

February 27, 2025

## CURRICULUM VITAE

NAME: Andrew Coop

TITLE: Professor  
Associate Dean for Graduate Programs  
Department of Pharmaceutical Sciences  
University of Maryland School of Pharmacy  
20 N. Pine Street, Rm N309E  
Baltimore, Maryland 21201.  
Phone 410-706-2029  
Cell 443-801-6034  
Fax 410-706-5017  
Email [acoop@rx.umaryland.edu](mailto:acoop@rx.umaryland.edu)  
Webpage <http://www.pharmacy.umaryland.edu/faculty/acoop>

RESIDENCE STATUS: USA Permanent Resident

EDUCATION: B.A., M.A. St. Catherine's College,  
University of Oxford,  
Oxford, England, 1987-1991.  
Thesis: *The Chemistry of Organolead Compounds*.  
Supervisor: Dr. M. G. Moloney

Ph.D. School of Chemistry,  
University of Bristol,  
Bristol, England, 1991-1994.  
Thesis: *Ring Constrained Analogues of Buprenorphine*.  
Supervisor: Dr. J. W. Lewis.

PROFESSIONAL EXPERIENCE: 1994-1995 Postdoctoral Position:  
School of Chemistry, University of Bristol,  
Bristol, England.  
Design of Delta Selective PET Ligands.

1995-1998 Fogarty Fellow:  
Sponsor: Dr. K. C. Rice;  
Laboratory of Medicinal Chemistry, NIDDK, NIH,  
Bethesda, Maryland, USA.  
Design and Synthesis of Delta Opioid Selective Ligands.

1999-2003 Assistant Professor:  
Department of Pharmaceutical Sciences  
University of Maryland School of Pharmacy  
Baltimore, Maryland, USA.

2003-2008 Associate Professor:  
Department of Pharmaceutical Sciences  
University of Maryland School of Pharmacy  
Baltimore, Maryland, USA.

2008- Professor:  
Department of Pharmaceutical Sciences  
University of Maryland School of Pharmacy  
Baltimore, Maryland, USA.

ADMINISTRATIVE ROLES: 2006-2007 Vice Chair of Academic Affairs:  
Department of Pharmaceutical Sciences

University of Maryland School of Pharmacy  
Baltimore, Maryland, USA.

2007-2015 Chair:  
Department of Pharmaceutical Sciences  
University of Maryland School of Pharmacy  
Baltimore, Maryland, USA.

2016-2024 Associate Dean for Academic Affairs:  
University of Maryland School of Pharmacy  
Baltimore, Maryland, USA.

2023-2024 Interim Associate Dean for Graduate Programs:  
University of Maryland School of Pharmacy  
Baltimore, Maryland, USA.

2024 Interim Vice Chair for Education  
Department of Pharmaceutical Sciences  
University of Maryland School of Pharmacy  
Baltimore, Maryland, USA.

2024- Associate Dean for Graduate Programs:  
University of Maryland School of Pharmacy  
Baltimore, Maryland, USA.

#### TEACHING EXPERIENCE:

#### UNIVERSITY OF MARYLAND:

##### Postdoctoral Fellows

Dr. Dean Meada  
Dr. Amina Kausar  
Dr. Weibin Chen  
Dr. Huifang Wu  
Dr. Rohit Kolhatkar  
Dr. Sucheta Kudrimoti  
Dr. Padmavani Bezawada  
Dr. William Motel  
Dr. Imran Ansari  
Dr. Chad Johnson

##### Graduate students

Marco Bennett  
Linn Thatcher  
Matthew Metcalf  
Christopher Cunningham  
Susan Mercer  
Trudy Smith  
Marilyn Matthews  
Lidiya Stavitskaya  
Jessica Harker (MS)  
Chad Johnson

##### Technicians

Abby Foster  
Xiaowen Yang

##### Undergraduate and high school students

Nick Zink  
Elizabeth Kenez  
Christopher Berry  
Maura O'Neill

Megan Pierson  
 Deepti Patel  
 Sami Karkar  
 Hannah Campbell  
 Brooke Hornberger

Professional	2022-	MAPS	Maryland Academy for Pharmacy Success (summer pharmacy readiness course) (Co-Course manager 2022- 2023)
Professional	2023-	Winter MAPS	Maryland Academy for Pharmacy Success (winter readiness course for Medicinal Chemistry) (Course manager 2023- )
Graduate (MS)	2014-	REGS 614	Drug and Biologics Discovery (Course manager 2015 - 2016) (Module manager 2014 - )
Graduate (MS)	2019 -	MCST 602	PDA and Cannabis Pharmacology (Co-Course manager 2019 - )
Graduate (MS)	2019 -	MCST 613	Medical Cannabis Symposium
Graduate (MS)	2020 -	MCST 603	Cannabis Chemistry & Drug Delivery (Co-Course manager 2020 - 2022)
Graduate (MS)	2020 -	MCST 608	Cannabis Genomics & Pharmacognosy (Co-Course manager 2020 - )
Graduate (MS)	2020 -	MCST 609	Advanced Cannabinoid Chemistry and Analytic Testing Methodology (Co-Course manager 2020 - )
Graduate (MS)	2020 -	MCST 614	Medical Cannabis Capstone 1
Graduate (MS)	2021 -	MCST 615	Medical Cannabis Capstone 2
Graduate (MS)	2022 -	MCST 616	Medical Cannabis Advocacy (Co-Course manager 2022 - )
Graduate (MS)	2024 -	MCST 618	Medical Psychedelics Science and Therapeutics (Co-Course manager 2024 - )
Professional	2018 -	PHMY 5008	Advanced Communication Strategies (Co-coursemanager 2018 - ) Not offered winter 2021 due to covid
Professional	2020 - 2023	PHAR EX1	Progression Readiness – Level 1 (Course manager 2020 - 2023)
Professional	2020 - 2023	PHAR EX2	Progression Readiness – Level 2 (Course manager 2020 - 2023)
Professional	2020 - 2023	PHAR EX3	Progression Readiness – Level 3 (Course manager 2020 - 2023)
Professional	2020 -	PHMY 5023	Cannabis Pharmacology and Therapeutics

			(Course manager 2020 - )
Professional	2016-2019	PHAR 5019	Abilities Laboratory VI (Co-course manager 2016 - 2019)
Professional	2014-	PHAR 5001	Applied Science and Therapeutics 1
Professional	2014-	PHAR 5002	Applied Science and Therapeutics 2
Professional	2014-2022	PHAR 5005	Applied Science and Therapeutics 5
Professional	2014-	PHAR 5000	General Patient Management
Professional	2011-2015	PHAR 568	Applied Pharmaceutical Sciences (Course manager 2011 - 2015)
Professional	2003-2010	PHAR 533	Medicinal Chemistry I (Coursemaster 2003 - 2009)
Professional	2004-	PHAR 543/539	Medicinal Chemistry II (Coursemaster 2004 - 2010)
Professional	2005-2009	PHAR 531	Pharmaceutical Chemistry
Professional	2000-2006	PHAR 516	Principles of Pharmacy Education
Professional	2000-2007	PHEX 559A	Research Elective (Coursemaster 2006 - 2007)
Professional	2000-	PHMY 539	Special Projects (Coursemaster 2006 – 2007, 2024)
Professional	1999-2011	PHMY 551	Recent Advances in Pharmacology and Toxicology
Professional	2003-2006	PHMY 526	High Impact Presentations
Professional	2000-2003	PHAR 513	Drug Chemistry (Coursemaster 2000 - 2003)
Professional	2001-2003	PHAR 536	Pharmacology II
Professional	1999-2003	PHAR 544	Medicinal Chemistry (Coursemaster 2000 - 2003)
Professional	1999-2005	PHAR 581	Senior Colloquium (Co-coursemaster 2002 - 2003)
Graduate (PhD)	1999-	PHAR 600	Principles of Drug Design and Development (Module manager 2001 - 2016)
Graduate (PhD)	2000-2006	PHAR 751	Drug Design
Graduate (PhD)	1999-2007	PHAR 628	Bioanalytical Methods (Co-coursemaster 1999)
Graduate (PhD)	2019-	PHAR 667	Organic Synthesis in Drug Design

EDUCATIONAL WORKSHOPS at UMB

The New Pharmacy Resident and Faculty Guide to Teaching, University of Maryland School of Pharmacy, Baltimore, 8/16/05.  
Topic: Difficult Subjects made Palatable.

The New Pharmacy Resident and Faculty Guide to Teaching, University of Maryland School of Pharmacy, Baltimore, 8/23/06.  
Topic: Time Management: Balancing Teaching with Life

The New Pharmacy Resident and Faculty Guide to Teaching, University of Maryland School of Pharmacy, Baltimore, 7/23/07.  
Topic: Time Management: Balancing Teaching with Life

## UNIVERSITY OF MARYLAND SERVICE

### UNIVERSITIES AT SHADY GROVE

Health and Life Sciences Sector Hub - Implementation Team (2024 - )

### UNIVERSITY OF MARYLAND, BALTIMORE

Microcredential Strategy Workgroup (2024 - )

Enterprise Risk Management - Branding and External Perceptions Task Force (2024)

UMB Future-Ready Student Administrative Systems Steering Committee (2024 - )

Enterprise Risk Management Implementation Committee (2023 - )

*Chair:* HSHSL Dean Search Committee (2023)

Assistant Vice Provost of Faculty Affairs Search Committee (2022)

LEAPS Council of Educators (2022 - 2024)

COVID-19 Recovery Taskforce – Didactic Education (2020- 2021)

Education, Accreditation and Assessment Committee (2018 - 2024)

Accreditation Coordinating Team (2017 - 2019)

Advisory Committee for Expanding Resources for Faculty Teaching and Learning with Technology (2016 - 2018)

UMB Academic Affairs Advisory Committee (2016 - 2018)

*Faculty Advisor:* UMB Toastmasters (2014 - 2020)

Campus Inquiry Committee (2013 - 2014)

“Responsible and Enduring Financial Model” Workgroup

University of Maryland Strategic Plan (2011)

### UNIVERSITY OF MARYLAND GRADUATE SCHOOL, BALTIMORE

UMB Graduate Council Grievance Committee (2022)

*Chair:* New Courses Committee, UMGSB Graduate Council (2006 - 07)

UMGSB Graduate Council (2005 - 2007)

New Courses Committee, UMGSB Graduate Council (2005 - 2006)

*Chair:* Graduate School Ad Hoc Grade Hearing Committee (2005)

### SCHOOL OF PHARMACY

Inclusive Excellence Council (2024)

Prosperity Committee (2024 - )

*Chair:* Pharmaceutical Sciences Departmental Chair Search (2024 - )

Dean’s Leadership Council (2024 - )

*Associate Dean for Graduate Programs* (2024 - )

ED&I Strategic Planning Steering Committee (2023 - 2024)

*Co-Chair:* Recruiting Committee (2023 - )

*Interim Associate Dean for Graduate Programs* (2023 - 2024)

Student Success Committee (2023-2024)

PharmD Curricular Redesign Taskforce/Committee (2022 - )

*Chair:* SOP Academic Planning Taskforce (2021)

*Chair:* MS in Medical Cannabis Science and Therapeutics, Instructor Search Committee (2019 - 2020)

MS in Medical Cannabis Science and Therapeutics, Admissions Committee (2019 - )

MS in Medical Cannabis Science and Therapeutics, Steering Committee (2019 - )  
*Faculty Advisor*: AAPS, Maryland Student Chapter (2018 - 2019)  
*Associate Dean for Academic Affairs* (2016 - 2024)  
*Chair*: Curriculum Committee (2016 - 2018)  
 Assessment Committee (2016 - 2024)  
*Co-Chair*: Faculty Affairs Committee (2015 - 2016)  
 Administrative Board (2011 – 2015; 2016 - 2024)  
 ACPE Self Study Steering Committee (2011 - 2012)  
 Executive Council (2007 – 2015; 2016 - )  
*Faculty Advisor*: Phi Lambda Sigma (2013 - 2018)  
 Pharmacy Hall Addition Research Subcommittee (2007 - 2009)  
 Pharmacy Hall Addition Steering Committee (2007 - 2010)  
 Shady Grove Steering Committee (2007 - 2010)  
 Assistant Dean Search Committee (2007)  
 Curriculum Committee (*Ex-officio*) (2006 - 2007)  
 Faculty Retreat Program Planning Committee (2006)  
 Student Affairs Committee (2005 - 2009)  
*Faculty Advisor*: Class of 2009 (2005 - 2009)  
 Strategic Committee on Program Delivery (2005 - 2006)  
 Recruitment, Admissions, Tracking Committee (2005 - 2006)  
 Faculty Affairs Committee (2004 - 2006)  
 ACPE Self Study Task Force for Accreditation (2004 - 2006)  
*Chair*: ACPE Self Study Sub-committee for Students (2004 - 2006)  
 Staff Appreciation Committee (2003)  
*Chair*: Student Affairs Committee (2002 - 2004)  
 Executive Council (2002 - 2004)  
 Admissions Sub-committee (2000 - 2002)  
*Faculty Advisor*: Phi Delta Chi (2000 - 2006)

#### DEPARTMENT OF PHARMACEUTICAL SCIENCES (PSC)

PSC Recruitment and Alumni Committee (2024 - )  
 PSC Progression & Academic Affairs Committee (2024 - )  
 Assistant Professor (non-tenure track) Search Committee (2022)  
*Chair*: PSC Fellowship Selection Committee (2016 – 2022, 2024 - )  
 Department Strategic Planning Group (2015)  
*Department Chair* (2007 - 2015)  
 PSC Executive Committee (2007 - 2015)  
*Chair*: Chemistry/Biochemistry Faculty Search Committee (2007)  
*Vice-Chair* of Academic Affairs (2006 - 2007)  
 Faculty Search Committee (Chemistry, X-Ray Crystallography, Proteomics, Molecular Pharmacology) (2005 - 2006)  
 Steering Committee on “PSC Faculty Needs and the Future of PSC Research” (2005)  
 Pharmacology Faculty Search Committee (2004 - 2005)  
*Chair*: Chemistry Faculty Search Committee (2001 - 2004)  
*Chair*: Drug Design Research Focus Group (2001 - 2002)

#### AWARDS AND HONORS:

University of Maryland Baltimore, 2024 Convocation Speaker, Baltimore MD. September 12, **2024**.  
 Maryland Chemist of the Year, **2019**  
 Fellow: American Association of Pharmaceutical Scientists (AAPS) **2016**  
 Fellow: College on Problems of Drug Dependence (CPDD) **2014**  
 James E. Wynn Memorial Award, American Association of Colleges of Pharmacy (AACP), Chemistry Section, **2014**  
 Joseph Cochin Young Investigator Award, College on Problems of Drug Dependence, **2003**.  
 Teacher of the Year, University of Maryland School of Pharmacy, **2001**.  
 Fogarty Fellowship (National Institutes of Health); April, **1995** - December, **1998**.

Second and Third Year Organic Chemistry Practical Prize, **1990**, Dyson-Perrins Laboratory, University of Oxford, Oxford, England

SERVICE TO NATIONAL ORGANIZATIONS:

*Co-Chair*: Special Interest Group/Council of Sections: Joint Task Force on "Community Building", AACP (2024 - )  
*Co-Chair*: Planning and Outreach Committee, Graduate Education SIG, AACP (2024 - )  
*Chair*: Nominations Committee, Graduate Education SIG, AACP (2024 - )  
Nominations Committee, AACP Leadership Development SIG (2024 - )  
Nominations Committee, AACP SIG Admin Board (2024)  
*Chair*: Planning and Outreach Committee, Graduate Education SIG, AACP (2023 - 2024)  
Dawson Award for Excellence in Patient Care Research Committee, AACP (2023 - 2025)  
Nominations Committee, Chemistry Section, AACP (2022 - 2023)  
Nominations Committee, AACP SIG Cabinet (2023)  
*Chair*: Programming Committee, Graduate Education SIG, AACP (2022 - 2023)  
*Chair-Elect, Chair, Past-Chair* of Graduate Education SIG, AACP (2022-2025)  
Nominations Committee, Council of Deans, AACP (2021-2022, 2023-2024)  
*Chair*: CPDD Education Taskforce/Committee (2021 - 2023)  
Volwiler Research Achievement Award Committee, AACP (2021 - 2022)  
Awards Committee, AACP Chemistry Section (2021 - 2023)  
Membership and Professional Development Committee, Leadership Development SIG, AACP (2020 - 2022)  
Public Policy Committee, CPDD (2020 - 2023)  
Nominations Committee, Graduate Education SIG, AACP (2019 - 2023)  
Council of Sections Strategic Planning Committee, AACP (2019 - 2020)  
Volwiler Research Achievement Award Committee, AACP (2019 - 2020)  
*Chair*: Nominations Committee, Chemistry Section, AACP (2018 - 2019)  
*Chair*: New Investigator Awards Committee, Chemistry Section, AACP (2018 - 2019)  
*Chair-elect, Chair, past-Chair* of Chemistry Section, AACP (2016 - 2019)  
*Chair*: Awards Committee, CPDD (2017 - 2020)  
*Chair*: Programming Committee, Chemistry Section, AACP (2016 - 2017)  
Awards Committee, CPDD (2015 - 2017)  
Membership Strategic Oversight Committee, AAPS (2014 - 2016)  
Industry, Academia, and Government Relations Committee, CPDD (2014 - 2017)  
Awards Committee, AACP Chemistry Section (2014 - 2015)  
Rules and Regulations Committee, AACP (2013 - 2014)  
*Board of Directors*, CPDD (2010 - 2014)  
Credentials Committee, CPDD (2012 - 2015)  
New Investigator Program/Award Grants Reviewer, AACP (2013-2015)  
Member Survey Review Committee, Chemistry Section, AACP (2012-2013)  
Recruitment, Admissions, Pipeline Ad Hoc Committee, Graduate Education Special Interest Group, AACP (2012-2013)  
Publications Committee, AAPS (2008 - 2012)  
Nominations Committee, CPDD (2011-2012; 2013-2014; 2015-2016; 2017-2018; 2020-2021)  
*Secretary/Treasurer*, DDD Section, AAPS (2007 - 2009)  
Student and Post-Doc Outreach Committee, AAPS (2007)  
Membership Committee, CPDD (2005 - 2008)  
Electronic Communications Committee, CPDD (2002 - 2005)

*Biological Coordinator*: Drug Evaluation Committee, CPDD (2000 - 2007)

JOURNAL EDITORIAL BOARDS:

Drug and Alcohol Dependence Reports (2021 - )  
Drug and Alcohol Dependence (2017 - )  
Drug Target Insights (2006 - 2022)  
Current Medicinal Chemistry - CNS Agents (2001 - 2003)  
Mini-Reviews in Medicinal Chemistry (2001 - 2002)

CONFERENCES ORGANIZED:

“ACCP PharmD Research Showcase” American Association of Colleges of Pharmacy Webinar. November 20, **2024**. (with M. Metcalf)

“Biology, Behavior, and Chemistry: Translation Research in Addiction” Member, Organizing Committee, **2009 - 2010**.

