS Younger Chemists' Committee, 2002
- Predoctoral Fellowship, Amer. Foundation for Pharmaceutical Educ., 1996-1999
- Travel Grant from the ACS: Medicinal Chemistry Division, 1998
- Travel Grant from the ACS: Women Chemists' Committee, 1998
- Outstanding Graduate Student, Medicinal Chemistry, VCU, 1999
- Outstanding Graduate Student, School of Pharmacy, VCU, 1999
- Outstanding Oral Presentation, Virginia Academy of Sciences, 1999

TEACHING EXPERIENCE

2007-present — **George Washington University**, Washington DC
Organic Chemistry 2 (CHEM 2152); spring semesters, 2008-present
Organic Chemistry 1 (CHEM 2151); summer semester, 2019
Advanced Organic Chemistry (CHEM 6251); alternating fall semesters, 2007-2019

Medicinal Chemistry (CHEM 6350); fall 2018
Structure & Function of Proteins (BIOC 6234); lecturer, 2008-13

Virginia Commonwealth University, Richmond, VA
2003 Department of Nurse Anesthesia, Organic Chemistry for Nurse Anesthetists
1994 – 1999 Department of Medicinal Chemistry, Medicinal Chemistry for Nurse Anesthesia
Department of Medicinal Chemistry, Drug Analysis laboratory (TA)

MEMBERSHIP AND SERVICE

Bioorganic Search Committee, Chemistry, Chair, 2019
Dean's Council, CCAS, GWU, 2015-present (Chair, 2018-2019)
Graduate Recruitment, GWU, Chemistry, 2009-present (Chair, 2016-present)
Graduate Admissions, GWU, Chemistry, 2009-present (Chair, 2015-present)
Grant Reviewer, NIH, permanent member of DDR study section, 2017-present
Editorial Advisory Board, member, *ACS Infectious Diseases*, 2018-present
FCBIS meeting organizing committee/session chair/judge, 2016-present
American Chemical Society (National, Medicinal and Organic Divisions): 1995-present
Manuscript Reviewer for several journal including *Journal of Medicinal Chemistry*, *Bioorganic and Medicinal Chemistry Letters*, *Bioorganic and Medicinal Chemistry, Journal of Biological Chemistry*, *Tetrahedron, Biochemistry, European Journal of Medicinal Chemistry, Chemical Biology and Drug Design, Journal of Combinatorial Chemistry, Organic Letters, Antimicrobial Agents and Chemotherapy, Bioconjugate Chemistry, PLoS One, MedChemComm*: 2005-present

Frontiers at the Chemistry-Biology Interface Symposium (FCBIS), meeting organizer, 2019
Strategic Planning Committee, Chemistry, 2018-2019
Strategic Planning Committee, GWU, 2019-2020
Academic Program Review, GWU, Chemistry, 2016-2018
Gamow Fellowship Selection Committee, GWU, 2011-2017
Bender Award Selection Committee, GWU, 2012, 2015
Faculty Recruitment, GWU, Physics, Chemistry, University Professor, 2010-13, 2017, 2018
Poster Judge, GWU Research Days, 2012
Mid-Atlantic Regional Meeting (MARM) of ACS, Session Chair, 2012
Grant Reviewer, NIH, ad hoc: 2010 (DDR), 2011 (SBIR), 2016 (AREA), 2017 (special)
Grant Reviewer, NSF, ad hoc: 2013
Grant Reviewer, Biotechnology Research Grant Program, NC Biotechnology Center, 2009
Selection Committee and faculty mentor, REU program, GWU, 2009
Scholarship Advisor, Phi Alpha chapter of Chi Omega Fraternity, GWU, 2008-2015
Introduction to Biomedical Research Program, participant scientist, NIAID/NIH: 2002
Postdoctoral Council, University of Pennsylvania: 1999-2001
Faculty Promotion Committee, Virginia Commonwealth University: 1998

PUBLICATIONS—JOURNAL (PEER-REVIEWED)

45. Miller, J.J.; Shah, I.T.; Hatten, J.; Barekatain, Y.; Mueller, E.A.; Moustafa, A.M.; Edwards, R.L.; **Dowd, C.S.**; Planet, P.J.; Muller, F.L.; Jez, J.M.; Odom John, A.R. Structure-guided microbial targeting of antistaphylococcal prodrugs, submitted.

44. Butman, H; Kotze, T.J.; **Dowd, C.S.***; Strauss, E.* Vitamin in the Crosshairs: Targeting Pantothenate and Coenzyme A Biosynthesis for New Antituberculosis Agents, *Frontiers Cellular and Infection Microbiology*, **2020**, *10*, 1-33.

43. Mikati, M.O.; Miller, J.J.; Osbourn, D.M.; Barekatain, Y.; Ghebremichael, N.; Shah, I.T.; Burnham, C.D.; Heidel, K.M.; Yan, V.C.; Muller, F.L.; **Dowd, C.S.**; Edwards, R.L.; Odom John, A.R. Antimicrobial prodrug activation by the staphylococcal glyoxalase GloB, *ACS Infectious Diseases*, **2020**, *6*(11), 3064-3075. PMID: 33118347

42. Edwards, R.L.; Heueck, I.; Lee, S.G.; Shah, I.T.; Mikati, M.O.; Jezewski, A.J.; Miller, J.J.; Wang, X.; Brothers, R.C.; Heidel, K.M.; Burnham, C.D.; Alvarez, S.; Fritz, S.A.; **Dowd, C.S.**; Jez, J.M.; Odom John,

A.R. Potent, specific MEPicides for treatment of zoonotic staphylococci, *PLoS Pathogens*, **2020**, 16(6), e1007806. PMID: 32497104

41. Heidel, K.M.; **Dowd, C.S.*** Phosphonate prodrugs: an overview and recent advances, *Future Medicinal Chemistry*, **2019**, *11*(13), 1625-1643. PMID: 31469328

40. Wang, X.; Edwards, R.L.; Ball, Hl; Johnson, C.; Haymond, A.; Girma, M.; Manikkam, M.; Brothers, R.C.; McKay, K.T.; Arnett, S.D.; Osbourn, D.M.; Alvarez, S.; Boshoff, H.I.; Meyers, M.J.; Couch, R.D.; Odom John, A.R.; **Dowd, C.S.*** MEPicides: α,β-Unsaturated Fosmidomycin Analogs as DXR inhibitors against Malaria, *J. Med. Chem.*, **2018**, *61*(19),8847–8858. PMID: 30192536

39. Wang, X.; **Dowd, C.S.*** The MEP pathway: Promising drug targets in the fight against tuberculosis, *ACS Infectious Diseases*, **2018**, *4*(3), 278-290. PMID: 29390176

38. Haymond, A.; Dowdy, T.; Johny, C.; Johnson, C.; Ball, H.; Dailey, A.; Schweibenz, B.; Villarroel, K.; Young, R.; Mantooth, C.J.; Patel, T.; Bases, J.; **Dowd, C.S.**; Couch, R.D. A High-Throughput Screening Campaign to Identify Inhibitors of DXP Reductoisomerase (IspC) and MEP Cytidylyltransferase (IspD), *Anal. Biochem.*, **2018**, *542*, 63-75. PMID: 29180070

