CURRICULUM VITAE

Carrie K. Jones, PhD

Office/Lab Address: Department of Pharmacology
Vanderbilt Center for Neuroscience Drug Discovery
418B PRB
2220 Pierce Avenue
Vanderbilt University
Nashville, TN 37232-6600
Phone: (615) 322-6347
Cell: (615) 818-9147

Email: carrie.jones@vanderbilt.edu
Website: my.vanderbilt.edu/joneslab

Education and Training

1992	BS, Biology, Indiana University, Bloomington, IN
2001	Ph.D., Medical Neurobiology, Indiana University School of Medicine, Indianapolis, IN; Mentor: Harlan E. Shannon Thesis: 'The Role of the Muscarinic Cholinergic System in Prepulse Inhibition of the Acoustic Startle Reflex: Implications for Schizophrenia.'
2001-2004	Post-doctoral Fellow, Eli Lilly and Company, Indianapolis, IN; Mentor: Beth J. Hoffman
2005-2007	Post-doctoral Fellow, Vanderbilt University, Nashville, TN; Mentor: P. Jeffrey Conn

Academic Appointments

1989-1992	Research Assistant, Indiana University, Bloomington, IN; P.I. Dr. William Timberlake, general learning paradigms in foraging behaviors of rats.
1992-1993	Research Assistant, Indiana University School of Medicine, Indianapolis, IN; P.I. Dr. Jim Murphy, alcohol drinking behavioral studies with alcohol-preferring (P) and nonalcohol-preferring (NP) rats.
1993-1996	Research Assistant, Indiana University School of Medicine, Indianapolis, IN. P.I. Dr. Bernadino Ghetti, characterization of the molecular genetics and protein chemistry of human prion diseases.
2008-2010	Research Biologist, VA Tennessee Valley Healthcare System, Nashville, TN.
2010-present	Assistant Professor of Pharmacology, VU
2010-present	Director, *In Vivo* and Translational Pharmacology, Vanderbilt Center for Neuroscience Drug Discovery, VU
2014-present	Development Director, Vanderbilt Center for Neuroscience Drug Discovery, VU

Professional Organizations

American Chemical Society (ACS), 2018
American Society of Pharmacology and Experimental Therapeutics (ASPET), 2012-present
Society for Neuroscience (SFN), 2004-present

Professional Activities

Intramural:

2007-2009	Member, Vanderbilt University MCN 9th Floor Neuroscience Build-Out Committee, Designed Original Plan and Budget for Vanderbilt University Rat Neurobehavioral Core
2007-2009	Member, Vanderbilt Medical Center Institutional Animal Care and Use Committee
2014-present	Director, Vanderbilt University Rat Neurobehavioral Core

2014-present Development Director, VCNDD, VU; Coordinated the infrastructure across Vanderbilt University, including working directly with the VU Offices of the Provost and Vice Provost for Research, VU Office of General Counsel, Dean of Basic Science, VUMC and Vanderbilt Center for Technology Transfer and Commercialization, to establish and enable VU to act for the first time as the Sponsor for an open IND and Phase I clinical study for development of a novel treatment VU319 for Alzheimer's Disease.

2015-2016 Co-Director, Vanderbilt Program in Molecular Medicine

2017-present Member, Interdisciplinary Program in Neuroscience for Undergraduates at VU

2017-present Member, Vanderbilt Center for Addiction Research

2018 Member, Vanderbilt Brain Institute

2018-2020 Member, Pharmacology Qualification Committee

Extramural:

Service at National/International Level

2011 Organizer and Chair 8th International Brain Research Organization World Congress of Neuroscience meeting symposium entitled 'Novel Genetic and Pharmacologic Tools for Muscarinic Acetylcholine Receptor Subtypes for the Treatment of CNS Disorders,' Florence, Italy.

2014 Organizer and Chair American Society of Pharmacology and Experimental Therapeutics meeting symposium entitled 'Sleep Disruptions Associated with Neuropsychiatric and Degenerative Disorders: Implications, Preclinical Models and Development of Novel Pharmacotherapies'.

2015 Organizer and Chair American Society of Pharmacology and Experimental Therapeutics meeting symposium entitled 'Novel Therapeutic Targets and Preclinical Models of Post-traumatic Stress Disorder'.

2016 Organizer and Chair Winter Conference on Brain Research meeting symposium entitled 'Novel Mechanism for Modulating Prefrontal Cortical Circuitry for the Treatment of Neuropsychiatric'.

2018-2020 Member, NIH/NIDA Board of Scientific Counselors (BSC)

Reviewing Activities

***Ad hoc* for the following journals:**

ACS Chemical Neuroscience, Neuropsychopharmacology, Journal of Pharmacology and Experimental Therapeutics, European Journal of Pharmacology, Neuropharmacology, Behavioural Brain Research, Pharmacology, Biochemistry, and Behavior, Neuroscience

***Ad hoc* for the following grant study sections (NIH and Foundations):**

2011 (Feb) NIMH U01 NCDDG grant submission, NIMH contract proposal submissions aimed at developing fast-fail experimental medicine networks to examine compounds for treatment of mood and anxiety spectrum disorders.

2015 (Feb) NIH Biobehavioral Regulation, Learning and Ethology Study Section

2015 (June) NIH Biobehavioral Regulation, Learning and Ethology Study Section

2015 (Feb) NIMH Clinical Trials of Novel Interventions for Mental Disorders (R61/R33)

2016 Dennis Weatherstone Predoctoral Fellowship, Autism Speaks

2016 (Feb) NIMH Clinical Trials of Novel Interventions for Mental Disorders (R61/R33)

2017 (Oct) NIMH Clinical Trials of Novel Interventions for Mental Disorders (R61/R33)

2018 (Feb) NIMH Clinical Trials of Novel Interventions for Mental Disorders (R61/R33)

Awards or Recognitions for professional activities:

1991 Howard Hughes Undergraduate Research Award

1993 Travel Award, Association for the Advancement of Mental Health Research and Education Travel Grant, International Molecular Biology of Prion Disease Meeting, Royal Society, London, England
1996 Travel Award, 7th International Symposium on Subtypes of Muscarinic Receptors, Vienna, VA.
1997 Eli Lilly & Company Travel Award, International Congress on Schizophrenia Research, Colorado Springs, CO
2011 Finalist Janssen Rising Star Translational Research Award
2012 Avis and Clifford Barrus Medical Foundation Award for Research on Depression in Women
2014 Avis and Clifford Barrus Gift Award
2017 Vanderbilt University recognition award for Most Cited 2014 Scientific Publication for Assistant Professor

Teaching Activities

Vanderbilt University School of Medicine Courses:

2010-2013 Lecturer VMSII Brain and Behavior Module, Developed Two New Lectures:
1) *'Pharmacological Treatment of Dementia'* (1 Lecture, 90 minute session)
2) 'Pharmacology of Analgesia I & II' (1 Lecture, 90 minute session)

Vanderbilt University Graduate School Courses:

2007-2014 Lecturer, PHAR 8327: Modern Drug Discovery (2 Credit hours: Total 16 Lectures, 120 minute sessions; provided 4 Lectures in this survey format)
2012-2014 Course Director, PHAR 8327: Modern Drug Discovery (2 Credit hours)
2015, 2018 Course Director and lecture, Developed *Revised* PHAR 8327: Modern Drug Discovery (2 Credit hours: Total 28 Lectures, 90 minute sessions; provided 7 Lectures in this revised format)
2009-2012 Lecturer, An Organ Systems Approach to Experimental Targeting of the Metabolic Syndrome Summer Course: Developed One New Lecture
1) '*Pharmacokinetics: how much and how often should I give my drug?'* (1 Lecture, 120 minute session
2017 Lecturer, NURO 8365: Neurobiology of Disease, (3 Credit hours) Developed Two New Lectures:
1) *'Vascular Dementia'* (1 Lecture, 120 minute session)
2) *'Why did recent novel drug mechanisms fail in clinical development for AD?'* (1 Lecture, 120 minute session)

Vanderbilt University Undergraduate College of Arts and Sciences Courses:

2013-2016 Lecturer, NSC 3235: Biological Basis of Mental Disorders (3 credit hours):
1) *'Neurobiology of Depression'* (1 Lecture, 90 minute session)
2) 'Drug Discovery in Academia: Development of a Novel Treatment for Schizophrenia' (1 Lecture, 90 minute session)
2015, 2016 (Fall) Course Director and Lecturer NSC 3891: Modern Drug Discovery for the CNS
Developed new undergraduate course (3 credit hours, total 28 lectures, 75 minute sessions)
2016 (Spring) Course Director and Lecturer NSC 1001.2: 'How To Develop A Drug For My Grandmother's Dementia'; Developed new undergraduate course (1 credit hour, 8 total 90 minute sessions, 1 50 minute session)
2017 (Fall), 2018 (Spring) Course Director and Lecturer NSC 3245-01: Drug Discovery for Neuropsychiatric Disorder
Revised version of my NSC 3891 undergraduate course (3 credit hours, total 28 lectures, 75 minute sessions). *Course will be offered in Fall 2018 and Spring 2019.*
2007-2009 Co-Mentor, NSC 3861: Undergraduate Research (2 credit hours)
2007-2009 Co-Mentor, NSC 3862: Undergraduate Research (2 credit hours)
2007-2009 Co-Mentor, NSC 4999: Undergraduate Honors Research (2-4 credit hours)
2010-2018 Mentor, NSC 3861: Undergraduate Research (2 credit hours)
2010-2018 Mentor, NSC 3862: Undergraduate Research (2 credit hours)
2010-2018 Mentor, NSC 4999: Undergraduate Honors Research (2-4 credit hours)

Research Supervision

Postdoctoral Fellows:

2005-2006 Marketa Marvonova, VUMC Pharmacology, co-mentor Jeff Conn; currently, Chair and Associate Professor; School Pharmacy North Dakota State University

2006-2008 Noor Tantawy, Vanderbilt University Institute Imagining Sciences (VUIIS), co-mentor John Gore; currently Faculty Radiology and Radiological Sciences Core VUIIS

2006-2007 Elizabeth Hackler, VUIIS, co-mentor John Gore; currently Director, Medical Information and Communications, Lundbeck Pharmaceuticals

2007-2010 Nellie E. Byun, VUIIS, co-mentor John Gore; currently Program Manager preclinical pharmacological MRI for the Center for Small Animal Imaging, VUIIS

2007-2010 Analisa D. Thompson, VUMC Pharmacology, co-mentor Jeff Conn, currently Staff Scientist, Head Behavioral Pharmacology, Hamm Laboratory

2009-2011 Beth Herman, VUMC Pharmacology, co-mentor Jeff Conn, currently Teaching Faculty, Georgia Military College

2009-2011 Kera Lawson, VUMC Pharmacology, currently Scientific Review Officer, Center for Scientific Review at NIH

2010-2011 Brett English, VUMC Pharmacology, co-mentor Wes Ely, Director, Clinical Development Clinical Development Lead, Arena Pharmaceuticals

2011-2014 Russell J Amato, VUMC Pharmacology, Medical Science Liaison, Genomind, Inc

2015-2017 Barak Gunter, VU Pharmacology, Study Director, MPI Research

2012-present Robert W, Gould, VU Pharmacology, Received 2016 Pathway to Independence Award(K99/R00); Promoted Instructor 2018

Graduate Students:

2010-2015	Michael T. Nedelcovych	Drug Discovery Scientist, Johns Hopkins Drug Discovery, Dracen Pharmaceuticals
2010-2016	Michael D. Grannan	Drug Discovery Scientist, Aquinnah Pharmaceuticals
2018-present	Jason Russell	Funded by International IGP Student Stipend
2018-present	Laura Teal	Funded by T32 Pharmacology training grant

Dissertation Advisory Committees:

2006-2009	Alexis S Hammond	MSTP Program	Member
2010-2017	Isaac D. Zike	Pharmacology	Member
2010-2016	Michael D. Grannan	Pharmacology	Member, Mentor
2010-2015	Michael T. Nedelcovych	Pharmacology	Member, Mentor
2011-2015	Rebecca Klar	Pharmacology	Member
2012-present	Yuantee Zhu	MSTP Program	Member
2012-2018	Yun Young Yim	Pharmacology	Committee Chair
2014-present	Asante Kamkwalala	Neuroscience	Member
2016-present	Mabel Seto	Pharmacology	Member
2017-present	Kayla Shumate	Pharmacology	Committee Chair

Vanderbilt Undergraduate Student Researchers:

2006-2008 Alex S Kane
2008-2010 John D. Rosanelli Jr.
2010-2011 Abimbola Ayangbesan
2010-2011 Nikhila Reddy
2012-2014 Rachael Saporito
2013-2014 Erica Tsai
2013-2016 Xuewen Gong
2014-2016 Jacob Ball
2014-2016 Thomas O'Gorman

2015-2016 Eunice Hah-eun Shin
2015-2016 Caroline Bertsch
2015-2016 Zhuoyan Lu
2016-2018 Erica Anne Williams
2016-2018 Lee S. Schmidt
2016-present Nathan D Iyer
2018-present Richard J. Fu

Summer Vanderbilt Undergraduate Research Fellowship Awards:

2007 Alex S. Kane
ASPET Summer Undergraduate Research Fellowship
Best Summer Research Project and Presentation Award
2014 Xuewen Gong
ASPET Summer Undergraduate Research Fellowship
2015 Thomas O'Gorman
ASPET Summer Undergraduate Research Fellowship
2016 Jacob Ball
Vanderbilt University Summer Research Scholarship
2017 Lee S. Schmidt
Vanderbilt University Summer Research Scholarship
2018 Nathan D. Iyer
Littlejohn Fellowship Program
Vanderbilt University Summer Research Scholarship

Vanderbilt Undergraduate Neuroscience Honors Theses:

2008 Alex S. Kane
'The Effects of M_1 Allosteric Agonists in Several Preclinical Models Predictive of Antipsychotic-like Activity', High Honors; Currently: Resident Physician in Psychiatry, Columbia University

2010 John D. Rosanelli Jr.
'VU0152100, a selective M_4 Muscarinic Cholinergic Receptor Positive Allosteric Modulator, Produces Antipsychotic and Cognitive Enhancement-like Activity in Rats', Honors; Currently: Analyst, Constellation Technology Ventures

2016 Xuewen Gong
'The possible effect of Muscarinic Acetylcholine Receptor Allosteric Modulators on rodent model for cocaine abuse', Honors; Currently: Clinical Research Assistant, Vanderbilt Center for Cognitive Medicine, Department of Psychiatry and Behavioral Sciences, VUMC

2016 Thomas O'Gorman
'The Development of M_1 PAMs for the Treatment of Sepsis-Induced Delirium'; High Honors; Currently: University of North Carolina, Chapel Hill Medical School, Class of 2020

2016 Jacob Ball
'Potential Antipsychotic-like and Cognitive Enhancing Activity of M_1 and/or M_4 Positive Allosteric Modulators in a Preclinical Model of NMDA Receptor Hypofunction in Schizophrenia', High Honors; Currently: Rutgers, New Jersey Medical School, Class of 2020

2018 Lee S. Schmidt
'Bridging the Gap Between Clinical Populations and Preclinical Models of Autism Spectrum Disorder', High Honors; Currently: Duke School of Medicine, Class of 2022

Research Staff Scientists:

2007	Robert Kline
2008-2009	Alex S. Kane
2009-2013	Rebekah Lambert
2009-2013	Sarah Jo Howard
2010-2015	Jermaine Wilson
2010-2015	Analisa Thompson
2011-2015	Weimin Peng
2012	Dina McGinness
2014-2016	Josh Luffman
2014-2015	Xiaoyan Zhang
2017-present	Rebecca Sales
2018-present	Hudson Robb

Research Program Funding

Current:

07/01/2013-06/30/2018
National Institute of Mental Health (RO1MH082867-06; PI Lindsley)
'Selective M_1 mAChR allosteric modulators for the treatment of schizophrenia'
Role: Co-Investigator; $250,000 direct costs (current funding period)

9/16/14-08/31/18
William K. Warren Foundation (UNIV58493; PI Lindsley)
'Clinical Development of Schizophrenic Agents'
Role: Development Director; $1,000,000 direct costs (current funding period)

9/10/15-6/30/18
National Institute of Mental Health (U19MH106839; PI Conn)
'Development of an M_1 PAM experimental therapeutic for schizophrenia'
Role: Development Leader Project 1; $1,353,941 direct costs (current funding period)

12/20/2017-12/19/2019
Lundbeck Pharamceuticals (UNIV60006; PI Conn)
'Development M_4 PAMs for Schizophrenia'
Role: Head Translational Pharmacology; $1,574,307 direct costs (current funding period)

7/1/17-6/30/20
Department of Defense (W81XWH-17-1-0266; PI Niswender)
'The role of metabotropic glutamate 7 in the etiology and treatment of Rett syndrome'
Role: Co-Investigator; $395,156 direct costs (current funding period)

8/1/17-5/31/20
National Institute of Mental Health (1R01MH113543-01; PI Niswender)
'Development of a Selective Metabotropic Glutamate Receptor 7 Allosteric Modulator Probe'
Role: Co-Investigator; $255,004 direct costs (current funding period)

8/1/17-4/30/22
National Institute on Aging (1R01AG054622-02; PI Jones)
'M1 PAMs for Age-Related Cognitive Impairments'
Role: PI; $611,028 direct costs (current funding period)

5/11/18-11/10/19
Ono Pharmaceutical Co., Ltd. (UNIV58578; PI Jones)
'Potassium ion channel Ligands for Neuropsychiatric Disorder'
Role: PI; $181,250 direct costs (current funding period)

Completed:

4/01/05 – 2/28/09	National Institute of Mental Health (2R01MH073676-11; PI Conn) 'Muscarinic receptor activators as novel antipsychotic agents' Role: Co-Investigator; $2,591,998 total direct costs
2/1/2006 -11/31/2006	PhRMA Foundation, PostDoctoral Fellowship Pharmacology/Toxicology (PI Jones); 'In Vivo Characterization of for Schizophrenia' Role: PI; $40,000 total direct costs
12/1/2006-3/31/2008	National Institute of Mental Health (1F32MH076371-01; PI Jones) 2006 NRSA Postdoctoral Training Fellowship 'mGluR5 Allosteric Potentiators' Role: PI; $73,563 total direct costs
11/27/2007-3/31/2011	Seaside Therapeutics (VUMC33842; PI Conn) 'Discovery of Novel mGluR5 Allosteric Antagonists' Role: Co-Investigator; Leader of In vivo pharmacology team $3,094,464 total direct costs
12/1/2007-4/1/2012	Michael J. Fox Foundation (LEAPS Award; PI Conn) 'Discovery of mGluR4 potentiators for symptomatic and disease-modifying treatment of PD' Role: Co-Investigator; Leader of in vivo pharmacology team $3,209,590 total direct costs
4/1/2008-12/1/2011	Department of Veterans Affairs CDA-2 Career Development Grant (PI Jones) 'Selective GlyT1 Inhibitors: Novel Treatment Approach for PTSD' Role: PI; $73, 563 total direct costs
12/9/2008-12/9/2012	Johnson & Johnson (VUMC34998; PI Conn) 'Discovery of mGluR5 potentiators for schizophrenia'. Role: Co-Investigator; Leader of in vivo pharmacology team; $4,549,320 total direct costs
8/28/2009-11/31/2015	National Institute of Mental Health (1R01 MH086601-01; PI Jones) 'M4 Positive allosteric modulators for the treatment of schizophrenia' Role: PI; $1,232,600 total direct costs
2/19/2010-12/31/2015	National Institute of Mental Health (1U01 MH087965; PI Conn) 'Vanderbilt NCDDDG for Discovery of Novel Treatments for Schizophrenia' Role: Co-PI, Director of *In Vivo* pharmacology team; $5,993,948 total direct costs
4/1/2010-3/31/2016	National Institute of Neurological Disorders and Stroke (R01 NS065867; PI Zixiu) 'M1 and M4 mAChRs in striatum-implication in treatment of movement disorders' Role: Co-Investigator; $1,066,603 total direct costs
7/15/2010-4/30/2014	National Institute of Neurological Disorders and Stroke (R37 NS031373; PI Conn) 'Functions of Metabotropic Glutamate Receptor Subtypes' Role: Co-Investigator; $854,372 total direct costs

8/1/2010-12/31/2013	Michael J. Fox Foundation (VUMC36885; PI Jones) 'The role of mGluR4 in the modulation of L-DOPA-induced motor performance and dyskinesia in a rat model of PD' Role: PI; $20,422 total direct costs
1/20/2011-11/30/2015	National Institute of Mental Health (R01 MH073676-10; PI Conn) 'Muscarinic receptor activators as antipsychotic agents Role: Co-Investigator; $1,350,631 total direct costs
2/1/2011-6/30/2016	National Institute of Mental Health (R01 MH062646; PI Conn) 'Regulation of Signaling by mGluR5' Role: Co-Investigator; $1,389,872 total direct costs
9/18/2012-8/312016	National Institute of Mental Health (1R01 MH099649; PI Byun) 'Imaging the antipsychotic actions of metabotropic glutamate receptor-2 activators' Role: Co-Investigator; $740,000 total direct costs
9/19/2012-9/18/2015	Bristol Myers Squibb (VUMC 39328) 'mGluR4 PAMs for Parkinson's Disease' Role: Co-PI, Director of *In Vivo* pharmacology team $7,051,282 total direct costs
12/21/2012-8/15/2016	AstraZeneca (VUMC40457; PI Conn) 'Discovery of Novel M4 Positive Allosteric Modulators' Role: Co-PI, Director of in vivo pharmacology team; $3,203,125 total direct costs
1/8/2013-11/30/2015	National Institute of Mental Health (U19 MH097056; co-PI Jones) 'Development of mGluR5 NAMS for Treatment of Major Depression' Role: Co-PI, Project 1 Director of in vivo pharmacology team; $2,405,322 total direct costs
2/01/2013-12/31/2016	Avis and Clifford Barrus Medical Foundation (PI Jones) 'Selective mGluR5 NAMs for the Treatment of Schizophrenia in MDD' Role: PI; $300,000 total direct costs
10/01/2014-9/30/2016	Autism Speaks Foundation (UNIV58923; PI Jones) PACT Expansion: Jones Lab Collaboration with the Autism Speaks Role: PI; $310,459 total direct costs
2/1/15-1/30/16	Michael J. Fox Foundation (10000; PI Hopkins) 'Optimization of dopamine D4 antagonists for the treatment of L-DOPA induced dyskinesias (LIDS)' Role: Co-Investigator; $200,000 total direct costs
4/1/2015-3/31/2018	National Institute on Drug Abuse (1R01DA037207-01; co-PI Jones) 'Discovery of mAChR5 modulators for use in rodent models of drug addiction' Role: co-PI; $225,000 direct costs (currently no cost extension)

Grants to Trainees:

7/1/14-6/30/16	PhRMA Foundation, PostDoctoral Fellowship Pharmacology/Toxicology

'M1 muscarinic acetylcholine receptor activation as a treatment for sepsis-associated brain dysfunction'
Role: Mentor, Robert W. Gould
$80,000 total direct costs

5/17/17-4/30/19 National Institute on Drug Abuse (1K99DA042129-01)
'Partial mGlu5 Negative Allosteric Modulators to Prevent Relapse to Cocaine Abuse'
Role: Mentor, NIH Pathway to Independence Award, Robert W. Gould
$84,937 direct costs (current funding period)

PATENTS

Issued US Patents:

1. Iyengar, S., **Jones, C.K.**, and Shannon, H.E. 'Method for treating pain' (Duloxetine) US 6,245,802, 2001.

2. Conn, P.J.; Lindsley, C.W.; Weaver, C.D.; Rodriguez, A.L.; Niswender, C.M.; **Jones, C.K.**; Williams, R. 'Bicyclic mGluR5 positive allosteric modulators and methods of making and using same' US 8,034,806, **2011**.

3. Lindsley, C.W.; Conn, P.J.; Williams, R.; **Jones, C.K.**; Sheffler, D.J. 'Sulfonyl-azetidin-3-yl-methylamine amide analogs as GlyT1 inhibitors, methods for making same, and use of same in treating psychiatric disorders' US 8,207,155, **2012**.

4. Lindsley, C.W.; Conn, P.J.; Williams, R.; **Jones, C.K.**; Sheffler, D.J. 'Alkylsulfonyl-2,3-dihydrospiro[indene-1,4'-piperidine] analogs as GlyT1 inhibitors, methods for making same, and use of same in treating psychiatric disorders' US 8,431,700, **2013**.

5. Lindsley, C.W.; Conn, P.J.; Williams, R.; **Jones, C.K.**; Sheffler, D.J. 'Sulfonyl-piperidin-4-ylmethylamine amide analogs as GlyT1 inhibitors, methods for making same, and use of same in treating psychiatric disorders' US 8,436,019, **2013**.

6. Lindsley, C.W.; Conn, P.J.; Williams, R.; **Jones, C.K.**; Sheffler, D.J. '3.1.0 Bicyclic GlyT1 inhibitors, methods for making same, and using same' US 8,497,289 **2013**.

7. Conn, P.J.; Lindsley, C.W.; Emmitte, K.A.; Weaver, C.D.; Rodriguez, A.L.; Felts, A.S.; **Jones,C.K.**; Bates, B.S. 'Substituted heteroarylamine carboxamide analogs as mglur5 negative allosteric modulators and methods of making and using the same' US 8,569,308, **2013**.

8. Conn, P.J.; Lindsley, C.W.; Emmitte, K.A.; Weaver, C.D.; Rodriguez, A.L.; Felts, A.S.; **Jones, C.K.**; Bates, B.S.; Chauder, B.A. 'Substituted phenylamine carboxamide analogs as mglur5 negative allosteric modulators and methods of making and using the same' US 8,501,757, **2013**

9. Conn, P.J.; Lindsley, C.W.; Stauffer, S.R.; Bartolome-Nebreda, J.M.; Conde-Ceide, S.; MacDonald, G.J.; Tong, H.M.; **Jones, C.K.;** Alcazar-Vaca; M.J.; Andres-Gil; J.I.; Malosh, C. 'Bicyclic triazole and pyrazole lactams as allosteric modulators of mGluR5 receptors' US 8,592,422, **2013**.

10. Conn, P.J.; Lindsley, C.W.; Emmitte, K.A.; Weaver, C.D.; Rodriguez, A.L.; Felts, A.S.; **Jones,C.K.**; Bates, B.S. 'Substituted heteroarylamide analogs as mglur5 negative allosteric modulators and methods of making and using the same' US 8,598,345, **2013**.

11. Conn, P.J.; Lindsley, C.W.; **Jones, C.K.**; Stauffer, S.R.; Bartolome-Nebreda, J.M.; MacDonald,G.J.; Conde-Ceide, S.; Tong, H.M.'Substituted pyrazolo[1,5-*a*]pyrazine compounds as allosteric modulators of mGluR5 receptors' US 8,703,946, **2014**.

12. Conn, P.J.; Lindsley, C.W.; Emmitte, K.A.; Weaver, C.D.; Rodriguez, A.L.; Felts, A.S.; **Jones, C.K.**; Bates, B.S. 'Substituted benzamide analogs as mGlu5 negative allosteric modulators and methods of making and using the same.' US 8,796,295, **2014**.

13. Conn, P.J.; Lindsley, C.W.; Weaver, C.D.; Rodriguez, A.L.; Niswender, C.M.; **Jones, C.K.**; Williams,R. 'Benzamide mGlu5 positive allosteric modulators and methods of making and using same.' US 8,853,392, **2014**.

14. Conn, P.J.; Lindsley, C.W.; Stauffer, S.R.; Manka, J.; Rodriguez, A.L.; Jacobs, J.; Zhou, Y.; Bartolome-Nebreda, J.M.; MacDonald, G.J.; Conde-Ceide, S.; **Jones, C.K.** 'Naphthyridinone analogs as mGlu5positive allosteric modulators.' US 8,853,237, **2014**.

15. Conn, P.J.; Lindsley, C.W.; Stauffer, S.R.; Bartolome-Nebreda, J.M.; MacDonald, G.J.; CondeCeide,S.; **Jones, C.K.**; Martin-Martin, M.L.; Tong, H.M. 'Substituted imidazopyrimidin-5(6*H*)-ones as allosteric modulators of mGlu5 receptors.' US 8,865,725, **2014**.

16. Conn, P.J.; Lindsley, C.W.; Emmitte, K.A.; Rodriguez, A.L.; Felts, A.S.; **Jones, C.K.**; Bates, B.; Chauder,B.A. '6-alkyl-N-(pyridin-2-yl)-4-aryloxypicolinamide analogs as mGluR5 negative allosteric modulators and methods of making and using the same' US 9,085,562, **2015**.

17. Conn, P.J.; Lindsley, C.W.; Stauffer, S.R.; **Jones, C.K.**; Bartolome-Nebreda, J.M.; Conde-Ceide, S.; Macdonald, G.J.; Alcazar Vaca, M.J. 'Bicyclic oxazole and thiazole compounds and their use as allosteric modulators of mGluR5 receptors' US 9,090,632, **2015**.

18. Conn, P.J.; Lindsley. C.W.; Stauffer, S.R.; Bartolome-Nebreda, J.M.; Conde-Deide, S.; Macdonald, G.;Tong, H.M.; **Jones, C.K.** 'Substituted pyrazolo[1,5-*a*]pyrazines as mGlu5 receptor modulators' US9,255,103, **2016**.

19. Emmitte, K.A.; Lindsley, C.W.; Conn, P.J.; Felts, A.S.; Rodriguez, A.L.; Smith, K.A.; **Jones, C.K.** 'Substituted imidazopyridine and triazolopyridine compounds as negative allosteric modulators of $mGlu_5$' US 9,844,542, **2017.**

Published Patent Applications:

1. Conn, P.J.; Lindsley, C.W.; Weaver, C.D.; Rodriguez, A.L.; Niswender, C.M.; **Jones, C.K.**; Williams, R. 'Benzamide derivatives as mGluR5 positive allosteric modulators and their preparation,pharmaceutical compositions and use in the treatment of diseases**'** WO 151184, **2008**.

2. Conn, J.P.; Lindsley, C.W.; Weaver, C.D.; Rodriguez, A.L.; Niswender, C.M.; **Jones, C.K.**; Williams, R. 'Bicyclic mGluR5 positive allosteric modulators and methods of making and using same' WO 0270362, **2009**.

3. Lindsley, C.W.; Conn, P. J.; Weaver, C.D.; Niswender, C.M.; Williams, R.; **Jones, C.K.**; Sheffler, D.J. '3.3.0 GlyT1 inhibitors and methods of making and using the same' WO 0261773, **2010**.

4. Lindsley, C.W.; Conn, P. J.; Weaver, C.D.; Niswender, C.M.; Williams, R.; **Jones, C.K.**; Sheffler, D.J. '3.1.0 GlyT1 inhibitors and methods of making and using the same' WO 0256192, **2010**.

5. Lindsley, C.W.; Conn, P.J.; Williams, R.; **Jones, C.K.**; Sheffler, D.J. 'Alkylsulfonyl-2,3-

dihydrospiro[indene-1,4'-piperidine] analogs as GlyT1inhibitors, methods for making same and use of same in treating psychiatric disorders' WO 0249167, **2010**.

6. Lindsley, C.W.; Conn, P.J.; Williams, R.; **Jones, C.K.**; Sheffler, D.J. 'Sulfonyl-azetidin-3-yl-methylamine amide analogs as GlyT1 inhibitors, methods for making same, and use of same in treating psychiatric disorders' WO 0261696, **2010**.

7. Lindsley, C.W.; Conn, P.J.; Williams, R.; **Jones, C.K.**; Sheffler, D.J. 'Sulfonyl-piperidin-4-yl-methylamine amide analogs as GlyT1 inhibitors, methods for making same, and use of same in treating psychiatric disorders' WO 0256186, **2010**.

8. Conn, P.J.; Lindsley, C.W.; Emmitte, K.A.; Weaver, C.D.; Rodriguez, A.L.; Felts, A.S.; **Jones,C.K.**; Bates, B.S. 'Substituted heteroarylamine carboxamide analogs as mglur5 negative allosteric modulators and methods of making and using the same' WO 035174, **2011**.

9. Conn, P.J.; Lindsley, C.W.; Emmitte, K.A.; Weaver, C.D.; Rodriguez, A.L.; Felts, A.S.; **Jones,C.K.**; Bates, B.S. 'Substituted heteroarylamide analogs as mglur5 negative allosteric modulators and methods of making and using the same' WO 035186, **2011**.

10. Conn, P.J.; Lindsley, C.W.; Emmitte, K.A.; Weaver, C.D.; Rodriguez, A.L.; Felts, A.S.; **Jones, C.K.**; Bates, B.S. 'Substituted benzamide analogs as mglur5 negative allosteric modulators and methods of making and using the same' WO 035209, **2011**.

11. Conn, P.J.; Lindsley, C.W.; Emmitte, K.A.; Weaver, C.D.; Rodriguez, A.L.; Felts, A.S.; **Jones, C.K.** 'Substituted benzamide analogs as mglur5 negative allosteric modulators and methods of making and using the same' WO 0152299, **2011**.

12. Conn, P.J.; Lindsley, C.W.; Emmitte, K.A.; Weaver, C.D.; Rodriguez, A.L.; Felts, A.S.; **Jones,C.K.**; Bates, B.S.; Chauder, B.A. 'Substituted phenylamine carboxamide analogs as mglur5 negative allosteric modulators and methods of making and using the same' WO 0166158, **2011**.

13. Conn, P.J.; Lindsley, C.W.; Emmitte, K.A.; Weaver, C.D.; Rodriguez, A.L.; Felts, A.S.; **Jones, C.K.**; Bates, B.S.; Chauder, B.A. 'Substituted heteroarylamine carboxamide analogs as mglur5 negative allosteric modulators and methods of making and using the same' WO 0172247, **2011**.

14. Conn, P.J.; Lindsley, C.W.; Emmitte, K.A.; Weaver, C.D.; Rodriguez, A.L.; Felts, A.S.; **Jones, C.K.**; Bates, B.S.; Chauder, B.A. 'Substituted heteroarylamide analogs as mglur5 negative allosteric modulators and methods of making and using the same' WO 0172248, **2011**.

15. Conn, P.J.; Lindsley, C.W.; Weaver, C.D.; Rodriguez, A.L.; Niswender, C.M.; **Jones, C.K.**;Williams, R. 'Bicyclic $mGlu_5$ positive allosteric modulators and methods of making and using same' WO 269977, **2012**.

16. Conn, P.J.; Lindsley, C.W.; Weaver, C.D.; Rodriguez, A.L.; Niswender, C.M.; **Jones, C.K.**;Williams, R. 'Bicyclic $mGlu_5$ positive allosteric modulators and methods of making and using same' WO 269933, **2012**.

17. Conn, P.J.; Lindsley, C.W.; Stauffer, S.R.; **Jones, C.K.**; Bartolome-Nebreda, J.M.; Conde-Ceide,S.; MacDonald, G.J.; Alcazar, V.; Manuel, J. 'Bicyclic oxazole and thiazole compounds and their use as allosteric modulators of mGlu5 receptors' WO031024, **2012**.

18. Conn, P.J.; Lindsley, C.W.; Stauffer, S.R.; **Jones, C.K.**; Conde-Ceide, S.; Tong, H.M.; Bartolome-Nebreda, J.M.; Macdonald, G.J. 'Bicyclic pyrazole compounds as allosteric modulators of mglu5 receptors' WO0078817, **2012**.

19. Conn, P.J.; Lindsley, C.W.; Stauffer, S.R.; Bartolome-Nebreda, J.M.; Conde-Ceide, S.; Macdonald,G.J.; Tong, H.M.; **Jones, C.K.**; Alcazar-Vaca, M.J.; Andres-Gil, J.I. 'Bicyclic triazole and pyrazole lactams as allosteric modulators of mglu5 receptors' WO0083224, **2012**.

20. Conn, P.J.; Lindsley, C.W.; Stauffer, S.R.; Manka, J.; Jacobs, J.; Zhou, Y.; Bartolome-Nebreda,J.M.; Macdonald, G.J.; **Jones, C.K**. 'Naphthyridone analogs as allosteric modulators of mglu5 receptors' WO092530, **2012**.

21. Conn, P.J.; Lindsley, C.W.; Emmitte, K.A.; Rodriguez, A.L.; Felts, A.S.; **Jones, C.K.**; Bates, B.S.; Chauder, B.A. '6-Alkly-*N*-(pyridine-2-yl)-4-aroxypicolinamide analogs as $mGlu_5$ negative allosteric modulators and methods of making and using the same' WO118563, **2012**.

22. Conn, P.J.; Lindsley, C.W.; Stauffer, S.R.; Bartolome-Nebreda, J.M.; Conde-Ceide, S.; Macdonald,G.J.; Tong, H.M.; **Jones, C.K.**; Alcazar-Vaca, M.J.; Andres-Gil; J.I.; Malosh, C. 'Bicyclic triazole and pyrazole lactams as allosteric modulators of mglu5 receptors' WO0225844, **2012**.

23. Conn, P.J.; Lindsley, C.W.; **Jones, C.K.**; Stauffer, S.R.; Bartolome-Nebreda, J.M.; McDonald, G.J.; Conde-Ceide, S.; Tong, H.M. 'Bicyclic pyrazole compounds as allosteric modulators of $mGlu_5$ receptors' WO 295913, **2012**.