“Drug Development Processes and Regulatory Approaches”. University of Maryland, Baltimore, May 19-23, **2008**.

SYMPOSIA CHAIRED:

Biology, Behavior, and Chemistry: Translation Research in Addiction, TX March **2017**. The opioid epidemic: history, formulations, regulations, and emergencies.

The College on Problems of Drug Dependence, San Juan, PR, June 19, **2014**. Demystifying Medicinal Chemistry and Drug Design.

WORKSHOPS CHAIRED:

“Novel Techniques and Technologies in Chemistry and Pharmacology”. College on Problems of Drug Dependence, San Juan, PR June 15, **2004**.

CONSULTING:

Expert Witness, US Department of Justice  
(US v. Mobashar Tahir, 13, cr-269-T-27CPT)

Expert Witness, Maryland Office of the Attorney General  
(State of Maryland vs. James Careton, C02CR18001572)

Expert witness, US Department of Justice  
(US vs. Douglas Jason Way, Case No. 1:14-cr-00101 DAD)

Expert witness, US Department of Justice  
(US vs. Charles Burton Ritchie, Criminal No. 4:15-cr-18)

Office of Statewide Prosecution, Florida

Expert witness, US Department of Justice  
(US vs. Thomas Vigliatura, Criminal No. 4:05cr40033-FDS)

Expert witness, US Department of Justice – did not go to trial.  
(US vs. Michael J. Gilbert, Criminal No. 03-693 (JEI))

Expert witness, US Department of Justice  
(US vs. David W. Linder, Criminal No. 4:02cr191)

Janssen Pharmaceutical Products  
Darby and Darby Professional Corporation  
Heenan Blaikie LLP  
Actavis Mid Atlantic, LLC  
Bingham McCutchen LLP

ADVISORY BOARDS:

Stevenson University Chemistry Advisory Board (2007-2013)

ACCREDITATION SITE TEAMS:

University of Houston College of Pharmacy. ACPE Site Visit. October 15-17, **2024**.

University of Rhode Island College of Pharmacy. ACPE Site Visit. October 31 – November 2, **2023**.

University of California-Irvine, School of Pharmacy and Pharmaceutical Sciences. ACPE Site Visit. April 19-21, **2022**. (virtual)

Lebanese American University, School of Pharmacy, ACPE Site Visit. November 15-18, **2022**. (virtual)



GRADUATE PROGRAM REVIEWS: BioMolecular Sciences Graduate Program Review, University of Mississippi School of Pharmacy. Site Visit. October 22-24, **2019**.

MS in Pharmacology, Pharmaceutics, and Medicinal Chemistry with Thesis. Massachusetts College of Pharmacy and Health Sciences. Written review. August 9, **2024**.

GOVERNMENTAL TASK FORCES: State of Maryland “Task Force on Responsible Use of Natural Psychedelic Substances”. *Governor appointed Chair*. July 1 **2024** – December 31, **2026**.

GOVERNMENTAL TESTIMONY: US Senate “Health, Pensions, Education, and Labor” (HELP) committee. “Managing Pain During the Opioid Crisis”. February 12, **2019**. (UMB Webstory: <https://www.umaryland.edu/news/archived-news/february-2019/newspressreleaseshottopics/coop-testifies-in-senate-on-pain-opioid-crisis.php>)

Maryland House of Delegates “Health and Government Operations Committee”. “HB 0548: Task Force on Responsible Use of Natural Psychedelic Substances.” February 21, **2024**. <https://www.youtube.com/watch?v=x6xHgdExegU>

Health and Government Operations Public Health and Minority Health Disparities subcommittee meeting. Maryland House of Delegates. HB 0548: Task Force on Responsible Use of Natural Psychedelic Substances.” March 5, **2024**. (virtual)

Maryland Senate “Finance Committee” “SB1009: Task Force on Responsible Use of Natural Psychedelic Substances.” March 14, **2024**. <https://mgaleg.maryland.gov/mgawebsite/Legislation/Details/sb1009?ys=2024RS>

Testimony to the Montgomery County Delegation, Maryland. Joint Legislative Priorities Hearing. November 18, **2024**. (Virtual) <https://www.youtube.com/channel/UCbZz9T0h3xWo2ZWaEveO-9g>

MEMBERSHIP IN PROFESSIONAL SOCIETIES:  
 College on Problems of Drug Dependence (CPDD)  
 American Chemical Society (ACS)  
 International Narcotics Research Conference (INRC)  
 American Association of Pharmaceutical Scientists (AAPS)  
 American Association of Colleges of Pharmacy (AACP)  
 Rho-Chi Honor Society  
 Phi Lambda Sigma Pharmacy Leadership Society

MANUSCRIPT REVIEWER:  
 Journal of Medicinal Chemistry  
 Journal of Organic Chemistry  
 Journal of the American Chemical Society  
 Organic Letters  
 ACS Medicinal Chemistry Letters  
 Journal of Pharmacology and Experimental Therapeutics  
 Drug and Alcohol Dependence  
 Drug and Alcohol Dependence Reports  
 New England Journal of Medicine  
 Proceedings of the National Academy of Sciences, USA  
 Bioorganic and Medicinal Chemistry  
 Bioorganic and Medicinal Chemistry Letters  
 Tetrahedron  
 Tetrahedron Asymmetry  
 Tetrahedron Letters  
 SYNLETT

Drug Target Insights  
Synapse  
Pharmacology, Biochemistry, and Behavior  
Pharmaceutical Research  
Brain Research  
Organic Process Research & Development  
European Journal of Medicinal Chemistry  
Organic and Biomolecular Chemistry  
BMC - Bioinformatics  
Chirality  
Medicinal Chemistry Research  
Current Medicinal Chemistry - CNS Agents  
Mini-Reviews in Medicinal Chemistry  
Brain, Behavior, and Immunity  
Monatshefte fur Chemie - Chemical Monthly  
Journal of Labeled Compounds and Radiopharmaceuticals  
AAPS Journal  
American Journal of Pharmaceutical Education  
Currents in Pharmacy Teaching and Learning

#### STUDY SECTION MEMBERSHIP

*Chair:* Congressionally Directed Medical Research Programs (CDMRP),  
USAMRDC. Chronic Pain Management Research Program  
(CPMRP) Programmatic Panel. (FY23)  
Congressionally Directed Medical Research Programs (CDMRP),  
USAMRDC. Chronic Pain Management Research Program  
(CPMRP) Programmatic Panel. (FY21 and FY22)

#### AD HOC STUDY SECTIONS:

National Institutes of Health RCMI Site Visit, College of Pharmacy,  
Florida A&M University 10/6/02-10/8/02  
National Institutes of Health RCMI Review Committee 11/7/02  
National Cancer Institute, Special Emphasis Panel, ZCA1 SRRB-K J1  
10/25/04-10/27/04  
National Institute on Drug Abuse Medication Development Research  
Review Subcommittee (NIDA-L) 6/6/05.  
National Institute on Drug Abuse Medication Development Research  
Review Subcommittee (NIDA-L) 10/5/05.  
Canadian Institutes of Health Research. Drug Development Initiative –  
Pilot Project Grants Committee. 1/12/06.  
National Institute on Drug Abuse Medication Development Research  
Review Subcommittee (NIDA-L) 3/7/06 and 3/21/06  
National Institutes of Health, Special Emphasis Panel, ZRR1 BT-8 01  
Interdisciplinary Research Consortium review – 8/12/06  
National Institutes on Drug Abuse Rodent Locomotor and Discriminative  
Stimulus Contract Review. 4/25/07.  
National Cancer Institute, SBIR contract review. Development of  
Anticancer Agents. 3/7/08.  
National Institute of Mental Health “NIMH Chemical Synthesis and Drug  
Supply Program” Contract Review. 6/25/08.  
National Institutes of Health, SBIR Phase II, Design and Synthesis of  
Treatment Agents N44DA-9-8874. 7/31/09  
National Institutes of Health, National Cooperative Drug Discovery and  
Development Groups (NCDDDG). ZMH1 ERB-C 03S, 3/1/10  
National Institutes of Health, National Cooperative Drug Discovery and  
Development Groups (NCDDDG). ZMH1 ERB-C 03S, 3/13/12  
National Institutes of Health, National Cooperative Drug Discovery and  
Development Groups (NCDDDG). ZMH1 ERB C 01 S, 11/15/12  
National Institutes of Health. Therapeutics for Rare and Neglected  
Diseases. NCATS 2/28/13-3/1/13  
National Institutes of Health “NIMH Chemical Synthesis and Drug Supply  
Program” Contract Review. 6/20/13

National Institutes of Health “Program Project: Pain and Drug Abuse ZRG1 IFCN-B (40) P. 9/16/14

National Institutes of Health “Special Emphasis Panel” ZRG1 MDCN-B(05). 7/21/15.

National Institutes of Health “Special Emphasis Panel” ZRG1 MDCN-B(40) P. 11/17/15.

National Institutes of Health “Special Emphasis Panel” ZRG1 DKUS-P (55) 2/19/16.

*Chair:* National Institutes of Health “Special Emphasis Panel” ZRG1 MDCN-B(05) 3/15/16

National Institutes of Health “Special Emphasis Panel” ZRG1 MDCN-B (40) P. 9/8/16

National Institutes of Health “Special Emphasis Panel” ZNS1 SRB T (22) BPN. 11/4/16

National Institutes of Health, Blueprint Neurotherapeutics Network (BPN) Small Molecule Drug Discovery and Development. ZNS1 SRB-T 25. 6/5/17

National Institutes of Health “Countermeasures Against Chemical Threats (CounterACT) Research Centers of Excellence (U54)” ZRG1 MDCN-B (54). 3/8/18

National Institutes of Health “Using Rodent Behavioral Models to Identify Substance Abuse Pharmacotherapies” N01DA-18-8936. 5/24/18

National Institutes of Health “Countermeasures Against Chemical Threats (CounterACT) Research Centers of Excellence (U54)” ZRG1 MDCN-B (54). 3/21/19

National Institutes of Health “Countermeasures Against Chemical Threats (CounterACT)” ZRG1 MDCN-B (50) R. 3/22/19

National Institutes of Health “Countermeasures Against Chemical Threats (CounterACT)” ZRG1 MDCN-B (50) R. 3/05/20

National Institutes of Health “Member Conflict: Biobehavioral Regulation, Learning and Ethology” ZRG1 BBBP-T (02) M 12/3/20

National Institutes of Health “Counter Measures Against Chemical Threat Agents” ZRG1 DKUS-P (50) R 3/24/22 – 3/25/22

National Institutes on Drug Abuse “Rodent Behavioral Models to Identify Substance Use Disorder Pharmacotherapies” Contract Review. 12/6/22.

AD HOC GRANT REVIEWER:

National Science Foundation (NSF POWRE)  
 Austrian Science Fund (FWF)  
 National Institute on Drug Abuse (NIDA, CEBRA)  
 NIGMS Minority Biomedical Research Support - Support for Continuous Research Excellence Program (MBRS-SCORE)  
 NIMH Psychoactive Drug Screening Program  
 U.S. Civilian Research and Development Foundation (CRDF)  
 NIDA SBIR Concept Review  
 AACP New Investigator Program  
 Quebec-Flanders Bilateral Research Cooperation Program  
 Congressionally Directed Medical Research Programs (CDMRP), USAMRDC. Pre-application Screening. September 2020.

BOOK REVIEWER:

Institute of Physics Publishing Ltd  
 John Wiley and Sons

## RESEARCH FUNDING

1. Maryland Industrial Partnerships (MIPS). A Combination Test for the Detection of Illicit Drugs. 2/1/00-1/31/01. \$29,421 (Total Costs). Principle Investigator.
2. National Institute on Drug Abuse (NIDA, R01, DA 13583). Opioids with Delta Antagonist and Mu Agonist Activity. 2/1/01-1/31/13. Principle Investigator.
3. National Institute on Drug Abuse (NIDA, R01, DA 14986). GHB Abuse: Chemistry and Neurobiology. 9/26/01-7/31/04. \$199,870 (Total Costs). Co-Investigator - PI: Dr. Charles France, University of Texas Health Science Center at San Antonio.
4. National Institute on Drug Abuse (NIDA, R01, DA 13978). Development of Novel Agents with Anti-Cocaine Properties. 9/30/01-6/30/12. Co-Investigator - PI: Dr. Rae Matsumoto, University of Oklahoma, University of Mississippi, University of West Virginia).
5. Unihart, Inc. Synthesis of Analogs of Xenaldial. 11/1/04-10/31/05. \$29,200 (Total Costs). Principle Investigator.
6. Neuronascent, Inc. The Synthesis of Novel Neurogenic Agents. 7/1/05-2/28/06. \$8,000 (Total costs). Principle Investigator.
7. National Cancer Institute (NCI, R01 CA 107331). Restoration of Tumor Suppression Activity in Malignant Melanoma. 7/1/06-6/30/15. \$83,739 (Total costs). Co-Investigator - PI: Dr. David Weber, University of Maryland School of Medicine.
8. Samuel Waxman Foundation. Transcriptional Targeting in Translational Therapy. 7/1/06-6/30/09. Co-Investigator - PI: Dr. A. Melnick, Albert Einstein School of Medicine Yeshiva University.
9. Neuronascent, Inc. Further optimization of Neurogenic Agents. 4/1/07-12/31/07. \$11,500 (Total costs). Principle Investigator.
10. Maryland Department of Health and Mental Hygiene Opioid Analgesics for Cancer Pain with Reduced Tolerance.. 11/1/13-6/30/14. Principle Investigator.
11. University of Maryland Center of Excellence in Regulatory Science and Innovation (FDA, U01F004320). 09/15/11-09/14/14. Co-Investigator
12. Maryland Technology Development Corporation. UMB425: A unique opioid analgesic with reduced tolerance. 4/23/14-4/23/15. Principle Investigator.
13. National Institute of Mental Health (NIMH, R01, MH 107499). Preclinical identification of better antimuscarinic antidepressants. Co-Investigator – PI: Dr. James Woods, University of Michigan
14. Helen Pumphrey Denit Charitable Trust. Non-addicting Opioid Analgesics. Principle Investigator. (provisionally approved).

## CAREER ADVANCEMENT AWARDS

1. National Institute on Drug Abuse (K02, DA 019634). Reversing the Toxic Effects of Drugs of Abuse. 5/1/05-4/30/10. \$527,695 (Total Costs). Principle Investigator.

## FELLOWSHIPS FOR GRADUATE STUDENTS AND POSTDOCTORAL RESEARCHERS

1. Linn N. Thatcher: National Research Service Award (NRSA). National Institute on Drug Abuse (NIDA F31, DA 15586). Opioids with a Reduced Potential to Produce Tolerance. 7/1/02-6/30/04. \$49,424 (Total Costs).
2. Matthew M. Metcalf: Slama Departmental Fellowship. Department of Pharmaceutical Sciences, University of Maryland School of Pharmacy. 9/1/04-4/30/05.

3. Matthew M. Metcalf: Ruth L. Kirschstein National Research Service Award (NRSA) (F31, DA 18025). National Institute on Drug Abuse (NIDA). Kappa Opioids Antagonists with a Shortened Duration of Action. 5/1/05-4/30/07. \$42,722 (Total costs).
4. Trudy Smith: University of Maryland Baltimore, Enrichment Fellowship. 8/1/05-7/31/07. \$38,000 (Total costs).
5. Christopher W. Cunningham: Ruth L. Kirschstein National Research Service Award (NRSA) (F31, DA 21049). National Institute on Drug Abuse (NIDA). Opioid Analgesics with Reduced Constipation. 8/1/06-9/30/08.
6. Susan L. Mercer: PSC Departmental Fellowship. Department of Pharmaceutical Sciences, University of Maryland School of Pharmacy. 9/1/07-6/30/08.
7. Trudy Smith: PSC Departmental Fellowship. Department of Pharmaceutical Sciences, University of Maryland School of Pharmacy. 9/1/08-6/30/09.
8. Juliet Obi: UMB Faculty Center for Teaching and Learning Graduate Teaching Assistant. 9/1/20-8/21/2022. (GTA in support of MCST Program. Graduate Mentor: D. Deredge)

## INVITED LECTURES AND CONFERENCE SEMINARS

1. School of Chemistry, University of Bristol, Bristol, UK. August 7, **1996**. (Topic: L-Selectride as a General O-Demethylating Agent for Opium Alkaloids and Derivatives).
2. Colgate University NIH Student Program, National Institutes of Health. October 19, **1998**. (Topic: The Development and Application of Novel Methodology to Opioid Synthesis).
3. Laboratory of Medicinal Chemistry, National Institutes of Health, Bethesda. December 7, **2000**. (Topic: The Development and Application of Novel Methodology to Opioid Synthesis).
4. The College on Problems of Drug Dependence, Quebec City, Quebec. June 11, **2002**. Symposium VII: "GHB: Chemical Biochemical, and Behavioral Effects". (Topic: The Chemistry of GHB Agonists and Antagonists).
5. University of Maryland Greenbaum Cancer Center, Baltimore, October 1, **2002**. (Topic: Drug Discovery and Development: From Protein Targets to Therapeutic Agents).
6. Department of Pharmacology, University of Texas Health Science Center at San Antonio, San Antonio. January 15, **2003** (Topic: The Symbiosis of Pharmacology and Chemistry in the Study of Biological Systems Involved in Drug Abuse).
7. National Institute on Drug Abuse, Intramural Research Program, Baltimore, MD. February 26, **2003** (Topic: Chemical Approaches Towards Opioids with Reduced Potential for Tolerance).
8. Department of Chemistry and Biochemistry, Duquesne University, Pittsburgh, PA. April 4, **2003** (Topic: The Chemistry of Drugs of Abuse: Opioids and Gamma-Hydroxybutyrate).
9. Food and Drug Law Institute, Washington, DC, April 14, **2003**. Pharmaceutical Science: The Scientific Basis of Today's Drug Regulations (Topic: The Chemistry of Drug Design and Development).
10. University of Maryland Program in Oncology, Experimental Therapeutics Retreat, Baltimore, MD. May 22, **2003**. (Topic: Drug Lead Optimization).
11. The College on Problems of Drug Dependence, Bal Harbour, Florida. June 16, **2003**. Chemistry to Pharmacology - Pharmacology to Chemistry Workshop: (Topic: Opioids, Cocaine, and GHB: Examples of Synergism Between Pharmacologists and Chemists).
12. Department of Chemistry and Biochemistry, University of Maryland Baltimore County, Baltimore, MD. November 25, **2003** (Topic: The Chemistry of Drug Abuse: Opioids and Gamma-Hydroxybutyrate (GHB)).
13. The College on Problems of Drug Dependence, San Juan, PR. June 16, **2004**. Symposium XI: "Sigma Receptors: Evolution of an Enigma to a Therapeutic Target for Drugs of Abuse". (Topic: Sigma Receptors: From Promiscuous Ligands to Subtype Selective Agonists and Antagonists).
14. Pharmacists' Education and Assistance Committee Conference, Clarksville, MD. October 21, **2004**. "Crossing the Line": When Prescription Drug Use Becomes Abuse and Addiction. (Topic: Opioid Pharmacology).
15. American Chemical Society, Maryland Section, University of Maryland, Baltimore, MD. November 18, **2004**. (Topic: Synthetic Studies Towards Opioids Lacking Constipation as a Side-effect).
16. Division of Medicinal and Natural Products Chemistry, University of Iowa College of Pharmacy, Iowa City. March 8, **2005**. (Topic: Opioid Analgesia Without Constipation: Synthetic Approaches Towards Opioids with Novel Pharmacological Profiles).
17. University of Maryland Baltimore, Baltimore, MD. March 21, **2005**. Drug Development Processes and Regulatory Approaches Program. (Topic: Review of the Chemistry Section of the IND).