37. Wang, X.; Ahn, Y.M.; Lentscher, A.G.; Lister, J.S.; Brothers, R.C.; Kneen, M.M.; Boshoff, H.I.; Gerratana, B.; **Dowd, C.S.*** Design, synthesis, and evaluation of nicotinamide adenine dinucleotide (NAD+) synthetase inhibitors as potential antitubercular agents, *Bioorg. Med. Chem. Lett*. **2017**, *27*(18), 4426-4430. PMID: 28827112

36. Edwards, R.L.; Brothers, R.C.; Wang, X.; Maron, M.I.; Ziniel, P.D.; Tsang, P.S.; Kraft, T.E.; Hruz, T.W.; Williamson, K.C.; **Dowd, C.S.**; Odom John, A.R. MEPicides: potent antimalarial prodrugs targeting isoprenoid biosynthesis, *Sci Reports*, **2017** Aug 21;7(1):8400. PMID: 28827774

35. San Jose; G.; Jackson, E.R.; Haymond, A.; Johny, C.; Edwards, R.; Wang, X.; Brothers, R.C.; Edelstein, E.; Odom, A.; Boshoff, H.I.; Couch, R.D.; **Dowd, C.S.*** Structure-Activity Relationships of the MEPicides: *N*-Acyl and *O*-linked Analogs of FR900098 as Inhibitors of Dxr from *Mycobacterium tuberculosis* and *Yersinia pestis*, *ACS Infectious Diseases*, **2016**, *2*(12), 923-935. PMID: 27676224

34. Sooriyaarachchi, S.; Chofor, R.; Risseeuw, M.D.P.; Bergfors, T.; Pouyez, J.; **Dowd, C.S.**; Maes, L.; Wouters, J.; Jones, T.A.; Van Calenbergh, S.; Mowbray, S.L. Targeting an aromatic hotspot in *Plasmodium falciparum* 1-deoxy-D-xylulose 5-phosphate reductoisomerase with β-arylpropyl-analogues of fosmidomycin, *ChemMedChem*, **2016**, *11*(18), 2024-2036. PMID: 27487410

33. Chofor, R.; Sooriyaarachchi, S.; Risseeuw, M.; Bergfors, T.; Pouyez, J.; Johny, C.; Haymond, A.; Everaert, A.; **Dowd, C.S.**; Maes, L.; Coenye, T.; Alex, A.; Couch, R.; Jones, T.; Wouters, J.; Mowbray, S.; Van Calenbergh, S. Synthesis and bioactivity of β-substituted fosmidomycin analogues targeting 1-deoxy-D-xylulose-5-phosphate reductoisomerase, *J. Med. Chem.*, **2015**, *58*(7), 2988-3001. PMID: 25781377

32. Haymond, A.; Johny, C.; Dowdy, T.; Schweibenz, B.; Villarroel, K.; Young, R.; San Jose, G.; Jackson, E.R.; **Dowd, C.S.**; Couch, R.D. Kinetic Characterization and Allosteric Inhibition of the *Yersinia pestis* 1-Deoxy-D-Xylulose 5-Phosphate Reductoisomerase (MEP Synthase), *PLoS One*, **2014**, *9*(8), e106243. PMID: 25171339

31. Ibekwe, N.N.; Nvau, J.B.; Oladosu, P.O.; Usman, A.M.; Ibrahim, K.; Boshoff, H.I.; **Dowd, C.S.**; Orishadipe, A.T.; Aiyelaagbe, O.; Adesomoju, A.A. Barry, 3rd, C.E.; Okogun, J.I. in collaboration with 73 Visited Herbalists. Some Nigerian Anti-Tuberculosis Ethnomedicines: A Preliminary Efficacy Assessment, *J. Ethnopharmacology*, **2014**, *155*(1), 524-532. doi: 10.1016/j.jep.2014.05.059. PMID: 24911338

30. Chofor, R.; Risseeuw, M.D.P.; Pouyez, J.; Johny, C.; Wouters, J.; **Dowd, C.S.**; Couch, R.D.; Van Calenbergh, S. Synthesis and evaluation of fosmidomycin analogues with altered chelating moieties as inhibitors of 1-deoxy-D-xylulose 5-phosphate reductoisomerase, *Molecules*, **2014**, *19*, 2571-2587. doi:10.3390/molecules19022571. PMID: 24566322

29. Jackson, E.R.; San Jose, G.; Brothers, R.C.; Edelstein, E.K.; Sheldon, Z.; Haymond, A.; Johny, C.; Boshoff, H.I.; Couch, R.D.; **Dowd, C.S.*** The effect of chain length and unsaturation on Mtb Dxr inhibition

and antitubercular killing activity of FR900098 analogs, *Bioorg. Med. Chem. Lett.*, **2014**, *24*(2), 649-653. doi: 10.1016/j.bmcl.2013.11.067. PMID: 24360562

28. San Jose, G.; Jackson, E.R.; Uh, E.; Johny, C.; Haymond, A.; Lundberg, L.; Pinkham, C.; Kehn-Hall, K.; Boshoff, H.I.; Couch, R.D.; **Dowd, C.S**.* Design of Potential Bisubstrate Inhibitors against *Mycobacterium tuberculosis* (Mtb) 1-Deoxy-D-Xylulose 5-Phosphate Reductoisomerase (Dxr)—Evidence of a Novel Binding Mode, *MedChemComm*, **2013**, *4*(7), 1099-1104. PMID: 23914289

27. McKenney, E.S.; Sargent, M.; Khan, H.; Couch, R.D.; Uh, E.; Jackson, E.R.; San Jose, G.; **Dowd, C.S.**; van Hoek, M.L. Lipophilic prodrugs of FR900098 are antimicrobial against *Francisella novicida in vivo* and *in vitro* and show GlpT independent efficacy, *PLoS One*, **2012**, *7*(10): e38167. PMID: 23077474

26. Jackson, E.J.; **Dowd, C.S.*** Inhibitors of 1-Deoxy-D-xylulose-5-phosphate reductoisomerase (Dxr): A Review of the Synthesis and Biological Evaluation of Recent Inhibitors, *Curr. Topics Med. Chem.*, **2012**, *12*, 706-728. PMID: 22283814

25. Gurumurthy, M.; Mukherjee, T.; **Dowd, C.S.**; Singh, R.; Niyomrattanakit, P.; Tay, J.; Nayyar, A.; Lee, Y.S.; Cherian, J.; Boshoff, H.I.; Dick, T.; Barry, 3rd, C.E.; Manjunatha, U.H. Substrate specificity of the Deazaflavin-Dependent Nitroreductase (Ddn) from Mycobacterium tuberculosis Responsible for the Bioreductive Activation of Bicyclic Nitroimidazoles, *FEBS J.,* **2012**, *279*(1), 113-125. doi: 10.1111/j.1742-4658.2011.08404.x. PMID: 22023140

24. Uh, E.; Jackson, E.R.; San Jose, G.; Maddox, M.; Lee, R.E.; Lee, R.E.; Boshoff, H.I.; **Dowd, C.S.*** Antibacterial and antitubercular activity of fosmidomycin, FR900098, and their lipophilic analogs, *Bioorg. Med. Chem. Lett.*, **2011**, *21*, 6973-6976; doi: 10.1016/j.bmcl.2011.09.123. PMID: 22024034

