

Curriculum Vitae

Christopher A. Lowry, Ph.D.

2/16/24

Office Address

Department of Integrative Physiology
University of Colorado Boulder
354 UCB
Boulder, Colorado 80309-0354
Phone: (303) 492-6029
Fax: (303) 492-0811
Email: christopher.lowry@colorado.edu

Education and Research Training

<i>Degree</i>	<i>Major Area of Study</i>	<i>Date</i>	<i>Institution</i>
Post-doctoral	Behavioral Neuroendocrinology	2002	University of Bristol Bristol, UK
(Project focus: Serotonergic control of physiology and emotional behavior; Supervisor: Stafford L. Lightman, MBBChir, PhD(Cantab), F Med Sci, FmedSci, FRCP, FRS)			
Ph.D.	Zoology	1995	Oregon State University Corvallis, Oregon, USA
(Dissertation: Neurobiology of stress: central actions of corticotropin-releasing factor in an amphibian; Supervisor: Frank L. Moore, Ph.D.)			
B.A.	Zoology (with Honors)	1987	University of Wyoming Laramie, Wyoming, USA

Professional Experience

Professor 2023-present	Department of Integrative Physiology, University of Colorado Boulder
Affiliate Faculty Member 2022-present	Department of Psychology and Neuroscience University of Colorado Boulder
Sabbatical Leave, Spring, 2021	Department of Integrative Physiology, University of Colorado Boulder

Core Faculty Member 2018-present	Center for Microbial Exploration, University of Colorado Boulder http://cme.colorado.edu/
Faculty Member 2018-present	Integrative Psychiatry Institute (IPI)
Member, Board of Directors 2018-present	inVIVO Planetary Health, Group of the Worldwide Universities Network (WUN); now Nova Network: Connecting People Places and Planet
Co-Investigator 2018-present	saNeuroGut, http://www.saneurogut.org/
International Partner Investigator 2017-present	Centre for Nanoscale BioPhotonics (CNBP), ARC Centre of Excellence, funded by the Australian Government, Australian Research Council, http://www.cnbp.org.au/
Faculty, Secondary Appointment 2016-present	Department of Physical Medicine and Rehabilitation, University of Colorado Anschutz Medical Campus
Faculty 2016-present	Center for Neuroscience, University of Colorado Anschutz Medical Campus
Principal Investigator 2015-present	Department of Veterans Affairs Eastern Colorado Health Care System, VA Rocky Mountain Mental Illness Research, Education, & Clinical Center (MIRECC) Denver Veterans Affairs Medical Center (VAMC) christopher.lowry@va.gov
Co-Founder, Co-Director 2015-present	Military and Veteran Microbiome Consortium for Research and Education (MVM-CoRE) http://www.mirecc.va.gov/visn19/mvm/
Sabbatical Leave, Fall, 2014	Department of Integrative Physiology, University of Colorado Boulder
Associate Professor 2013-2023	Department of Integrative Physiology, University of Colorado Boulder
Faculty 2007-present	Center for Neuroscience, University of Colorado Boulder
Assistant Professor 2007-2013	Department of Integrative Physiology, University of Colorado Boulder
Wellcome Trust Intermediate Level Research Fellow 2002-2006	Henry Wellcome Laboratories for Integrative Neuroscience and Endocrinology, University of Bristol

Visiting Scientist 2006	Dr. Miles Orchinik's Lab, School of Life Sciences, Arizona State University
Visiting Scientist 2005	NIMH-sponsored Research Collaboration, Dr. Anantha Shekhar's Lab, Department of Psychiatry and Pharmacology and Toxicology, Arizona State University
Visiting Scientist 2003	Dr. Miles Orchinik's Lab, School of Life Sciences, Arizona State University
Visiting Scientist 2002	NIMH-sponsored Research Collaboration, Dr. Miles Orchinik's Lab, Department of Biology, Arizona State University
Neuroendocrinology Charitable Trust Research Fellow 2002	University Research Centre for Neuroendocrinology, University of Bristol
Visiting Scientist 2001	NIMH-sponsored Research Collaboration, Dr. Miles Orchinik's Lab, Department of Biology, Arizona State University
Visiting Scientist 2000	NIMH-sponsored Research Collaboration, Dr. Joe DiMicco and Anantha Shekhar's Labs, Department of Pharmacology and Toxicology, Indiana University Purdue University at Indianapolis (IUPUI) Medical School

Research Program

Dr. Lowry's research program focuses on understanding 1) stress-related physiology and behaviour with an emphasis on the microbiome-gut-brain axis, including the role of serotonin, a chemical signaling molecule in the body and the brain, and 2) neural mechanisms underlying anxiety disorders, mood disorders, and trauma- and stressor-related disorders, such as posttraumatic stress disorder (PTSD), as well as development of novel strategies for both the prevention and treatment of these disorders and their medical comorbidity, such as allergy, asthma, and inflammatory bowel disease. He has published ~257 peer-reviewed articles and is currently an editorial board member for *Stress: The International Journal on the Biology of Stress*, and *Brain, Behavior, and Immunity*, and *Brain, Behavior, and Immunity—Health*. The National Center for Complementary and Integrative Health (NCCIH) and Office of Naval Research, Department of Veterans Affairs Office of Research and Development (VA-ORD), currently fund his research.