18. University of Maryland Baltimore, Baltimore, MD. May 22, **2006**. Drug Development Processes and Regulatory Approaches. II. (Topic: Review of the Chemistry Section of the IND).
19. College of Pharmacy University of Kentucky, Lexington, KY. September 8, **2006**. (Topic: Synthetic Studies Towards Opioids with a Mixed Pharmacological Profile).
20. College of Pharmacy University of Mississippi, University, MS. February 20, **2007**. (Topic: Adventures in Opioid Chemistry).
21. International Narcotics Research Conference, Berlin, Germany. July 10, **2007**. Symposium IV: "Medicinal Chemistry". (Topic: Kappa Opioid Antagonists).
22. Department of Chemistry, Brown University, Providence, RI. November 27, **2007**. (Topic: Synthetic Studies Towards Opioid Analgesics Lacking Tolerance).
23. School of Pharmacy, Howard University, Washington, DC. January 29, **2009**. (Topic: Towards Opioid Analgesics with Reduced Tolerance)
24. Biology, Behavior, and Chemistry, San Antonio, March 21-22, **2009**. (Topic: Therapeutics to Prevent Methamphetamine Neurotoxicity).
25. American Association of Pharmaceutical Sciences, Annual Meeting, Los Angeles, CA, November 11, **2009**. (Topic: Opioid, P-glycoprotein, and the Blood-Brain Barrier)
26. West Virginia University School of Pharmacy Research Day, Morgantown, WV. February 19, **2010**. (Keynote Speaker - Careers in Academia).
27. Department of Chemistry and Biochemistry, University of Maryland College Park. September 9, **2010**.
28. Lipscomb College of Pharmacy, Nashville, TN. October 19, **2010**. (Topic: The Symbiosis of Pharmacology and Chemistry in the Study of Biological Systems Involved in Drug Abuse)
29. Department of Chemistry, Franklin & Marshall College, PA. February 1, **2011**. (Topic: Chemistry and Biology - Partners in the Study of Drug Abuse)
30. Universities at Shady Grove, Rockville, MD. Fourth Annual Biomedical Sciences Day, November 15, **2012**. (Topic: New and Evolving Therapeutics – A Collaborative Approach)
31. Biology, Behavior, and Chemistry, San Antonio, March 9-10, **2013**. (Topic: Medicinal chemistry of mu opioid agonists).
32. The College on Problems of Drug Dependence, San Diego, CA. June 16, **2013**. "Late-Breaking Research". (Topic: UMB425: A dual profile mu agonist/delta antagonist opioid with reduced antinociceptive tolerance).
33. Johns Hopkins Alliance for Science and Technology Development, Baltimore, MD February 18, 2014. (Topic: UMB425: An Opioid Analgesic with less Tolerance than Morphine).
34. The College on Problems of Drug Dependence, San Juan, PR, June 15, **2014**. President's Lecture. (Topic: The Harrison Act at 100. Past, present and future science behind the search for new opioid Analgesics)
35. The College on Problems of Drug Dependence, San Juan, PR, June 18, **2014**. Drug Evaluation History Forum. The Drug Evaluation program of the CPDD: History and Scope. Role: Discussant.
36. The College on Problems of Drug Dependence, San Juan, PR, June 19, **2014**. Demystifying Medicinal Chemistry and Drug Design Symposium (Topic: Fundamental Principles of Drug Design).
37. University of Maryland School of Pharmacy, Computer-Aided Drug Design Symposium, Baltimore, MD, June 24, **2014**. (Topic: Next Generation Opioid Analgesics).

38. Biology, Behavior, and Chemistry, San Antonio, March 14-15, **2015**. After Dinner Lecture. Role: After Dinner Speaker on Alternate Careers for Graduate Students.
39. Concordia University School of Pharmacy, Mequon, WI, April 15, **2015**. (Topic: UMB425: A Unique Opioid Analgesic with Lower Tolerance).
40. International Narcotics Research Conference, Phoenix, AZ. June 16, **2015**. Advances in Therapeutic Design (Topic: UMB425: A Unique Opioid Analgesic with Lower Tolerance).
41. Department of Chemistry, University of Notre Dame of Maryland, Baltimore, MD October 15, **2015**. (Topic: Reduction of prescription opioid abuse through new opioid analgesics lacking tolerance and dependence).
42. The College on Problems of Drug Dependence, Palm Springs, CA, June 13, **2016**. Town Hall Industry/Academia Forum. New Challenges and Opportunities from the Collaborative Environment (Topic: Start-ups from an Academic View).
43. MdAIR, Baltimore, MD, November 11, **2016** (Topic: A Collaborative Process to Measure Faculty Workload)
44. University of Maryland Center to Advance Chronic Pain Research, Baltimore, MD. November 17, **2016**. Chronic Pain Management and Opioid Abuse: We Need a "Fix". (Topic: Solving prescription opioid abuse: New drugs or new formulations?)
45. Biology, Behavior, and Chemistry, San Antonio, TX. March, 4-5, **2017**. (Topic: Beyond formulations: Solving the opioid epidemic with new chemical entities)
46. American Association of Colleges of Pharmacy (AACP) Webinar, June 8, **2017** (Topic: A Collaborative Process to Measure Faculty Workload)
47. The College on Problems of Drug Dependence, Montreal, Canada, June 20, **2017**. Town Hall Industry/Academia Forum. Industry, government, and academia as a collaborative environment for development of a product for the treatment of substance use disorders. Role: Discussant.
48. The College on Problems of Drug Dependence, Montreal, Canada, June 22, **2017**. La Chimie: Drug Development Strategies. (Topic: UMB 426: A pyranomorphinan with a profile of mu agonism/delta antagonism)
49. University of Florida College of Pharmacy, Gainesville, FL. October 24, **2017**. (Topic: Beyond formulations: Solving the opioid epidemic with new chemical entities).
50. Maryland Patient Safety Conference, Ellicott City, MD. November 2, **2017**. Maryland's Opioid Epidemic: Addressing Addiction and Seeking Solutions. (Topic: Developing a Non-Addictive opioid pain killer).
51. American Association of Colleges of Pharmacy (AACP) Interim Meeting, Long Beach, CA. February 24-27, **2018**. (Topic: Altmetrics: Measuring true impact)
52. American Association of Colleges of Pharmacy (AACP) Interim Meeting. Long Beach, CA. February 24-27, **2018**. Leading from the Lab: 2018 Research Symposium (Topic: Accelerating Healthcare Solutions Through Collaboration)
53. American Association of Colleges of Pharmacy (AACP) National Meeting, Boston, MA. July 21-25, **2018**. Joint session with S. L. Mercer. (Topic: Beyond Formulations: How Basic Scientists Aim to Solve the Opioid Crisis)
54. School of Public Health, APHA Student Assembly Talk. University of Maryland College Park, College Park, MD. March 13, **2019**. (Topic: How Synthetic Opioids Could Offer Pain Relief Without Addiction)
55. Middle Atlantic Regional Meeting of the American Chemical Society (MARM), University of Maryland Baltimore County, Baltimore, MD. May 31, **2019**. (Topic: How to recognize different types of opioids from quite a long way away).



56. American College of Clinical Pharmacology (ACCP), Chicago, IL, September 16, **2019**. (Topic: Current therapies for opioid use disorder, and new safer analgesics under development).
57. American Association of Pharmaceutical Scientists (AAPS). Career Planning Workshop (virtual). June 3, **2020**. (Topic: Building Your Network – You Have Already Started!).
58. American Association of Colleges of Pharmacy (AACP) National Meeting, (virtual). July 13-31, **2020**. Joint session with H. Jasmin, N. Borja-Hart, M. Veve, and E. Gorman. (Topic: America's Next Top Scholar: Using Altmetrics to Boost Your Impact Factor)
59. American Association of Colleges of Pharmacy (AACP) Interim Meeting (Inclusion 2021), Virtual. March 1-3, **2021**. (Topic: A Scheduling Defense to Zoom Fatigue: Developing a Hybrid Approach to Teaching that Promotes Wellness)
60. UMB Teaching with Technology Virtual Conference. May 24, **2021** (Topic: A Hybrid Healthcare Curriculum Schedule that Promotes Wellness and Avoids Zoom Fatigue) (UMB Webstory: <https://www.umaryland.edu/news/archived-news/may-2021/teaching-the-right-stuff-no-bloat-in-hybrid-curriculum.php>)
61. The Association for the Advancement of Computing in Education (AACE). EdMedia + Innovate Learning July 7, **2021**. Joint with SR. Tucker. (Topic: Combating 'Zoom-fatigue': A comprehensive approach to academic program adaptation and supporting digital wellness during COVID-19)
62. American Association of Colleges of Pharmacy (AACP) National Meeting, (virtual). July 19-22, **2021**. Joint session with JD Gatwood, J. O'Donnell, P. Swaan, and S. Madhavan. (Topic: Approaches to funding graduate students and graduate programs).
63. American Association of Colleges of Pharmacy (AACP) National Meeting, (virtual). July 19-22, **2021**. Joint session with SR. Tucker. (Topic: Combating Zoom-fatigue and other wellness strategies: A comprehensive approach to COVID19 curriculum adaptation and beyond).
64. Cannabis Science Conference East. Baltimore, MD. September 14, **2021**. Joint with L. Sera. (Topic: Turning Over a New Leaf: Developing Graduate Education in Medical Cannabis)
65. University System of Maryland Fall Faculty Showcase. (virtual). September 30, **2021**. (Topic: A Curriculum-wide defense against Zoom-fatigue)
66. American Association of Colleges of Pharmacy (AACP) Leadership Development SIG Virtual Symposium, June 27, **2022**. Joint session with SR. Tucker. (Topic: Combating Zoom-fatigue and other wellness strategies: A comprehensive approach to COVID19 curriculum adaptation and beyond).
67. American Association of Colleges of Pharmacy (AACP) National Meeting. Grapevine, TX. July 23-27, **2022**. Joint session with A. Sridhar. (Topic: ARM yourself for NIA Success: Understanding the Applicant-Reviewer-Mentor (ARM) Triad).
68. American Association of Colleges of Pharmacy (AACP) National Meeting. Grapevine, TX. July 23-27, **2022**. Joint session with CW. Cunningham. (Topic: Practical Tips for Writing a Successful Grant Application).
69. 2022 Public Health Law Summit: Navigating the Fast-Changing Landscape of Equity and Cannabis Law and Policy. Baltimore, MD. September 13, **2022**. Joint session with C. Johnson, L. Sera, and C. Hempel-Sanderoff. (Topic: The Evolution of Cannabis Science)
70. Cannabis Science Conference East. Baltimore, MD. September 15, **2022**. Joint with L. Sera and C. Johnson. (Topic: There's ROOM for Everyone: The Emerging Field of Psychedelic Therapeutics)
71. American Association of Colleges of Pharmacy (AACP) Graduate Education SIG "Open Discussion", March 22, **2023**. With L. Sera and G. Anagnostou. (Topic: Developing an online MS program that includes science and practice: Lessons from Medical Cannabis Science and Therapeutics).

72. National Academies of Sciences, Engineering, and Medicine's public workshop on Defining and Evaluating In-Home Drug Disposal Systems for Opioid Analgesics. Washington, DC. **June 26, 2023**. Panel discussion. (Topic: Scientific Considerations for In-Home Opioid Disposal Systems)
73. National Academies of Sciences, Engineering, and Medicine's public workshop on Defining and Evaluating In-Home Drug Disposal Systems for Opioid Analgesics. Washington, DC. **June 27, 2023**. Panel discussion. (Topic: Closing Workshop Panel to Synthesize Information Gathered)
74. American Association of Colleges of Pharmacy (AACP) National Meeting. Aurora, CO. July 22-25, **2023**. Micro session. (Topic: A PharmD Pre-Matriculation Program Using Open Educational Resources: A Value-Driven Approach for Schools and Students).
75. American Association of Colleges of Pharmacy (AACP) Graduate Education SIG "Open Discussion", April 12, **2024**. With K. Garza. (Topic: Real Talk for Graduate Programs: Where Are We Going and How Do We Get There?).
76. American Association of Colleges of Pharmacy (AACP) National Meeting, Boston, MA. July 22, **2024**. With A. Castejon, T. Warholak, P. Kumar, and A Hincapie. (Topic: Is Academia Attracting Enough Pharm.D. and Graduate Alumni?)
77. Society for Cannabis Clinicians (SCC): 2nd Annual Medical Cannabis Conference, Baltimore, MD. October 11, **2024**. (Topic: Psychedelics 101: What Cannabis Professionals Need to Know).
78. University of Maryland Baltimore. Psychedelic Therapies Series (virtual). October 25, **2024**. Joint with L. Sera. (Topic: Clinical Research Findings for PTSD, Addiction, Depression, and Pain).
79. Placebo Beyond Opinions Center Hybrid Lecture Series (virtual). Psychedelics in Pain Management: Exploring Therapeutic Potential, Pharmacology, and Clinical Considerations. December 18, **2024**. With M. Fava and P. Finan (Topic: Pharmacology of Psychedelics).

#### PUBLISHED CONFERENCE PROCEEDINGS

1. National Academies of Sciences, Engineering, and Medicine. **2024**. Defining and Evaluating In-Home Drug Disposal Systems For Opioid Analgesics: Proceedings of a Workshop. Washington, DC: The National Academies Press. <https://doi.org/10.17226/27436>.

#### ROUNDTABLES AT AACP (American Association of Colleges of Pharmacy)

1. Associate Dean vs. Chair: An analysis of the different skill sets needed for each, from a person who has done both. AACP Annual Meeting July 24, **2018**.
2. Efficiency of developing two courses for two different programs (MS and PharmD) at the same time, AACP Annual Meeting Roundtable Session III, July 22, **2021**.
3. Online MS programs that include science and practice. AACP Annual Meeting July 24, **2023**.