23. Bollo, S.; Nunez-Vergara, L.J.; Kang, S.; Zhang, L.; Boshoff, H.I.; Barry, III, C.E.; Squella, J.A.; **Dowd, C.S.*** The effect of 5-substitution on the electrochemical behavior and antitubercular activity of PA-824, *Bioorg. Med. Chem. Lett.,* **2011***, 21,* 812-817. PMID: 21168331

22. Guendel, I.; Carpio, L.; Easley, R.; Van Duyne, R.; Coley, W.; Agbottah, E.; **Dowd, C.**; Kashanchi, F.; Kehn-Hall, K. 9-aminoacridine Inhibition of HIV-1 Tat Dependent Transcription, Virology Journal, **2009**, 6, 114. PMID: 19630958

21. Kim, P.; Kang, S.; Boshoff, H.I.; Jiricek, J.; Collins, M.; Singh, R.; Manjunatha, U.H.; Niyomrattanakit, P.; Zhang, L.; Goodwin, M.; Dick, T.; Keller, T.H.; **Dowd, C.S.***; Barry, III, C.E.* Structure-Activity Relationships of Antitubercular Nitroimidazoles. II. Determinants of aerobic activity and quantitative structure-activity relationships, *J. Med. Chem.* **2009**, *52*, 1329-1344. PMID: 19209893

20. Kim, P.; Zhang, L.; Manjunatha, U.H.; Singh, R.; Patel, S.; Jiricek, J.; Keller, T.H.; Boshoff, H.I.; Barry, III, C.E.; **Dowd, C.S.*** Structure-activity relationships of antitubercular nitroimidazoles. I. Structural features associated with aerobic and anaerobic activities of 4- and 5-nitroimidazoles, *J. Med. Chem.* **2009**, *52*, 1317-1328. PMID: 19209889

19. Singh, R.; Manjunatha, U.; Boshoff, H.I.M.; Ha, Y.H.; Niyomrattanakit, P.; Ledwidge, R.; **Dowd, C.S.**; Lee, I.Y.; Kim, P.; Zhang, L.; Kang, S.; Keller, T.H.; Jiricek, J.; Barry, III, C.E. PA-824 Kills Nonreplicating *Mycobacterium tuberculosis* by Intracellular NO Release, *Science*, **2008**, *322*, 1392-1395. PMID: 19039139

18. Boshoff, H.I.M.; Xu, X.; Tahlan, K.; **Dowd, C.S.**; Pethe, K.; Camacho, L.R.; Park, T.-H.; Yun, C.-S.; Schnappinger, D.; Ehrt, S.; Williams, K.; Barry, III, C.E. Biosynthesis and recycling of nicotimamide cofactors in *Mycobacterium tuberculosis*: an essential role for NAD in non-replicating bacilli, *J. Biol. Chem.* **2008**, *283*, 19329-19341. PMID: 18490451

17. Li, X.; Manjunatha, U.H.; Goodwin, M.B.; Knox, J.E.; Lipinski, C.; Keller, T.H.; Barry, III, C.E.; **Dowd, C.S.*** Synthesis and antitubercular activity of 7-*(R)*- and 7-*(S)*-methyl-2-nitro-6-(*S*)-(4-(trifluoromethoxy)benzyloxy)-6,7-dihydro-5*H*-imidazo[2,1-*b*][1,3]oxazines, analogues of PA-824, *Bioorg. Med. Chem. Lett.* **2008**, *18*, 2256-2262. PMID: 18358721

16. Wu, W.; Kehn-Hall, K; Pedati, C.; Zweier, L.; Castro, I.; Klase, Z.; **Dowd, C.S.**; Dubrovsky, L.; Bukrinsky, M.; Kashanchi, F. Drug 9AA reactivates p21/Waf1 and Inhibits HIV-1 Progeny Formation, *Virology Journal* **2008**, *5*, 41. PMID: 18348731

15. Goodwin, M.; Boshoff, H.I.; Barry, III, C.E.; **Dowd C.S.*** Quantification of small molecule organic acids from *Mycobacterium tuberculosis* culture supernatant using ion exclusion liquid chromatography/mass spectrometry. *Rapid Commun. Mass Spec.* **2006**, *20*, 3345-3350. PMID: 17044117

14. Manjunatha, U.H.; Lahiri, R.; Randhawa, B.; **Dowd, C.S.**; Krahenbuhl, J.; Barry, III, C.E.; *Mycobacterium leprae* is naturally resistant to PA-824. *Antimicrob. Agents Chemother.* **2006**, *50*, 3350-3354. PMID: 17005816

13. Kim, P.; Barry, III, C.E.; **Dowd, C.S.*** Novel route to 5-position vinyl derivatives of thiolactomycin: olefination vs. deformylation. *Tetrahedron Lett.* **2006**, *47*, 3447-3451. PMID: 16699591

12. Manjunatha, U.H.; Boshoff, H.I.; **Dowd, C.S.**; Zhang, L.; Albert, T.J.; Norton, J.E.; Pang, S.S.; Dick, T.; Daniels, L.; Barry, III, C.E. Identification of a nitroimidazo-oxazine-specific protein involved in PA-824 resistance in *Mycobacterium tuberculosis*. *Proc. Natl. Acad. Sci.* **2006**, *103*, 431-436. PMID: 16387854

11. Kim, P.; Zhang, Y.M.; Shenoy, G.; Nguyen, Q.A.; Boshoff, H.I.; Manjunatha, U.H.; Goodwin, M.; Lonsdale, J.; Price, A.C.; Miller, D.J.; Duncan, K.; White, S.W.; Rock, C.O.; Barry, III, C.E.; **Dowd, C.S.*** Structure-activity relationships at the 5-position of thiolactomycin: an intact (5*R*)-isoprene unit is required for activity against the condensing enzymes from *Mycobacterium tuberculosis* and *Escherichia coli. J. Med. Chem.* **2006**, *49*, 159-171. PMID: 16392800

10. Shenoy, G.; Kim, P.; Goodwin, M.; Nguyen, Q.–A.; Barry, 3rd, C.E.; **Dowd, C.S.*** Synthesis and spectroscopic differentiation of 2- and 4-alkoxythiotetronic acids. *Heterocycles* **2004**, *63*, 519-527. PMID: 16733529

9. Barry, 3rd, C.E.; Boshoff, H.I.M.; **Dowd, C.S.** Prospects for clinical introduction of nitroimidazole antibiotics for the treatment of tuberculosis. *Curr. Pharmaceutical Des.* **2004**, *10*, 3239-3262. PMID: 15544513

8. Cherukuri, A.; Carter, R.; Brooks, S.; Bornmann, W.; Finn, R.; **Dowd, C.S.**; Pierce, S.K. B cell signaling is regulated by induced palmitoylation of CD81. *J. Biol. Chem.* **2004**, *279*, 31973-31982. PMID: 15161911

7. Domenech, P.; Reed, M.B.; **Dowd, C.S.**; Manca, C.; Kaplan, G.; Barry, 3rd, C.E. The role of MmpL8 in sulfatide biogenesis and virulence of *Mycobacterium tuberculosis*. *J. Biol. Chem.* **2004**, *279*, 21257-21265. PMID: 15001577