24. Conn, P.J.; Lindsley, C.W.; Stauffer, S.R.; Bartolome-Nebreda, J.M.; MacDonald, G.J.; Conde-Ceide, S.; **Jones, C.K.**; Martin-Martin, M.L.; Tong, H.M. 'Substituted imidazopyrimidin-5(6*H*)-oneanalogs as allosteric modulators of mGlu5 receptors' WO0245043, **2013**.

25. Conn, P.J.; Lindsley, C.W.; Stauffer, S.R.; **Jones, C.K.**; Bartolome-Nebreda, J.M.; MacDonald,G.J.; Conde-Ceide, S.; Alcazar Vaca, M.J. 'Bicyclic oxazole and thiazole compounds and their use as allosteric modulators of mGlu5 receptors' WO0261107, **2013**.

26. Conn, P.J.; Lindsley, C.W.; Stauffer, S.R.; Bartolome-Nebreda, J.M.; Conde-Ceide, S.; MacDonald,G.J.; Tong, H.M.; **Jones, C.K.**; Alcazar-Vaca, M.J.; Andres-Gil, J.I.; Malosh, C. 'Bicyclic triazole and pyrazole lactams as allosteric modulators of mGluR5 receptors' WO 0057870, **2014**.

27. Conn, P.J.; Lindsley, C.W.; Emmittee, K.A.; Rodriguez, A.L.; Felts, A.S.; **Jones, C.K.**; Bates, B.S.; Chauder, B.A. '6-Alkyl-N-(pyridine-2-yl)-4-aryloxypicolinamide analogs as mGlu5 negative allosteric Modulators and methods of making and using the same' WO 0206707, 2014.

28. Conn, P.J.; Lindsley, C.W.; Stauffer, S.R.; Bartolome-Nebreda, J.M.; Conde-Ceide, S.; Macdonald,G.M.; Tong, H.M.; **Jones, C.K.** 'Bicyclic pyrazole compounds as allosteric modulators of $mGlu_5$ receptors' WO0213593, 2014.

29. Conn, P.J.; Lindsley, C.W.; Stauffer, S.R.; Bartolome-Nebreda, J.M.; Macdonald, G.M.; Conde-Ceide,S.; **Jones, C.K.**; Martin-Martin, M.L.; Tong, H.M. 'Substituted imidazopyrimidin-5-(6*H*)-ones as allosteric modulators of $mGlu_5$ receptors' WO0329838, 2014.

30. Emmitte, K.A.; Lindsley, C.W.; Conn, P.J.; Felts, A.S.; Rodriguez, A.L.; Smith, K.A.; **Jones, C.K.** 'Substituted imidazopyridine and triazolopyridine compounds as negative allosteric modulators of mGluR5' WO 077246, 2015.

31. Emmitte, K.A.; Lindsley, C.W.; Conn, P.J.; Felts, A.S.; Rodriguez, A.L.; Smith, K.A.; **Jones, C.K.** 'Substituted imidazopyridine and triazolopyridine compounds as negative allosteric modulators of $mGlu_5$' WO 0289227, 2016.

32. Lindsley, C.W.; Conn, P.J.; Engers, D.W.; **Jones, C.K**.; Bridges, T.M.; Han, C.; Felts, A.S. 'Azolothienopyridinecarboxamides as positive allosteric modulators of the muscarinic acetylcholine receptor M4 and their preparation' WO 0028501, **2018**.

33. Lindsley, C.W.; Conn, P.J.; Niswender, C.M.; **Jones, C.K.**; Bridges, T.M.; Engers, D.W.; Gregro, A.; Bolinger, S. 'Positive allosteric modulators of the muscarinic acetylcholine receptor M_4' WO 035444, **2018**.

IND/NDA Reports

1. Analgesic Effects of Moxonidine (LY326869) in Mice and Rats. Shannon, HE, Lutz, EA, **Jones**, **CK** and Peters, SC. November, 1998.

2. Analgesic Effects of LY326869 (Moxonidine) in Rats and Mice. Shannon, HE, Lutz, EA, **Jones**, **CK**, and Peters, SC. February, 1999.

3. Analgesic Effects of Duloxetine (LY248686) HCl in rats and mice. **Jones**, **CK** and Shannon, HE. April, 1999.

4. Effects of LY354740 in rats and mice. Shannon, HE, **Jones**, **CK**, Lutz, EA and Peters, SC. April, 1999.

5. Effects of Duloxetine (LY248686) Hydrochloride in Acute Pain Tests, the Carrageenan Test, and the Capsaicin Test in Mice and Rats. Shannon HE, **Jones CK** and Peters, SC, April, 2001.

6. Effects of the Concomitant Administration of Duloxetine (LY248686) Hydrochloride and Ibuprofen in the Writhing Test in Mice and the Carrageenan Test in Rats. Shannon HE, **Jones CK** and Peters, SC, April, 2001.

7. Effects of LY494582 2HCl in the Carrageenan and Capsaicin Tests of Persistent Pain in Rats. Shannon HE and **Jones CK**. October, 2003.

8. Effects of LY545694 HCl in the Carrageenan and Capsaicin Tests of Persistent Pain in Rats. Shannon HE and **Jones CK**. October, 2003.

9. Effects of LY293558 Monohydrate Administered Intrathecally in the Capsaicin Test in Rats. Shannon HE and **Jones CK**. April, 2004.

10. Effects of LY293558 Monohydrate in the Carrageenan and the Capsaicin Tests After Subcutaneous and Intraperitoneal Administration in Rats. Shannon, HE and **Jones**, **CK**. March, 2004.

Bibliography

Bilbiometrics (based on Web of Knowledge Database)

- Total citations (1994-2018): 3441
- Average citations per manuscript: 19.9
- h-index: 32

Bilbiometrics (based on Google Scholar)

- Total citations (1994-2018): 4809
- h-index: 38

- i10-index: 90

Primary Publications:

1. Young K, **Jones CK**, Piccardo P, Lazzarini A, Golbe LI, Zimmerman TR Jr, Dickson DW, McLachlan DC, St George-Hyslop P, Lennox A, Perlman S, Vinters HV, Hodes ME, Dlouhy B, Ghetti B.. Gerstmann-Straussler-Scheinker disease with mutation at codon 102 and methionine at codon 129 of PRNP in previously unreported patients. 1995. Neurology. 45:1127-1134. PMID 7783876.

2. Piccardo P, Ghetti B, Dickson DW, Vinters HV, Giaccone G, Bugiani O, Tagliavivi F, Young K, Dloughy SR, Seiler C, **Jones CK**, Lazzarini A, Golbe LI, Zimmerman TR, Perlman SL, McLachlan DC, St. George-Hyslop PH, Lennox A. Gerstmann-Sträussler-Scheinker disease (PRNP P102L): amyloid deposits are best recognized by antibodies directed to epitopes in PrP region 90-165. 1995. J. Neuropath. Exp. Neurol. 54: 790-801. PMID 7595652.

3. **Jones CK**, Shannon HE. Effects of scopolamine in comparison with apomorphine and phencyclidine on prepulse inhibition of the acoustic startle reflex in rats. 2000. Eur. J. Pharmacol. 391:105-112. PMID 10720641.

4. **Jones CK**, Shannon HE. Muscarinic cholinergic modulation of prepulse inhibition of the acoustic startle reflex. 2000. J. Pharmacol. Exp. Ther. 294:1017-1023. PMID 10945854.

5. Shannon HE, **Jones CK**, Li DL, Peters SP, Simmons RMA, Iyengar S. Antihyperalgesic effects of the muscarinic receptor ligand vedaclidine in models involving central sensitization in rats. 2001. Pain. 93:221-227. PMID 11514081.

6. **Jones CK** Shannon HE. Lesions of the laterodorsal tegmental nucleus disrupt prepulse inhibition of the acoustic startle reflex. 2004. Pharmacol. Biochem. Beh. 78:229-237. PMID 15219762.

7. **Jones CK**, Peters SP, Shannon HE. Efficacy of duloxetine, a potent and balanced serotonergic and noradrenergic reuptake inhibitor, in inflammatory and acute pain models in rodents. 2005. J. Pharmacol. Exp. Ther. 312:726-732. PMID 15494550.

8. **Jones CK**, Eberle EL, Shaw DB, McKinzie DL, Shannon HE. Pharmacologic interactions between the muscarinic cholinergic and dopaminergic systems in the modulation of prepulse inhibition in rats. 2005. J. Pharmacol. Exp. Ther. 312:1055-1063. PMID 15574685.

9. **Jones CK**, Eberle EL, Peters SC, Monn JA, Shannon HE. Analgesic effects of the selective group II (mGlu2/3) metabotropic glutamate receptor agonists LY379268 and LY389795 in persistent and inflammatory pain models after acute and repeated dosing. 2005. Neuropharmacology 49S:206-218. PMID 15998527.

10. Dominguez E, Iyengar S, Shannon HE, Bleakman D, Alt A, Arnold BM, Bell MG, Bleisch TJ, Buckmaster JL, Castano AM, Del Prado M, Escribano A, Filla SA, Ho KH, Hudziak KJ, **Jones CK**, Martinez-Perez JA, Mateo A, Mathes BM, Mattiuz EL, Ogden AM, Simmons RM, Stack DR, Stratford RE, Winter MA, Wu Z, Ornstein PL. Two prodrugs of potent and selective GluR5 kainate receptor antagonists actives in three animal models of pain. 2005. J. Med. Chem. 48:4200-4203. PMID 15974569.

11. **Jones CK**, Alt A, Ogden AM, Bleakman D Simmons RMA, Iyengar S, Dominguez E, Ornstein PL, Shannon HE. Antiallodynic and antihyperalgesic effects of selective competitive GlU_{K5} (GluR5) ionotropic glutamate receptor antagonists in the capsaicin and carrageenan models in rats. 2006. J. Pharmacol. Exp. Ther. 319:396-404. PMID 16837561.

12. **Jones CK**, Eastwood BJ, Need AB, Shannon HE. Analgesic effects of serotonergic, noradrenergic or dual reuptake inhibitors in the carrageenan test in rats: evidence for synergism between serotonergic and noradrenergic reuptake inhibition. 20006. Neuropharmacology 51:1172-1180. PMID 17045620.

13. Galici R*, **Jones CK*,** Hemstapat K, Nong Y, Echemendia NG, Williams LC, dePaulis T, Conn PJ. Biphenyl-indanone A, a positive allosteric modulator of the metabotropic glutamate receptor subtype 2, has antipsychotic- and anxiolytic-like effects in mice. 2006. J. Pharmacol. Exp. Ther.. 18:173-185. PMID 16608916.

14. **Jones CK**, Peters SC, Shannon HE. Synergistic interactions between the dual serotonergic, noradrenergic reuptake inhibitor duloxetine and the non-steroidal anti-inflammatory drug ibuprofen in inflammatory pain in rodents. 2007. Eur.. J. Pain. 11:208-215. PMID 16542861.

15. Perry KW, Falcone JF, Fell MJ, Ryder JW, Yu H, Love PL, Katner J, Gordon KD, Wade MR, Man T, Nomikos GG, Phebus LA, Cauvin AJ, Johnson KW, **Jones CK**, Hoffmann BJ, Sandusky GE, Walter MW, Porter WJ, Yang L, Merchant KM, Shannon HE, Svensson KA. Neurochemical and behavioral profiling of the selective GlyT1 inhibitors ALX5407 and LY2365109 indicate a preferential action in caudal vs. cortical brain areas. 2008. Neuropharmacology. 55:743-754. PMID18602930.

16. Niswender CM, Johnson KA, Weaver CD, **Jones CK**, Xiang Z, Luo Q, Rodriguez AL, Marlo JE, de Paulis T, Thompson AD, Days EL, Nalywajko T, Austin CA, Williams MB, Ayala JE, Williams R, Lindsley CW, Conn PJ. Discovery, characterization, and antiparkinsonian effect of novel positive allosteric modulators of metabotropic glutamate receptor 4. 2008. Mol. Pharmacol. 74:1345-1358. PMID 18664603.

17. Brady AE, **Jones CK**, Bridges TM, Kennedy JP, Thompson AD, Heiman JU, Breininger ML, Gentry PR, Yin H, Jadhav SB, Shirey JK, Conn PJ, Lindsley CW. Centrally active allosteric potentiators of the M_4 muscarinic acetylcholine receptor reverse amphetamine-induced hyperlocomotor activity in rats. 2008. J. Pharmacol. Exp. Ther. 27:941-953. PMID 18772318.

18. Bridges TM, Brady AE, Kennedy JP, Daniels RN, Miller NR, Kim K, Breininger ML, Gentry PR, Brogan JT, **Jones CK**, Conn PJ, Lindsley CW. Synthesis and SAR of analogues of the M_1 allosteric agonist TBPB. Part I: Exploration of alternative benzyl and privileged structure moieties. 2008. Bioorg. Med. Chem. Lett.. 20:5439-5442. PMID 18805692.

19. **Jones CK**, Brady AE, Davis AA, Xiang Z, Bubser M, Tantawy MN, Kane AS, Bridges TM, Kennedy JP, Bradley SR, Peterson TE, Ansari MS, Baldwin RM, Kessler RM, Deutch AY, Lah JJ, Levey AI, Lindsley CW, Conn PJ. Novel selective allosteric activator of the M_1 muscarinic acetylcholine receptor regulates amyloid processing and produces antipsychotic-like activity in rats. 2008. J Neurosci. 28:10422-10433. PMID 18842902.

20. Tantawy MN, **Jones CK**, Baldwin RM, Ansari MS, Conn PJ, Kessler RM, Peterson TE. [(18)F]Fallypride dopamine D2 receptor studies using delayed microPET scans and a modified Logan plot. 2009. Nucl. Med.Biol. 36:931-940. PMID 19875049.

21. Sheffler DJ, Williams R, Bridges TM, Xiang Z, Kane AS, Byun NE, Jadhav S, Mock MM, Zheng F, Lewis LM, **Jones CK**, Niswender CM, Weaver CD, Lindsley CW, Conn PJ. A novel selective muscarinic acetylcholine receptor subtype 1 antagonist reduces seizures without impairing hippocampus-dependent learning. 2009. Mol. Pharmacol. 76:356-368. PMID 19407080.

22. Sharma S, Kedrowski J, Rook JM, Smith RL, **Jones CK**, Rodriguez AL, Conn PJ, Lindsley CW. Discovery of molecular switches that modulate modes of metabotropic glutamate receptor subtype 5

($mGlu_5$) pharmacology in vitro and in vivo within a series of functionalized, regioisomeric 2- and 5-(phenylethynyl)pyrimidines. 2009. J. Med. Chem. 52:4103-4106. PMID 19537763.

23. Bridges TM, Marlo JE, Niswender CM, **Jones CK**, Jadhav SB, Gentry PR, Weaver CD, Conn PJ, Lindsley CW. 'Discovery of the first highly M5-preferring muscarinic acetylcholine receptor ligand, an M_5 positive allosteric modulator derived from a series of 5-trifluoromethoxy *N*-benzyl isatins' 2009. J. Med. Chem. 2009. 52:3445-3448. PMID19438238.

24. Kennedy JP, Bridges TM, Gentry PR, Brogan JT, Kane AS, **Jones CK**, Brady AE, Shirey JK, Conn PJ, Lindsley CW. Synthesis and structure-activity relationships of allosteric potentiators of the m(4) muscarinic acetylcholine receptor. 2009. Chem. Med. Chem. 2009 4:1600-1607. PMID 19705385.

25. Weaver CD, Sheffler DJ, Lewis LM, Bridges TM, Williams R, Nalywajko T, Kennedy JP, Mulder MM, Jadhav S, Aldrich LA, **Jones CK**, Marlo JE, Xiang Z, Niswender CM, Mock MM, Zheng F, Conn PJ, Lindsley CW. Discovery and Development of a Potent and Highly Selective Small Molecule Muscarinic Acetylcholine Receptor Subtype I (mAChR 1 or M(1) Antagonist In vitro and In vivo Probe. 2009. Curr Top Med Chem. 9:1217-1226. PMID19807667.

26. Bridges TM, LeBois EP, Hopkins CR, Wood MR, **Jones CK**, Conn PJ, Lindsley CW. The antipsychotic potential of muscarinic allosteric modulation. 2010. Drug News Perspect. 23:229-240. PMID 20520852.

27. Hackler EA, Byun NE, **Jones CK**, Williams JM, Baheza R, Sengupta S, Grier MD, Avison M, Conn PJ, Gore JC. Selective potentiation of the metabotropic glutamate receptor subtype 2 blocks phencyclidine-induced hyperlocomotion and brain activation. 2010. Neuroscience. 168:209-218. PMID 20350588.

28. Bridges TM, Niswender CM, **Jones CK**, Lewis LM, Weaver CD, Wood MR, Daniels JS, Conn PJ, Lindsley CW. Discovery of a highly selective *in vitro* and *in vivo* M_4 positive allosteric modulator (PAM) series with greatly improved human receptor activity. 2010. Probe Reports from the NIH Molecular Libraries Program [Internet]. Bethesda (MD): National Center for Biotechnology Information (US). PMID 23762955.

29. Hopkins CR, Engers DW, Niswender CM, **Jones CK**, Dawson E, Weaver CD, Daniels JS, Conn PJ, Lindsley CW. Discovery of a potent, selective and orally active *in vivo* $mGlu_4$ positive allosteric modulator. 2010. Probe Reports from the NIH Molecular Libraries Program [Internet]. Bethesda (MD): National Center for Biotechnology Information (US). PMID 23762961.

30. Felts AS, Lindsley SR, Lamb JP, Rodriguez AL, Menon UN, Jadhav S, **Jones CK**, Conn PJ, Lindsley CW, Emmitte KA. 3-Cyano-5-fluoro-N-arylbenzamides as negative allosteric modulators of mGlu(5): Identification of easily prepared tool compounds with CNS exposure in rats. 2010. Bioorg. Med. Chem. Lett. 20:4390-4394. PMID 20598884.

31. Lebois EP, Bridges TM, Lewis LM, Dawson ES, Kane AS, Xiang Z, Jadhav SB, Yin H, Kennedy JP, Meiler J, Niswender CM, **Jones CK**, Conn PJ, Weaver CD, Lindsley CW. Discovery and characterization of novel subtype-selective allosteric agonists for the investigation of M(1) receptor function in the central nervous system. 2010. ACS Chem. Neurosci. 1:104-121. PMID 2196105.

32. Zhou Y, Manka JT, Rodriguez AL, Weaver CD, Days EL, Vinson PN, Jadhav S, Herman EJ, **Jones CK**, Conn PJ, Lindsley CW, Stauffer SR.Discovery of *N*-Aryl Piperazines as Selective $mGluR_5$ Potentiators with Improved In Vivo Utility. 2010. ACS Med. Chem. Lett.1:433-438. PMID 23308336.