#### EDUCATIONAL PRESENTATIONS TO THE PUBLIC AND PODCASTS

1. University of Maryland Baltimore Opioid Panel. Homestead Gardens, MD. April 18, **2018**. Solutions to Confronting our Local Opioid Epidemic. Panel Discussion. (UMB Webstory: <https://www.umaryland.edu/news/archived-news/april-2018/newspressreleaseshottopics/umb-panel-shares-opioids-expertise-in-anne-arundel.php>)
2. University of Maryland Baltimore Opioid Panel. Columbia, MD. September 27, **2018**. Targeting Solutions to the Opioid Crisis. Panel Discussion (UMB Webstory: <https://www.umaryland.edu/news/archived-news/october-2018/newspressreleaseshottopics/panel-on-opioids-shares-insights-in-howard-county.php>)
3. University of Maryland Baltimore Opioid Panel. Montgomery County, MD. October 11, **2018**. Targeting Solutions to the Opioid Crisis. Panel Discussion (UMB Webstory:

<https://www.umaryland.edu/news/archived-news/october-2018/newspressreleaseshottopics/panel-in-montgomery-county-explores-opioid-solutions.php>)

4. Opioid presentation at La Posta Restaurant, Severna Park, MD. February 21, **2019**.
5. Invited Speaker at Annapolis Rotary Club, Annapolis Yacht Club, Annapolis, MD. September 12, **2019**. (Topic: The Opioid Epidemic)
6. Invited Speaker at Columbia Rotary Club, Columbia, MD. November 22, **2019**. (Topic: The Opioid Epidemic)
7. Invited Speaker at Baltimore City Rotary Club, Baltimore MD. July 7, **2020**. (Topic: The Opioid Epidemic)
8. Perry Hall High School, Baltimore, MD. October 28, **2020**. The Science of Drug Use and Misuse.
9. UMB President's Face-to-Face. September 23, **2021**. Joint with L. Sera. (Topic: Medical Cannabis: Science, Policy, and Management)
10. Invited Speaker at "The Four Pillars of Advocacy". Panel discussion hosted by the UMB Medical Cannabis Student Association. March 31, **2022**.
11. Cannabis Grand Rounds. Radio MD. Synthetic Cannabis & Chemistry. May 16, **2022**. <https://radiomd.com/show/cannabis-grand-rounds/item/46629-synthetic-cannabis-chemistry>
12. Cannabis Grand Rounds. Radio MD. Delta-8 THC and other Isomers. May 23, **2022**. <https://radiomd.com/show/cannabis-grand-rounds/item/46632-delta-8-thc-and-other-isomeres>
13. Cannabis Grand Rounds. Radio MD. Can Cannabis Mitigate the Need for Opiates in Treating Pain?. June 13, **2022**. <https://radiomd.com/show/cannabis-grand-rounds/item/47264-can-cannabis-mitigate-the-need-for-opiates-in-treating-pain>
14. Invited Speaker at Columbia Rotary Club, Columbia, MD. October 21, **2022**. (Topic: Medical Cannabis)
15. Invited speaker for HOSA - Future Health Professionals, Walter Johnson High School. Bethesda, MD. January 18, **2023**.
16. Invited speaker for Howard County Public School System: "Monthly Spotlight: Health and Bioscience" December 19, **2023**.
17. MCSA January Advocacy Webinar. UMB Medical Cannabis Student Association. January 18, **2024**. (Topic: Become an Expert Witness.)
18. Cannabis House Call Podcast: THC vs. CBD. September **2024**. <https://support.doctorpodcasting.com/client/cannabishc/item/65103-contrasting-thc-and-cbd#>
19. Cannabis House Call Podcast: A response to Criticisms of Medical Cannabis. September **2024**. <https://support.doctorpodcasting.com/client/cannabishc/item/65149-a-response-to-criticisms-of-cannabis-medicine#>
20. Leaders in Education: Academy of Presidential Scholars (LEAPS), University of Maryland Baltimore, Baltimore, MD. Speaker Series III: Strategies for Promotion for Teaching-Focused Faculty: A Panel Discussion. Panelist. (Scheduled for February 28, **2025**).

#### FEATURES, QUOTATIONS, AND MENTIONS IN THE MAINSTREAM MEDIA

1. *The Scientist*. Pain and Progress. February 1, **2014**. (Link: <https://www.the-scientist.com/cover-story/pain-and-progress-38043>)
2. *Dreamland: The True Tale of America's Opiate Epidemic*. Bloomsbury Publishing, **2015**. (Link to author's website: <https://samquinones.com/dreamland>)

3. *Baltimore Sun*. New Pain Drug Being Developed at University of Maryland Could Offer Relief Without Addiction. June 24, **2016**. (Link: <https://www.baltimoresun.com/health/bs-hs-new-opioid-20160624-story.html>)
4. *The Smithsonian Magazine*. America's Long-Overdue Opioid Revolution Is Finally Here. January 13, **2017**. (Link: <https://www.smithsonianmag.com/science-nature/new-morphine-180961774/>).
5. *Washington Post*. The Search for a Painkiller that Works Without Danger of Addiction. January 22, **2017**. (Link: [https://www.washingtonpost.com/national/health-science/the-search-for-a-painkiller-that-works-without-danger-of-addiction/2017/01/20/ac3c0918-dcc2-11e6-ad42-f3375f271c9c\\_story.html](https://www.washingtonpost.com/national/health-science/the-search-for-a-painkiller-that-works-without-danger-of-addiction/2017/01/20/ac3c0918-dcc2-11e6-ad42-f3375f271c9c_story.html))
6. *The Scientist*. The Quest for Safer Opioid Drugs. January 1, **2018**. (Link: <https://www.the-scientist.com/bio-business/the-quest-for-safer-opioid-drugs-30164>)
7. *WMAR ABC 2, Baltimore*. UMB Professor Working on Non-Addictive Pain Killer. December 20, **2018**. (Link: <https://www.youtube.com/watch?v=LJBh3RQwJ4Q>)
8. *Marijuana Moment*. Senators Focus On Marijuana's Role In Combating Opioid Crisis At Hearing. February 12, **2019**. (Link: <https://www.marijuanamoment.net/senators-focus-on-marijuanas-role-in-combating-opioid-crisis-at-hearing/> )
9. *WYPR*. Maryland lawmakers consider task force to decriminalize psychedelics. March 15, **2024**. (Link: <https://www.wypr.org/wypr-news/2024-03-15/maryland-lawmakers-consider-task-force-to-decriminalize-psychedelics>)
10. *High Times*. Psychedelics Task Force Bills Signed by Maryland Governor. May 20, **2024** (Link: <https://hightimes.com/news/psychedelics-task-force-bills-signed-by-maryland-governor/>)
11. *Marijuana Moment*. Maryland Government's Psychedelics Task Force Begins Work On Recommendations Due To Lawmakers Next Year. November 28, **2024** (Link: <https://www.marijuanamoment.net/maryland-governments-psychedelics-task-force-begins-work-on-recommendations-due-to-lawmakers-next-year/>)
12. "Where's Marty". University of Maryland School of Pharmacy Discusses History and New Technology. WJZ CBS Baltimore. January 13, **2025** (Link: <https://www.cbsnews.com/baltimore/video/wheres-marty-umd-school-of-pharmacy-discusses-history-and-new-technology/>)

## BIBLIOGRAPHY

1. J. W. Barton, A. Coop and J. W. Lewis: Diels-Alder Reactions of Thebaines with Cycloalkenones; LiBF<sub>4</sub> as a Novel Diels-Alder Catalyst. *Tetrahedron Lett.*, **1993**, 34, 6777-6778.
2. J. E. H. Buston, A. Coop, R. Keady, M. G. Moloney and R. M. Thompson: The Synthesis, Characterization and Reactivity of some Lead (IV) Carboxylates. *J. Chem. Res.(m)*, **1994**, 1101-1116. (*J. Chem. Res.(s)*, **1994**, 205)
3. A. Coop, K. Grivas, S. Husbands, J. W. Lewis and J. Porter: Ring Constrained Analogues of the Thevinones; Diels-Alder Reactions of Thebaines with 1-Indenone and Methylene Cycloalkenones. *Tetrahedron Lett.*, **1995**, 36, 1689-1692.
4. A. Coop, K. Grivas, S. Husbands and J. W. Lewis: Methylation of the Enolates of Thevinone and Some Analogues. *Tetrahedron*, **1995**, 51, 9681-9698.
5. L. Guo, A. Coop, J. W. Lewis and J. R. Traynor: Affinity and Efficacy Studies of Ring Constrained Analogues of Buprenorphine at mu-Opioid Receptors. *Analgesia*, **1995**, 1, 450-452.
6. A. Coop, J. W. Lewis and K. C. Rice: Direct and Simple Conversion of Thebaine to Oripavine. *J. Org. Chem.*, **1996**, 61, 6774.

7. A. Coop, J. W. Janetka, J. W. Lewis and K. C. Rice: L-Selectride as a General Reagent for the O-Demethylation and N-Decarbomethoxylation of Opium Alkaloids and Derivatives. *J. Org. Chem.*, **1998**, *63*, 4392-4396.
8. A. Coop and K. C. Rice: L-Selectride as Convenient Reagent for the Selective Cleavage of Carbamates. *Tetrahedron Lett.*, **1998**, *39*, 8933-8934.
9. E. L. May, A. E. Jacobson, M. V. Mattson, A. Coop, M. D. Aceto, E. R. Bowman, J. R. Traynor, J. H. Woods and L. S. Harris: Synthesis, *In Vitro*, and *In Vivo* Activity of *N-p*-Substituted-Benzyl-(-) and (+)-*N*-Normetazocines, (-) and (+)-*N*-Nor-morphinans, *N*-Nor-Ketobemidones, and (-)-*N*-Nor-4,5-epoxymorphinans. *Med. Chem. Res.*, **1998**, *8*, 311-321.
10. A. Coop and K. C. Rice: A Novel Synthesis of Thebaine from Codeine. *Heterocycles*, **1998**, *49*, 43-47.
11. A. Coop and K. C. Rice: Direct and Simple Conversion of Codeine to Thebainone-A and Dihydro-thebainone. *Heterocycles*, **1999**, *50*, 39-42.
12. A. Coop and A. E. Jacobson: The LMC Delta Opioid Recognition Pharmacophore. Comparison of SNC80 and Oxymorphone. *Bioorg. Med. Chem. Lett.*, **1999**, *9*, 357-362.
13. A. Coop, R. B. Rothman, C. Dersch, J. Partilla, F. Porreca, P. Davis, A. E. Jacobson and K. C. Rice: Delta Opioid Affinity and Selectivity of 4-Hydroxy-3-methoxyindolomorphinan Analogues Related to Naltrindole. *J. Med. Chem.*, **1999**, *42*, 1673-1679.
14. A. Coop and K. C. Rice: Studies into the Direct Oxidation of Codeinone to 14-Hydroxycodeinone. *Tetrahedron*, **1999**, *55*, 11429-11436.
15. H. Yu, L. Wang, X. Tian, J. Flippen-Anderson, A. Coop and K. C. Rice: Synthesis of a Novel 7,14 $\beta$ -Ethano-Bridged Opiate. *Heterocycles*, **1999**, *51*, 2343-2347.
16. J. R. Traynor, L. Guo, A. Coop, J. W. Lewis and J. H. Woods: Ring-Constrained Orvinols as Analogues of Buprenorphine: Differences in Opioid Activity Related to the Conformation of the C-20 Hydroxyl Group. *J. Pharmacol Exp. Ther.*, **1999**, *291*, 1093-1099.
17. S. W. Breeden, A. Coop, S. M. Husbands, and J. W. Lewis: 6-O-Demethylation of the Thevinols with Lithium Aluminium Hydride: Selective Demethylation of a Tertiary Alkyl Methyl Ether in the Presence of an Aryl Methyl Ether. *Helv. Chim. Acta*, **1999**, *82*, 1978-1980.
18. X. Zhang, K. C. Rice, S. N. Calderon, H. Kayakiri, L. Smith, A. Coop, A. E. Jacobson, R. B. Rothman, P. Davis, K. Becketts and F. Porreca: Probes for Narcotic Receptor Mediated Phenomena. 26. Synthesis and Biological Evaluation of Diarylmethyl Piperazines and Diarylmethyl Piperidines as Novel, Nonpeptidic Delta Opioid Receptor Ligands. *J. Med. Chem.*, **1999**, *42*, 5455-5463.
19. A. Coop, J. Pinto, L. Wang, R. B. Rothman, C. Dersch, A. E. Jacobson and K. C. Rice: Delta Opioid Binding Selectivity of 3-Ether Analogs of Naltrindole. *Bioorg. Med. Chem. Lett.*, **1999**, *9*, 3435-3438.
20. D. Y. Maeda, W. Williams, W. D. Bowen and A. Coop: A Sigma-1 Receptor Selective Analog of BD1008. A Potential Substitute for (+)-Opioids in Sigma Receptor Binding Assays. *Bioorg. Med. Chem. Lett.*, **2000**, *10*, 17-18.
21. A. Coop, I. Berzetei-Gurske, J. Burnside, L. Toll, J. R. Traynor, S. M. Husbands, and J. W. Lewis: Structural Determinants of Opioid Activity in the Orvinols and Related Structures: Ethers of 7,8-Cyclopentano-Fused Analogs of Buprenorphine. *Helv. Chim. Acta*, **2000**, *83*, 687-693.
22. A. Coop, C. L. Norton, I. Berzetei-Gurske, J. Burnside, L. Toll, S. M. Husbands, and J. W. Lewis: Structural Determinants of Opioid Activity in the Orvinols and Related Structures: Ethers of Orvinol and Isoorvinol. *J. Med. Chem.*, **2000**, *43*, 1852-1857.
23. M. S. Furness, X. Zhang, A. Coop, A. E. Jacobson, R. B. Rothman, C. M. Dersch, Q.-X. Zheng, H. Xu, and K. C. Rice: Probes for Narcotic Receptor Mediated Phenomena. 27. Synthesis and Pharmacological Evaluation of Selective Delta-Opioid Receptor Agonists from 4-[( $\alpha$ R)- $\alpha$ -(2S,5R)-4-Substituted-2,5-di-

- methyl- 1-piperazinyl)-3-methoxybenzyl]-*N,N*-diethylbenzamides and their Enantiomers. *J. Med. Chem.*, **2000**, *43*, 3193-3196.
24. D. C. Broom, L. Guo, A. Coop, S. M. Husbands, J. W. Lewis, J. H. Woods, and J. R. Traynor: BU48: A Novel Buprenorphine Analog that Exhibits Delta-Opioid-Mediated Convulsions but not Delta-Opioid-Mediated Antinociception in Mice. *J. Pharmacol. Exp. Ther.*, **2000**, *294*, 1195-1200.
  25. D. Y. Maeda and A. Coop: Studies into the Direct Conversion of the Indolomorphinans into their 4-Phenolic Derivatives. *Tetrahedron*, **2000**, *56*, 7399-7402.
  26. I. Derrick, A. Coop, S. M. Al-Mousawi, S. M. Husbands, and J. W. Lewis: Perchloric Acid Induced Epimerisation of the Thevinones: An Improved Synthesis of 7 $\beta$ -Dihydrothevinones. *Tetrahedron Lett.*, **2000**, *41*, 7571-7576.
  27. A. Coop, A. E. Jacobson, M. D. Aceto, L. S. Harris, J. R. Traynor, J. H. Woods, and K. C. Rice: *N*-Cyclohexylethyl-*N*-noroxymorphindole: A Mu-Opioid Preferring Analog of Naltrindole. *Bioorg. Med. Chem. Lett.*, **2000**, *10*, 2449-2451.
  28. S. McLamore, T. Ullrich, R. B. Rothman, H. Xu, C. M. Dersch, R. Horel, A. Coop, P. Davis, F. Porreca, A. E. Jacobson, and K. C. Rice: The Effect of *N*-Alkyl and *N*-Alkenyl Substituents in Noroxymorphindole, 17-Substituted-6,7-dehydro-4,5 $\alpha$ -epoxy-3,14-dihydroxy-6,7:2'3'-indolomorphinans, on Opioid Receptor Affinity, Selectivity and Efficacy. *J. Med. Chem.*, **2001**, *44*, 1471-1474.
  29. D. Y. Meada and A. Coop: An Improved Hydrolysis of 7 $\alpha$ -Chloro-7 $\beta$ -cyano-6,14-*endo*-ethenotetrahydrothebaine to its 7-Oxo Derivative. *Heterocycles*, **2001**, *55*, 1147-1149.
  30. S. M. Huang, T. Bisogno, T. J. Petros, S. Y. Chang, P. A. Zavitsanos, R. E. Zipkin, R. Sivakumar, A. Coop, D. Y. Maeda, L. Petrocellis, S. Burstein, V. DiMarzo, J. M. Walker: Identification of a New Class of Molecules, the Arachidonyl Amino Acids, and Characterization of One Member that Inhibits Pain. *J. Biol. Chem.*, **2001**, *276*, 42639-42644.
  31. A. K. Mehta, N. M. Muschaweck, D. Y. Maeda, A. Coop, and M. K. Ticku: Binding Characteristics of the  $\gamma$ -Hydroxybutyric acid (GHB) Receptor Antagonist [<sup>3</sup>H]NCS-382 in the Rat Brain. *J. Pharmacol. Exp. Ther.*, **2001**, *299*, 1148-1153.
  32. L.-W. Hsin, X. Tian, E. L. Webster, A. Coop, T. M. Caldwell, A. E. Jacobson, G. P. Chrousos, P. W. Gold, K. E. Habib, A. Ayala, W. C. Eckelman, C. Contoreggi, K. C. Rice: CRHR<sub>1</sub> Receptor Binding and Lipophilicity of Pyrrolopyrimidines, Potential Nonpeptide Corticotropin-Releasing Hormone Type 1 Receptor Antagonists. *Bioorg. Med. Chem.*, **2002**, *10*, 175-183.
  33. D. Y. Maeda, W. Williams, W. E. Kim, L. N. Thatcher, W. D. Bowen, and A. Coop: *N*-Arylalkylpiperidines as High Affinity Sigma-1 and Sigma-2 Receptor Ligands: Phenylpropylamines as Potential Leads for Sigma-2 Agents. *Bioorg. Med. Chem. Lett.*, **2002**, *12*, 497-500.
  34. Cook, C. D.; Aceto, M. D.; Coop, A.; Beardsley, P. M. Effects of the Putative Antagonist NCS382 on the Behavioral Pharmacological Actions of Gamma-Hydroxybutyrate in Mice. *Psychopharmacology*, **2002**, *160*, 99-106.
  35. K. Crawford, A. Coop, and W. D. Bowen: Sigma-2 Receptors Regulate Changes in Sphingolipid Levels in Breast Tumor Cells. *Eur. J. Pharmacol.*, **2002**, *443*, 207-209.
  36. E. L. May, A. Coop, J. H. Woods, M. D. Aceto, E. R. Bowman, L. S. Harris, J. R. Traynor: *N*-(Trifluoromethyl)benzyl Substituted *N*-Normetazocines and *N*-Norketobemidones. *Bioorg. Med. Chem.*, **2003**, *11*, 31-31.
  37. W. Chen, M. D. Metcalf, A. Coop, J. L. Flippen-Anderson, J. R. Deschamps: 5-Butylthevinone: Stereochemistry of the Diels-Alder Reaction of 5-Butylthebaine with 3-Buten-2-one. *Acta Cryst. E*, **2003**, *E59*, o114-o116.