6. **Dowd, C.S.**; Leavitt, S.; Babcock, G.; Godillot, A.P.; Van Ryk, D.; Canziani, G.A.; Sodroski, J.; Freire, E.; Chaiken, I.M. β-Turn Phe in HIV-1 Env binding site of CD4 and CD4 mimetic miniprotein enhances Env binding affinity but is not required for activation of co-receptor/17b site. Biochemistry 2002, 41, 7038-7046. PMID: 12033937

5. Li, C.†; **Dowd, C.S.**†; Zhang, W.; Chaiken, I.M. Phage randomization in a charybdotoxin scaffold leads to CD4-mimetic recognition motifs that bind HIV-1 envelope through non-aromatic sequences. *J. Peptide Res.* **2001**, *57*, 507-518. PMID: 11437954 †contributed equally

4. **Dowd, C.S.**; Zhang, W.; Li, C.; Chaiken, I.M. From receptor recognition mechanisms to bioinspired mimetic antagonists in HIV-1/cell docking. *J. Chromatography B* **2001**, *753*, 327-335. PMID: 11334348

3. Rangisetty, J.B.; Dukat, M.; **Dowd, C.S.**; Herrick-Davis, K.; DuPre, A.; Gadepalli, S.; Teitler, M.; Kelley, C.R.; Sharif, N.A.; Glennon, R.A. 1-[2-Methoxy-5-(3-phenylpropyl)]-2-aminopropane unexpectedly shows 5-HT2A serotonin receptor affinity and antagonist character. *J. Med. Chem.* **2001**, *44*, 3283-3291. PMID: 11563927

2. **Dowd, C.S.**; Herrick-Davis, K.; Egan, C.; DuPre, A.; Smith, C.; Teitler, M.; Glennon, R.A. 1-[4-(3-Phenylalkyl)phenyl]-2-aminopropanes as 5-HT2A partial agonists. *J. Med. Chem.* **2000**, *43*, 3074-3084. PMID: 10956215

1. Teitler, M.; **Schieck, C.**; Howard, P.; Sullivan, J.E., III; Iwamura, T.; Glennon, R.A. 5-HT2A serotonin receptor binding: a preliminary structure-affinity investigation. *Med. Chem. Res.* **1997**, *7*, 207-218. (Note: Name spelled Scheick in published article.)

*corresponding author

PUBLICATIONS—BOOK/CHAPTER

C.S. Dowd and L.B. Kier, editors and principal authors, *The Chemistry and Physics of Drugs Used in Anesthesia*, American Association of Nurse Anesthetists, Park Ridge, IL, **2014**.

H.I. Boshoff and **C.S. Dowd.** Chemical Genetics: an evolving toolbox for target identification and lead optimization, In *Applications of functional genomics and systems biology to the development of anti-infectives,* H.I. Boshoff and C.E. Barry III, Eds.; Progress in Drug Research Series, Birkhäuser Publishing Ltd.; Cambridge, MA, **2007**.

L.B. Kier and **C.S. Dowd**, editors and principal authors. *The Chemistry of Drugs for Nurse Anesthetists,* American Association of Nurse Anesthetists, Park Ridge, IL, **2004**.

I.M. Chaiken; S.-J. Wu; C. Plugariu; W. Zhang; C. Li; **C.S. Dowd.** Convergence of Recombinant Mutagenesis and Kinetics Interaction Analysis for Revealing Receptor Recognition Mechanisms and Designing Receptor Ligands, In *Thermodynamics of Drug-Receptor Interactions*, R. Raffa, Ed.; John Wiley & Sons; New York, **2001**.

PATENTS AND PATENT APPLICATIONS

US Patent No. 10,813,941, awarded October 27, **2020**, Title: Methods and Compounds for Treating Malaria. Inventors: **Dowd, C.S.**; Odom, A.R.; Edwards, R.; Brothers, R.C.

US Patent No. 9,593,136, awarded March 14, **2017**, Title: Compounds for inhibiting 1-deoxy-D-xylulose-5-phosphate reductoisomerase. Inventors: Boshoff, H.I.; **Dowd, C.S.**; Jackson, E.R.; Kehn-Hall, K.; Lee, R.E.; Lee. R.; San Jose, G.

PCT/US2018/039777 application filed June 27, **2018**. Provisional application No. 62/525,616, filed June 27, 2017. Title: Novel Alkenyl and Beta-Substituted Phosphonates as Antimicrobial Agents. Inventors: **Dowd, C.S.**; Wang, X.; Brothers, R.C.; Odom, A.R.; Edwards, R.; Meyers, M.; Arnett, S.; Couch, R.; Heidel, K.

PCT/US2019/037761 application filed June 18**, 2019.** Provisional application No. 62/686,416, filed June 18, 2018. Title: New Antibiotics for Veterinarian Staphylococcal Infections. Inventors: **Dowd, C.S.**; Odom, A.R.; Edwards, R.; Heidel, K.M.; Wang, X.; Chofor, R.

MEDIA COVERAGE AND PARTICIPATION

Profiled in "On the Money" by Matthew Stoss, GW Research Magazine, Spring 2016 issue. https://researchmagazine.gwu.edu

"Researcher Receives $2.6 Million Grant to Study Treatment for Malaria and Tuberculosis" https://gwtoday.gwu.edu/researcher-receives-26-million-grant-study-treatment-malaria-and-tuberculosis

"Research with an Impact" 2015. Celebrating the opening of Science and Engineering Hall at GWU. http://seh.gwu.edu/research-impact.

"A New Target in the Fight Against TB" by Danny Freedman, *Untrodden Ground* (GWU Research Blog) 2013. http://www.gwresearchblog.com/2013/07/01/a-new-target-in-the-fight-against-tb/#more-2346. Also appears in *GW Today* (http://gwtoday.gwu.edu/new-target-fight-against-tb).

GW Expert Series 2012, Research highlighted on WJLA ABC: http://www.youtube.com/watch?v=ne5HAXlaF_4

ColonialCast Faculty Testimonial--CITL, GWU. Presented at the 2012 Educause National Conference, Denver, CO. GW contact: Yordanos Baharu. https://www.youtube.com/watch?v=IcArkSfjNH8

"Conversations: Collaboration", 2011, Faculty and leadership discuss collaboration across disciplines in the new GWU Science and Engineering Hall, http://giving.gwu.edu/science-engineering-hall

Video for Colonial Inauguration, as requested by CCAS Dean and Department Chair, April 2009.

Interviewed for Chemical & Engineering News article on scientific publishing, C&EN 2007, 85 (33), 46-49.