Other Experience

Service on NIH, NSF, NASA, DOD, and VA study sections

NSF Division of Integrative Biology and Neuroscience (IBN) Neuroendocrinology, ad hoc member, 2002
 NSF Integrative Organismal Systems (IOS), Modulation, Neural Systems Cluster Panel, ad hoc member, 2002, 2006, 2007, 2009, 2016
 NSF Integrative Organismal Systems (IOS), Modulation Panel, member, 2008, 2009, 2010, 2014
 NIH Neurobiology of Motivated Behavior (NMB) study section, ad hoc member, June 7-8, 2012
 NIH Special Emphasis Panel in response to RFA-MH-15-850, Gut-Microbiome-Brain Interactions and Mental Health (R21/R33), ZMH1 ERB-M (02) R meeting, March 11, 2015

NIH Special Emphasis Panel/Scientific Review Group 2015/10 ZRG1 Integrative, Functional, and Cognitive Neuroscience IRG (IFCN-Z) (02) M, ad hoc member, June 16, 2015

NASA Behavioral Health and Performance NASA Specialized Center of Research review panel consisting of proposals received in response to the recent NASA Human Exploration Research Opportunities (HERO) research call, March 1, 2017

Army Research Office (ARO), Presidential Early Career Award for S&E's (PECASE), June 1, 2018

NIH Special Emphasis Panel (SEP), ZRG1 IFCN-L(02), Member conflict, Integrative Neuroscience, meeting on July 12, 2018

MHBA (Mental Health) study section, Tuesday, December 3, 2019 in Washington DC. (declined)

Army Research Office (ARO), Broad Area Announcement, ad hoc member, January 17, 2020

NIH, Neurobiology of Motivated Behavior study section, ad hoc member, February 27-28, 2020 (declined)

NIH, NCCIH, Training and Education Review Panel (CT) Special Emphasis Panel/Scientific Review Group 2020/05 ZAT1 JM (07) L, ad hoc member, March 26, 27, 2020

NIH, Biobehavioral Mechanisms of Emotions, Stress, and Health (MESH) study section, ad hoc member, June 25-26, 2020 (declined)

Neurotoxicology and Alcohol Study Section (NAL), ad hoc member, October 22 and 23, 2020, <https://public.csr.nih.gov/StudySections/DNDA/IFCN/NAL> (declined)

Special Emphasis Panel/Scientific Review Group 2021/05 NMB meeting, ad hoc member, March 4-5, 2021.

NIH, NCCIH, 2021/08 ZAT1 SM (61) 2, Loan Repayment Program Review, Clinical Research (L30), ad hoc member, April 23, 2021

NASA TRISH Biomedical Research Advances for Space Health (BRASH) May 27-June 11 (declined)

NIH, NIMH, Panel in response to NIH Pathway to Independence Award (K99/R00) program announcements (PAR-19-343, PA-20-188, PA-20-187, PA-20-189), NIMH Special Emphasis Panel, ZMH1 ERB-Q (07), Member. July 7, 2021

NIH, Natural Product Early Phase Clinical Trial Award Special Emphasis Panel, Ad hoc member, November 30, 2021

NIH, NIMH, NIH Pathway to Independence Award (K99/R00) (PA-20-188) panel, March 14-25, 2022 (declined)

NIH, DBD panel, February 10 and 11, 2022 (declined)

NIH, DBD panel, June 8-9, 2022 (declined)

Clinical Science Research and Development Service (CSR&D) at the Department of Veterans Affairs Office of Research and Development (ORD), MHBP Merit Review panel, June 1, 2022 (declined)

NIH/NCCIH Natural Product Early Phase Clinical Trial Award Special Emphasis Panel (PAR20-217 / PAR-20-218), September 30, 2022, 8 a.m.-12 p.m. MDT

Traumatic Brain Injury – Post-Traumatic Stress Disorder (TBI-PTSD) peer review panel of the FY22 Traumatic Brain Injury and Psychological Health Research Program (TBIPHRP) for the Department of Defense (DoD) Congressionally Directed Medical Research Programs (CDMRP) panel, November 17-18, 2022. (declined)