38. W. Chen, H. Wu, D. Bernard, M. D. Metcalf, J. R. Deschamps, J. L. Flippen-Anderson, A. D. MacKerell, and A. Coop: Rearrangement of 5-Trimethylsilylthebaine on Treatment with L-Selectride: An Efficient Synthesis of (+)-Bractazonine. *J. Org. Chem.*, **2003**, *68*, 1929-1932.
39. D. Bernard, A. Coop, and A. D. MacKerell: 2D Conformationally Sampled Pharmacophore: A Ligand Based Pharmacophore to Differentiate Delta Opioid Agonists from Antagonists. *J. Am. Chem. Soc.*, **2003**, *125*, 3101-3107.
40. A. Foster, H. Wu, W. Chen, W. Williams, W. D. Bowen, R. R. Matsumoto, and A. Coop: 1,4-Dibenzylpiperazines Possess Anticocaine Activity. *Bioorg. Med. Chem. Lett.*, **2003**, *13*, 749-751.
41. L. R. McMahon, A. Coop, C. P. France, G. Winger, W. L. Woolverton: Evaluation of the Reinforcing and Discriminative Stimulus Effects of 1,4-Butanediol and Gamma-butyrolactone in Rhesus Monkeys. *Eur. J. Pharmacol.* **2003**, *466*, 113-120.
42. E. Greiner, M. Spetea, R. Krassnig, F. Schullner, M. D. Aceto, L. S. Harris, J. R. Traynor, J. H. Woods, A. Coop, H. Schmidhammer: Synthesis and Biological Evaluation of 14-Alkoxymorphinans. 18. N-Substituted 14-Phenylpropyloxymorphinan-6-ones with Unanticipated Agonist Properties: Extending the Scope of Common Structure-Activity Relationships: *J. Med. Chem.* **2003**, *46*, 1758-1763.
43. R. M. van Well, H. O. Overkleef, J. H. van Boom, A. Coop, J. B. Wang, H. Wang, G. A. van der Marel, M. Overhand: Synthesis of Novel Sugar Amino Acids via a Curtius Rearrangement. *Eur. J. Org. Chem.* **2003**, 1704-1710.
44. L. P. Carter, L. Flores, H. Wu, W. Chen, A.W. Unzeitiz, A. Coop, C.P. France: The Role of GABA<sub>B</sub> Receptors in the Discriminative Stimulus Effects of  $\gamma$ -Hydroxybutyrate in Rats: Time Course and Antagonism Studies. *J. Pharmacol. Exp. Ther.* **2003**, *305*, 668-674.
45. H. Wu, N. Zink, L. P. Carter, A. K. Mehta, R. J. Hernandez, M. Ticku, R. Lamb, C. France, and A. Coop: A Tertiary Alcohol Analog of Gamma-Hydroxybutyric Acid as a Specific Gamma-Hydroxybutyric Acid Receptor Ligand. *J. Pharmacol. Exp. Ther.* **2003**, *305*, 675-679.
46. J. W. Janetka, M. S. Furness, X. Zhang, A. Coop, J. E. Folk, M. V. Mattson, A. E. Jacobson, K. C. Rice: Enantioconvergent Synthesis of (-)-(2R,5S)-1-Allyl-2,5-dimethylpiperazine, an Intermediate to  $\delta$ -Opioid Ligands. *J. Org. Chem.* **2003**, *68*, 3976-3980.
47. R. J. Lamb, J. Munn, N. Duiker, A. Coop, H. Wu, W. Koek, C. P. France: Interactions of  $\gamma$ -Hydroxy Butyrate with Ethanol and NCS-382. *Eur. J. Pharmacol.* **2003**, *470*, 157-162.
48. J. Schutz, M. Spetea, M. Koch, M. D. Aceto, L. S. Harris, A. Coop, H. Schmidhammer: Synthesis and Biological Evaluation of 14-Alkoxymorphinans. 20. 14-Phenylpropoxymetopon: An Extremely Powerful Analgesic: *J. Med. Chem.* **2003**, *46*, 4182-4187.
49. S. Tolle-Sander, K. A. Lentz, D. Y. Maeda, A. Coop, J. E. Polli: Increased Acyclovir Oral Bioavailability via a Bile Acid Conjugate. *Mol. Pharmaceut.* **2004**, *1*, 40-48.
50. L. P. Carter, L. Flores, H. Wu, W. Chen, C. M. Cruz, R. J. Lamb, W. Koek, A. Coop, C.P. France: Effects of GHB on Schedule-Controlled Responding in Rats: Role of GHB and GABA<sub>B</sub> Receptors. *J. Pharmacol. Exp. Ther.* **2004**, *308*, 182-188.
51. J. R. Deschamps, A. Coop, D. A. Parrish, K. C. Rice: 7 $\beta$ ,14 $\beta$ -Epoxyhydrocodone-6,6-dimethoxy ketal: An Unusual Oxetane Containing Opioid. *Acta Cryst. E* **2004**, *E60*, o331-o333.
52. W. Koek, L. R. Flores, L. P. Carter, R. J. Lamb, W. Chen, H. Wu, A. Coop, C. P. France: Discriminative Stimulus Effects of  $\gamma$ -Hydroxybutyric Acid in Pigeons: Role of Diazepam-sensitive and -Insensitive GABA<sub>A</sub> and GABA<sub>B</sub> Receptors. *J. Pharmacol. Exp. Ther.* **2004**, *308*, 904-911.
53. A. T. Macias, R. J. Hernandez, A. K. Metha, A. D. MacKerell, M. K. Ticku, A. Coop: 3-Chloropropanoic Acid (UMB66): A Ligand for the Gamma-Hydroxybutyric Acid Receptor Lacking a 4-Hydroxyl Group. *Bioorg. Med. Chem.* **2004**, *12*, 1643-1647.

54. D. Parrish, W. Chen, A. Coop, J. R. Deschamps: 7 $\beta$ -Chloro-6,14-*endo*-etheno-6,7,8,14-tetrahydrothebaine. *Acta Cryst. E* **2004**, E60, o793-o794.
55. L. P. Carter, A. W. Unzeitig, H. Wu, W. Chen, A. Coop, W. Koek, C. P. France: The Discriminative Stimulus effects of *gamma*-Hydroxybutyrate and Related Compounds in Rats Discriminating Baclofen or Diazepam: The Role of GABA<sub>B</sub> and GABA<sub>A</sub> Receptors. *J. Pharmacol. Exp. Ther.* **2004**, 309, 540-547.
56. R. R. Matsumoto, D. L. Gilmore, B. Pouw, W. D. Bowen, W. Williams, A. Kausar, A. Coop: Novel Analogs of the Sigma Receptor Ligand BD1008 Attenuate Cocaine-Induced Toxicity in Mice. *Eur. J. Pharmacol.* **2004**, 492, 21-29.
57. M. Spetea, F. Schullner, R. C. Moisa, I. P. Berzetei-Gurske, B. Schraml, C. Dorfler, M. D. Aceto, L. S. Harris, A. Coop, H. Schmidhammer: Synthesis and Biological Evaluation of 14-Alkoymorphinans. 21. Novel 4-Alkoxy and 14-Phenylpropyl Derivatives of the mu Opioid receptor Antagonist Cyprodime: *J. Med. Chem.* **2004**, 47, 3242-3247.
58. W. Chen, G. D. Strahan, D. A. Parrish, J. R. Deschamps, A. Coop: Studies into the Diels-Alder Reactions of 5-Trimethylsilylthebaine. *Tetrahedron Lett.* **2005**, 46, 131-133.
59. W. E. Fantegrossi, G. Winger, J. H. Woods, W. L. Woolverton, A. Coop: Reinforcing and Discriminative Stimulus Effects of 1-Benzylpiperazine and Trifluoromethylphenylpiperazine in Rhesus Monkeys. *Drug Alcohol Depend.* **2005**, 77, 161-168.
60. W. Chen, D. A. Parrish, J. R. Deschamps, A. Coop: Functionalization of the 6,14-Bridge of the Orvinols. 1. Preparation and Diels-Alder Reaction of 7-Phenylsilylthebaines. *Helv. Chim. Acta* **2005**, 88, 822-829.
61. H. Wu, D. Bernard, W. Chen, G. D. Strahan, J. R. Deschamps, D. A. Parrish, J. W. Lewis, A. D. MacKerell, A. Coop: Functionalization of the 6,14-Bridge of the Orvinols. 2. Preparation of 18- and 19-Hydroxyl Substituted Thevinols and their Treatment with Benzyl Bromide. *J. Org. Chem.* **2005**, 70, 1907-1910.
62. L. P. Carter, W. Chen, H. Wu, A. K. Mehta, R. J. Hernandez, M. K. Ticku, A. Coop, W. Koek, C. P. France: Comparison of the Behavioral Effects of Gamma-Hydroxybutyric Acid (GHB) and its 4-Methyl-Substituted Analog, Gamma-Hydroxyvaleric Acid (GHV). *Drug Alcohol Depend.* **2005**, 78, 91-99.
63. L. P. Carter, H. Wu, W. Chen, M. M. Matthews, A. K. Mehta, R. J. Hernandez, J. A. Thomson, M. K. Ticku, A. Coop, W. Koek, C. P. France: Novel Gamma-Hydroxybutyric Acid (GHB) Analogs Share Some, But Not All, of the Behavioral Effects of GHB and GABA<sub>B</sub> Receptor Agonists. *J. Pharmacol. Exp. Ther.* **2005**, 313, 1314-1323.
64. W. Koek, L. P. Carter, R. J. Lamb, W. Chen, H. Wu, A. Coop, C. P. France: Discriminative Stimulus Effects of  $\gamma$ -Hydroxybutyrate (GHB) in Rats Discriminating GHB from Baclofen and Diazepam. *J. Pharmacol. Exp. Ther.* **2005**, 314, 170-179.
65. W. Chen, H. Wu, R. J. Hernandez, A. K. Mehta, M. K. Ticku, C. P. France, A. Coop: Ethers of 3-Hydroxyphenylacetic Acid as Selective Gamma-Hydroxybutyric Acid Receptor Ligands. *Bioorg. Med. Chem. Lett.* **2005**, 15, 3201-3202.
66. H. Wu, L. N. Thatcher, D. Bernard, D. A. Parrish, J. R. Deschamps, K. C. Rice, A. D. MacKerell, A. Coop: The Position of Coordination of the Lithium Ion Determines the Regioselectivity of Demethylations of 3,4-Dimethoxymorphinans with L-Selectride. *Org. Lett.* **2005**, 7, 2531-2534.
67. D. A. Parrish, L. N. Thatcher, H. Wu, A. Coop, J. R. Deschamps: 7-[*E*]-Benzylidene-14-hydroxy-3,4-dimethoxy-17-methylmorphinan-6-one. *Acta Cryst. E.* **2005**, E61, o2617-o2618.
68. M. Spetea, E. Greiner, M. D. Aceto, L. S. Harris, A. Coop, H. Schmidhammer: Effect of a 6-Cyano Substituent in 14-Oxygenated *N*-Methylmorphinans on Opioid Receptor Binding and Antinociceptive Potency. *J. Med. Chem.* **2005**, 48, 5052-5055.



69. W. E. Fantegrossi, A. W. Harrington, J. R. Eckler, R. A. Rabin, J. C. Winter, A. Coop, K. C. Rice, J. W. Woods: Hallucinogen-like actions of 2,5-dimethoxy-4-(n)-propylthiophenethylamine (2C-T-7) in mice and rats. *Psychopharmacology* **2005**, *181*, 496-503.
70. D. Bernard, A. Coop, A. D. MacKerell: Conformationally Sampled Pharmacophore (CSP) for Peptidic Delta Opioid Ligands. *J. Med. Chem.* **2005**, *48*, 7773-7780.
71. C. D. Cook, L. Biddlestone, A. Coop, P. M. Beardsley: Effects of Combining Ethanol with Gamma-Hydroxybutyrate (GHB) on the Discriminative Stimulus, Locomotor and the Motor-Impairing Actions of GHB in Mice. *Psychopharmacology* **2006**, *185*, 112-122.
72. W. Koek, W. Chen, S. L. Mercer, A. Coop, C. P. France: Discriminative Stimulus Effects of  $\gamma$ -Hydroxybutyrate: Role of training Dose. *J. Pharmacol. Exp. Ther.* **2006**, *317*, 409-417.
73. W. E. Fantegrossi, A. W. Harrington, C. L. Kiessel, J. R. Eckler, R. A. Rabin, J. C. Winter, A. Coop, K. C. Rice, J. H. Woods: Hallucinogen-like Actions of 5-Methoxy-*N,N*-diisopropyltryptamine in Mice and Rats. *Pharmacol. Biochem. Behav.* **2006**, *83*, 122-129.
74. W. Koek, L.P. Carter, H. Wu, A. Coop, C.P. France: Discriminative Stimulus Effects of Flumazenil: Perceptual Masking by Baclofen, and Lack of Substitution with Gamma-Hydroxybutyrate and its Precursors 1,4-Butanediol and Gamma-Butyrolactone.. *Behav. Pharmacol.* **2006**, *17*, 239-247.
75. C. W. Cunningham, L. N. Thatcher, A. Coop: The Methylation of Non-acidic Alcohols of Alkaloids with TMS-Diazomethane: Conversion of Codeine to Codeine-6-methyl Ether. *Heterocycles.* **2006**, *68*, 837-840.
76. L. P. Carter, W. Chen, A. Coop, W. Koek, C. P. France: Discriminative Stimulus Effects of GHB and GABA<sub>B</sub> Agonists are Differentially Attenuated by CGP35348 in rats. *Eur. J. Pharmacol.* **2006**, *538*, 85-93
77. A. Balakrishnan, S. A. Wring, A. Coop, J. E. Polli: Influence of Charge and Steric Bulk in C-24 Region on the Interaction of Bile Acids with Human Apical Sodium Dependent Bile Acid transporter (hASBT). *Mol.Pharmaceut.* **2006**, *3*, 282-292.
78. A. Daniels, E. Ayala, B. Pouw, W. Chen, A. Coop, R. R. Matsumoto. *N*-[2-(*m*-Methoxyphenyl)ethyl]-*N*-ethyl-2-(1-pyrrolidinyl)ethylamine (UMB 116) is a Novel Antagonist for Cocaine-Induced Effects. *Eur. J. Pharmacol.* **2006**, *542*, 61-68.
79. S. L. Mercer, H. E. Hassan, C. W. Cunningham, N. D. Eddington, A. Coop: Opioids and Efflux Transporters. 1. P-Glycoprotein Substrate Activity of N-Substituted Analogs of Merperidine. *Bioorg. Med. Chem. Lett.* **2007**, *17*, 1160-1162.
80. R. R. Matsumoto, B. Pouw, A. L. Mack, A. Daniels, A. Coop: Effects of UMB24 and ( $\pm$ )-SM21, putative Sigma-2-preferring Antagonists, on Behavioral, Toxic, and Stimulant Effects of Cocaine in Mice. *Pharmacol. Biochem. Behav.* **2007**, *86*, 86-91.
81. K. Cheng, I. J. Kim, M.-J. Lee, S. A. Adah, T. J. Raymond, E. Bilsky, M. D. Aceto, E. L. May, L. S. Harris, A. Coop, C. M. Dersch, R. B. Rothman, A. E. Jacobson, K. C. Rice: Opioid Ligands with Mixed Properties from Substituted Enantiomeric *N*-Phenethyl-5-phenylmorphans. Synthesis of a mu-Agonist delta-Antagonist and delta-Inverse Agonists. *Org. Biomol. Chem.* **2007**, *5*, 1177-1190.
82. D. Bernard, A. Coop, A. D. MacKerell: Quantitative Conformationally Sampled Pharmacophore (CSP) for Delta Opioid Ligands: Reevaluation of Hydrophobic Moieties Essential for Biological Activity. *J. Med. Chem.* **2007**, *50*, 1799-1809.
83. W. Koek, S. L. Mercer, A. Coop: Cataleptic Effects of GHB, its precursor GBL, and GABA-B Agonists: Differential Antagonism by CGP35348. *Psychopharmacology* **2007**, *192*, 407-414.
84. A. C. Hiebel, Y. S. Lee, E. Bilsky, D. Giuvelis, J. R. Deschamps, M. D. Aceto, E. L. May, L. S. Harris, A. Coop, C. M. Dersch, R. B. Rothman, A. E. Jacobson, K. C. Rice: Probes for Narcotic receptor Mediated Phenomena. 34. Synthesis and Structure-Activity Relationships of a Potent  $\mu$ -Agonist  $\delta$ -Antagonist and

an Exceedingly Potent Antinociceptive in the Enantiomeric 9-Substituted 5-(3-Hydroxyphenyl)-*N*-phenylethylmorphinan Series. *J. Med. Chem.* **2007**, *50*, 3765-3776