RESEARCH SUPPORT

Ongoing Research Support

R01 AI123433 (NIAID/NIH) 2/1/16-1/31/21 (NCE)
Title: Inhibition of MEP pathway Isoprenoid Biosynthesis
Goal: To design, synthesize and evaluate novel small molecules as inhibitors of the MEP pathway (via Dxr) in Mtb, P. falciparum, and other human pathogens; $2,612,455 (total).
Role: PI

R01 AI136836 (NIAID/NIH) 4/1/18-3/31/23
Title: Inhibitors of CoA Biosynthesis as Novel Antitubercular and Antistaphylococcal Agents
Goal: To evaluate and chemically validate the CoaBC enzymes as novel drug targets against *M. tuberculosis* and *S. aureus*.
Role: Sub-awardee (Strauss, PI)

Completed Research Support

R21 AI123808 (NIAID/NIH) 3/1/16-2/28/18
Title: Targeting IspC to Treat Malaria
Goal: To optimize a series of inhibitors as antimalarial therapeutics; $122,784 (Dowd portion).
Role: Sub-awardee (Odom, PI)

Clinical and Translational Science Institute at Children's National (CTSI-CN) 10/1/15-6/30/16
Title: Targeting Malaria Through Inhibition of MEP Isoprenoid Biosynthesis
Goal: To synthesize and evaluate a novel set of antimalarial agents with improved bioactivity, $37,500.
Role: PI

Columbian College Facilitating Fund, George Washington University 07/01/14-06/30/15
Title: A novel class of Dxr inhibitors against TB and other human pathogens
Goal: To synthesize and evaluate a new class of compounds as novel antibiotics; $7,300.
Role: PI

University Facilitating Fund, George Washington University 07/01/13 – 06/30/14
Title: NAD synthetase inhibitors as novel antitubercular agents
Goal: To synthesize and evaluate novel NAD inhibitors for antiMtb activity; $14,991.
Role: PI

DC-D-CFAR, George Washington University 11/1/12
Title: Boronyl dipeptides as inhibitors of HIV infectivity and the human proteasome
Goal: To investigate the cross-over activity of novel antitubercular boronyl dipeptides; $2,500.
Role: PI

University Facilitating Fund, George Washington University 07/01/11 – 06/30/12
Title: Synthesis of Small Molecule Inhibitors of the Mycobacterium tuberculosis Proteasome
Goal: Continue the synthesis and evaluation of Mtb inhibitors using the proteasomal pathway; $11,141.
Role: PI

RC1 AI086453 (NIAID/NIH) Dowd (PI) 09/26/09 – 08/31/12
Title: Inhibitors of the nonmevalonate pathway to kill Mycobacterium tuberculosis
Goal: Using structure-based design, to design, synthesize and evaluate novel small molecules as inhibitors of the nonmevalonate pathway (via Dxr) in Mtb; $721,525.
Role: PI

University Facilitating Fund, George Washington University 07/01/10 – 06/30/11
Title: Systematic investigation of the ligand binding requirements of the Mtb proteasome
Goal: To synthesize and evaluate small molecule inhibitors of Mtb via the proteasomal pathway; $16,248.
Role: PI

University Facilitating Fund, George Washington University 07/01/08 – 06/30/09
Title: Chemical Tools to Target Latent Mycobacterium Tuberculosis: Inhibitors of Dxr
Goal: To synthesize and evaluate small molecules as inhibitors of Mtb via the nonmevalonate pathway; $16,579.
Role: PI

University Seed Grant, George Washington University 01/01/08 – 12/31/08
Title: Small molecule libraries to find lead compounds for important biological problems
Goal: To use small molecule chemical libraries to find novel inhibitors of processes related to Mtb and HIV; $50,000 (Dowd portion: $24,945).
Role: Co-PI (with Fatah Kashanchi)

INVITED PRESENTATIONS

41. University of Rochester Medical Center, Rochester, NY, March 2020 (virtual).
40. Wake Forest University, Winston-Salem, NC, February 2020.
39. 5th International Conference on Drug Discovery and Lead Optimization, Newton, MA, November 2019.
38. University of Massachusetts, Amherst, MA, October 2019.
37. University of Rochester Medical Center, Rochester, NY, March 2019.
36. Department of Chemistry, Howard University, Washington DC, February 2019.
35. Advances in Organic Synthesis Symposium, SERMACS, Charlotte, NC, November 2017.
34. Gordon Research Conference, TB Drug Development, Lucca, Italy, June 2017.
33. NIH/FDA TB Research Initiative World TB Day Mini-Symposium, FDA, April 2017.
32. Department of Microbiology, Uniformed Services University of the Health Sciences, December 2016.
31. Department of Pharmacology, Johns Hopkins University, November 2016.
30. Department of Medicinal Chemistry, University of Maryland Baltimore, April 2014.
29. Department of Chemistry, Virginia Commonwealth University, February 2014.
28. Department of Medicinal Chemistry, University of Minnesota, January 2014.
27. Frontiers at the Chemistry-Biology Interface Symposium, UMD College Park, May 2013.
26. Department of Chemistry, University of Maryland Baltimore County, April 2013.
25. Department of Chemistry, Catholic University, Washington DC, November 2012.
24. Department of Chemistry & Biochemistry, University of Maryland College Park, September 2012.
23. University of Ghent (Belgium), June 2012.
22. Mid-Atlantic Regional Meeting (MARM) of the ACS, May 2012.
21. School Without Walls, Washington DC, February 2012.
20. Department of Chemistry, St. Mary's College, November 2011.
19. FORWARD meeting, Gallaudet University, panelist, May 2011.
18. Model United Nations, WHO group, March 2011.
17. Department of Microbiology, Immunology and Tropical Medicine, GWUMC, February 2011.
16. Department of Chemistry, George Mason University, May 2010.
15. CCAS Research Team Meeting, GWU, March 2010.
14. National Biodefense Center, George Mason University, December 2009.
13. Department of Chemistry, Shippensburg University, March 2009.
12. Department of Health Sciences, Ferrum College, March 2008.
11. Departmental retreat, Department of Chemistry, GWU, September 2007.
10. Tuberculosis Drug Development Gordon Research Conference, Oxford, UK, August 2007.
9. NIDDK Chemistry Seminar Series, NIH, Bethesda, MD, 2006.
8. Department of Pharmaceutical Sciences, Oregon State University, 2005.
7. NITD Symposium on Tuberculosis, Bagamoyo, Tanzania, 2005.
6. NIH International TB Working Group, NIH, Bethesda, MD, 2005.
5. Eighteenth Symposium of the Protein Society, San Diego, CA, 2004.
4. Tuberculosis Drug Development Gordon Research Conference, Oxford, UK, 2003.
3. National Institute for Pharmaceutical Research and Development (NIPRD), Abuja, Nigeria, 2002.
2. St. Jude Children's Research Hospital, Memphis, TN, 2001.
1. The Intravenous Nurses Society, New York City Metro Area Chapter, Mineola, NY, 2000.

SELECTED POSTER PRESENTATIONS

Butman, H.S.; Wang, X.; Brothers, R.C.; Evans, J.C.; Mizrahi, V.; Strauss, E.; **Dowd, C.S.** Design and Synthesis of Pan-CMP Mimics to Inhibit CoaBC, a Novel Antibacterial Drug Target, Frontiers at the Chemistry-Biology Interface Symposium (FCBIS), NIH, May 2019.

Heidel, K.M.; Edwards, R.L.; Boshoff, H.I.; Meyers, M.; Odom John, A.R; **Dowd, C.S.** Synthesis of Lipophilic Prodrugs of Fosmidomycin as MEPicides, Frontiers at the Chemistry-Biology Interface Symposium (FCBIS), NIH, May 2019.