33. Rodriguez AL, Grier MD, **Jones CK**, Herman EJ, Kane AS, Smith RL, Williams R, Zhou Y, Marlo JE, Days EL, Blatt TN, Jadhav S, Menon UN, Vinson PN, Rook JM, Stauffer SR, Niswender CM, Lindsley CW, Weaver CD, Conn PJ. Discovery of novel allosteric modulators of metabotropic glutamate receptor subtype 5 reveals chemical and functional diversity and in vivo activity in rat behavioral models of anxiolytic and antipsychotic activity. 2010. Mol. Pharmacol. 78:1105-1123. PMID 20923853.

34. Reid PR, Bridges TM, Sheffler DJ, Cho HP, Lewis LM, Days E, Daniels JS, **Jones CK**, Niswender CM, Weaver CD, Conn PJ, Lindsley CW, Wood MR. Discovery and optimization of a novel, selective and brain penetrant M_1 positive allosteric modulator (PAM): the development of ML169, an MLPCN probe. 2011. Bioorg. Med. Chem. Lett. 21:2697-2701. PMID 21194936.

35. Engers DW, Field JR, Le U, Zhou Y, Bolinger JD, Zamorano R, Blobaum AL, **Jones CK**, Jadhav S, Weaver CD, Conn PJ, Lindsley CW, Niswender CM, Hopkins CR. Discovery, synthesis, and structure-activity relationship development of a series of N-(4-acetamido)phenylpicolinamides as positive allosteric modulators of metabotropic glutamate receptor 4 (mGlu(4)) with CNS exposure in rats. 2011. J. Med. Chem. 54:1106-1110. PMID 21247167.

36. Xie X, Brogan JT, Schulte ML, Mi D, Yu H, Dawson ES, Li M, McManus O, Engers J, Lewis LM, Thompson A, **Jones CK**, Weaver CD, Lindsley CW. Scaffold Hopping Affords a Highly Selective *in vitro* and *in vivo* T-Type Calcium Inhibitor Probe Free From IP Issues. 2011. Probe Reports from the NIH Molecular Libraries Program [Internet]. Bethesda (MD): National Center for Biotechnology Information (US). PMID 23762962.

37. Williams R, Manka JT, Rodriguez AL, Vinson PN, Niswender CM, Weaver CD, **Jones CK**, Conn PJ, Lindsley CW, Stauffer SR. Synthesis and SAR of centrally active $mGlu_5$ positive allosteric modulators based on an aryl acetylenic bicyclic lactam scaffold. 2011. Bioorg Med Chem Lett. 21:1350-1353. PMID 21315585.

38. Tantawy MN, Peterson TE, **Jones CK**, Johnson K, Rook JM, Conn PJ, Baldwin RM, Ansari MS, Kessler RM. Impact of isoflurane anesthesia on D2 receptor occupancy by [18F]fallypride measured by microPET with a modified Logan plot. 2011. Synapse. 65:1173-1180. PMID 21584868.

39. Lindsley CW, Bates BS, Menon UN, Jadhav SB, Kane AS, **Jones CK**, Rodriguez AL, Conn PJ, Olsen CM, Winder DG, Emmitte KA.(3-Cyano-5-fluorophenyl)biaryl negative allosteric modulators of mGlu(5): Discovery of a new tool compound with activity in the OSS mouse model of addiction. 2011. ACS Chem. Neurosci. 2:471-482. PMID 21927650.

40. **Jones CK**, Engers DW, Thompson AD, Field JR, Blobaum AL, Lindsley SR, Zhou Y, Gogliotti RD, Jadhav S, Zamorano R, Bogenpohl J, Smith Y, Morrison R, Daniels JS, Weaver CD, Conn PJ, Lindsley CW, Niswender CM, Hopkins CR. Discovery, synthesis, and structure-activity relationship development of a series of N-4-(2,5-dioxopyrrolidin-1-yl)phenylpicolinamides (VU0400195, ML182): characterization of a novel positive allosteric modulator of the metabotropic glutamate receptor 4 (mGlu(4)) with oral efficacy in an antiparkinsonian animal model. 2011. J. Med. Chem. 54:7639-7647. PMID 21966889.

41. Xiang Z, Thompson AD, Brogan JT, Schulte ML, Melancon BJ, Mi D, Lewis LM, Zou B, Yang L, Morrison R, Santomango T, Byers F, Brewer K, Aldrich JS, Yu H, Dawson ES, Li M, McManus O, **Jones CK**, Daniels JS, Hopkins CR, Xie XS, Conn PJ, Weaver CD, Lindsley CW. The Discovery and Characterization of ML218: A Novel, Centrally Active T-Type Calcium Channel Inhibitor with Robust Effects in STN Neurons and in a Rodent Model of Parkinson's Disease. 2011. ACS Chem. Neurosci. 2:730-742. PMID 22368764.

42. Salovich JM, Vinson PN, Sheffler DJ, Lamsal A, Utley TJ, Blobaum AL, Bridges TM, Le U, **Jones CK**, Wood MR, Daniels JS, Conn PJ, Niswender CM, Lindsley CW, Hopkins CR. Discovery of N-(4-methoxy-7-methylbenzo[d]thiazol-2-yl)isonicatinamide, ML293, as a novel, selective and brain penetrant positive allosteric modulator of the muscarinic 4 (M_4) receptor. 2012. Bioorg. Med. Chem. Lett. 22:5084-5088. PMID 22738637.

43. Melancon BJ, Lamers AP, Bridges TM, Sulikowski GA, Utley TJ, Sheffler DJ, Noetzel MJ, Morrison RD, Scott Daniels J, Niswender CM, **Jones CK**, Jeffrey Conn P, Lindsley CW, Wood MR. Development of a more highly selective M(1) antagonist from the continued optimization of the MLPCN Probe ML012. 2012. Bioorg. Med. Chem .Lett. 22:1044-1048. PMID 22749871.

44. Rodriguez AL, Zhou Y, Williams R, David Weaver C, Vinson PN, Dawson ES, Steckler T, Lavreysen H, Mackie C, Bartolomé JM, Macdonald GJ, Scott Daniels J, Niswender CM, **Jones CK**, Jeffrey Conn P, Lindsley CW, Stauffer SR. Discovery and SAR of a novel series of non-MPEP site mGlu(5) PAMs based on an aryl glycine sulfonamide scaffold. 2012. Bioorg. Med. Chem. Lett. 22:7388-7392. PMID 23142615.

45. **Jones CK**, Bubser M, Thompson AD, Dickerson JW, Turle-Lorenzo N, Amalric M, Blobaum AL, Bridges TM, Morrison RD, Jadhav S, Engers DW, Italiano K, Bode J, Daniels JS, Lindsley CW, Hopkins CR, Conn PJ, Niswender CM. The metabotropic glutamate receptor 4-positive allosteric modulator VU0364770 produces efficacy alone and in combination with L-DOPA or an adenosine 2A antagonist in preclinical rodent models of Parkinson's disease. 2012. J. Pharmacol. Exp. Ther. 340:404-421. PMID 22088953.

46. Xiang Z, Thompson AD, **Jones CK**, Lindsley CW, Conn PJ. Roles of the M_1 muscarinic acetylcholine receptor subtype in the regulation of basal ganglia function and implications for the treatment of Parkinson's disease. 2012. J Pharmacol. Exp. Ther. 340:595-603. PMID 22135383.

47. Engers DW, **Jones CK**, Bubser M, Thompson AD, Blobaum AL, Sheffler DJ, Zamorano R, Carrington SJS, Bridges TM, Morrison RD, Daniels JS, Conn PJ, Lindsley CW, Niswender CM, Hopkins CR. Discovery of a novel metabotropic glutamate receptor 4 ($mGlu_4$) positive allosteric modulator (PAM) extended probe: Characterization of ML292, a potent and selective $mGlu_4$ PAM which produces efficacy alone or in combination with L-DOPA in preclinical rodent models of Parkinson's disease. 2012. Probe Reports from the NIH Molecular Libraries Program. Bethesda (MD): National Center for Biotechnology Information (US). PMID 23658969.

48. Salovich JM, Sheffler DJ, Vinson PN, Lamsal A, Utley TJ, Blobaum AL, Bridges TM, Le U, **Jones CK**, Wood MR, Daniels JS, Conn PJ, Engers J, Niswender CM, Lindsley CW, Hopkins CR. Discovery of a novel structural class of M_4 positive allosteric modulators: Characterization of ML293, *N*-(4-methoxy-7-methylbenzo[d]thiazol-2-yl)isonicotinamide, with CNS exposure in rats. 2012. Probe Reports from the NIH Molecular Libraries Program [Internet]. Bethesda (MD): National Center for Biotechnology Information (US). PMID 23762944.

49. Manka JT, Vinson PN, Gregory KJ, Zhou Y, Williams R, Gogi K, Days E, Jadhav S, Herman EJ, Lavreysen H, Mackie C, Bartolomé JM, Macdonald GJ, Steckler T, Daniels JS, Weaver CD, Niswender CM, **Jones CK**, Conn PJ, Lindsley CW, Stauffer SR. Optimization of an ether series of $mGlu_5$ positive allosteric modulators: molecular determinants of MPEP-site interaction crossover. 2012. Bioorg. Med. Chem. Lett. 22:6481-6485. PMID 22981332.

50. Mueller R, Dawson ES, Meiler J, Rodriguez AL, Chauder BA, Bates BS, Felts AS, Lamb JP, Menon UN, Jadhav SB, Kane AS, **Jones CK**, Gregory KJ, Niswender CM, Conn PJ, Olsen CM, Winder DG, Emmitte KA, Lindsley CW. Discovery of 2-(2-benzoxazoyl amino)-4-aryl-5-cyanopyrimidine as negative allosteric

modulators (NAMs) of metabotropic glutamate receptor 5 ($mGlu_5$): from an artificial neural network virtual screen to an in vivo tool compound. 2012. Chem. Med. Chem. 7(3):406-414. PMID 22267125.

51. Digby GJ, Noetzel MJ, Bubser M, Utley TJ, Walker AG, Byun NE, Lebois EP, Xiang Z, Sheffler DJ, Cho HP, Davis AA, Nemirovsky NE, Mennenga SE, Camp BW, Bimonte-Nelson HA, Bode J, Italiano K, Morrison R, Daniels JS, Niswender CM, Olive MF, Lindsley CW, **Jones CK**, Conn PJ. Novel allosteric agonists of M_1 muscarinic acetylcholine receptors induce brain region-specific responses that correspond with behavioral effects in animal models. 2012. J. Neurosci. 32:8532-8544. PMID 22723693.

52. Morrison RD, Blobaum AL, Byers FW, Santomango TS, Bridges TM, Stec D, Brewer KA, Sanchez-Ponce R, Corlew MM, Rush R, Felts AS, Manka J, Bates BS, Venable DF, Rodriguez AL, **Jones CK**, Niswender CM, Conn PJ, Lindsley CW, Emmitte KA, Daniels JS. The role of aldehyde oxidase and xanthine oxidase in the biotransformation of a novel negative allosteric modulator of metabotropic glutamate receptor subtype 5. 2012. Drug Metab Dispos. 40:1834-1845. PMID 22711749

53. Noetzel MJ, Rook JM, Vinson PN, Cho HP, Days E, Zhou Y, Rodriguez AL, Lavreysen H, Stauffer SR, Niswender CM, Xiang Z, Daniels JS, **Jones CK**, Lindsley CW, Weaver CD, Conn PJ. Functional impact of allosteric agonist activity of selective positive allosteric modulators of metabotropic glutamate receptor subtype 5 in regulating central nervous system function. 2012. Mol. Pharmacol. 81:120-133. PMID 22021324.

54. Bridges TM, Rook JM, Noetzel MJ, Morrison RD, Zhou Y, Gogliotti RD, Vinson PN, Xiang Z, **Jones CK**, Niswender CM, Lindsley CW, Stauffer SR, Conn PJ, Daniels JS. Biotransformation of a novel positive allosteric modulator of metabotropic glutamate receptor subtype 5 contributes to seizure-like adverse events in rats involving a receptor agonism-dependent mechanism. 2013. Drug Metab. Dispos. 41:1703-1714. PMID 23821185.

55. Blobaum AL, Bridges TM, Byers FW, Turlington ML, Mattmann ME, Morrison RD, Mackie C, Lavreysen H, Bartolomé JM, Macdonald GJ, Steckler T, **Jones CK**, Niswender CM, Conn PJ, Lindsley CW, Stauffer SR, Daniels JS. Heterotropic activation of the midazolam hydroxylase activity of CYP3A by a positive allosteric modulator of $mGlu_5$: in vitro to in vivo translation and potential impact on clinically relevant drug-drug interactions. 2013. Drug Metab Dispos. 41:2066-2075. PMID 24003250.

56. Amato R, Felts A, Rodriguez A, Venable DF, Morrison RD, Byers FW, Daniels JS, Niswender C, Conn PJ, Lindsley CW, **Jones CK***, and Emmitte K.* Substituted 1-phenyl-3-(pyridine-2-yl)urea negative allosteric modulators of $mGlu_5$: Discovery of a new tool compound VU0463841 with activity in rat models of cocaine addiction. 2013. ACS Chem. Neurosci. 4:1217-1228.

57. D'Amore V, Santolini I, van Rijn CM, Biagioni F, Molinaro G, Prete A, Conn PJ, Lindsley CW, Zhou Y, Vinson PN, Rodriguez AL, **Jones CK**, Stauffer SR, Nicoletti F, van Luijtelaar G, Ngomba RT. Potentiation of $mGlu_5$ receptors with the novel enhancer, VU0360172, reduces spontaneous absence seizures in WAG/Rij rats. 2013. Neuropharmacology. 66:330-338. PMID 22705340.

58. Gregory KJ, Herman EJ, Ramsey AJ, Hammond AS, Byun NE, Stauffer SR, Manka JT, Jadhav S, Bridges TM, Weaver CD, Niswender CM, Steckler T, Drinkenburg WH, Ahnaou A, Lavreysen H, Macdonald GJ, Bartolome JM, Mackie C, Hrupka BJ, Caron MG, Daigle TL, Lindsley CW, Conn PJ, **Jones CK**. N-aryl piperazine metabotropic glutamate receptor 5 positive allosteric modulators possess efficacy in pre-clinical models of NMDA hypofunction and cognitive enhancement. 2013. J. Pharmacol. Exp. Ther.347:438-457. PMID 23965381.

59. Martinez-Perez JA, Iyengar S, Shannon HE, Bleakman D, Alt A, Clawson DK, Arnold BM, Bell MG, Bleisch TJ, Castaño AM, Del Prado M, Dominguez E, Escribano AM, Filla SA, Ho KH, Hudziak KJ,

Jones CK, Mateo A, Mathes BM, Mattiuz EL, Ogden AM, Simmons RM, Stack DR, Stratford RE, Winter MA, Wu Z, Ornstein PL. GluK1 antagonists from 6-(tetrazolyl)phenyl decahydroisoquinoline derivatives: in vitro profile and in vivo analgesic efficacy. 2013. Bioorg. Med Chem. Lett. 23:6463-6466. PMID 24140446.

60. Martinez-Perez JA, Iyengar S, Shannon HE, Bleakman D, Alt A, Arnold BM, Bell MG, Bleisch TJ, Castaño AM, Del Prado M, Dominguez E, Escribano AM, Filla SA, Ho KH, Hudziak KJ, **Jones CK**, Mateo A, Mathes BM, Mattiuz EL, Ogden AM, Simmons RM, Stack DR, Stratford RE, Winter MA, Wu Z, Ornstein PL. GluK1 antagonists from 6-(carboxy)phenyl decahydroisoquinoline derivatives. SAR and evaluation of a prodrug strategy for oral efficacy in pain models. 2013. Bioorg Med Chem. Lett. 23:6459-6462. PMID 24119554.

61. Bartolomé-Nebreda JM, Conde-Ceide S, Delgado F, Iturrino L, Pastor J, Pena MA, Trabanco AA, Tresadern G, Wassvik CM, Stauffer SR, Jadhav S, Gogi K, Vinson PN, Noetzel MJ, Days E, Weaver CD, Lindsley CW, Niswender CM, **Jones CK**, Conn PJ, Rombouts F, Lavreysen H, Macdonald GJ, Mackie C, Steckler T. Dihydrothiazolopyridone Derivatives as a Novel Family of Positive Allosteric Modulators of the Metabotropic Glutamate 5 ($mGlu_5$) Receptor. 2013. J. Med. Chem. 56:7243-7259. PMID 23947773.

62. Felts AS, Rodriguez AL, Morrison RD, Venable DF, Manka JT, Bates BS, Blobaum AL, Byers FW, Daniels JS, Niswender CM, **Jones CK**, Conn PJ, Lindsley CW, Emmitte KA. Discovery of VU0409106: A negative allosteric modulator of mGlu5 with activity in a mouse model of anxiety. 2013. Bioorg. Med. Chem. Lett. 23:5779-5785.PMID 24074843.

63. Johnson KA*, **Jones CK***, Tantawy MN, Bubser M, Marvanova M, Ansari MS, Baldwin RM, Conn PJ, Niswender CM. The metabotropic glutamate receptor 8 agonist (S)-3,4-DCPG reverses motor deficits in prolonged but not acute models of Parkinson's disease. 2013. Neuropharmacology. 66:187-195. PMID 22546615.

64. Le U, Melancon BJ, Bridges TM, Vinson PN, Utley TJ, Lamsal A, Rodriguez AL, Venable D, Sheffler DJ, **Jones CK**, Blobaum AL, Wood MR, Daniels JS, Conn PJ, Niswender CM, Lindsley CW, Hopkins CR. Discovery of a selective M_4 positive allosteric modulator based on the 3-amino-thieno[2,3-b]pyridine-2-carboxamide scaffold: development of ML253, a potent and brain penetrant compound that is active in a preclinical model of schizophrenia. 2013. Bioorg. Med. Chem. Letters. 23:346-350. PMID 23177787

65. Rook JM, Noetzel MJ, Pouliot WA, Bridges TM, Vinson PN, Cho HP, Zhou Y, Gogliotti RD, Manka JT, Gregory KJ, Stauffer SR, Dudek FE, Xiang Z, Niswender CM, Daniels JS, **Jones CK**, Lindsley CW, Conn PJ. Unique signaling profiles of positive allosteric modulators of metabotropic glutamate receptor subtype 5 determine differences in in vivo activity. 2013. Biol. Psychiat.. 73:501-509. PMID 23140665

66. Blobaum AL, Bridges TM, Byers FW, Turlington ML, Mattmann ME, Morrison RD, Mackie C, Lavreysen H, Bartolomé JM, Macdonald GJ, Steckler T, **Jones CK**, Niswender CM, Conn PJ, Lindsley CW, Stauffer SR, Daniels JS. Heterotropic activation of the midazolam hydroxylase activity of CYP3A by a positive allosteric modulator of $mGlu_5$: in vitro to in vivo translation and potential impact on clinically relevant drug-drug interactions. 2013. Drug Metab. Dispos. 41:2066-2075. PMID 24003250.