85. H. Wu, T. A. Smith, H. Huang, J. B. Wang, D. A. Parrish, J. R. Deschamps, A. Coop: Functionalization of the 6,14-Bridge of the Orvinols. Part 3. Preparation and Evaluation of 18- and 19-Hydroxyl Substituted Orvinols. *Bioorg. Med. Chem. Lett.* **2007**, *17*, 4829-4831.
86. H. E. Hassan, A. L. Myers, I. J. Lee, A. Coop, N. Eddington: Oxycodone Induces Overexpression of P-glycoprotein (ABCB1) and Affects Paclitaxel's Tissue Distribution in Sprague Dawley rats. *J. Pharmt. Sci.* **2007**, *96*, 2494- 2506.
87. T. A. Smith, L. N. Thatcher, A. Coop: 3-Hydroxy-4-methoxyindolomorphinans as Delta Opioid Selective Ligands. *Bioorg. Med. Chem. Lett.* **2007**, *17*, 5175-5176.
88. J. Wang, A. L. Mack, A. Coop, R. R. Matsumoto: Novel Sigma Receptor Agonists Produce Antidepressant-like Effects in Mice. *Eur. Neuropsychopharmacol.* **2007**, *17*, 708-716.
89. H. L. Yarosh, E. B. Katz, A. Coop, W. E. Fantegrossi: MDMA-like Behavioral Effects of N-Substituted piperazines in the Mouse. *Pharmacol. Biochem. Behav.* **2007**, *88*, 18-27.
90. M. D. Metcalf, A. Coop: 5'-Halogenated Analogs of Oxymorhindoole. *Bioorg. Med. Chem. Lett.* **2007**, *17*, 5916-5917.
91. M. D. Metcalf, M. D. Aceto, L. S. Harris, J. H. Woods, J. R. Traynor, A. Coop, E. L. May: The Influence of Esters and Carboxylic Acids as the N-substituent of Opioids. 1. Benzomorphans. *Bioorg. Med. Chem.* **2008**, *16*, 869-873.
92. C. W. Cunningham, S. L. Mercer, H. E. Hassan, J. R. Traynor, N. D. Eddington, A. Coop: Opioids and Efflux Transporters. Part 2: P-Glycoprotein Substrate Activity of 3- and 6-Substituted Morphine Analogs. *J. Med. Chem.* **2008**, *51*, 2316-2320.
93. S. L. Mercer, R. R. Matsumoto, A. Coop: 4-Cyano-4-phenylpiperidines as Highly Selective Sigma-1 Selective Ligands. *Eur. J. Med. Chem.* **2008**, *43*, 1304-1308.
94. S. L. Mercer, C. W. Cunningham, N. D. Eddington, A. Coop: Opioids and Efflux Transporters. Part 3: P-Glycoprotein Substrate Activity of 3-Hydroxyl Addition to Meperidine Analogs. *Bioorg. Med. Chem. Lett.* **2008**, *18*, 3638-3640.
95. T. Smith, X. Yang, H. Wu, B. Pouw, R. R. Matsumoto, A. Coop: Trifluoromethoxyl Substituted Phenylethylene Diamines as High Affinity Sigma Receptor Ligands with Potent Anti-cocaine Actions. *J. Med. Chem.* **2008**, *51*, 3322-3325.
96. R. R. Matsumoto, J. Shaikh, L. L. Wilson, S. Vedam, A. Coop: AC927, A Selective Sigma Receptor Antagonist, Attenuates the Locomotor Stimulant and Neurotoxic Effects of Methamphetamine in Mice. *Eur. Neuropsychopharmacol.* **2008**, *18*, 871-881.
97. S. R. Burks, J. Ni, S. Muralidharan, A. Coop, J. P.Y. Kao, G. M. Rosen: Optimization of Labile Esters for Esterase-Assisted Accumulation of Nitroxides into Cells: A Model for In Vivo EPR Imaging. *Bioconjugate Chem.* **2008**, *19*, 2068-2071.
98. T. H. Charpentier, P. T. Wilder, M. A. Liriano, K. M. Varney, E. Pozharski, A. D. MacKerell, A. Coop, E. A. Toth, D. J. Weber: Divalent Metal Ion Complexes of S100B in the Absence and Presence of Pentamidine. *J. Mol. Bio.* **2008**, *382*, 56-73.
99. H. E. Hassan, S.L. Mercer, C.W. Cunningham, A. Coop, N.D. Eddington: Evaluation of the P-Glycoprotein (Abcb1) Affinity Status of a Series of Morphine Analogs: Comparative Study with Meperidine Analogs to Identify Opioids with Minimal P-Glycoprotein Interactions. *Int. J. Pharm.* **2009**, *375*, 48-54.
100. T.H. Charpentier, P.T. Wilder, M.A. Liriano, K.M. Varney, S. Zhong, A. Coop, E. Pozharski, A.D. MacKerell Jr, E.A. Toth, D. J.Weber: Small molecules bound to unique sites in the target protein binding

cleft of calcium-bound S100B as characterized by nuclear magnetic resonance and X-ray crystallography. *Biochemistry*. **2009**, 48, 6202-6212.

101. W. Koek, S. L. Mercer, A. Coop, and C. P. France: Behavioral Effects of GHB, its Precursor GBL, and GABA<sub>B</sub> Receptor Agonists: Time Course, and Differential Antagonism by the GABA<sub>B</sub> Receptor Antagonist CGP35348. *J. Pharmacol. Exp. Ther.* **2009**, 330, 876-883.
102. H. E. Hassan, A.L. Myers, A. Coop, N. D. Eddington: Differential Involvement of P-Glycoprotein (ABCB1) in Permeability, Tissue Distribution, and Antinociceptive Activity of Methadone, Buprenorphine, and Diprenorphine: In Vitro and In Vivo Evaluation. *J. Pharm. Sci.* **2009**, 98, 4928-4940.
103. H. E. Hassan, A. L. Myers, I. J. Lee, H. Chen, A. Coop, N. D. Eddington: Regulation of Gene Expression in Brain Tissues of Rats Repeatedly Treated by the Highly Abused Opioid Agonist, Oxycodone: Microarray Profiling and Gene Mapping Analysis. *Drug Metab. Dispos.* **2010**, 38, 157-167.
104. L. C. Cerchietti, A. F. Ghetu, X. Zhu, G. F. Da Silva, S. Zhong, M. Matthews, K. L. Bunting, J. M. Polo, C. Farès, C. H. Arrowsmith, S. N. Yang, M. Garcia, A. Coop, A. D. Mackerell, Jr., G. G. Privé, A. Melnick.: A Small-Molecule Inhibitor of BCL6 Kills DLBCL Cells In Vitro and In Vivo. *Cancer Cell*, **2010**, 17, 315-316.
105. P. T. Wilder, T. H. Charpentier, M. A. Liriano, K. Gianni, K. M. Varney, E. Pozharski, A. Coop, E. A. Toth, A. D. MacKerell, D. J. Weber: In Vitro Screening and Structural Characterization of Inhibitors of the S100B-p53 Interaction. *Int. J. High Throughput Screening* **2010**, 1, 109-126.
106. R. R. Matsumoto, S-M. Li, J. L. Katz, W. E. Fantegross, A. Coop: Effects of the selective sigma receptor ligand, 1-(2-phenethyl)piperidine oxalate (AC927), on the behavioral and toxic effects of cocaine. *Drug Alcohol Depend.* **2011**, 118, 40-47.
107. J. Shim, A. Coop, A. D. MacKerell: Consensus 3D Model of  $\mu$ -Opioid Receptor Ligand Efficacy Based on a Quantitative Conformationally Sampled Pharmacophore. *J. Phys. Chem. B.* **2011**, 115, 7487-7496.
108. M. J. Seminerio, N. Kaushal, J. Shaikh, J. D. Huber, A. Coop, R. R. Matsumoto: Sigma ( $\sigma$ ) receptor ligand, AC927 (N-phenethylpiperidine oxalate), attenuates methamphetamine-induced hyperthermia and serotonin damage in mice. *Pharmacol. Biochem. and Behav.* **2011**, 98, 12-20.
109. N. Kaushal, M. Elliott, M. J. Robson, A. K. V. Iyer, Y. Rojanasakul, A. Coop, R. R. Matsumoto: AC927, a sigma ligand, blocks methamphetamine-induced release of dopamine and generation of reactive oxygen species in NG108-15 cells. *Mol Pharmacol.* **2012**, 81, 299-308.
110. L. Stavitskaya, J. Shim, J. R. Healy, R. R. Matsumoto, A. D. MacKerell Jr., A. Coop. Deconstructing 14-phenylpropyloxymetopon: Minimal requirements for binding to mu opioid receptors. *Bioorg. Med. Chem.* **2012**, 20, 4556-4563.
111. L. E. McKnight, E. P. Raman, P. Bezawada, S. Kudrimoti, P. T. Wilder, K. G. Hartman, R. Godoy-Ruiz, E. A. Toth, A. Coop, A. D. MacKerell, Jr., D. J. Weber. Structure-Based Discovery of a Novel Pentamidine-Related Inhibitor of the Calcium-Binding Protein S100B. *ACS Med. Chem. Lett.*, **2012**, 3, 975-979.
112. M. J. Robson, M. J. Seminerio, C. R. McCurdy, A. Coop, R. R. Matsumoto.  $\sigma$  Receptor antagonist attenuation of methamphetamine-induced neurotoxicity is correlated to body temperature modulation. *Pharmacol. Reports.* **2013**, 65, 343-349.
113. J. R. Healy, P. Bezawada, J. Shim, J. W. Jones, M. A. Kane, A. D. MacKerell, Jr, A. Coop, R. R. Matsumoto. Synthesis, Modeling, and Pharmacological Evaluation of UMB 425, a Mixed  $\mu$  Agonist/ $\delta$  Antagonist Opioid Analgesic with Reduced Tolerance Liabilities. *ACS Chemical Neuroscience* **2013**, 4, 1256-1266.
114. J. Shim, A. Coop, and A. D. MacKerell, Jr. Molecular details of the activation of the  $\mu$  opioid receptor. *J. Chem. Phys. B.* **2013**, 117, 7907-7917.
115. L. Stavitskaya, M. J. Seminerio, J. R. Healy, B. Noorbakhsh, R. R. Matsumoto, A. Coop. Effect of ring-constrained phenylpropyloxyethylamines on sigma receptors. *Bioorg. Med. Chem.* **2013**, 21, 4923-4927.

116. W. C. Motel, E. Viard, B. Pouw, K. Martin, R. R. Matsumoto, A. Coop. Chlorophenylpiperazine analogues as high affinity dopamine transporter ligands. *Bioorg. Med. Chem. Lett.* **2013**, *23*, 6920-6922.
117. C. W. Cunningham, J. R. Deschamps, A. Coop. A one-step synthesis of  $\beta$ -bromocodide from codeine. *J. Pharm. Sci. Pharmacol.* **2014**, *1*, 54-56.
118. M. D. Metcalf, A. D. Rosicky, H. E. Hassan, N. D. Eddington, A. Coop, C. W. Cunningham, S. L. Mercer. Opioids and efflux transporters. Part 4: Influence of N-substitution on P-glycoprotein substrate activity of noroxymorphone analogues. *Bioorg. Med. Chem. Lett.*, **2014**, *24*, 3592-3595.
119. T. B. Haddou, D. Malfacini, G. Calo, M. D. Aceto, L. S. Harris, J. R. Traynor, A. Coop, H. Schmidhammer, M. Spetea. Exploring pharmacological activities and signaling of morphinans substituted in position 6 as potent agonists interacting with the  $\mu$  opioid receptor. *Molecular Pain* **2014**, *10*, 48.
120. M. C. Cavalier, M. I. Ansari, A. D. Pierce, P. T. Wilder, L. E. McKnight, E. Raman, D. B. Neau, P. Bezawada, M. J. Alasady, T. H. Charpentier, K. M. Varney, E. A. Toth, A. D. MacKerell, Jr., A. Coop, and D. J. Weber. Small Molecule Inhibitors of Ca<sup>2+</sup>-S100B Reveal Two Protein Conformations. *J. Med. Chem.*, **2016**, *59*, 592-608.
121. J. R. Healy, P. Bezawada, N. W. Griggs, A. L. Devereaux, R. R. Matsumoto, J. R. Traynor, A. Coop, C. W. Cunningham. Benzylideneoxymorphone: A new lead for development of bifunctional  $\mu/\delta$  opioid receptor ligands. *Bioorg. Med. Chem. Lett.*, **2017**, *27*, 666-669.
122. M. I. Ansari, J. R. Healy, K. Hom, J. R. Deschamps, R. R. Matsumoto, and A. Coop: Synthesis and Structural Elucidation of a Pyranomorphinan Opioid and in Vitro Studies. *Org. Lett.*, **2018**, *20*, 2984-2987.
123. C. R. Johnson, M. I. Ansari, A. Coop: Tetrabutylammonium Bromide-Promoted Metal-Free, Efficient, Rapid, and Scalable Synthesis of N-Aryl Amines. *ACS Omega* **2018**, *3*, 10886-10890.
124. J. L. Wilkerson, J. S. Felix, L. F. Restrepo, M. I. Ansari, A. Coop, L. R. McMahon. The Effects of Morphine, Baclofen, and Buspirone Alone and in Combination on Schedule-Controlled Responding and Hot Plate Antinociception in Rats. *J. Pharmacol. Exp. Ther.*, **2019**, *370*, 380-389.
125. C. R. Johnson, B. Kangas, E. Jutkiewicz, G. Winger, J. Bergman, A. Coop, and J. H. Woods. Novel Antimuscarinic Antidepressant-like Compounds with Reduced Effects on Cognition. *J. Pharmacol. Exp. Ther.* **2021**, *377*, 336-345.

#### PATENTS

1. A. Coop and K. C. Rice: Novel Methods of O-Demethylation and N-Deprotection. US 6,395,900 (May 28, 2002) (6,291,675).
2. J. E. Polli, K. A. Lentz, D. Y. Maeda and A. Coop: Bile Acid Containing Prodrugs with Enhanced Bioavailability. Australian Letters Patent Number 2001253226 (September 21, 2006).
3. A. Coop, M. K. Ticku, C. P. France: Ethers of 3-Hydroxyphenylacetic Acid as Selective Gamma-Hydroxybutyric Acid Receptor Ligands and Therapeutic Uses Thereof. US 7,838,556 (November 23, 2010)
4. A. Coop, A. D. MacKerell, R. R. Matsumoto: NOVEL MIXED  $\mu$  AGONIST/  $\delta$  ANTAGONIST OPIOID ANALGESICS WITH REDUCED TOLERANCE LIABILITIES AND USES THEREOF. European Patent Number 2964228 (May 8, 2019).

#### PATENT APPLICATIONS

1. A. Coop and K. C. Rice: Direct C-14 Oxidation of Opioids. Application Serial No. WO 00/66588.
2. A. Coop, A. D. MacKerell, R. R. Matsumoto: Opioid Analgesics with Reduced Tolerance. Submitted 12/18/12. PCT application: PCT/US2014/021155.

3. A. Coop, A. D. MacKerell: Pyranomorphinan Opioid Analgesics With Reduced Tolerance Due to Mixed Profile of Mu Agonism and Delta Antagonism and Methods of Using the Same. Submitted 3/4/16. U.S. Provisional Application Number: 62/303,496
4. A. Coop, C. R. Johnson, J. H. Woods, G. Winger, J. Bergman, E. M. Jutiewicz, B. D. Kangas: Patent Application Number: PCT/US2020/026820 (updated Patent Application Number) Title: "Methods of Using Muscarinic Antagonists in the Treatment of Depression" Submitted 4/6/20.

## INVENTION DISCLOSURES

### INVITED REVIEWS, EDITORIALS, AND COMMENTRIES

1. A. Coop and K. C. Rice: Role of Delta Opioid Receptors in Biological Processes. *Drug News and Perspectives*, **2000**, 13 (8). 481-487.
2. A. Coop and A. D. MacKerell: The Future of Opioid Analgesics. *Am. J. Pharm. Educ.*, **2002**, 66, 153-156.
3. S. N. Calderon and A. Coop: SNC 80 and Related Delta Opioid Agonists. *Curr. Pharmaceut. Des.* **2004**, 10, 733-742.
4. D. Bernard, A. Coop, A. D. MacKerell: Computer-Aided Drug Design: Structure-Activity Relationships of Delta Opioid Ligands. *Med. Chem. Rev. Online* **2005**, 2, 277-291.
5. M. D. Metcalf, A. Coop: Kappa Opioid Antagonists: Past Successes and Future Prospects. *AAPS J.* **2005**, 7, E704-E722.
6. C. W. Cunningham, A. Coop: Therapeutic Applications of Opioid Antagonists. *Chimica Oggi - Chemistry Today*. **2006**, 24 (3), 54-57.
7. M. M. Matthews, D. J. Weber, P. S. Shapiro, A. Coop, A. D. MacKerell, Jr.: Inhibition of Protein-Protein Interactions with Low Molecular Weight Compounds. *Current Trends in Medicinal Chemistry* **2008**, 5, 21-32.
8. A. Chayan, A. Coop, J. E. Polli, A. D. MacKerell, Jr.: Recent Advances in Ligand-Based Drug Design: Relevance and Utility of the Conformationally Sampled Pharmacophore Approach. *Curr. Computer-Aided Drug Des.* **2011**, 7, 10-22.
9. L. Stavitskaya, A. Coop: Most Recent Developments and Modifications of 14-alkylamino and 14-alkoxy-4,5-epoxymorphinan Derivatives. *Mini Rev. Med. Chem.*, **2011**, 11, 1002-1008.
10. S. L. Mercer, A. Coop: Opioid Analgesics and P-Glycoprotein Efflux Transporters: A Potential Systems-Level Contribution to Analgesic Tolerance. *Curr. Topics Med. Chem.*, **2011**, 11, 1157-1164.
11. W. C. Motel, A. Coop, and C. W. Cunningham. Cholinergic Modulation by Opioid Receptor Ligands: Potential Application to Alzheimer's Disease. *Mini Reviews in Medicinal Chemistry*, **2013**, 13, 456-466.
12. A. Coop, A. D. MacKerell, S. Fletcher: Polypharmacology in Drug Design. *AAPS Newsmagazine (July Issue)* **2015**, 18, 14-18.
13. A. Coop: Pharmaceutical Sciences and the Opioid Crisis. *Chimica Oggi - Chemistry Today* **2017**, 35, 3.
14. A. Coop: Rethinking Halogen Bonds. *AAPS Blog*. August 1, **2017**.  
<https://aapsblog.aaps.org/tag/andy-coop/>
15. M. Saquib, M. I. Ansari, C. R. Jonson, S. Khatoon, M. K. Hussain, A. Coop. Recent advances in the targeting of human DNA ligase I as a potential new strategy for cancer treatment. *Eur. J. Med. Chem.* **2019**, 182, 111657.

16. S. D. Comer, M. Pravetoni, A. Coop, M. H. Baumann, C. W. Cunningham. Potential unintended consequences of class-wide drug scheduling based on chemical structure: A cautionary tale for fentanyl-related compounds. *Drug Alcohol Depend.* **2021**, 221, 108530.
17. C. Johnson, B. D Kangas, E. Jutkiewicz, J. Bergman, A. Coop. Drug Design Targeting the Muscarinic Receptors and the Implications in Central Nervous System Disorders: A Review. *Biomedicines.* **2022**, 10, 398.