Alaparthi, K.D.; Wang, R.; Edwards, R.L.; Boshoff, H.I.; Odom John, A.R.; **Dowd. C.S.** Synthesis of FR900098 Analogs as Inhibitors of the Methylerythritol 4-Phosphate (MEP) Pathway in Plasmodium falciparum and *Mycobacterium tuberculosis,* GW Research Days and Frontiers at the Chemistry-Biology Interface Symposium (FCBIS), NIH, May 2019.

Lish, M.S.; Butman, H.S.; Strauss, E.; **Dowd, C.S.** Design and Synthesis of CoaBC Inhibitors, GW Research Days and Frontiers at the Chemistry-Biology Interface Symposium (FCBIS), NIH, May 2019.

Beck, R.V.; Bartholomew, G.L.; Heidel, G.L.; Edwards, R.L.; Odom John, A.R.; **Dowd, C.S.** Design and Synthesis of Novel MEPicides to Inhibit Malaria and Tuberculosis, GW Research Days, April 2019.

Bartholomew, G.L.; Beck, R.V.; Heidel, K.M.; Edwards, R.L.; Odom John, A.R.; **Dowd, C.S.** Novel Small Molecule Design and Synthesis to Selectively Inhibit *Dxr* and Combat Malaria and Tuberculosis, GW Research Days and Frontiers at the Chemistry-Biology Interface Symposium (FCBIS), NIH, May 2019.

Butman, H.S.; Wang, X.; Brothers, R.C.; Evans, J. C.; Mizrahi, V.; Strauss, E.; **Dowd, C.S.** Synthesis of Pan-CMP Mimics to Inhibit CoaBC, StellenCoA Meeting, Stellenbosch University, South Africa, November 2018.

Butman, H.S.; Wang, X.; Brothers, R.C.; Evans, J. C.; Mizrahi, V.; Strauss, E.; **Dowd, C.S.** Synthesis of Pan-CMP Mimics to Inhibit CoaBC, 256th National Meeting of the American Chemical Society, Boston, MA. August 2018**,** MED117.

Heidel, K.M.; Edwards, R.L.; Arnett, S.; Boshoff, H.I.; Meyers, M.J.; Odom, A.R.; **Dowd, C.S.** Synthesis and Evaluation of α, β-Unsaturated Phosphonate Esters as DXR Inhibitors, 256th National Meeting of the American Chemical Society, Boston, MA, August 2018, MED103.

Butman, H.S.; Wang, X.; Brothers, R.C.; Evans, J. C.; Mizrahi, V.; Strauss, E.; **Dowd, C.S.** Synthesis of Pan-CMP Mimics to Inhibit CoaBC, Frontiers at the Chemistry Biology Interface Symposium (FCBIS), University of Pennsylvania, May 2018.

Wang, W.; Brothers, R.C.; Wang, S.R.; Edwards, R.; Arnett,S.; Meyers, M.; Couch, R.D.; Boshoff, H.I.; Odom, A.R.; **Dowd, C.S.** Perfecting an old bullet: Redesigning Fosmidomycin Analogs as Novel Antimicrobials, New Antibiotic Drug Development Gordon Research Conference, Ventura, CA, March 2018.

Wang, X.; Edwards, R.L.; Haymond, A.; Brothers, R.C.; Couch, R.D.; Boshoff, H.I.; Odom, A.R.; **Dowd, C.S.** Evaluating fosmidomycin analogs as antimicrobial agents through Dxr inhibition, 254th National Meeting of the ACS, Washington DC, 2017, MEDI184.

Heidel, K.M.; Edwards, R.L.; Arnett, S.; Boshoff, H.I.; Meyers, M.J.; Odom, A.R.; **Dowd, C.S.** Synthesis of α, β-Unsaturated Phosphonate Esters as DXR Inhibitors, 254th National Meeting of the ACS, Washington DC, 2017, MEDI154.

Wang, R.; Edwards, R.L.; Haymond, A.; Boshoff, H.I.; Odom, A.R.; Couch, R.; **Dowd, C.S.** Synthesis of FR900098 Analogs as Inhibitors of *Plasmodium falciparum* and *Mycobacterium tuberculosis* 1-Deoxy-D-Xylulose-5-Phosphate Reductoisomerase (Dxr), 254th National Meeting of the ACS, Washington DC, 2017, MEDI324.

Wang, X.; Edwards, R.L.; Haymond, A.; Brothers, R.C.; Couch, R.D.; Boshoff, H.I.; Odom, A.R.; **Dowd, C.S.** Design, Synthesis and Evaluation of α, β-Unsaturated Fosmidomycin Analogs as Antimicrobial Agents,

Frontiers at the Chemistry-Biology Interface Symposium, University of Delaware, May 2017.

Dowd, C.S.; Brothers, R.C.; Wang, X.; Edwards, R.; Tsang, P.; Haymond, A.; Johny, C.; Boshoff, H.I.; Couch, R.D.; Odom, A.R. Next generation MEPicide inhibitors: Potent leads against *M. tuberculosis* and *P. falciparum*, Bioorganic Chemistry Gordon Research Conference, June 2016.

Edwards, R.L.; Brothers, R.C.; Kumar, T.R.; Fidock, D.A.; **Dowd, C.S.**; Odom, A.R. Identifying potent and safe MEP pathway inhibitors in *Plasmodium falciparum*, Keystone Symposia: Drug Discovery for Parasitic Diseases, January 2016.

Wang, X.; Brothers, R.C.; McKay, K.T.; San Jose, G.; Jackson, E.R.; Haymond, A.; Johnny, C.; Couch, R.D.; Boshoff, H.I.; **Dowd, C.S.** Design, Synthesis and Evaluation of α, β-Unsaturated Fosmidomycin Analogs as Antitubercular Drugs, 44th National Organic Symposium, American Chemical Society, College Park, MD, July 2015.

Brothers, R.C.; Fisher, R.; Shear, B.; Haymond, A.; Johnny, C.; Couch, R.D.; Boshoff, H.I.; **Dowd, C.S.** Synthesis of β-Substituted Phosphonic Acids as Non-Mevalonate Pathway Inhibitors targeting *Mycobacterium tuberculosis* 1-Deoxy D-xylulose-5-phosphate reductoisomerase (Mtb Dxr), 44th National Organic Symposium, American Chemical Society, College Park, MD, July 2015.

Brothers, R.C.; Shear, B.; Haymond, A.; Chinchu, J.; Couch, R.D.; Boshoff, H.I.; **Dowd, C.S.** Synthesis of natural product FR33289 and analogs targeting inhibition of Mtb Dxr, *Abstracts of Papers*, 248th National Meeting of the ACS, San Francisco, CA; American Chemical Society: Washington DC, 2014, MEDI 534.

Dowd, C.S.; San Jose, G.; Jackson, E.J.; Haymond, A.; Johny, C.; Boshoff, H.I.; Couch, R.D. Synthesis and Evaluation of FR900098 Analogs as M. tuberculosis and Y. pestis Dxr (IspC) Inhibitors, Bioorganic Chemistry Gordon Research Conference, June 2014.

Clements, G.V.; Boshoff, H.I.; Lin, G.; **Dowd, C.S.** Design and Synthesis of Boronyl Dipeptides as *Mycobacterium tuberculosis* Proteasome Inhibitors, Bioorganic Chemistry Gordon Research Conference, June 2014.