67. Turlington M, Noetzel MJ, Chun A, Zhou Y, Gogliotti RD, Nguyen ED, Gregory KJ, Vinson PN, Rook JM, Gogi KK, Xiang Z, Bridges TM, Daniels JS, **Jones CK**, Niswender CM, Meiler J, Conn PJ, Lindsley CW, Stauffer SR. Exploration of Allosteric Agonism Structure-Activity Relationships within an Acetylene Series of Metabotropic Glutamate Receptor 5 ($mGlu_5$) Positive Allosteric Modulators (PAMs): Discovery of 5-((3-Fluorophenyl)ethynyl)-N-(3-methyloxetan-3-yl)picolinamide (ML254). 2013. J Med. Chem. 56:7976-7996. PMID 24050755.

68. Morris LC, Nance KD, Gentry PR, Days EL, Weaver CD, Niswender CM, Thompson AD, **Jones CK**, Locuson CW, Morrison RD, Daniels JS, Niswender KD, Lindsley CW. Discovery of (S)-2-cyclopentyl-N-((1-isopropylpyrrolidin2-yl)-9-methyl-1-oxo-2,9-dihydro-1H-pyrrido[3,4-b]indole-4-carboxamide (VU0453379): a novel, CNS penetrant glucagon-like peptide 1 receptor (GLP-1R) positive allosteric modulator (PAM). 2014. J. Med. Chem. 57:10192-10197. PMID 25423411.

69. Bates BS, Rodriguez AL, Felts AS, Morrison RD, Venable DF, Blobaum AL, Byers FW, KP, Daniels JS, Niswender CM, **Jones CK**, Conn PJ, Lindsley CW, Emmitte KA. Discovery of VU0431316: a negative allosteric modulator of $mGlu_5$ with activity in a mouse model of anxiety. 2014. Bioorg. Med. Chem. Lett. 24:3307-3314. PMID 24969015.

70. Cho HP, Garcia-Barrantes PM, Brogan JT, Hopkins CR, Niswender CM, Rodriguez AL, Venable DF, Morrison RD, Bubser M, Daniels JS, **Jones CK**, Conn PJ, Lindsley CW. Chemical modulation of mutant mGlu1 receptors derived from deleterious GRM1 mutations found in schizophrenics. 2014. ACS Chem. Biol. 9:2334-2346. PMID 25137254.

71. Turlington M, Malosh C, Jacobs J, Manka JT, Noetzel MJ, Vinson PN, Jadhav S, Herman EJ, Lavreysen H, Mackie C, Bartolomé-Nebreda JM, Conde-Ceide S, Martín-Martín ML, Tong HM, López S, MacDonald GJ, Steckler T, Daniels JS, Weaver CD, Niswender CM, **Jones CK**, Conn PJ, Lindsley CW, Stauffer SR. Tetrahydronaphthyridine and dihydronaphthyridinone ethers as positive allosteric modulators of the metabotropic glutamate receptor 5 ($mGlu_5$). 2014. J. Med. Chem. 57:5620-5637. PMID 24914612.

72. Byun NE, Grannan M, Bubser M, Barry RL, Thompson A, Rosanelli J, Gowrishankar R, Kelm ND, Damon S, Bridges TM, Melancon BJ, Tarr JC, Brogan JT, Avison MJ, Deutch AY, Wess J, Wood MR, Lindsley CW, Gore JC, Conn PJ, **Jones CK**. Antipsychotic drug-like effects of the selective M4 muscarinic acetylcholine receptor positive allosteric modulator VU0152100. 2014. Neuropsychopharmacology. 39:1578-1593. PMID 24442096.

73. Sheffler DJ, Nedelcovych MT, Williams R, Turner SC, Duerk BB, Robbins MR, Jadhav SB, Niswender CM, **Jones CK**, Conn PJ, Nathan Daniels R, Lindsley CW. Corrigendum to "Novel GlyT1 inhibitor chemotypes by scaffold hopping. Part 2: Development of a [3.3.0]-based series and other piperidine bioisosteres". 2014. Bioorg. Med. Chem. Lett. 24:1062-1066. PMID 24462664.

74. Turlington M, Noetzel MJ, Bridges TM, Vinson PN, Steckler T, Lavreysen H, Mackie C, Bartolomé-Nebreda JM, Conde-Ceide S, Tong HM, Macdonald GJ, Daniels JS, **Jones CK**, Niswender CM, Conn PJ, Lindsley CW, Stauffer SR. Discovery and SAR of a novel series of metabotropic glutamate receptor 5 positive allosteric modulators with high ligand efficiency. 2014. Bioorg. Med. Chem. Lett. 24:3641-3646. PMID 24961642.

75. **Jones CK**, Sheffler DJ, Williams R, Jadhav SB, Felts AS, Morrison RD, Niswender CM, Daniels JS, Conn PJ, Lindsley CW. Novel GlyT1 inhibitor chemotypes by scaffold hopping. Part 1: development of a potent and CNS penetrant [3.1.0]-based lead. 2014. Bioorg. Med. Chem. Lett. 24:1067-1070. PMID 24461352.

76. Pancani T, Foster DJ, Moehle MS, Bichell TJ, Bradley E, Bridges TM, Klar R, Poslusney M, Rook JM, Daniels JS, Niswender CM, **Jones CK**, Wood MR, Bowman AB, Lindsley CW, Xiang Z, Conn PJ. Allosteric activation of M_4 muscarinic receptors improve behavioral and physiological alterations in early symptomatic YAC128 mice. 2015. Proc. Natl. Acad. Sci. U S A., 112:14078-14083. PMID 26508634.

77. Oguin TH 3rd, Sharma S, Stuart AD, Duan S, Scott SA, **Jones CK**, Daniels JS, Lindsley CW, Thomas PG, Brown HA. Phospholipase D facilitates efficient entry of influenza virus, allowing escape from innate immune inhibition. J Biol. Chem. 2014. 289:25405-25417. PMID 25065577.

78. Bubser M, Bridges TM, Dencker D, Gould RW, Grannan M, Noetzel MJ, Lamsal A, Niswender CM, Daniels JS, Poslusney MS, Melancon BJ, Tarr JC, Byers FW, Wess J, Duggan ME, Dunlop J, Wood MW, Brandon NJ, Wood MR, Lindsley CW, Conn PJ, **Jones CK**. Selective activation of M_4 muscarinic acetylcholine receptors reverses MK-801-induced behavioral impairments and enhances associative learning in rodents. 2014. ACS Chem. Neurosci. 5:920-942. PMID 25137629.

79. Zhou Y, Malosh C, Conde-Ceide S, Martínez-Viturro CM, Alcázar J, Lavreysen H, Mackie C, Bridges TM, Daniels JS, Niswender CM, **Jones CK**, Macdonald GJ, Steckler T, Conn PJ, Stauffer SR, Bartolomé-Nebreda JM, Lindsley CW. Further optimization of the $mGlu_5$ PAM clinical candidate VU0409551/JNJ-46778212: Progress and challenges towards a back-up compound. 2015. Bioorg. Med. Chem. Lett. 25:3515-3519. PMID 26183084.

80. Martín-Martín ML, Bartolomé-Nebreda JM, Conde-Ceide S, Alonso de Diego SA, López S, Martínez-Viturro CM, Tong HM, Lavreysen H, Macdonald GJ, Steckler T, Mackie C, Bridges TM, Daniels JS, Niswender CM, Noetzel MJ, **Jones CK**, Conn PJ, Lindsley CW, Stauffer SR. Discovery and SAR of novel series of imidazopyrimidinones and dihydroimidazopyrimidinones as positive allosteric modulators of the metabotropic glutamate receptor 5 ($mGlu_5$). 2015. Bioorg. Med. Chem. Lett. 25:1310-1317. PMID 25683622.

81. Berry CB, Bubser M, **Jones CK**, Hayes JP, Wepy JA, Locuson CW, Daniels JS, Lindsley CW, Hopkins CR. Discovery and Characterization of ML398, a Potent and Selective Antagonist of the D4 Receptor with in Vivo Activity. ACS Med. Chem. Lett. 5:1060-1064. PMID 25221667.

82. Nedelcovych MT, Gould RW, Zhan X, Bubser M, Gong X, Grannan M, Thompson AT, Ivarsson M, Lindsley CW, Conn PJ, **Jones CK**. A rodent model of traumatic stress induces lasting sleep and quantitative electroencephalographic disturbances. 2015. ACS Chem. Neurosci. 6:485-493. PMID 25581551.

83. Iderberg H, Maslava N, Thompson AD, Bubser M, Niswender CM, Hopkins CR, Lindsley CW, Conn PJ, **Jones CK**, Cenci MA. Pharmacological stimulation of metabotropic glutamate receptor type 4 in a rat model of Parkinson's disease and L-DOPA-induced dyskinesia: Comparison between a positive allosteric modulator and an orthosteric agonist. 2015. Neuropharmacology. 95:121-129. PMID 25749357.

84. Conde-Ceide S, Martínez-Viturro CM, Alcázar J, Garcia-Barrantes PM, Lavreysen H, Mackie C, Vinson PN, Rook JM, Bridges TM, Daniels JS, Megens A, Langlois X, Drinkenburg WH, Ahnaou A, Niswender CM, **Jones CK**, Macdonald GJ, Steckler T, Conn PJ, Stauffer SR, Bartolomé-Nebreda JM, Lindsley CW. Discovery of VU0409551/JNJ-46778212: An $mGlu_5$ positive allosteric modulator clinical candidate targeting schizophrenia. 2015. ACS Med. Chem. Lett. 6:716-720. PMID 26157544.

85. Rook JM, Tantawy MN, Ansari MS, Felts AS, Stauffer SR, Emmitte KA, Kessler RM, Niswender CM, Daniels JS, **Jones CK**, Lindsley CW, Conn PJ. Relationship between in vivo receptor occupancy and efficacy of metabotropic glutamate receptor subtype 5 allosteric modulators with different in vitro binding profiles. 2015. Neuropsychopharmacology. 40:755-765. PMID 25241804.

86. Engers JL, Rodriguez AL, Konkol LC, Morrison RD, Thompson AD, Byers FW, Blobaum AL, Chang S, Venable DF, Loch MT, Niswender CM, Daniels JS, **Jones CK**, Conn PJ, Lindsley CW, Emmitte KA. Discovery of a Selective and CNS Penetrant Negative Allosteric Modulator of Metabotropic Glutamate

Receptor Subtype 3 with Antidepressant and Anxiolytic Activity in Rodents. 2015. J. Med. Chem. 58:7485-7500. PMID 26335039.

87. Malosh C, Turlington M, Bridges TM, Rook JM, Noetzel MJ, Vinson PN, Steckler T, Lavreysen H, Mackie C, Bartolomé-Nebreda JM, Conde-Ceide S, Martínez-Viturro CM, Piedrafita M, Sánchez-Casado MR, Macdonald GJ, Daniels JS, **Jones CK**, Niswender CM, Conn PJ, Lindsley CW, Stauffer SR. Acyl dihydropyrazolo[1,5-a]pyrimidinones as metabotropic glutamate receptor 5 positive allosteric modulators. 2015. Bioorg. Med. Chem. Lett. 25:5115-5120. PMID 26475522.

88. Rook JM, Xiang Z, Lv X, Ghoshal A, Dickerson JW, Bridges TM, Johnson KA, Foster DJ, Gregory KJ, Vinson PN, Thompson AD, Byun N, Collier RL, Bubser M, Nedelcovych MT, Gould RW, Stauffer SR, Daniels JS, Niswender CM, Lavreysen H^3, Mackie C, Conde-Ceide S, Alcazar J, Bartolomé-Nebreda JM, Macdonald GJ, Talpos JC, Steckler T, **Jones CK**, Lindsley CW, Conn PJ. Biased mGlu5-Positive allosteric modulators provide in vivo efficacy without potentiating $mGlu_5$ modulation of NMDAR currents. 2015. Neuron. 86: 1029-1040. PMID 25937172.

89. Ghoshal A, Rook JM, Dickerson JW, Roop GN, Morrison RD, Jalan-Sakrikar N, Lamsal A, Noetzel MJ, Poslusney MS, Wood MR, Melancon BJ, Stauffer SR, Xiang Z, Daniels JS, Niswender CM, **Jones CK**, Lindsley CW, Conn PJ. Potentiation of M_1 muscarinic receptor reverses plasticity deficits and negative and cognitive symptoms in a schizophrenia mouse model. 2016. Neuropsychopharmacology. 41:598-610. PMID 26108886.

90. Gould RW, Dencker D, Grannan M, Bubser M, Zhan, X , Wess J, Xiang Z, Locuson C, Lindsley, CW, Conn PJ, **Jones CK**. Role for the M_1 muscarinic acetylcholine receptor in top-down cognitive processing using a touchscreen visual discrimination task in mice. 2015. ACS Chem. Neurosci. 6:1683-1695. PMID 26176846.

91. Wood MR, Noetzel MJ, Melancon BJ, Poslusney MS, Nance KD, Hurtado MA, Luscombe VB, Weiner RL, Rodriguez AL, Lamsal A, Chang S, Bubser M, Blobaum AL, Engers DW, Niswender CM, **Jones CK**, Brandon NJ, Wood MW, Duggan ME, Conn PJ, Bridges TM, Lindsley CW. Discovery of VU0467485/AZ13713945: An M_4 PAM evaluated as a preclinical candidate for the treatment of schizophrenia. 2016. ACS Med. Chem. Lett. 8:233-238. PMID 28197318.

92. Engers DW, Blobaum AL, Gogliotti RD, Cheung YY, Salovich JM, Garcia-Barrantes PM, Daniels JS, Morrison R, **Jones CK**, Soars MG, Zhuo X, Hurley J, Macor JE, Bronson JJ, Conn PJ, Lindsley CW, Niswender CM, Hopkins CR. Discovery, Synthesis, and Preclinical Characterization of N-(3-Chloro-4-fluorophenyl)-1H-pyrazolo[4,3-b]pyridin-3-amine (VU0418506), a Novel Positive Allosteric Modulator of the Metabotropic Glutamate Receptor 4 ($mGlu_4$). 2016. ACS Chem. Neurosci. 7:1192-1200. PMID 27075300.

93. Devergans A, Chen E, Ma Y, Hamada I, Pittard D, Kammermeirer S, Mullin A, Faundez V, Lindsley CW, **Jones CK**, Smith Y, Wichmann T. Anatomical Localization of $CaV_{3.1}$ Calcium Channels and Electrophysiological Effects of T-type Calcium Channel Blockade in the Thalamus of MPTP-Treated Monkeys. 2016. J. Neurophysiology. 115:470-485. PMID 26538609.

94. Gogliotti RD, Engers DW, Garcia-Barrantes PM, Panarese JD, Gentry PR, Blobaum AL, Morrison RD, Daniels JS, Thompson AD, **Jones CK**, Conn PJ, Niswender CM, Lindsley CW, Hopkins CR. 2016. Discovery of 3-aminopicolinamides as metabotropic glutamate receptor subtype 4 (mGlu4) positive allosteric modulator warheads engendering CNS exposure and in vivo efficacy. Bioorg. Med. Chem. Lett. 2016. 26:2915-2919. PMID 27131990.

95. Wood MR, Noetzel M, Engers, JL, Bollinger KA, Melancon BJ, Tarr JC, Han C, West M, Gregro AR, Lamsal A, Chang S, Ajmera S, Smith E, Chase P, Hodder PS, Bubser M, **Jones CK,** Hopkins CR, Emmitte KA, Niswender CM, Wood MW, Duggan ME, Conn PJ, Bridges TM, Lindsley CW. Discovery and optimization of a novel series of highly CNS penetrant M_4 PAMs based on a 5,6-dimethyl-4-(piperdin-1-yl)thieno[2,3-d]pyrimidine core. 2016. Bioorg. Med. Chem. Lett. 26:3029-3033. PMID 27185330.

96. Geanes AR, Cho HP, Nance KD, McGowan KM, Conn PJ, **Jones CK**, Meiler J, Lindsley CW. Ligand-based virtual screen for the discovery of novel M_5 inhibitor chemotypes. Bioorg. Med. Chem. Lett. 2016. 26:4487-4491. PMID 27503678.

97. Conde-Ceide S, Alcázar J, Alonso de Diego SA, López S, Martín-Martín ML, Martínez-Viturro CM, Pena MA, Tong HM, Lavreysen H, Mackie C, Bridges TM, Daniels JS, Niswender CM, **Jones CK**, Macdonald GJ, Steckler T, Conn PJ, Stauffer SR, Lindsley CW, Bartolomé-Nebreda JM. Preliminary investigation of 6,7-dihydropyrazolo[1,5-a]pyrazin-4-one derivatives as a novel series of $mGlu_5$ receptor positive allosteric modulators with efficacy in preclinical models of schizophrenia. 2016. Bioorg. Med. Chem. Lett. 26:429-434. PMID 26684851.

98. Felts AS, Rodriguez AL, Morrison RD, Venable DF, Blobaum AL, Byers FW, Daniels JS, Niswender CM, **Jones CK**, Conn PJ, Lindsley CW, Emmitte KA. N-Alkylpyrido[1',2':1,5]pyrazolo-[4,3-d]pyrimidin-4-amines: A new series of negative allosteric modulators of $mGlu_{1/5}$ with CNS exposure in rodents. 2016. Bioorg. Med. Chem. Lett. 26:1894-1900. PMID 26988308.

99. Balu DT, Li Y, Takagi S, Presti KT, Ramikie TS, Rook JM, **Jones CK**, Lindsley CW, Conn PJ, Bolshakov VY, Coyle JT. An $mGlu_5$-positive allosteric modulator rescues the neuroplasticity deficits in a genetic model of NMDA receptor hypofunction in schizophrenia. 2016. Neuropsychopharmacology. 41:2052-2061. PMID 26741285.

100. Gogliotti RG, Senter RK, Rook JM, Ghoshal A, Zamorano R, Malosh C, Stauffer SR, Bridges TM, Bartolome JM, Daniels JS, **Jones CK**, Lindsley CW, Conn PJ, Niswender CM. $mGlu_5$ positive allosteric modulation normalizes synaptic plasticity defects and motor phenotypes in a mouse model of Rett syndrome. 2016. Hum. Mol. Genet. 25:1990-2004. PMID 26936821.

101. Foster DJ, Wilson JM, Remke DH, Mahmood MS, Uddin MJ, Wess J, Patel S, Marnett LJ, Niswender CM, **Jones CK**, Xiang Z, Lindsley CW, Rook JM, Conn PJ. Antipsychotic-like effects of M_4 positive allosteric modulators are mediated by CB2 receptor-dependent inhibition of dopamine release. 2016. Neuron. 91:1244-1252. PMID 27618677.

102. Nickols HH, Yuh JP, Gregory K, Morrison R, Bates BS, Stauffer S, Emmitte K, Bubser M, Peng W, Nedelcovych MT, Thompson A, Daniels JS, Lindsley CW, **Jones CK,** Conn PJ. VU0477573: Partial negative allosteric modulator of the subtype 5 metabotropic glutamate receptor with high in vivo efficacy. 2016. J. Pharmacol. Exp. Ther. 356:123-136. PMID 26503377.