#### MONOGRAPHS

1. A. Coop and A. E. Jacobson: Biological Evaluation of Compounds for Their Physical Dependence Potential and Abuse Liability. XXIV. Drug Evaluation Committee of the College on Problems of Drug Dependence (2000). *National Institute on Drug Abuse Research Monograph Series*, **2001**, 181, 109-122.
2. A. Coop: Biological Evaluation of Compounds for Their Physical Dependence Potential and Abuse Liability. XXV. Drug Evaluation Committee of the College on Problems of Drug Dependence (2001). *National Institute on Drug Abuse Research Monograph Series*, **2002**, 182, 124-138.
3. A. Coop: Biological Evaluation of Compounds for Their Physical Dependence Potential and Abuse Liability. XXVI. Drug Evaluation Committee of the College on Problems of Drug Dependence (2002). *National Institute on Drug Abuse Research Monograph Series*, **2003**, 183, 152-169.
4. A. Coop: Biological Evaluation of Compounds for Their Physical Dependence Potential and Abuse Liability. XXVII. Drug Evaluation Committee of the College on Problems of Drug Dependence (2003). *National Institute on Drug Abuse Research Monograph Series*, **2004**, 184, 135-151.
5. A. Coop: Biological Evaluation of Opioids, Stimulants, and Depressants. I. An Overview of the Studies Performed by the Drug Evaluation Committee of the College on Problems of Drug Dependence (2004). *National Institute on Drug Abuse Research Monograph Series*, **2005**, 185, 105-130.
6. A. Coop: Biological Evaluation of Opioids, Stimulants, and Depressants. II. An Overview of the Studies Performed by the Drug Evaluation Committee of the College on Problems of Drug Dependence (2005). *National Institute on Drug Abuse Research Monograph Series*, **2006**, 186, 145-162.
7. A. Coop: An Overview of the Studies Performed by the Drug Evaluation Committee of the College on Problems of Drug Dependence (2006). *National Institute on Drug Abuse Research Monograph Series*, **2007**, 187, 100-112.

#### BOOK CHAPTERS

1. A. H. Newman and A. Coop: *Medicinal Chemistry: New Chemical Classes and Subtype-Selective Ligands*. in “*Sigma Receptors: Chemistry, Cell Biology, and Clinical Implications*”, R. R. Matsumoto, W. D. Bowen, T. P. Su, (Eds.), Springer-Verlag, **2007** (ISBN-10: 0-387-36512-5).
2. Hartman, K.G., Wilder, W.T., Varney, K., MacKerell, A.D., Jr., Coop, A., Njar, V., Zimmer, D., Lapidus, R., and Weber, D.J, “Inhibiting S100B in Malignant Melanoma,” in “Melanoma – From Early Detection to Treatment, G. Huynh and T. Duc, editors, INTECH Open Science, Chapter 24, **2013**, DOI: 10.5772/55176
3. A. Coop: “*Chapter 1 Concepts in Drug Discovery*” in “*Foye's Principles of Medicinal Chemistry*” V. F. Roche, S. W. Zito, T. L. Lemke, D. A Williams (Eds.), Wolters Kluwer Health, **2019** (ISBN-13: 978-1-4963-8502-4).
4. A. Coop, L. Lebovitz, S. Tucker, and C. Layson-Wolf. *A Curriculum-Wide Defense against Zoom Fatigue*. In “*Silver Linings: Lessons Learned from Teaching During a Pandemic*.” USM Kirwan Center for Academic Innovation. Maryland Open Source Textbook Initiative (MOST Commons). **2022**.  
<https://pressbooks.pub/silverlinings/>

ABSTRACTS, PRELIMINARY AND MISCELLANEOUS REPORTS (selected prior to 2008)

1. A. Coop, J. W. Lewis, J. R. Traynor, and L. Guo: Ring Constrained Analogs of Buprenorphine. *National Institute on Drug Abuse Research Monograph Series*, **1995**, 153, 128.
2. A. Coop, J. W. Lewis, and K. C. Rice: L-Selectride; A Novel O-Demethylating Agent for Morphine Alkaloids and Derivatives. The First Direct Conversion of Thebaine to Oripavine. *National Institutes of Health Research Festival*, September, **1996**.
3. L. Wang, C. M. Bertha, A. Coop, R. B. Rothman, H. Xu, K. Becketts, Q. Ni, F. Lu, and K. C. Rice: Synthetic Approaches to Derivatives of the  $\delta$ -Selective Antagonist Naltrindole. *National Institute on Drug Abuse Research Monograph Series*, **1997**, 174, 153.
4. A. Coop, J. W. Lewis, and K. C. Rice: L-Selectride; A Novel and General O-Demethylating Agent for Morphine Alkaloids and Derivatives. Direct and Simple Conversion of Thebaine to Oripavine. *National Institute on Drug Abuse Research Monograph Series*, **1997**, 174, 158.
5. A. Coop, J. Pinto, C. Bertha, R. Rothman, H. Xu, K. Becketts, C. Dersch, and K. C. Rice: 4-Phenolic Analogs of Naltrindole as Highly Selective Delta Opioid Ligands. *National Institutes of Health Research Festival*, October, **1997**.
6. A. Coop, J. Pinto, C. M. Bertha, K. McCullough, C. Dersch, H. Xu, R. B. Rothman, and K. C. Rice: Synthesis of 4-Phenolic Analogs of Naltrindole as Delta-Selective Opioid Ligands. *National Institute on Drug Abuse Research Monograph Series*, **1998**, 178, 79.
7. L. Wang, A. Coop, C. Dersch, H. Xu, R. B. Rothman, K. McCullough, and K. C. Rice: Synthetic Approaches to Derivatives of the  $\delta$ -Selective Antagonist Naltrindole. *National Institute on Drug Abuse Research Monograph Series*, **1998**, 178, 80.
8. A. Coop and A. E. Jacobson: The LMC Delta Opioid Recognition Pharmacophore. Comparison of SNC80 and the Indolomorphinans. *National Institutes of Health Research Festival*, October, **1998**.
9. S. M. McLamore, A. Coop, C. M. Dersch, K. McCullough, R. Horel, R. B. Rothman, and K. C. Rice: Delta Opioid Efficacy and Selectivity of *N*-Substituted Noroxymorphindoles. *National Institutes of Health Research Festival*, October, **1998**.
10. A. Coop and A. E. Jacobson: Progress in the Development of the LMC Delta Opioid Recognition Pharmacophore. *National Institute on Drug Abuse Research Monograph Series*, **1999**, 179, 121.
11. S. M. McLamore, A. Coop, C. M. Dersch, K. McCullough, R. Horel, R. B. Rothman, and K. C. Rice: Delta Opioid Selectivity of *N*-Substituted Noroxymorphindoles. *National Institute on Drug Abuse Research Monograph Series*, **1999**, 179, 245.
12. J. W. Lewis, C. E. Miller, and A. Coop: Ethers of Ring-Constrained Orvinols. Requirements for Kappa Opioid Receptor Agonist Activity in the Orvinol Series. *National Institute on Drug Abuse Research Monograph Series*, **1999**, 179, 246.
13. B. J. Vilner, A. Coop, and W. D. Bowen: Sigma-2 Receptor Antagonists: Inhibition of Agonist-Induced Calcium Release and Cytotoxicity in SK-N-SH Neuroblastoma. *Soc. Neurosci. Abstr.*, **1999**, 25, 1475.
14. W. D. Bowen, A. Coop, and B. J. Vilner: Sigma-2 Receptors that Modulate Calcium and Induce Cytotoxicity are Localized Intracellularly. *Soc. Neurosci. Abstr.*, **1999**, 25, 1708.
15. A. Hashimoto, A. Coop, C. M. Dersch, R. B. Rothman, and K. C. Rice: Synthesis and Pharmacology of Optically Pure *N*-Substituted Phenylmorphans and Conformationally Fixed Phenylmorphans. *National Institutes of Health Research Festival*, October, **1999**.
16. D. C. Broom, A. Coop, J. W. Lewis, J. H. Woods, and J. R. Traynor: A Novel Buprenorphine Analogue, BU48, Causes Delta Opioid-Mediated Convulsions But Not Antinociception in Mice. *National Institute on Drug Abuse Research Monograph Series*, **2000**, 180, 249.

17. A. Hashimoto, A. Coop, R. B. Rothman, C. Dersch, H. Xu, R. Horel, C. George, A. E. Jacobson, and K. C. Rice: Synthesis and Pharmacology of Optically Pure *N*-Substituted Phenylmorphans as Opioid Receptor Antagonists. *National Institute on Drug Abuse Research Monograph Series*, **2000**, 180, 250.
18. B. J. Vilner, W. Williams, A. Coop, and W. D. Bowen: Iboga Alkaloids and Other Sigma Ligands Modulate Calcium and Induce Cytotoxicity by Acting on Intracellular Sigma-2 Receptors. *National Institute on Drug Abuse Research Monograph Series*, **2000**, 180, 287.
19. D. C. Broom, A. Coop, J. W. Lewis, J. H. Woods, and J. R. Traynor: A Novel Buprenorphine Analogue Causes Delta-Mediated Convulsions but not Antinociception in Mice. *Abstracts of the European Opioid Conference*, **2000**, T11.
20. D. Y. Maeda, W. Williams, W. E. Kim, W. D. Bowen, and A. Coop: *N*-Arylalkylpiperidines: High Affinity Sigma-1 and Sigma-2 Ligands. *Abstracts of the American Chemical Society*, Washington, DC, August **2000**, (Poster MEDI 213).
21. A. Coop, D. Y. Maeda, W. Guang, K. C. Rice, J. V. Aldrich, and J.-B. Wang: Piperidines and Piperazines as ORL1 Receptor Ligands. *Drug Alcohol Depend.*, **2000**, 60 (suppl. 1), S41-S42.
22. D. Y. Maeda and A. Coop: A Facile Synthetic Route to 4-hydroxyindolomorphinans. *Drug Alcohol Depend.*, **2000**, 60 (suppl. 1), S135-S136.
23. C. D. Cook, A. Coop, and P. M. Beardsley: Antagonism of the Behavioral Effects of Gammahydroxybutyrate (GHB). *FASEB J.*, **2001**, 15, A912.
24. M. Metcalf, G. Danylyk, D. Y. Maeda, A. Coop: Thunder II: A Legal GHB Substitute. University of Maryland School of Pharmacy Research Day, May 8, **2001**.
25. A. Coop, M. D. Aceto, P. M. Beardsley, C. P. France, L. S. Harris, J. R. Traynor, G. Winger, W. L. Woolverton, J. H. Woods: Biological Evaluation of Compounds for their Physical Dependence Potential and Abuse Liability by the Drug Evaluation Committee (DEC). *Drug Alcohol Depend.*, **2001**, 63 (suppl. 1), S31-S32.
26. J. E. Polli, K. A. Lentz, D. Y. Maeda, S. Tolle, A. Coop: Prodrugs for Increased Oral Permeability via the Human Apical Sodium-Dependent Bile Acid Transporter. *EUFEPS World Conference on Drug Absorption and Drug Delivery Proceedings*. Copenhagen, Denmark, June, **2001**.
27. S. Huang, T. Bisogno, T. Petros, S. Chang, P. Zavitsanos, R. Zipkin, R. Sivakumar, A. Coop, D. Maeda, L. De Petrocellis, S. Burstein, V. Di Marzo, and J. M. Walker: Identification and Characterization of an Endogenous Anandamide-Like Compound: *N*-Arachidonylglycine (NAGly). *11<sup>th</sup> Annual Conference of the International Cannabinoid Research Society (ICRS)*, San Lorenzo, Spain, June, **2001**.
28. L. W. Hsin, X. Tian, E. L. Webster, A. Coop, T. M. Caldwell, A. E. Jacobson, G. P. Chrousos, P. W. Gold, K. E. Habib, A. Ayala, W. C. Eckelman, C. Contoreggi, K. C. Rice: Synthesis, Hydrophilicity, and Corticotropin-Releasing Hormone Type 1 Receptor (CRHR1) Binding Affinity of Substituted Pyrrolopyrimidines. *Abstracts of the American Chemical Society*, Chicago, August 26<sup>th</sup>, **2001**. (Poster MEDI 41)
29. A. K. Mehta, N. Muschaweck, A. Coop, M. K. Ticku: Characterization of the [<sup>3</sup>H]NCS-382 Binding to the Gamma-hydroxybutyric acid (GHB) Receptor in the Rat Tissue Membranes. *Soc. Neurosci. Abstr.*, **2001**. (Abstract 142.15).
30. W. D. Bowen, K. W. Crawford, A. Coop: Sigma-2 Receptors May Activate Sphingolipid-Ceramide *N*-Deacylase (SCDase) as a Mechanism to regulate Cell Growth. *Soc. Neurosci. Abstr.*, **2001**. (Abstract 364.1).
31. S. M. Huang, T. Bisogno, T. J. Petros, S. Y. Chang, P. A. Zavitsanos, R. E. Zipkin, R. Sivakumar, A. Coop, D. Y. Maeda, L. De Petrocellis, S. Burstein, V. Di Marzo, and J. M. Walker: Identification and Characterization of an Endogenous Lipoaminoacid that Inhibits Pain: *N*-Arachidonylglycine (NAGly). *Soc. Neurosci. Abstr.*, **2001** (Abstract 465.8).



32. D. Bernard, A. Coop, A. D. MacKerell: 2-Dimensional Conformationally Sampled Pharmacophore: A Novel Approach to Ligand-Based Pharmacophore Development Applied to Delta Opioid Ligands. *Abstracts of the American Chemical Society*, **2002**. (Abstract 181-COMP)
33. L. P. Carter, A. Coop, H. Wu, M. K. Ticku, C. P. France: Identification of New Potential Ligands for GHB Receptor Sites Using [<sup>3</sup>H]NCS-382 as a Radioligand. *Drug Alcohol Depend.*, **2002**, 66 (suppl. 1), S27-S28.
34. W. Chen, M. Metcalf, N. Zhao, A. D. MacKerell, and A. Coop: Facile Rearrangement of 5-Silylthebaine. *Drug Alcohol Depend.*, **2002**, 66 (suppl. 1), S31.
35. I. J. Kim, T. Ullrich, A. Coop, M. S. Furness, J. Janetka, A. E. Jacobson, K. C. Rice: Synthesis and Evaluation of [(2,5-cis-Dimethylpiperazinyl)-(3-methoxyphenyl)-methyl]-N-ethyl-N-phenylbenamides as Potential, Selective, Mu Opioid Receptor Antagonists. *Drug Alcohol Depend.*, **2002**, 66 (suppl. 1), S94.
36. L. N. Thatcher, N. Zhao, and A. Coop: Towards Stable Morphinan Derivatives of Naltrindole. *Drug Alcohol Depend.*, **2002**, 66 (suppl. 1), S182.
37. H. Wu, L. N. Thatcher, N. Zink, and A. Coop: Synthetic Approaches to GHB Analogs. *Drug Alcohol Depend.*, **2002**, 66 (suppl. 1), S198.
38. L. P. Carter, H. Wu, A. Coop, C. P. France, M. K. Ticku: Structure-activity relationship of GHB analogs at GHB and GABA-A receptors in rat cerebral cortex. *Soc. Neurosci. Abstr.*, **2002**. (Abstract 812.9).
39. D. L. Gilmore, A. Coop, W. D. Bowen, B. Pouw, R. R. Matsumoto: AC927, A Putative Sigma-2 Receptor Antagonist, Attenuates Cocaine-Induced Behaviors. *Soc. Neurosci. Abstr.*, **2002**. (Abstract 806.5).
40. W. Koek, R. J. Lamb, W. Chen, A. Coop, C. P. France: Discriminative Stimulus Effects of Gamma-Hydroxy Butyrate (GHB): Involvement of GABA-A and GABA-B Receptors. *Soc. Neurosci. Abstr.*, **2002**. (Abstract 812.1).
41. S. Tolle-Sander, K. A. Lentz, D. Y. Maeda, A. Coop, J. E. Polli: Assessment of Prodrugs of Acyclovir to Target the Apical Sodium-Dependent Bile Acid Transporter for Increased Intestinal Permeability. *Abstracts of the Am. Assoc. Pharmaceut. Scientists*, Toronto, Canada. November, **2002**.
42. W. Koek, W. Chen, H. Wu, A. Coop, C. P. France: Discriminative Stimulus Effects of Gamma-Hydroxy Butyrate (GHB): Involvement of GABA-A and GABA-B Receptors. *Abstracts of the Annual Meeting of the American College of Neuropsychopharmacology*, **2002**.
43. S. Tolle-Sander, K. A. Lentz, D. Y. Maeda, A. Coop, and J. E. Polli: Increased Bioavailability of Acyclovir via Prodrug for Apical Sodium-dependent Bile Acid Transporter. *2nd International Congress on Drug Absorption, Transport, and Delivery*. Honolulu, Hawaii, **2003**.
44. W. Koek, W. Chen, H. Wu, A. Coop, C. P. France: Discriminative Stimulus Effects of Gamma-Hydroxybutyrate (GHB): *FASEB J.*, **2003**, 17 (suppl. S), A630.
45. D. L. Gilmore, A. Coop, W. D. Bowen, B. Pouw, J. C. Yaciuk, R. R. Matsumoto: AC927, A Novel Ligand with Affinity for Dopamine Transporters and Sigma Receptors Attenuates Cocaine-induced Behaviors in Mice. *Abstracts of the College on Problems of Drug Dependence*, **2003**. (Abstract 217).
46. R. R. Matsumoto, J. C. Yaciuk, D. L. Gilmore, B. Pouw, W. D. Bowen, W. Williams, A. Coop: Six Novel Analogs of BD1008 Attenuate Cocaine-Induced Convulsions in Mice: Structure-Activity Relationships. *Abstracts of the College on Problems of Drug Dependence*, **2003**. (Abstract 430).
47. H. Wu, W. Chen, H. Wang, J. B. Wang, J. R. Deschamps, J. L. Flippen-Anderson, J. W. Lewis, A. Coop: The Synthesis of 18 and 19-Hydroxyl Substituted Orvinols. *Abstracts of the College on Problems of Drug Dependence*, **2003**. (Abstract 755)
48. W. Chen, H. Wu, D. Bernard, M. D. Metcalf, J. R. Deschamps, J. L. Flippen-Anderson, A. D. MacKerell, A. Coop: Rearrangement of 5-Trimethylsilylthebaine on Treatment with L-Selectride: An Efficient