Clements, G.V.; Yepikhin, A.S.; Boshoff, H.I.; **Dowd, C.S.** *Mycobacterium tuberculosis* Proteasome Inhibitors, Frontiers at the Chemistry-Biology Interface Symposium, University of Maryland College Park, May 2013.

Clements, G.V.; Yepikhin, A.S.; Boshoff, H.I.; **Dowd, C.S.** *Mycobacterium tuberculosis* Proteasome Inhibitors, *Abstracts of Papers*, 245th National Meeting of the ACS, New Orleans, LA; American Chemical Society: Washington DC, April 2013, MEDI 81.

Titzell, C.M.; Jackson, E.R.; Uh, E.; **Dowd, C.S.** Small Molecule Inhibition of *Mycobacterium tuberculosis* Enzyme DXR, DC STEM Science Fair, March 2013. 2nd Place Grand Award Winner (Senior division). Represented DC at the International Science and Engineering Fair (ISEF), Phoenix, AZ, May 2013.

San Jose, G.; Hill, L.; Kehn-Hall, K.; Boshoff, H.I.; Lee, R.E.; **Dowd, C.S.** Design, Synthesis and Biological Evaluation of Novel Mtb-specific Dxr Inhibitors as Potential Anti-Tubercular Agents, *Abstracts of Papers*, 242st National Meeting of the ACS, Denver, CO; American Chemical Society: Washington DC, 2011, MEDI 110.

Jackson, E.R.; San Jose, G.; Hill, L.; Kehn-Hall, K.; Dowd, C.S. Design, Synthesis and Evaluation of Mtb Dxr Structure-Based Inhibitors, Gordon Research Conference, Tuberculosis Drug Development, Lucca (Barga) Italy, 2011.

Uh, E.; Jackson, E.R.; San Jose, G.; McKenney, E.; Maddox, M.; Lee, R.; van Hoek, M.; Boshoff, H.I.; Lee, R.; **Dowd, C.S.** Antibacterial activity of lipophilic esters of Mtb Dxr inhibitors, Gordon Research Conference, Tuberculosis Drug Development, Lucca (Barga) Italy, 2011.

McKenney, E.; Uh, E.; Jackson, E.R.; San Jose, G.; **Dowd, C.S.**; Van Hoek, M. The Use of Fosmidomycin Derivatives Against *Francisella tularensis* subsp. *Novicida*, Mid-Atlantic Microbial Pathogenesis Meeting, Wintergreen VA, 2011.

McKenney, E.; Uh, E.; Jackson, E.R.; San Jose, G.; Couch, R.; **Dowd, C.S.**; Van Hoek, M. Fosmidomycin and Derivatives as Antimicrobial agents Against *Francisella tularensis subsp. novicida,* American Society for

Microbiology Meeting, Washington DC, 2011.

Kim, P.; Zhang, L.; Manjunatha, U.H.; Singh, R.; Patel, S.; Jiricek, J.; Keller, T.H.; Boshoff, H.I.; Barry, C.E.; Dowd, C.S. SAR of antitubercular nitroimidazoles: Aerobic and anaerobic activities of 4-and 5-nitroimidazoles, Pacifichem 2010, International Chemical Congress of Pacific Basin Societies, Honolulu, HI, 2010, HEALTH-288.

Jackson, E.R.; Kehn-Hall, K.; Boshoff, H.I.; Kashanchi, F.; **Dowd, C.S.** Small Molecules to Target *Mycobacterium tuberculosis* 1-Deoxy-D-xylulose-5-phosphate reducto-isomerase (MtbDxr), *Abstracts of Papers,* 240th National Meeting of the ACS, Boston, MA; American Chemical Society: Washington DC, 2010, MEDI 141.

Clements, G.V.; Boshoff, H.I.; **Dowd, C.S.** Design and Synthesis of Prokaryotic Proteasome Inhibitors, *Abstracts of Papers*, 240th National Meeting of the ACS, Boston, MA; American Chemical Society: Washington DC, 2010, MEDI 470.

San Jose, G.; Kehn-Hall, K.; Boshoff, H.I.; Kashanchi, F.; **Dowd, C.S.** Synthesis of small molecule inhibitors of Mtb Dxr from *Mycobacterium tuberculosis*, *Abstracts of Papers*, 240th National Meeting of the ACS, Boston, MA; American Chemical Society: Washington DC, 2010, MEDI 374.

Uh, E.; Jackson, E.R.; Boshoff, H.I.; **Dowd, C.S.** Synthesis of Analogs of FR900098 to inhibit *Mycobacterium Tuberculosis* 1-Deoxy-D-xylulose-5-phosphate reducto-isomerase (MtbDxr). 3rd Annual Mid-Atlantic Frontiers at the Chemistry - Biology Interface Symposium, Johns Hopkins University, May 2010.

Jackson, E.R.; Hirst, E.S.; Izadpanah, N.; Butler, S.; Bruno, K.; Kehn-Hall, K.; Boshoff, H.I.; Kashanchi, F.; **Dowd, C.S.** Small Molecules to Inhibit Mycobacterium Tuberculosis Dxr. 2nd Annual Mid-Atlantic Frontiers at the Chemistry - Biology Interface Symposium, University of Maryland, Baltimore County, May 2009.

Jackson, E.R.; Kehn-Hall, K.; Boshoff, H.I.; Kashanchi, F.; **Dowd, C.S.** Novel Synthesis of Small Molecules to Target *Mycobacterium tuberculosis* 1-Deoxy-D-xylulose-5-phosphate reducto-isomerase (Dxr). Chemical Insights into Biological Processes Symposium, August 15-16, 2008, Frederick, Maryland. Sponsored by the Center for Cancer Research and the Chemistry and Structural Biology Faculty of the NCI, NIH.

Kim, P.; Manjunatha, U.; Barry, III, C.E.; **Dowd, C.S.** Synthesis and potency of PA-824 and metronidazole analogs as probes for anaerobic vs. aerobic activity against Mycobacterium tuberculosis. *Abstracts of Papers*, 233rd National Meeting of the American Chemical Society, Chicago, IL; American Chemical Society: Washington DC, 2007, MEDI 046.

Kim, P.; Zhang, Y.M.; Shenoy, G.; Manjunatha, U.; Boshoff, H.; Nguyen, Q.A.; Goodwin, M.; Miller, D.; White, S.; Duncan, K.; Rock, C.O.; Barry, III, C.E.; **Dowd, C.S.** Synthesis of 4-position hydrophilic derivatives of thiolactomycin as antitubercular agents. *Abstracts of Papers*, 230th National Meeting of the American Chemical Society, Washington DC; American Chemical Society: Washington DC, 2005, MEDI 457.

Goodwin, M.B.; Boshoff, H.; **Dowd, C.S.**; Barry, III, C.E. Quantification of cellular small molecule organic acids using ion exclusion LC/MS. *Abstracts of Papers*, 230th National Meeting of the American Chemical Society, Washington DC; American Chemical Society: Washington DC, 2005, ANYL 159.