103. Niswender CM, **Jones CK**, Bubser M, Gray AT, Blobaum AL, Engers DW, Altman MK, O'Brien DE, Rook JM, Rodriguez AL, Loch MT, Daniels JS, Lindsley CW, Hopkins CR, Conn PJ. Development of VU0418506, a positive allosteric modulator that differentiates metabotropic glutamate receptor 4 ($mGlu_4$) homomeric receptors from $mGlu_{2/4}$ heteromers. 2016. ACS Chem. Neurosci. 7: 1201-1211. PMID 27441572.

104. Gould RW, Nedelcovych MT, Gong X, Tsai E, Bubser M, Bridges TM, Wood MR, Duggan ME, Brandon NJ, Dunlop J, Wood MW, Ivarsson M, Noetzel MJ, Daniels JS, Niswender CM, Lindsley CW, Conn PJ, **Jones CK**. State-dependent alterations in sleep/wake architecture elicited by the M_4 PAM VU0467154 - Relation to antipsychotic-like drug effects. 2016. Neuropharmacology. 102:244-253. PMID 26617071.

105. Grannan MD, Mielnik CA, Moran SP, Gould RW, Ball J, Lu Z, Bubser M, Ramsey AJ, Abe M, Cho HP, Nance KD, Blobaum AL, Niswender CM, Conn PJ, Lindsley CW, **Jones CK**. Prefrontal cortex-mediated impairments in a genetic model of NMDA receptor hypofunction are reversed by the novel M_1 PAM VU6004256. 2016. ACS Chem. Neurosci. 7:1706-1716. PMID 27617634.

106. Gould RW, Amato RJ, Bubser M, Joffe ME, Nedelcovych MT, Thompson AD, Nickols HH, Yuh JP, Zhan X, Felts AS, Rodriguez AL, Morrison RD, Byers FW, Rook JM, Daniels JS, Niswender CM, Conn PJ, Emmitte KA, Lindsley CW, **Jones CK**. Partial $mGlu_5$ negative allosteric modulators attenuate cocaine-mediated behaviors and lack psychotomimetic-like effects. 2016. Neuropsychopharmacology. 41:1166-1178. PMID 26315507.

107. Moehle MS, Pancani T, Byun N, Yohn SE, Wilson GH 3rd, Dickerson JW, Remke DH, Xiang Z, Niswender CM, Wess J, **Jones CK**, Lindsley CW, Rook JM, Conn PJ. Cholinergic Projections to the Substantia Nigra Pars Reticulata Inhibit Dopamine Modulation of Basal Ganglia through the M_4 Muscarinic Receptor. 2017. Neuron. 96:1358-1372. PMID 29268098.

108. Tarr JC, Wood MR, Noetzel MJ, Bertron J, Weiner AL, Rodriguez A, Lamsal A, Byers FW, Chang S, Cho HP, **Jones CK**, Niswender CM, Wood MW, Brandon NJ, Duggan ME, Conn PJ, Bridges TM, Lindsley CW. Challenges in the development of an M_4 PAM preclinical candidate: The discovery, SAR, and *in vivo* characterization of a series of 3-aminoazetidine-derived amides. 2017. Bioorg. Med. Chem. Lett. 27, 2990-2995. PMID 28522253.

109. Abe M, Seto M, Gogliotti RG, Loch MT, Bollinger KA, Chang S, Engelberg EM, Luscombe VB, Harp JM, Bubser M, Engers DW, **Jones CK**, Rodriguez AL, Blobaum AL, Conn PJ, Niswender CM, Lindsley CW. Discovery of VU6005649, a CNS penetrant $mGlu_{7/8}$ receptor PAM derived from a series of pyrazolo[1,5-*a*]pyrimidines. 2017. ACS Med. Chem. Lett. 8:1110-1115. PMID 29057060.

110. Felts AS, Rodriguez AL, Blobaum AL, Morrison RD, Bates BS, Thompson Gray A, Rook JM, Tantawy MN, Byers FW, Chang S, Venable DF, Luscombe VB, Tamagnan GD, Niswender CM, Daniels JS, **Jones CK**, Conn PJ, Lindsley CW, Emmitte KA. Discovery of N-(5-Fluoropyridin-2-yl)-6-methyl-4-(pyrimidin-5-yloxy)picolinamide (VU0424238): A novel negative allosteric modulator of metabotropic glutamate receptor subtype 5 selected for clinical evaluation. 2017. J. Med. Chem. 60:5072-5085. PMID 28530802.

111. Zike ID, Chohan MO, Kopelman JM, Krasnow EN, Flicker D, Nautiyal KM, Bubser M, Kellendonk C, **Jones CK**, Stanwood G, Tanaka KF, Moore H, Ahmari SE, Veenstra-VanderWeele J. OCD candidate gene SLC1A1/EAAT3 impacts basal ganglia-mediated activity and stereotypic behavior. 2017. Proc. Natl. Acad. Sci. USA. 114:5719-5724. PMID 28507136.

112. Engers JL, Bollinger KA, Weiner RL, Rodriguez AL, Long MF, Breiner MM, Chang S, Bollinger SR, Bubser M, **Jones CK**, Morrison RD, Bridges TM, Blobaum AL, Niswender CM, Conn PJ, Emmitte KA, Lindsley CW. Design and synthesis of *N*-Aryl phenoxyethoxy pyridinones as highly selective and CNS penetrant $mGlu_3$ NAMs. 2017. ACS Med. Chem. Lett. 8:925-930. PMID 28947938.

113. Bollinger KA, Felts AS, Brassard CJ, Engers JL, Rodriguez AL, Weiner RL, Cho HP, Chang S, Bubser M, **Jones CK**, Blobaum AL, Niswender CM, Conn PJ, Emmitte KA, Lindsley CW. Design and synthesis of $mGlu_2$ NAMs with improved potency and CNS penetration based on a truncated picolinamide core. 2017. ACS Med Chem Lett. 8:919-924. PMID 28947937.

114. Melancon BJ, Wood MR, Noetzel MJ, Nance KD, Engelberg EM, Han C, Lamsal A, Chang S, Cho HP, Byers FW, Bubser M, **Jones CK**, Niswender CM, Wood MW, Engers DW, Wu D, Brandon NJ, Duggan ME, Conn PJ, Bridges TM, Lindsley CW. Optimization of M_4 positive allosteric modulators (PAMs): The

discovery of VU0476406, a non-human primate in vivo tool compound for translational pharmacology. 2017. Bioorg. Med. Chem. Lett. 27:2296-2301. PMID 28442253.

115. Gogliotti RG, Senter RK, Fisher NM, Adams J, Zamorano R, Walker AG, Blobaum AL, Engers DW, Hopkins CR, Daniels JS, **Jones CK**, Lindsley CW, Xiang Z, Conn PJ, Niswender CM. $mGlu_7$ potentiation rescues cognitive, social, and respiratory phenotypes in a mouse model of Rett syndrome. 2017. Sci. Transl. Med. 9(403). pii: eaai7459. PMID 28814546.

116. McGowan KM, Nance KD, Cho HP, Bridges TM, Conn PJ, **Jones CK**, Lindsley CW. Continued optimization of the M_5 NAM ML375: Discovery of VU6008667, an M_5 NAM with high CNS penetration and a desired short half-life in rat for addiction studies. 2017. Bioorg. Med. Chem. Lett. 27:1356-1359. PMID 28237763

117. Rook JM, Abe M, Cho HP, Nance KD, Luscombe VB, Adams JJ, Dickerson JW, Remke DH, Garcia-Barrantes PM, Engers DW, Engers JL, Chang S, Foster JJ, Blobaum AL, Niswender CM, **Jones CK**, Conn PJ, Lindsley CW. Diverse effects on M_1 signaling and adverse effect liability within a series of M_1 Ago-PAMs. ACS Chem. Neurosci. 2017. 8:866-883. PMID 28001356.

118. Wood MR, Noetzel MJ, Poslusney MS, Melancon BJ, Tarr JC, Lamsal A, Chang S, Luscombe VB, Weiner RL, Cho HP, Bubser M, **Jones CK**, Niswender CM, Wood MW, Engers DW, Brandon NJ, Duggan ME, Conn PJ, Bridges TM, Lindsley CW. Challenges in the development of an M_4 PAM in vivo tool compound: The discovery of VU0467154 and unexpected DMPK profiles of close analogs. 2017. Bioorg. Med. Chem. Lett. 27:171-175. PMID 27939174.

119. Gunter BW, Gould RW, Bubser M, McGowan KM, Lindsley CW, **Jones CK**. Selective inhibition of M_5 muscarinic acetylcholine receptors attenuates cocaine self-administration in rats. 2017. Addict. Biol. [Epub ahead of print] PMID 29044937.

120. Bender AM, Cho HP, Nance KD, Lingenfelter KS, Luscombe VB, Gentry PR, Voigtritter K, Berizzi AE, Sexton PM, Langmead CJ, Christopoulos A, Locuson CW, Bridges TM, Chang S, O'Neill JC, Zhan X, Niswender CM, **Jones CK**, Conn PJ, Lindsley CW. Discovery and optimization of potent and CNS penetrant M_5-preferring positive allosteric modulators derived from a novel, chiral N-(Indanyl)piperidine amide scaffold. ACS Chem Neurosci. 2018. [Epub ahead of print] PMID 29678111.

121. Gogliotti RG, Fisher NM, Stansley BJ, **Jones CK**, Lindsley CW, Conn PJ, Niswender CM. Total RNA Sequencing of Rett Syndrome Autopsy Samples Identifies the M_4 Muscarinic Receptor as a Novel Therapeutic Target. 2018. J Pharmacol Exp Ther. 365:291-300. PMID 29523700.

122. Rook JM, Bertron JL, Cho HP, Garcia-Barrantes PM, Moran SP, Maksymetz JT, Nance KD, Dickerson JW, Remke DH, Chang S, Harp J, Blobaum AL, Niswender CM, **Jones CK**, Stauffer SR, Conn PJ, Lindsley CW. A novel M_1 PAM VU0486846 exerts efficacy in cognition models without displaying agonist activity or cholinergic toxicity. 2018. ACS Chem Neurosci. [Epub ahead of print]

123. Berizzi AE, Perry CJ, Shackleford DM, Lindsley CW, **Jones CK**, Chen NA, Sexton PM, Christopoulos A, Langmead CJ, Lawrence AJ. Muscarinic M_5 receptors modulate ethanol seeking in rats. 2018. Neuropsychopharmacology. [Epub ahead of print] PMID 29483658.

124. Gould RW, Grannan MD, Gunter BW, Ball J, Bubser M, Bridges TM, Wess J, Wood MW, Brandon NJ, Duggan ME, Niswender CM, Lindsley CW, Conn PJ, **Jones CK**. Cognitive enhancement and antipsychotic-like activity following repeated dosing with the selective M_4 PAM VU0467154. 2018. Neuropharmacology. 128:492-502. PMID 28729220.

Invited Reviews/Book Chapters:

1. Niswender CM, **Jones CK**, Conn PJ. New therapeutic frontiers for metabotropic glutamate receptors. 2005. Curr. Top. Med. Chem. 5:847-857. PMID 16178730

2. Lindsley CW, Weaver D, **Jones C**, Marnett L, Conn PJ. Preclinical drug discovery research and training at Vanderbilt. 2007. ACS Chem. Biol. 2:17-20. PMID 17243778.

3. Conn PJ, **Jones CK**. Promise of $mGluR_{2/3}$ activators in psychiatry. Neuropsychopharmacology. 2009. 34:248-249. PMID 19079073.

4. Conn PJ, Lindsley CW, **Jones CK**. Activation of metabotropic glutamate receptors as a novel approach for the treatment of schizophrenia. 2009. Trends Pharmacol. Sci. 30:25-31. PMID19058862.

5. Conn PJ, **Jones CK**, Lindsley CW. Subtype-selective allosteric modulators of mucarinic receptors for the treatment of CNS disorders. 2009. Trends Pharmacol.Sci. 30:148-155 (2009). PMID 19201489.

6. Lebois EP, **Jones CK**, Lindsley CW. The evolution of histamine H_3 antagonists/inverse agonists. 2011. Curr. Top. Med. Chem. 11:648-60. PMID21261594.

7. **Jones CK**, Conn PJ, Lindsley CW. 'Glutamate approaches towards the treatment of mood disorders' in Drug Discovery for Psychiatric Disorders, Rankovic, Z.; Bingham, M.; Hargreaves, R.; Nestler, E., eds., Royal Society of Chemistry, London, UK, 2012, pp.258-275.

8. English, BA, **Jones CK**. 'Cholinergic Neurotransmission' in *Primer on the Autonomic Nervous System*, Chapter 14, 2012, pp. 71-74, 3rd Edition (Academic Press).

9. **Jones CK**, Byun N, Bubser M. Muscarinic and nicotinic acetylcholine receptor agonists and allosteric modulators for the treatment of schizophrenia. 2012. Neuropsychopharmacology. 2012. 37:16-42. PMID 21956443.

10. Bubser M, Byun N, Wood MR, **Jones CK**. 'Muscarinic receptor pharmacology and circuitry for the modulation of cognition' in Recent Advances in Muscarinic Receptor Pharmacology and Therapeutics, Nathanson N, Christopoulos A, Fryer A; eds., Handbook of Experimental Pharmacology. 2012. 208:121-166. Springer Publishing. PMID 22222698.

11. Herman EJ, Bubser M, Conn PJ, **Jones CK**. Metabotropic glutamate receptors for new treatments in schizophrenia. Handbook of Experimental Pharmacology. 2012. 213:297-365. PMID 23027420.

12. Noetzel MJ, **Jones CK**, Conn PJ. Emerging approaches for treatment of schizophrenia: modulation of glutamatergic signaling. 2012. Discov Med. 14:335-343. PMID 23200065.

13. Foster DJ, **Jones CK**, Conn PJ. Emerging approaches for treatment of schizophrenia: modulation of cholinergic signaling. 2012. Discov Med.14:413-420. PMID 23272693.

14. Bender AM, **Jones CK**, Lindsley CW. Classics in Chemical Neuroscience: Xanomeline. 2017. ACS Chem. Neurosci. 8:435-443. PMID 28141924.

15. Gould RW, Felts AS, **Jones CK**. Negative allosteric modulators of the metabotropic glutamate receptor subtype 5 for the treatment of cocaine use disorders. In The Neuroscience of Cocaine: Mechanisms and Treatment, V. Preedy, ed.,.Academic Press. May 2017. *In press.*

Under Review and In Preparation:

1. Nedelcovych MT, Gould RW, Felts AS, Bubser M, Zhan X, Conn PJ, Lindsley CW, **Jones CK.** Selective antagonism of $mGlu_5$ ameliorates the rodent response to traumatic stress. *In preparation*.

2. Gould RW, Nedelcovych MT, Tsai E, Gong X, Wood MR, Lindsley CW, Conn PJ, **Jones CK.** Involvement of M_1 muscarinic acetylcholine receptor function on age-related changes in sleep/wake architecture and quantitative EEG. *In preparation.*

3. Grannan MD, Bubser M, Gould RW, Bridges TM, Wess J, Deutch, AY, Wood MR, Conn PJ, Lindsley CW, **Jones CK**. The M_4 Positive Allosteric Modulator VU0467154 reverses the physiological and behavioral consequences of disrupting prefrontal cortical glutamate transmission. *In preparation.*

4. Gunter BW, Gould RW, Bubser M, Teal LB, Lindsley CW, Jones CK. Selective inhibition of M_5 attenuates oxycodone self-administration and cue-induced reinstatement with no effects on oxycodone-induced analgesia. *In preparation.*

Abstracts:

1. **Jones CK** and Shannon HE. Effects of muscarinic agonists and antagonists on prepulse inhibition of the acoustic startle reflex. May 14th, 1996. Society for Neuroscience Indianapolis Chapter, Indianapolis, IN.

2. **Jones CK** and Shannon HE. Dose-dependent effects of muscarinic agonists and antagonists on prepulse inhibition of the acoustic startle response. November 12th-15th, 1996. 7th International Symposium on Subtypes of Muscarinic Receptors, Vienna, VA.

3. **Jones CK** and Shannon HE. A role for muscarinic cholinergic systems in the mechanisms of prepulse inhibition of the acoustic startle reflex and schizophrenia. April 12th-16th, 1997. 6th International Congress on Schizophrenia Research, Colorado Springs, CO. (Schiz. Res. 24:78;1997).

4. **Jones CK** and Shannon HE. Bilateral lesions of the laterodorsal tegmental nucleus disrupt prepulse inhibition of acoustic startle reflex in rats. February 7th-13th, 1998. 9th Biennial Winter Workshop on Schizophrenia, Davos, Switzerland. (Schiz. Res. 29:199;1998).

5. Shannon HE, Bymaster FP, Calligaro DO, DeLapp NW, **Jones CK**, Perry K, Rasmussen K, Ward JS, Fink-Jensen A, Sheardown M, Jeppesen L, Sauerberg P. Antipsychotic-like pharmacologic profile of the muscarinic agonist BuTAC. April 17th – 21st, 1999. 7th International Congress on Schizophrenia Research, Santa Fe, NM. (Schiz. Res. 36:314;1999).

6. Shannon HE, Ornstein PL, and **Jones CK.** Selective involvement of the kainate iGluR5 receptor in capsaicin-induced mechanical allodynia in rats. August 22nd-27th, 1999. 9th World Congress on Pain, The International Association for the Study of Pain, Vienna, Austria.

7. **Jones CK**., Monn JL and Shannon HE. Reversal of carrageenan- and capsaicin-induced pain states in rats by selective group II (mGluR2/3) metabotropic glutamate receptor agonists. August 22nd-27th, 1999. 9th World Congress on Pain, The International Association for the Study of Pain, Vienna, Austria.

8. **Jones CK**, Simmons R, Iyengar S and Shannon HE. A comparison of the central and peripheral effects of morphine and the competitive NMDA receptor antagonist LY235959 on capsaicin-induced mechanical hyperalgesia in rats. September 27th–30th, 2000. 3rd Congress of the European Federation of the International Association for the Study of Pain Chapters, Nice, France.

9. **Jones CK**, Peters SC, Iyengar S and Shannon HE. Duloxetine, a selective serotonergic and noradrenergic reuptake inhibitor, is efficacious in persistent and inflammatory, but not acute nociceptive,

pain states in rodents. August 17th-22nd, 2002. 10th World Congress on Pain, International Association for the Study of Pain, San Diego, CA.

10. Hoffman BJ, **Jones CK**, Gordon K, Yu H, Roth A, Schoepp DD, Chaney S, Adams B, Ford A, Koester A. Neurochemical and Behavioral Evaluation of Glycine Transporter 1a-Deficient Mice. December 8th-12th, 2002. ACNP 41st Annual Meeting, San Juan, Puerto Rico.