- Synthesis of (+)-Bractazonine. *Abstracts of the College on Problems of Drug Dependence*, **2003**. (Abstract 105)
49. L. N. Thatcher and A. Coop: 4-O-Methylation of Opioids Using Trimethylsilyldiazomethane. *Abstracts of the College on Problems of Drug Dependence*, **2003**. (Abstract 681).
  50. L. P. Carter, W. Chen, H. Wu, A. Coop, and C. P. France: Discriminative Stimulus Effects of Baclofen in Rats. *Abstracts of the College on Problems of Drug Dependence*, **2003**. (Abstract 92).
  51. D. L. Gilmore, A. Coop, A. L. Mack, R. R. Matsumoto: Sigma-2 Receptor Antagonists: A Possible New Target for the Development of Anti-Cocaine Therapeutic Agents. *Abstracts of the AACCP Annual Meeting*, **2003** (Abstract M-2).
  52. R. R. Matsumoto, V. Shetty, A. Coop: Sigma Receptor Agonists: Possible New Class of Antidepressant Drugs. *Abstracts of the AACCP Annual Meeting*, **2003** (Abstract M-3).
  53. L. P. Carter, W. Chen, H. Wu, C. P. France, A. Coop, A., W. Koek: Activity at GABA<sub>B</sub> Receptors is Necessary for GHB-Induced Catalepsy in Mice: Studies with Novel GHB analogs. *Behav. Pharmacol.* **2003**, *14* (Suppl. 1), S76.
  53. D. L. Gilmore, A. Coop, W. D. Bowen, B. Pouw, R. R. Matsumoto: Novel Sigma Ligands, AC927, BD1063, and UMB90 Attenuate Cocaine-Induced Behaviors. *Soc. Neurosci. Abstr.*, **2003** (Abstract 422.15).
  54. R. R. Matsumoto, V. Shetty, A. Coop: Sigma Receptor Agonists: Possible New Class of Antidepressant Drugs. *Soc. Neurosci. Abstr.*, **2003** (Abstract 664.5).
  55. A. Coop, H. Wu, W. Chen, W. Koek, M. K. Ticku, L. P. Carter, C. P. France: GHB Selective Agents Lacking GABA<sub>B</sub> Actions. *Abstracts of the 42<sup>nd</sup> Meeting of American College on Neuropsychopharmacology*, San Juan, PR, December **2003**.
  56. D. Bernard, A. Coop and A. D. MacKerell, Jr.: Development of a Conformationally Sampled Pharmacophore for Peptidic  $\delta$  Opioid Ligands. *Biophys. J.* **2004**, *86* (suppl. S), 309A.
  57. L. P. Carter, W. Chen, H. Wu, A. Coop, W. Koek, C. P. France: Comparison of the Behavioral Effects of Gamma-hydroxybutyric Acid (GHB) and its 4-Methyl Analog, Gamma-hydroxyvaleric Acid (GHV). *FASEB J.*, **2004**, *18* (Suppl. S), A958.
  58. A. J. Daniels, E. Ayala, B. Pouw, A. Coop, R. R. Matsumoto: Novel Compounds as Antagonists for Cocaine-Induced Effects in Mice. *Abstracts of the College on Problems of Drug Dependence*, **2004**. (Abstract 127).
  59. M. D. Metcalf, X. Yang, B. Pouw, R. R. Matsumoto, A. Coop: Trifluoromethoxyl Substituted Analogs of BD1008 as Sigma Receptor Selective Ligands. *Abstracts of the College on Problems of Drug Dependence*, **2004**. (Abstract 128).
  60. D. A. Parrish, J. R. Deschamps, A. Coop, L. N. Thatcher, H. Wu, J. Ferrara, L. Daniels: Rapid Charge Density Data Collection. *Abstracts of the American Crystallographic Association*, Chicago, July, **2004**.
  61. H. Wu, W. Chen, D. Bernard, A. D. MacKerell, J. R. Deschamps, A. Coop: Functionalization of the Ethano Bridge of Orvinols via an Intramolecular Benzyl Transfer. *Abstracts of the American Chemical Society*, Philadelphia, August, **2004** (Abstract MEDI 50).
  62. W. Koek, L. P. Carter, A. Coop, C. P. France: Discriminative Stimulus Effects of Gamma-Hydroxybutyrate (GHB): Discriminating GHB from Baclofen and Diazepam. *Neuropsychopharmacology*, **2004**, *29* (Suppl. 1), S134.
  63. L. P. Carter, W. Chen, A. Coop, W. Koek, C. P. France: Antagonism of the Discriminative Stimulus Effects of GABA<sub>B</sub> Receptor Agonists: Involvement of Multiple Receptor Types. *FASEB J.*, **2005**, *19* (Suppl. S), A1541.

64. R. R. Matsumoto, Y. Yu, A. Mack, A. Coop, J. Ash: Selective Sigma Receptor Agonists Produce Antidepressant-like Effects in Mice. *FASEB J.*, **2005**, *19 (Suppl. S)*, A1543.
65. W. Koek, L. P. Carter, W. Chen, H. Wu, A. Coop, C. P. France: Discriminative Stimulus Effects of GHB and Flumazenil: Asymmetric Substitution. *Abstracts of the College on Problems of Drug Dependence*, Orlando, FL, June 18-23, **2005**.
66. C. W. Cunningham, L. N. Thatcher, A. Coop: TMS-Diazomethane as a Methylating Agent in the Synthesis of Codeine-6-methyl Ether. *Abstracts of the College on Problems of Drug Dependence*, Orlando, FL, June 18-23, **2005**.
67. M. D. Metcalf, D. Bernard, X. Yang, J. B. Wang, A. D. MacKerell, A. Coop: Refinement of the Delta Opioid Antagonist Conformationally Sampled Pharmacophore Using 5'-Halogen Substituted Analogs of Naltrindole. *Abstracts of the College on Problems of Drug Dependence*, Orlando, FL, June 18-23, **2005**.
68. H. Wu, W. Chen, R. J. Hernandez, A. K. Mehta, M. K. Ticku, C. P. France, A. Coop: Ethers of Hydroxyphenyl Acetic Acids as GHB Ligands. *Abstracts of the College on Problems of Drug Dependence*, Orlando, FL, June 18-23, **2005**.
69. M. Spetea, F. Schuller, R. C. Moisa, I. P. Berzetei-Gurske, M. D. Aceto, L. S. Harris, A. Coop, H. Schmidhammer: From a Specific Antagonist to Potent Agonists – Biological and Pharmacological Activities of Novel Derivatives of Cyprodime. *Abstracts of the International Narcotics Research Conference*, Annapolis, MD, July 14, **2005** (Poster Th4).
70. W. Koek, H. Wu, A. Coop, C. P. France: Discriminative Stimulus Effects of  $\gamma$ -Hydroxybutyrate: Role of Training Dose. *Behav. Pharmacol.*, **2005**, *16 (suppl. 1)*, S73-S74.
71. H. Hassan, C. W. Cunningham, A. Coop, N. D. Eddington: Effect of Potent and Specific P-gp and MRP Inhibitors on the Transport of Selected Opioids Across Caco-2 Cells and MDCK-MRP1 Overexpressing Cells. *AAPS Meeting*, Nashville, TN, November, **2005** (Poster T3116).
72. J. Shaikh, A. Coop, R. R. Matsumoto: AC927, A Sigma Receptor Antagonist, Attenuates Methamphetamine-Induced Hyperthermia and Dopamine Damage in Mouse Brain. *Soc. Neurosci. Abstr.*, **2005** (Abstract 918.14).
73. H. Hassan, C. W. Cunningham, A. Coop, N. D. Eddington: Effect of the ABC Transport Proteins on the Uptake, Transport and Tolerance Development to Selected Opioids. *International Society for the Study of Xenobiotics (ISSX) meeting*, Maui, Hawaii October 23-27, **2005** (Poster 75).
74. J. Wang, Y. Liu, A. Mack, A. Coop, R.R. Matsumoto: Sigma Receptor Agonists Show Antidepressant-like Effects in Mice. *FASEB J.* **2006**, *20*, A237.
75. T. A. Smith, B. Pouw, R. R. Matsumoto, A. Coop: Trifluoromethoxyl Substituted Analogs of BD1008. *Abstracts of the College on Problems of Drug Dependence*, Scottsdale, AZ, June 17-22, **2006**.
76. S. L. Mercer, C. W. Cunningham, H. Hassan, N. D. Eddington, A. Coop: The Relative Activity of Opioids as P-glycoprotein Substrates. *Abstracts of the College on Problems of Drug Dependence*, Scottsdale, AZ, June 17-22, **2006**.
77. W. Koek, A. Coop, W. Chen, C. P. France: The Mechanisms Underlying the Behavioral Effects of Gamma-Hydroxybutyrate (GHB) and Baclofen are not Identical: Differential Antagonism by the GABA<sub>B</sub> Receptor Antagonist CGP35348. *Abstracts of the College on Problems of Drug Dependence*, Scottsdale, AZ, June 17-22, **2006**.
78. C. W. Cunningham, H. Hassan, S. L. Mercer, N. D. Eddington, A. Coop: Diminished P-gp Substrate Activity of 3- and 6-Substituted Morphine Analogs. *Abstracts of the International Narcotics Research Conference*, St. Paul, MN, July 9-14, **2006** (Poster M-51).
79. M. D. Metcalf, A. Coop: A Novel One Step Synthesis of 14-Formamido-N-cyclopropylmethylnor-7,8-dihydromorphinone. *Abstracts of the International Narcotics Research Conference*, St. Paul, MN, July 9-14, **2006** (Poster T-45).

80. R. R. Matsumoto, J. Shaikh, L. L. Wilson, J. Wang, A. Coop: AC927, A Selective Sigma Receptor Antagonist, Attenuates the Locomotor Stimulant and Neurotoxic Effects of Methamphetamine In Mice. *FASEB J.* **2007**, *21*, 715.7.
81. R. R. Matsumoto, J. Diers, A. Coop: Ethylamines with High Affinity and Selectivity for Sigma Receptors Attenuate Cocaine-Induced Behaviors in Mice. *FASEB J.* **2007**, *21*, 715.14.
82. M. M. Matthews, A. D. MacKerell, A. Coop: Mu Opioid Agonists and P-glycoprotein Efflux Transporters. *Abstracts of the College on Problems of Drug Dependence*, Quebec City, Canada, June 16-21, **2007**.

POSTER PRESENTATIONS AT AACP (American Association of Colleges of Pharmacy)

1. L. Lebovitz, A. Coop, M. R. de Bittner, I. H. Zuckerman: *Applied Pharmaceutical Sciences: An Innovative, Interdisciplinary Approach to Educating Both Students and Faculty.* **2013**  
<http://www.ajpe.org/doi/full/10.5688/ajpe775109> (School Poster)
2. L. Lebovitz, N. D. Eddington, M. R. de Bittner, A. Coop, W. J. Cooper, C. D. Mullins: *One Hundred Eighty Thousand Minutes or Two Thousand Hours; How Do You Measure a Year.* **2014**  
<http://www.ajpe.org/doi/full/10.5688/ajpe785111>
3. J. E. Polli, P. Shapiro, A. Coop: *Design and Implementation of an Online MS in Regulatory Science Degree Program for Working Professionals.* **2015** <http://www.ajpe.org/doi/full/10.5688/ajpe795S4>
4. A. Coop, M. R. de Bittner: *Dueling Professors: Integrated Education and Faculty Development through "Double Acts."* **2015** <http://www.ajpe.org/doi/full/10.5688/ajpe795S4>
5. L. Lebovitz, R. N. Dalby, C. Layson-Wolf, A. Coop, S. R. Tucker, J. Mattingly, N. J. Brandt: *Pharmacy Curriculum Outcomes Assessment (PCOA). Love it or Hate it, It's Required!* **2015**  
<http://www.ajpe.org/doi/full/10.5688/ajpe795S4>
6. A. Coop, L. Lebovitz, S. R. Tucker, G. Anagnostou, C. Klimas, R.N. Dalby: *Creating a Comprehensive Exam to Prepare Students for the PCOA.* **2016** <http://www.ajpe.org/doi/full/10.5688/ajpe805S2>
7. G. Anagnostou, L. Finn, S. R. Tucker, A. Coop: *Developing a Data Driven Approach to Exam Administration and Support Using ExamSoft.* **2017** <http://www.ajpe.org/doi/full/10.5688/ajpe815S5>
8. A. Coop, P. Shapiro, J. E. Polli: *America's Got Regulatory Science Talent" Competition Inspires Future Innovators.* **2017** <http://www.ajpe.org/doi/full/10.5688/ajpe815S5>
9. A. Coop, S. R. Tucker, R. J. Ceraul: *Communication Breakdown, It's Always the Same! An Academic Chemist and the Mainstream Media.* **2017** <http://www.ajpe.org/doi/full/10.5688/ajpe815S5>
10. MI Ansari, SR Tucker, A Coop: *Filling the Pipeline of Science Faculty Through Situated Learning.* **2017**  
<http://www.ajpe.org/doi/full/10.5688/ajpe815S5>
11. SR Tucker, JE Polli, A Coop, MJ Bondy, M Rietschel: *Ensuring Quality in Online Graduate Education Using the Quality Matters Rubric.* **2017** <http://www.ajpe.org/doi/full/10.5688/ajpe815S5>
12. SR Tucker, C Klimas, A Coop, C Layson-Wolf: *A Method to Streamline Management of Excused Absences.* **2018.** <https://doi.org/10.5688/ajpe7158>
13. G Anagnostou, SR Tucker, J Goldberg, A Coop: *Streamlining Exam Administration Through Continual Stakeholder Engagement and Training.* **2018.** <https://doi.org/10.5688/ajpe7158>
14. A Coop, SR Tucker, C Layson-Wolf: *Promoting Audience Appropriate Communication Through a Professional Communication Strategy Elective Bootcamp.* **2018.** <https://doi.org/10.5688/ajpe7158>
15. A Coop, SR Tucker, L Lebovitz: *Demonstrating the Broader Impact of Chemistry With Altmetrics.* **2018**

16. CR Johnson, A Coop, SR Tucker: Mentoring Undergraduates in Academic Research Laboratories: What to Know/Do/Expect as a Graduate Student and Faculty Mentor. **2018**. <https://doi.org/10.5688/ajpe7158>
17. EF Gorman, KD Jackson, MW Harrold, SL Mercer, M Metcalf, L Lebovitz, SR Tucker, KF Block, R Franzini, A Coop: A Model for Assessing Professional Association Engagement. **2019**. <https://www.ajpe.org/doi/pdf/10.5688/ajpe7654> (Re-presented at AACP Leadership Development SIG **2020** Virtual Symposium. Received "Best Poster" award)
18. A Coop, SR Tucker, L Lebovitz, SN Harriman, RJ Ceraul: Mr. Chemistry Goes to Washington: A Case Study on Congressional Testimony. **2019**. <https://www.ajpe.org/doi/pdf/10.5688/ajpe7654> (Re-presented at AACP Leadership Development SIG **2020** Virtual Symposium)
19. MI Ansari, A Coop, SR Tucker: Who Mentors the Mentors? **2019**. <https://www.ajpe.org/doi/pdf/10.5688/ajpe7654>
20. C Layson-Wolf, SR Tucker, A Coop: After the Crisis is Managed: Exploring the Well-being of Student and Academic Affairs Leadership. **2019**. <https://www.ajpe.org/doi/pdf/10.5688/ajpe7654>
21. MI Ansari, JR Healy, K Hom, J Deschamps, RR Matsumoto, A Coop: Discovery of a Unique Rearranged Pyranomorphinan, UMB426: A New Pharmacophore. **2020**. <https://www.ajpe.org/content/84/6/ajpe8220>
22. CR Johnson, A Coop, R. Pearson, L. Sera, SR Tucker, L. Finn: Adapting PharmD chemistry teaching pedagogy for a foundational cannabis chemistry course for MS students. **2021**. <https://www.ajpe.org/content/85/7/8737>
23. A Coop, SR Tucker, G Anagnostou, W. McLean, J. Adney, S. Fletcher: Annotation is Critical for Chemistry Education, but how do we do it at a Distance? **2021** <https://www.ajpe.org/content/85/7/8737>
24. L Sera, L Finn, SR Tucker, A Coop: Characteristics of Students in the Nation's First Medical Cannabis Master of Science Program. **2021**. <https://www.ajpe.org/content/85/7/8737>
25. A Coop, M. Kane, CR Johnson, L Sera, L Finn: Differences in Educational Approaches Required for a Cannabis Analytical Chemistry Course: MS vs. PharmD. **2021**. <https://www.ajpe.org/content/85/7/8737>
26. CR. Johnson, A Coop, and ND Eddington:  $\Delta$ 8-THC: an Old Cannabinoid with New Interest. **2022**. <https://www.ajpe.org/content/86/5/9171#sec-45>
27. A Coop and PW Swaan: A Guide for Writing a Strong Hypothesis for Grant Submissions. **2022**. <https://www.ajpe.org/content/86/5/9171#sec-40>
28. A Coop, S Fletcher, F Xue, JW Jones, D Deredge, SR Tucker, G Anagnostou: [Maryland Academy for Pharmacy Success \(MAPS\) – Med Chem Winter is Coming](#). **2023**.
29. A Coop, SR Tucker, C Layson-Wolf, CR Johnson. [Olsen's "Standard Book of British Birds"? Selecting Appropriate Resources for Pre-matriculation Programs](#). **2023**.
30. A Coop and D. Deredge. Establishing a New Student Organization Inclusive of both Graduate and Professional Students. **2024**. [https://www.ajpe.org/article/S0002-9459\(24\)10559-1/abstract](https://www.ajpe.org/article/S0002-9459(24)10559-1/abstract)
31. A Coop, C Layson-Wolf, S Tucker, S Devabhakthuni. Coaching and Relationship Building: Critical Supports in Successful Transitions of Associate Deans. **2024**. [https://www.ajpe.org/article/S0002-9459\(24\)10557-8/abstract](https://www.ajpe.org/article/S0002-9459(24)10557-8/abstract)
32. C Johnson, A Coop, L Sera, A McCormick-Howell, K San Juan. Recruiting for Graduate Programs: One Size Does Not Fit All. **2024**. [https://www.ajpe.org/article/S0002-9459\(24\)10564-5/abstract](https://www.ajpe.org/article/S0002-9459(24)10564-5/abstract)
33. C Johnson, A Coop, L Sera. Teaching the Chemistry/Pharmacology of Psychedelics to Non-Scientists: Adaptation of PharmD Teaching Pedagogy for MS Students. **2024**. [https://www.ajpe.org/article/S0002-9459\(24\)10565-7/abstract](https://www.ajpe.org/article/S0002-9459(24)10565-7/abstract)