Kim, P.; Zhang, Y.M.; Shenoy, G.; Nguyen, Q.A.; Boshoff, H.I.; Manjunatha, U.; Goodwin, M.B.; Lonsdale, J.; Price, A.C.; Duncan, K; White, S.W.; Rock, C.O.; Barry, III, C.E.; **Dowd, C.S.** Thiolactomycin: The Importance of the Isoprene Side Chain Against KasA/B in *Mycobacterium tuberculosis*. Gordon Research Conference on Tuberculosis Drug Development, University of New England, Biddeford, Maine, 2005.

Zhang, L.; Manjunatha, U.; Goodwin, M.B.; Keller, T.; **Dowd, C.S.**; Barry, III, C.E. Structural Variants of PA-824 as Potential Antitubercular Agents. Gordon Research Conference on Tuberculosis Drug Development, University of New England, Biddeford, Maine, 2005.

Kim, P.; Shenoy, G.; Nguyen, Q.A.; Goodwin, M.; **Dowd, C.S.**; Barry III, C.E. Synthesis of racemic thiolactomycin (TLM) and its C(5) derivatives. *Abstracts of Papers*, 225th National Meeting of the American Chemical Society, New Orleans, LA; American Chemical Society: Washington DC, 2003, ORGN 288.

Dowd, C.S.; Li, C.; Chaiken, I.M. CD4 mimetic peptides and the mechanism of HIV entry. *Abstracts of Papers*, 221st National Meeting of the American Chemical Society, San Diego, CA; American Chemical Society: Washington DC, 2001, MEDI 114.

Lee, K.S.; Zhang, L.; **Schieck-Dowd, C.**; Jones, D.W.; Gorey, J.G.; Glennon, R.A.; Weinberger, D.R. Estrogen upregulates $5HT_2$ binding activity in the frontal cortex of rats. Presented at the 48th Annual Meeting of The Society for Nuclear Medicine, 2001. *J. Nucl. Med.* **2001**, *42*, Suppl. S (#397).

Lee, K.S.; Jones, D.W.; Eckelman, W.C.; Adams, D.; Gorey, J.G.; **Schieck, C.L.**; Glennon, R.A.; Weinberger, D.R. An Optimal Radiobromination Method for Stannylated Ligands for PET Imaging. Presented at the 47th Annual Meeting of The Society for Nuclear Medicine, 2000.

Lee, K.S.; Zhang, L.; **Schieck, C.L.**; Jones, D.W.; Eckelman, W.C.; Gorey, J.G.; Adams, H.R.; Glennon, R.A.; Weinberger, D.R. Autoradiography of R(-)-[Br-76]DOB, a Potent 5-$HT_{2A/2C}$ Serotonin Receptor Agonist, in Rat Brain. Presented at the 47th Annual Meeting of The Society for Nuclear Medicine, 2000. *J. Nucl. Med.* **2000**, *41*, Suppl. S. (#1069).

Schieck, C.L.; Lee, K.S.; Jones, D.W.; Gorey, J.G.; Saunders, R.C.; Urbina, R.A.; Knable, M.B.; Weinberger, D.R.; Glennon, R.A. [123I]-DOI: A novel 5-HT2 receptor SPECT imaging agent. *Abstracts of Papers*, 217th National Meeting of the American Chemical Society, Anaheim, CA; American Chemical Society: Washington DC, 1999, MEDI 247.

Students supervised:

High School: 3

Student	Period in Group	Status/Location
Zack Sheldon	Summer 2010	Oberlin College
Johneice Pearson	Summer 2011	University of Alabama
Camille Titzell	June 2012-June 2013	Temple University

Undergraduate: 24

Student	Period in Group	Status/Location
Elizabeth Hirst	2007-2009	Boston Univ. PhD; Biogen Idec Postdoc
Shauna Butler	2008-2009	GWU (MD Program)
Najmeh Izadpanah	2008-2009	Howard Univ. MD; anesthesia resident
Katey Bruno	2009-2010	
Jessica Rodriguez	Summer 2009	GWU (MD Program)
Elizabeth Humes	Summer 2009	Yale University (MPH Program)
Eugene Uh	2009-2010	Univ. of Grenada (MD Program)
Julia Lister	2010-2011	University of Minnesota (MD Program)
Michael Forman	2011-2012	Harvard University (DDS Program)
Emma Edelstein	2012-2013	Boston College (Chem PhD Program)
Alexander Yepikhin	2012-2013	Rensselaer Polytechnic (PhD Program)
Katelyn Brendel	2013-2014	Philadelphia College of Osteopathic Medicine (DO Program)
Brian Shear	2013-2015	Central Michigan Univ. (MD Program)
Richard Fisher	2014-2016	Postbac at NIH
Allyson Dang	2014-2016	UDel Chem PhD program
Kyle McKay	2015-2016	UVM Chem PhD program
Danish Imtiaz	2015-2016	GWU (MD Program)
Abigail Pepin	2016-2017	GWU (MD Program)
Devi Alaparthi	2017-2019	
Richard Beck	2017-2019	GW MS student
Matt Lish	2017-2019	Univ. Wisconsin PhD program
Logan Bartholomew	2018-2020	Univ. CA Berkeley PhD program
Oroob Alreheili	Summer 2019	Current UG student
Sam Kirby	2019-present	Current UG student

Graduate/Postdoc: 11

Student	Period in Group	Status/Location
Emily Jackson	2007-2013 (PhD)	Chemical Safety Specialist, UT Dallas
Gail Clements	2008-2014 (PhD)	Asst. Teaching Professor, GWU
Adam Lentscher	2009-2011	Seattle, WA
Geraldine San Jose	2010-2012 (Postdoc)	Bordeaux, France
R. Carl Brothers	2010-2016 (PhD)	Scientist at Indian Head Nat'l Labs
Jack (Xu) Wang	2012-2018 (PhD)	Scientist at Progenra
Kenneth Heidel	2015-present	Current PhD student
Steve (Ruiquin) Wang	2016-2018 (MS)	Univ. of Minnesota PhD program
Hailey Butman	2016-present	Current PhD student
Rene Chofor	2016-2019 (Postdoc)	Duquesne University
Darean (Dee) Bague	2018-present	Current PhD student

READER AND/OR EXAMINER ON STUDENT COMMITTEES:

Doctoral committees:

Mark Frisch (2008)
Stephanie McCartney (2009)
Bindesh Shrestha (2010)
Karah Knope (2010)
Stephen McCraken (2010, University of Auckland)
Chao (Jerry) Yan (2011)

Esra Yonel (2011)
Thomas Verbrugghen (2012, University of Ghent)
Jessica Stollee (2012)
Anna Korovina (2013)
Jonathan Cox (2015)
Robin Samuel (2015)
Leanne Barnard (2015, Stellenbosch University)
Erin Adkins (2016)
Amanda Haymond (2017, George Mason University)
Paul Njaria (2017, University of Cape Town)
Rosemary Onjiko (2017)
Sylwia Stopka (2017)
Katie Wright (2017)
Matthew Finn (2018)
Jarod Fincher (2019)
Haley Ball (2020, George Mason University)

Candidacy committees:
Esra Yonel (2008)
Nausheena Baig (2011)
Paula Cantos (2012)
Katie Wright (2015)
Matthew Finn (2015)
Rosemary Onjiko (2016)
Diana Ainembabzi (2018)
Haley Ball (2019, George Mason University)
Kai Wang (2019)