11. Hoffman, BJ, **Jones CK**, Yu H, Gordon K, Chaney S, Ford A, Thompson L, Davis R, Barton M, Geisler S, Hemrick-Luecke S, Shannon HE, Johnson K, Nomikos GG, Koester A. 2003. Characterization of GlyT1a null mice reveals a key role for GlyT1a in forebrain glycine homestasis. December 8th-12th, 2002. ACNP 41st Annual Meeting, San Juan, Puerto Rico.

12. **Jones CK**, Shannon HE, Schoepp DD, Hoffman B J. Antisense knockdown of the glial glutamate transporter GLT-1 in the rat hippocampus produces spontaneous limbic seizures. December 8th-12th, 2002. ACNP 41st Annual Meeting, San Juan, Puerto Rico.

13. Hoffman, BJ, **Jones CK**, Yu H, Gordon K, Chaney S, Ford A, Thompson L, Davis R, Barton M, Geisler S, Hemrick-Luecke S, Shannon HE, Johnson K, Nomikos GG, Koester A. Evaluation of global GlyT1a null mice reveals modulatory role for GlyT1a in forebrain glycine homestasis. December 7th-11th, 2003. ACNP 42st Annual Meeting, San Juan, Puerto Rico.

14. **Jones CK**, Gordon K, Roth A, Hoffman BJ. Characterization of a glycine transporter 1a (GlyT1a)-specific antiserum reveals that GlyT1a is expressed in neurons and is the major GlyT1 isoform in the mouse forebrain. October 23rd-27th, 2004. Society for Neuroscience 34th Annual Meeting, San Diego, CA.

15. Tsui HC, Hong Y, **Jones CK**, Hoffman BJ. Characterization of [^{3}H]- (R)-N[3-phenyl-3-(4'-(4-toluoyl)phenoxyl)-propyl]sarcosine (NPTS) binding at the glycine transporter 1, GlyT1, in rodent brain. October 23rd-27th, 2004. Society for Neuroscience 34th Annual Meeting, San Diego, CA.

16. Hoffman BJ, **Jones CK**, Yu H, Gordon K, Ford A, Thompson L, Davis R, Geisler S, Hemrick-Luecke, Johnson KW, Nomikos GG, Koester A. 2004. Neurochemical characterization of GlyT1a null mice: A differential role for GLyT1a in amino acid homeostasis in forebrain, brainstem, and cereblellum. October 23rd-27th, 2004. Society for Neuroscience 34th Annual Meeting, San Diego, CA.

17. Young CE, Bohanick J, **Jones CK**, Koester A, Hoffman BJ, Yang CR. NMDA Receptor-Mediated Synaptic and Firing Responses In Glycine transporter (GlyT1a) knockout mice: In vitro and In Vivo Characterizations. October 23rd-27th, 2004. Society for Neuroscience 34th Annual Meeting, San Diego, CA.

18. Hoffman BJ, **Jones CK**, Yu H, Gordon K, Ford A, Thompson L, Davis RJ, Bohanick J, Barton ME, Koester A, Shannon HE, Hemrick-Luecke S, Nomikos GG, Yang CR and Johnson KW. Deletion of the Glycine Transporter, GlyT1a, Enhances NMDA Glutamate Receptor Function *In Vivo* and Differentially Alters Amino Acid Levels in Forebrain, Brainstem and Cerebellum. December 9th-13th, 2004. ACNP 43st Annual Meeting, San Juan, Puerto Rico.

19. Martinez-Perz JA, Iyengar S, Shannon HE, Bleakman D, Arnold BM, Bell MG, Bleisch TJ, Buckmaster JL, Castano AM, Del Prado M, Dominguez E, Escribano AM, Filla SA,Ho KH, Hudziak KJ, **Jones CK,** Katofiasc MA, Mateo A, Mathes BM, Mattiuz EL, Ogden AML, Phebus LA, Simmons RMA, Stack DR, Stratford RE, Winter MA, Wu Z, and Ornstein PL. March 13th-16th, 2005. Structure-Activity Study of GluR5 Kainate Receptor Antagonists. Application of a Prodrug Strategy for Oral Efficacy in Pain Models. Frontiers in Medicinal Chemistry meeting in Leipzig, Germany.

20. Ogden AM, Knauss JL, Dieckman DK, Ho K, Dominquez E, Martinez-Perez JA, Johnson KW, **Jones CK,** Shannon HE, Simmons RMA, Iyengar S, Ramadan N, Bleakman D. Pharmacological profile of competitive GLURK5 receptor antagonists in vitro and in models of persistent pain and migraine. August 21st-26th, 2005. 11th World Congress on Pain, International Association for the Study of Pain, Sydney, Australia.

21. **Jones CK**, Brady A, Bubser M, Deutch A, Williams L, Hammond AH, Williams R, Conn, PJ. TBPB is a highly selective M1 allosteric muscarinic receptor agonist in vitro and produces robust antipsychotic-like effects in vivo. December 3rd-7th, 2006. ACNP 45th Annual Meeting, Hollywood, FL.

22. Niswender CM, Myers KA, Williams R, Ayala J, Luo Q, Saleh S, **Jones CK**, Weaver CD, Orton D, Conn PJ. Permissive antagonism induced by novel allosteric antagonists of metabotropic glutamate receptor 7. December 3rd-7th, 2006. ACNP 45th Annual Meeting, Hollywood, Florida.

23. Martinez-Perz JA, Iyengar S, Shannon HE, Bleakman D, Arnold BM, Bell MG, Bleisch TJ, Buckmaster JL, Castano AM, Del Prado M, Dominguez E, Escribano AM, Filla SA,Ho KH, Hudziak KJ, **Jones CK**, Katofiasc MA, Mateo A, Mathes BM, Mattiuz EL, Ogden AML, Phebus LA, Simmons RMA, Stack DR, Stratford RE, Winter MA, Wu Z, and Ornstein PL. October 25th, 2006. Structure-Activity Study of GluR5 Kainate Receptor Antagonists. Application of a Prodrug Strategy for Oral Efficacy in Pain Models. EUACC Workshop Meeting, Leipzig, Germany.

24. Bridges T, **Jones C**, Brady A, Marlo J, Rodriguez A, Niswender C, Williams R., Kim K., Sheffler D, Grier M, Weaver D, Conn PJ, Lindsley C. Novel allosteric modulation of the M_1 muscarinic receptor: agonists and potentiators for the treatment of Alzheimer's disease and schizophrenia. August 19th-23rd, 2007. ACS-CNS Medicinal Chemistry Conference, Boston, MA.

25. Bridges TM, **Jones CK**, Brady AE, Marlo JE, Rodriguez AL, Niswender CM, Sheffler D, Kennedy P, Williams R, Orton D, Kim K, Williams L, Mulder M, Lewis M, Shirey JK, Davis AA, Lah JJ, Levey AI, Weaver CD, Conn PJ, Lindsley CW. Discovery and characterization of novel, highly-selective agonists and antagonists of mAChR1: *In vitro* and *in vivo* profiles relevant to Alzheimer's disease and schizophrenia. April 5th-9th, 2008. ASPET Centennial Meeting, Experimental Biology 2008, San Diego, CA.

26. Brady AE, **Jones CK**, Bridges TM, Shirey JK, Lindsley CW, and Conn PJ. Characterization of novel selective positive allosteric modulators (PAMs) of the M_4 muscarinic acetylcholine receptor (mAChR). April 5th-9th, 2008. ASPET Centennial Meeting, Experimental Biology 2008, San Diego, CA.

27. Bridges TM, **Jones CK,** Brady A, Marlo, JE, Rodriguez, AL, Niswender, CM, Sheffler, D, Kennedy, P, Williams, R, Orton, D, Kim, K, Williams, L, Mulder, M, Lewis, M, Shirey, JK, Davis, AA, Lah, JJ, Levey, AI, Weaver, CD, Conn, PJ, Lindsley, CW. April 6th-10th, 2008. Subtype-selective allosteric modulation of the M_1 and M_4 muscarinic receptors. 235th ACS National Meeting, New Orleans, LA.

28. Sheffler CJ, Williams R, Bridges TM, Xiang Z, Kane AS, Byun NE, Mock MM, Zheng F, Lewis LM, **Jones CK**, Niswender CM, Weaver CD, Lindsley CW, Conn PJ. A novel selective muscarinic acetylcholine receptor subtype 1 (M1 mAChR) antagonist reduces seizures without impairing hippocampal dependent learning. October. 17th-21th, 2009. 39th Annual Meeting Society for Neuroscience, Chicago, IL.

29. Niswender CM, Hopkins CR, **Jones CK**, Thompson AD, Engers S, Williams R, Zhou S, Salovich JM, Cheung YY, Gogliotti R, Gentry P, Johnson KA, Jadhav S, Menon U, Zamorano R, Days EL, Lindsley CW, Weaver CD, Conn PJ. Recent progress in the development of positive allosteric modulators of mGluR4 for the treatment of Parkinson's disease. October. 17th-21th, 2009. 39th Annual Meeting Society for Neuroscience, Chicago, IL.

30. Niswender CM, Hopkins CR, **Jones CK**, Thompson AD, Engers S, Williams R, Zhou S, Salovich JM, Cheung YY, Gogliotti R, Gentry P, Johnson KA, Jadhav S, Menon U, Zamorano R, Days EL, Lindsley CW, Weaver CD, Conn PJ. The development of positive allosteric modulators of mGluR4 for the treatment of Parkinson's disease. June 8th-10th, 2009. 13th International Parkinson's Disease Congress**,** Paris, France.

31. Engers DW, Le U, Zhou Y, **Jones CK**, Thompson AD, Jadhav S, Menon UN, Zamorano R, Daniels JS, Morrison R, Blobaum AL, Weaver CD, Conn PJ, Lindsley CW, Niswender CM, Hopkins CR. Discovery and SAR development of a series of *N*-(4-acetamido)- and 4-(2,5-dioxopyrrolidin-1-yl)phenylpicolinamides as Positive Allosteric Modulators of Metabotropic Glutamate Receptor 4: A Novel Approach for the Treatment of Parkinson's Disease. June 20th-25th, 2010. High Throughput Chemistry and Chemical Biology Gordon Conference, Les Diablerets, Switzerland.

32. **Jones CK**, Rosanelli JD, Kane AS, Bubser M, Brady AE, Lebois E, Bridges TM, Kennedy JP, Xiang Z, Jadhav SB, Yin H, Deutch AY, Weaver CD, Lindsley CW, Conn PJ. Novel Subtype Selective Ligands for M_1 and M_4 Muscarinic Acetylcholine Receptors Elucidate Roles for M_1 and M_4 in Preclinical Models predictive of Antipsychotic-like Activity and Enhancement of Cognition. December 6th-10th,2009. 48th ACNP Annual Meeting in Hollywood, FL.

33. Byun N, Lawson K, J. C. Gore JC, P. J. Conn PJ, **Jones CK**. Antipsychotic-like profile and reversal of cognitive impairments with the positive allosteric modulator of the M_4 muscarinic acetylcholine receptor VU0152100. April 2nd-6th, 2011. 13th International Congress on Schizophrenia Research, Colorado Springs, CO.

34. Grannan MD, Bubser M, Mulder MJ, Byun NE, Bridges TM, Lindsley CW, Conn PJ, **Jones CK**. The role of the M_4 positive allosteric modulator VU0152100 in mediating mesolimbic and mesocortical dopamine release. October 13th-17th, 2012. 42nd Annual Meeting Society for Neuroscience, New Orleans, LA.

35. Byun NE, Barry RL, Damon SM, Avison MJ, Bridges TM, Lindsley CW, Conn PJ, Gore JC, **Jones CK**. The M_4 muscarinic acetylcholine receptor positive allosteric modulator VU0152100 modulates dopaminergic activity: a functional connectivity study. October 13th-17th, 2012. 42nd Annual Meeting Society for Neuroscience, New Orleans, LA.

36. Nedelcovych M, Sheffler DJ, Bubser M, Conn PJ, Lindsley CW, **Jones CK**. Enhanced extinction of conditioned fear responses in rats using GlyT1 inhibitors: Implications for PTSD. October 13th-17th, 2012. 42nd Annual Meeting Society for Neuroscience, New Orleans, LA.

37. Ghoshal A, Pouget P, Byun N, Stauffer SR, Rook JM, Rodriguez AL, Niswender CM, **Jones CK**, Lindsley CW, Conn PJ. Effects of metabotropic glutamate receptor 5 activation on neurophysiological sensory processing in vivo: Implications in schizophrenia. October 13th-17th, 2012. 42nd Annual Meeting Society for Neuroscience, New Orleans, LA.

38. Dickerson JW, Nedelcovych MT, Stauffer SR, Hopkins CR, Niswender CM, Lindsley CW, **Jones CK**, Conn PJ. Effects of metabotropic glutamate receptor activation on cytokine release and cognition during neuroinflammation. October 13th-17th, 2012. 42nd Annual Meeting Society for Neuroscience, New Orleans, LA.

39 Rook JM, Noetzel MJ, Pouliot WA, Bridges TM, Vinson PN, Zhou Y, Gogliotti RD, Manka JT, Stauffer SR, Niswender CM, Dudek FE, Daniels JS, **Jones CK** Lindsley CW, Conn PJ. Molecular Actions of positive allosteric agonist of mGlu5 determine efficacy versus adverse effect liability in animal models. October 13th-17th, 2012. 42nd Annual Meeting Society for Neuroscience, New Orleans, LA.

40. Amato RJ, Joffe ME, Morrison RD, Rodriguez AL, Felts AS, Emmitte KA, Daniels JS, Conn PJ, Lindsley CW, **Jones CK**. Potential of partial negative allosteric modulators of the metabotropic glutamate receptor subtype 5 for reversal of cocaine self-administration in rats. October 13th-17th, 2012. 42nd Annual Meeting Society for Neuroscience, New Orleans, LA.

41. D'Amore V, Santolini I, Van Rijn CM, Biagioni F, Molenaro G, Prete A, Conn PJ, Lindsley CW, Zhou S, Vinson PN, Rodriguez AL, **Jones CK**, Stauffer SR, Sortino MA, Nicoletti F, Luijtelaar GV, NGomba RT. Allosteric potentiation of mGlu5 receptors reduces spike and wave discharges in the WAG/Rij rat model of absence epilepsy. October 13th-17th, 2012. 42nd Annual Meeting Society for Neuroscience, New Orleans, LA.

42. Dencker D, Gould RW, **Jones CK.** Evaluation of the role of muscarinic acetylcholine M4 receptors in associative learning. Academic Drug Discovery Consortium Annual Meeting. October 9th-11th, 2013. Nashville, TN.

43. Gould RW, Nedelcovych MT, Wood MR, Lindsley CW, Conn PJ, **Jones CK.** Effects of subtype selective muscarinic acetylcholine receptor activation on sleep/wake architecture in rodents Academic Drug Discovery Consortium Annual Meeting. October 9th-11th, 2013. Nashville, TN.

44. Nedelcovych MT, Gould RW, Sheffler D, Felts A, Thompson A, Grannan M, Rook J, Conn J, Lindsely C, **Jones CK**. Enhancing fear extinction to improve sleep in PTSD. 2013. Academic Drug Discovery Consortium Annual Meeting. October 9th-11th, 2013. Nashville, TN.

45. Gould RW, Nedelcovych MT, Grannan MD, Bubser M, Wood MR, Lindsley CW, Xiang Z, Wess J, Conn PJ, **Jones CK**. Effects of M1 and M4 muscarinic acetylcholine receptor positive allosteric modulators on sleep and cognition in rodents. April 20th-24th, 2013. American Society for Pharmacology and Experimental Therapeutics Annual Meeting, Boston, MA. (Experimental Biology FASEB Journal 2013: 27: p. 661.8.).

47. Rook JM, Walker AG, Huan Q, Stauffer SR, Niswender CM, Daniels JS, **Jones CK**, Lindsley CW, Conn PJ. Allosteric modulators of muscarinic acetylcholine and metabotropic glutamatergic receptors as promising therapeutic strategies for cognition enhancement in Alzheimer's disease. November 9th-13th, 2013. 43rd Annual Meeting Society for Neuroscience, San Diego, CA.

48. Ghoshal A, Rook JM, Johnson KA, Lv X, Dickerson JW, Collier RL, Vinson PN, S. R. Stauffer SR, **Jones CK**, Niswender CM, Lindsley CW, Z. Xiang Z, Conn PJ. Stimulus bias of metabotropic glutamate receptor 5 allosteric modulators - impact on CNS effects and implications for use as therapeutic agents. November 9th-13th, 2013. 43rd Annual Meeting Society for Neuroscience, San Diego, CA.

49. Pancani T, Bowman AB, Bichell TJ, Bridges TM, Scott DJ, Lindsley CW, **Jones CK**, Conn PJ, Z. Xiang Z.Characterization of Novel M4 PAM in Huntington's disease mouse model. November 9th-13th, 2013. 43rd Annual Meeting Society for Neuroscience, San Diego, CA.

50. Balu DT, Takagi S, Steckler T, Bartolome JM, **Jones CK**, Conn PJ, Coyle JT. Positive Allosteric Modulation of mGluR5 Reverses the Akt Signaling Deficits in Serine Racemase Knockout Mice, a Genetic Model of Schizophrenia Due to NMDA Receptor Hypofunction. December 8th-12th, 2013. ACNP 52nd Annual Meeting, Hollywood, FL.

51. Rook JM, Vinson PN, Bridges TM, Stauffer SR, Ghoshal A, Daniels JS, Niswender CM, Lavreysen H, Mackie C, Bartolome JM, Macdonald GJ, Steckler T, **Jones CK**, Lindsley CW, Conn PJ. Metabotropic Glutamate Receptor Subtype 5 PAMs that Display Stimulus Bias Reveals that *in Vivo* Efficacy in Animal

Models can be Achieved Without Direct Potentiation of NMDAR Currents. December 8th-12th, 2013. ACNP 52nd Annual Meeting, Hollywood, FL.

52. **Jones CK**, Bridges TM, Bubser M, Gould RW, Thorbek DD, Grannan M, Daniels JS, Noetzel MJ, Niswender CM Duggan ME, Brandon NJ, Dunlop J, Wood MW, Wood MR, Lindsley CW, Conn PJ. Characterization of the novel M_4 muscarinic acetylcholine receptor positive allosteric modulator VU0467154 in animal models of antipsychotic-like activity, cognitive enhancement and changes in sleep-wake architecture. December 8th-12th, 2013. ACNP 52nd Annual Meeting, Hollywood, FL.

53. Gould RW, Nedelcovych MT, Dencker D, Wood MR, Stauffer SR, Wess J, Conn PJ, **Jones CK.** Influence of M_1 and M_4 muscarinic acetylcholine receptor activation on sleep/wake architecture, quantitative electroencephalography and cognition. January 25th-30th, 2014. Winter Conference on Brain Research, Steamboat Springs, CO.

54. Gould RW, Nedelcovych MT, Dencker D, Melancon BJ, Stauffer SR, Wood MR, Wess J, Xiang Z, Lindsley CW, Conn PJ, **Jones CK.** Influence of M_1 muscarinic acetylcholine receptor activation on arousal and cognitive performance using electroencephalography and novel touchscreen cognition assessment. April 28th, 2014. American Society for Pharmacology and Experimental Therapeutics Annual Meeting, San Diego, CA. (ASPET Experimental Biology FASEB Journal, 28: 845.5).

55. Grannan MD, Bubser M, Bridges TM, Gould RW, Dencker D, Daniels JS, Noetzel MJ, Byers FW, Lamsal A, Melancon B, Poslusney M, Niswender CM, Duggan ME, Brandon NJ, Dunlop J, Wood MW, Wess J, Wood MR, Lindsley CW, Conn PJ, **Jones CK**. Effects of the M_4 muscarinic receptor positive allosteric modulator VU0467154 on cognition and pyramidal cell firing properties in layer V of the mPFC. April 28th, 2014. American Society for Pharmacology and Experimental Therapeutics Annual Meeting, San Diego, CA. (ASPET Experimental Biology FASEB Journal, 28: 845.9).

56. Nedelcovych MT, Gould RW, McGinnis D, Thompson AT, Grannan MD, Lindsley CW, **Jones CK**. Fear extinction ameliorates sleep-wake and quantitative EEG deficits in the single prolonged stress model of PTSD. May 8th-10th, 2014. Society for Biological Psychiatry, 75(9):37S, New York, NY.

56. Dencker D, Gould RW, Bubser M, Bridges T, Wood M, Duggan M, Wood M, Fink-Jensen A, Wess J, Conn J, **Jones CK.** M_4 muscarinic acetylcholine receptor modulation of associative learning and behavioral flexibility in a novel touchscreen cognitive assessment. April 28th, 2014. American Society for Pharmacology and Experimental Therapeutics Annual Meeting, San Diego, CA. (Experimental Biology FASEB Journal 2014: 28: p. 845.8).

57. Nedelcovych MT, Gould RW, Felts A, Zhan X, Bubser M, Thompson A, Emmitte K, Lindsely C, Conn J, **Jones CK**. Selective antagonism of metabotropic glutamate receptor 5 modulate sleep-wake and quantitative electroencephalographic alterations in a rodent model of traumatic stress. May 14th-16th, 2015. Toronto, Ontario, Canada.

58. Grannan M, Bubser M, Bridges T, Gould RW, Thorbek DD, Daniels J, Noetzel M, Niswender C, Duggan M, Brandon N, Dunlop J, Wood M, Wess J, Wood M, Lindsley C, Conn P, **Jones C**. Evaluation of the effects of M_4 positive allosteric modulator VU0467154 on cognition and electrophysiological properties in the PFC. May 14th-16th, 2015. Toronto, Ontario, Canada.

59. Grannan MD, Folkes O, Gould RW, Joffe ME, Bubser M, Bridges TM, Wess J, Ramsey AJ, Wood MR, Grueter BA, Conn PJ, Lindsley CW, **Jones CK**. Effects of the M_4 positive allosteric modulator VU0467154 on cognition and electrophysiological properties in the mPFC in a rodent model of NMDA receptor hypofunction. Oct. 14th-17th, 2015. Cell: Engineering the Brain, Chicago, IL.

60. Grannan MD, Folkes O, Gould RW, Joffe ME, Bubser M, Bridges TM, Wess J, Ramsey AJ, Wood MR, Grueter BA, Conn PJ, Lindsley CW, **Jones CK**. M_4 positive allosteric modulator VU0467154 modulates cognitive and electrophysiological properties in a preclinical model of NMDA receptor hypofunction. Oct. 22nd, 2015. Pharmacology Department Annual Retreat, Nashville, TN.

61. Nedelcovych MT, Gould RW, Gong X, Felts A, Grannan MD, Thompson AT, Ivarsson M, Emmitte K, Lindsley CW, Conn PJ, **Jones CK**. Selective Antagonism of $mGlu_5$ alters Sleep-Wake and Spectral EEG and ameliorates Behavioral Abnormalities in a Rodent Model of Traumatic Stress. March 28th-April 1st, 2015. American Society for Pharmacology and Experimental Therapeutics Annual Meeting, Boston, MA. Experimental Biology FASEB Journal, 29: 615.8.

62. Niswender CM, Gogliotto RG, Fisher NM, Senter R, Gould RW, Adams JJ, Stansley BJ, Walker AG, Zamorano R, Blobaum AL, Engers DW, Hopkins CR, Lindsley CW, **Jones CK**, Xiang Z, Conn PJ. Metabotropic glutamate receptor 7 as a Therapeutic Target in MECP2-related Disorders. November 12th-16th, 2016. 46th Annual Meeting Society for Neuroscience, San Diego, CA.

63. Gunter BW, Gould RW, Miller MP, Bubser M, Lindsley CW, **Jones CK**. Inhibition of M_5 Muscarinic Receptors Attenuates Remifentanil Self-Administration in Rats. July 9th-14th, 2017. International Narcotics Research Conference, Chicago IL.

64. Schmidt LS, Bertsch CS, Bubser M, Gunter BW, Gould RW, **Jones CK**. Bridging the Gap Between Preclinical and Clinical Models of Autism Spectrum Disorder. September 14th, 2017. Vanderbilt Undergraduate Research Fair, VU, Nashville, TN.

65. **Jones CK**, Schmidt LS, Bertsch CS, Bubser M, Gunter BW, Gould RW. Cognitive and Sleep/wake Architecture Abnormalities in Cntnap2 and Fmr1 Knockout Rat Models of Autism Spectrum Disorder. November 11th-15th, 2017. 47th Annual Meeting Society for Neuroscience, Washington, DC.

66. Gunter BW, Gould RW, Miller MP, Bubser M, Lindsley CW, **Jones CK**. Selective Inhibition of M_5 Muscarinic Acetylcholine Receptors Attenuates Remifentanil Self-Administration without Blocking Morphine-induced Analgesia in Rats. November 11th-15th, 2017. 47th Annual Meeting Society for Neuroscience, Washington, DC.

Presentations

Vanderbilt University Seminars:

1. 'Characterization of the Antiparkinsonian Effects of a Novel Positive Allosteric Modulator of the Metabotropic Glutamate Receptor 4,' September 12th, 2011, Department of Pharmacology, VUMC, Nashville, TN.

2. 'Academic Drug Discovery at Vanderbilt: Development of M_4 Positive Allosteric Modulators for the Treatment of Schizophrenia', December 3rd, 2016, HHMI/VUMC Certificate Program in Molecular Medicine Drug Discovery in an Academic Setting, VUMC, Nashville, TN.

3. 'Can Selective Inhibition of M_5 Muscarinic Acetylcholine Receptors Attenuate Opioid Use Disorder without Blocking Opioid-induced Analgesia?' April 17th, 2017, Department of Pharmacology, VUMC, Nashville, TN.
4. 'Development of M_5 Muscarinic Acetylcholine Receptor Negative Allosteric Modulators for the Treatment of Opioid Use Disorder', December 8th, 2017, Biomedical Science Advisory Board meeting, VUMC, Nashville, TN.

5. 'Development of New Alzheimer's Disease drug', February 9th, 2018, Vanderbilt University Board of Trust Strategic Session Technology Advancement and Commercialization at Vanderbilt, VU, Nashville, TN.

6. 'Utility of M_5 Negative Allosteric Modulators for the Prevention of Opioid Use Disorder', September 13th, 2018, Flexner Discovery Lecture, VU, Nashville, TN.

Invited Presentations:

1. 'The Role of Muscarinic Cholinergic Receptors in Prepulse Inhibition of the Acoustic Startle Reflex: Implications for Schizophrenia,' October 17th, 2001, Lilly Research Laboratories; Eli Lilly and Company, Indianapolis, IN.

2. 'Does Antisense Make Sense in the CNS,' September 23rd, 2003, Lilly Research Laboratories; Eli Lilly and Company, Indianapolis, IN.

3. 'The Utility of RNA Inhibition Technologies in the CNS: Optimizing Experimental Design for In Vivo Activity,' January 25th, 2004, 37th Winter Conference on Brain Research, Copper Mountain, CO.

4. 'Modulation of the Basal Ganglia by Metabotropic Glutamate Receptors: Potential Novel Approaches for the Treatment of Parkinson's Disease,' September 23rd, 2005, 5th International Meeting on Metabotropic Glutamate Receptors, Taormina, Sicily, Italy.

5. 'Potential for Allosteric Activators of M_1 Muscarinic and $mGlu_5$ receptors in the Treatment of Schizophrenia,' March 28th-April 1st, 2007, International Congress on Schizophrenia Research Meeting, Colorado Springs, CO.

6. **'**Potential for Allosteric Activators of M_1 and M_4 Muscarinic Receptors in the Treatment of Schizophrenia,' April 4th, 2008, 2008 Advances in Muscarinic Receptor Pharmacology and Therapeutics Conference, San Diego, CA.

7. 'Allosteric Modulators of mGluRs as a Novel Approach for Treatment of Drug Abuse and other CNS Disorders,' June 19th, 2008, 70th Annual Scientific Meeting of the College on Problems of Drug Dependence, San Juan, Puerto Rico.

8. 'Novel Allosteric Modulators of Metabotropic Glutamate Receptors Subtypes 2 and 5 for the Treatment of Schizophrenia,' September 18th, 2008, 6th International Meeting on Metabotropic Glutamate Receptors, Taormina, Sicily, Italy.

9. 'Discovery of Allosteric Modulators of Metabotropic Glutamate Receptors,' September 24th, 2008, Society of Biomolecular Sciences and European Laboratory Robotics Interest Group, 2008 Drug Discovery Meeting, Bournemouth, UK.

10. 'Allosteric Modulation of GPCRs: Discovery and Development of Selective mAChR Allosteric Ligands,' September 21st, 2010, 3rd RSC/SCI Symposium on GPCRs in Medicinal Chemistry, Oss, The Netherlands.

11. 'VU0152100, a Selective Positive Allosteric Modulator of M_4 Muscarinic Acetylcholine Receptors, produces Antipsychotic-like Activity and Enhancement of Cognition in Rats,' November 14th, 2010, 40th Society for Neuroscience Annual Meeting, San Diego, CA.

12. 'Novel Treatment Approach for PTSD: Enhanced Extinction of Conditioned Fear,' Brainstorm 2011, March 3rd, 2011, Vanderbilt University Health One Hundred Oaks, Nashville, TN.

13. 'Allosteric Modulators of GPCRs as a Novel Approach to the Treatment of Schizophrenia,' March 18th, 2011, Symposium on Drug Discovery for Mental Illnesses, University of Utah, Salt Lake City, UT.

14. 'Novel M_1, M_4, and M_5 Allosteric Modulators for the Treatment of Psychosis and Enhancement of Cognition,' July 14th-18th, 2011, 8th International Brain Research Organization World Congress of Neuroscience, Florence, Italy.

15. 'Novel $mGluR_5$ NAMs: Potential Utility to Treatment in Fragile X Syndrome and Affective Disorders,' October 2-7th, 2011, 7th International Meeting on Metabotropic Glutamate Receptors, Taormina, Sicily, Italy.

16. 'Parkinson Disease: Novel Treatment Strategies,' March 15th, 2012, Brain Awareness Week, Belmont University, Nashville, TN.

17. 'Novel Neuropharmacologic Approaches for the Treatment of Schizophrenia,' March 28th, 2012, 243rd American Chemical Society National Meeting, San Diego, CA.

18. 'Muscarinic Allosteric Modulators for the Treatment of CNS Disorders,' June 1st, 2012, Center for Multidisciplinary Parkinson Research, Lund University, Lund, Sweden.

19. 'Potential Roles for Allosteric Muscarinic Receptor Modulators for the Treatment of Psychiatric and Neurologic Disorders,' June 5th, 2012, 28th International College of Neuropsychopharmacology World Congress, Stockholm, Sweden.

20. 'Update on Allosteric Modulators of mGluR4 for Parkinson's Disease,' October 2nd, 2012, 10th Annual Discovery on Targets Meeting, Boston, MA.

21. 'Selective $mGlu_5$ NAMs for the Treatment of MDD,' December 6th, 2012, 51st Annual Meeting American College of Neuropsychopharmacology, Hollywood, FL.

22. 'Potential Clinical Relevance of Novel Muscarinic Receptor Ligands,' May 7th, 2013, XIV International Symposium on Cholinergic Mechanisms Meeting, Hangzhou, China.

23. 'Academic Drug Discovery at Vanderbilt: Hypothesis Testing for CNS Targets In Vivo,' May 22nd, 2013, Translational CNS Summit, Boston, MA.

24. 'Potential Roles for M_4 Positive Allosteric Modulators for the Treatment of Psychiatric and Neurologic Disorders,' August 18th, 2013, AstraZeneca Translational Sciences Centre, Karolinska Institutet, Sockholm, Sweden.

25. 'Drug Discovery in Academia: Vanderbilt Center for Neuroscience Drug Discovery,' September 9th, 2013, 6th CNS Partnering and Deal Making Conference on Boston, MA.

26. 'Which Muscarinic Receptor Subtypes mediate the antidepressant effects of scopolamine?,' The Neurobiology and Clinical Study of Rapid-Acting Antidepressants Conference, September 16th 2013, Banbury Center at Cold Spring Harbor Laboratory, NY.

27. 'M_4 Positive Allosteric Modulators for the Treatment of Neuropsychiatric Disorders,' October 3rd, 2013, Friedman Brain Institute, Icahn School of Medicine at Mount Sinai, New York, NY.

28. 'Where Do I go from Here? Navigating the Undergraduate to Graduate Transition,' November 13th, 2013, NIBIB/NIDA pre-ABRCMS Meeting Workshop, Annual Biomedical Research Conference for Minority Students, Nashville, TN.

29 'Allosteric Modulators of GPCRs as a Novel Approach to Treatment of CNS Disorders,' April 28th, 2014, Annual Meeting 2014 American Society of Pharmacology and Experimental Therapeutics, San Diego, CA.

30. 'Sleep disturbances Associated with Neuropsychiatric Disorders,' April 28th, 2014, Annual Meeting 2014 American Society of Pharmacology and Experimental Therapeutics, San Diego, CA.

31. 'Potential Utility of Full and Partial $mGlu_5$ NAMs in Substance Abuse Disorders,' January 28th, 2015, 48th Annual Winter Conference on Brain Research, Big Sky, Montana.

32. 'Approaches Toward the Identification of Rodent Models of ASD Suitable for Use in Lead Optimization Efforts,' March 25th, 2015, 249th National Meeting of the American Chemical Society in Denver, CO.

33. 'Developing Novel Therapeutics for Parkinson's Disease,' March 30th, 2015, Annual Meeting 2015 American Society of Pharmacology and Experimental Therapeutics, Boston, MA.

34. 'Development of Selective M_4 Allosteric Modulators for Schizophrenia,' April 14th, 2015, Department of Neurobiology and Anatomical Sciences, University of Mississippi Medical Center, Jackson, MS.

35. 'Development of Selective M_4 PAMs for Neuropsychiatric Disorders,' October 2nd, 2015, Department of Pharmacology & Toxicology, University of Toronto, Toronto, Ontario Canada.

36. 'Novel Therapeutics for Autism Spectrum Disorder,' November 23rd, 2015, Neurogenetics at Duke Colloquia, Duke School of Medicine, Durham, NC.

37. 'Effects of Selective Negative Allosteric Modulators of mGlu Receptors in Preclinical Models of Acute and Chronic Stress and Anhedonia,' May 12th, 2016, 71st Society for Biological Psychiatry Meeting, Atlanta, GA.

38. 'Lessons Learned in Building an Academic Drug Discovery Center: Selective M_4 PAMs for Schizophrenia,' May 23rd, 2016, VirginiaBrainRx: A Symposium on Drug Discovery for the Brain, Richmond, VA.

39. 'Development of Selective mGlu Ligands for Substance Use Disorders', September 18th, 2016, 29th European College of Neuropsychopharmacology Congress, Vienna, Austria.

40. 'Development of Selective Allosteric Muscarinic PAMs and NAMs for Neuropsychiatric Disorders,' December, 16th, 2016, Center for Addiction Research, The University of Texas Medical Branch, Galveston, TX.

41. 'Development of Novel Therapeutics for Autism Spectrum Disorder and Schizophrenia,' March 8th, 2017, Eastern Virginia Medical School Psychiatry and Behavioral Sciences Grand Rounds, Norfolk, VA.

42. 'Precision Treatment of Schizophrenia: Academic Drug Discovery at Vanderbilt,' March 16th, 2017. CEBMMS International Symposium on New Strategies in Precision Medicine, Lund, Sweden.

43. 'Transitions from late Stage Discovery to Development for New Therapeutic Approaches,' March 24th, 2017. Neuroscience Teaching Day, Annual American Association for Geriatric Psychiatry Meeting, Dallas, TX.

44. 'Discovery and Development of Selective M_1 and M_4 PAMs for the Treatment of Schizophrenia,' March 27th, 2017. 16th International Congress on Schizophrenia Research Meeting, San Diego, CA.

45. 'Development of M_5 Muscarinic Acetylcholine Receptor Negative Allosteric Modulators for the Treatment of Opioid Use Disorder,' August 21st, 2017, 254th American Chemical Society National Meeting, Washington DC.

46. 'Discovery and Development of the Selective $mGlu_5$ NAM VU0424238 for the Treatment of Major Depressive Disorder,' October 6th, 2017, 9th International Meeting on Metabotropic Glutamate Receptors, Taormina, Sicily, Italy.

47. 'Muscarinic Receptor Regulation of Drug Intake: M5 NAMs for SUD,' October 17th, 2017, Vanderbilt Center for Addiction Research Science Day, Nashville, TN.

48. 'Selective $mGlu_5$ Antagonism Ameliorates Sleep and Behavioral Abnormalities in a Rodent Model of Traumatic Stress,' January 17th, 2018, 51st annual Winter Conference on Brain Research, Whistler B.C., Canada.

49. 'Academic Target Validation and Drug Discovery: Development of M_5 NAMs for Opioid Use Disorder', March 20th, 2018, Pharm 9003 Guest Lecturer, University of Virginia School of Medicine, Charlottesville, VA.

50. 'Opioid Epidemic: How did we get here, strategies to correct this issue', April 23rd, 2018, Civics Club Monthly Meeting, Del Webb at Lake Providence, Mt. Juliet, TN.

51. 'Novel Treatments for Opioid Use Disorders', May 1st, 2018, 36th edition of the National Medicinal Chemistry Symposium, Nashville, TN.

52. 'Optimizing Full and Partial mGlu5 Negative Allosteric Modulators for the Treatment of Depression, Anhedonia, and co-morbid Addiction Use Disorders'. June 17th, 2018, 31st International College of Neuropsychopharmacology World Congress, Vienna, Austria.