DoD/CDMRP, Focused Program Award – Post Traumatic Stress Disorder (FP-PTSD) peer review panel of the FY22 Traumatic Brain Injury and Psychological Health Research Program (TBIPHRP), part of the Congressionally Directed Medical Research Programs (CDMRP), February 9-10, 2023 (declined)

NIH MESH, February 22, 23, 2023, <https://public.csr.nih.gov/StudySections/DABP/BBBP/MESH>. (declined)

NIH, Biobehavioral Mechanisms of Emotions, Stress, and Health (MESH) panel, June 28, 29, 2023 (declined)

NIH/NCCIH Early Phase Clinical Trials of Natural Products (NP), ZAT1 SH (11), July 12th, 2023

NIH, Neurobiology of Motivated Behavior (NMB) study section, November 2 - 3, 2023

NIH/NCCIH Training and Education Review Panel, 10am-4pm EST November 7th and 10am-2pm EST November 8th (declined)

NIH/NCCIH Training and Education Review Panel, 10am-4pm EST March 7th and 8th, 2024 (declined)

NIH, NCCIH, “Exploratory Clinical Trials of Mind and Body Interventions” panel. This panel will review R01 (PAR-21-241), and R34 (PAR-21-240), applications. Thursday, February 29th, 2024, 10 am-5 pm and Friday, March 1st, 2024, from 10am-3pm EDT (declined).

Reviewer for other local, national and international agencies and foundations

The Wellcome Trust Project Grants, grant reviewer, 2003, 2005

Biotechnology and Biological Sciences Research Council (BBSRC) Animal Sciences Committee, UK, ad hoc member, 2005, 2008, 2010, 2015

The Wellcome Trust Programme Grants, grant reviewer, 2006

The Israel Science Foundation, grant reviewer, 2006, 2007

Medical Research Council (MRC), UK, grant reviewer, 2007, 2009

National Medical Research Council (NMRC), national funding agency under the Ministry of Health, Singapore, grant reviewer, 2007, 2015, 2019

Neurological Foundation of New Zealand, 2007

Alzheimer’s Association International Research Grant Program, grant reviewer, 2008, 2013

Biotechnology and Biological Sciences Research Council (BBSRC) Biochemistry & Cell Biology (BCB) Committee, UK, ad hoc member, 2008

Science Foundation Ireland, grant reviewer, 2008

Multiple Sclerosis Research Australia (MSRA), grant reviewer, 2009

Ontario Mental Health Foundation, Toronto, Ontario, Canada, grant reviewer, 2009

French National Research Agency (ANR), Open Research Area (ORA) for the Social Sciences in Europe, grant reviewer, 2010

French National Research Agency “Blanc SVSE 1 “, grant reviewer, 2010

M. J. Murdock Charitable Trust, Murdock College Research Program for Life Sciences, grant reviewer, 2010

Netherlands Organisation for Scientific Research, grant reviewer, 2010

Research Corporation for Science Advancement, grant reviewer, 2010

European Research Council (ERC), grant reviewer, 2013

Swiss National Science Foundation Grant Reviewer, 2012, 2014, 2015, 2016, 2019, 2020

Danish Council for Independent Research, DFF-MOBILEX mobility grant reviewer, Denmark, 2015

National Council for Scientific and Technological Development (CNPq), National Institutes of Science and Technology (INCT) Program Grant reviewer, Brazil, 2015

New Jersey Autism Center of Excellence (NJ ACE) FY16 grant program, 2016: Basic Science Research on Autism Pilot

CCTSI 2017 CO-Pilot and CNS-Pilot Review Panel, December 2, 2016

Brain Research Foundation’s Fay/Frank Seed Grant internal competition reviewer, November, 22, 2016

New Jersey Autism Center of Excellence (NJ ACE) FY17 grant program, 2017: Basic Science Research on Autism Pilot

State of New Jersey, Department of Health. The Governor’s Council for Medical Research and Treatment of Autism, Autism (Pilot Projects) 2019, Grant reviewer, January 10, 2019

Harvard Chan – NIEHS Center for Environmental Health semi-annual pilot project competition, Grant reviewer, May 31, 2019

Scientific Research Area of Fondazione Cariplo, <http://www.fondazionecariplo.it/en/index.html> September 18, 2019

State of New Jersey, Department of Health. The Governor’s Council for Medical Research and Treatment of Autism, Autism (Pilot Projects) 2019, Grant reviewer, January 10, 2019

State of New Jersey, Department of Health. The Governor’s Council for Medical Research and Treatment of Autism, Autism (Pilot Projects) 2020, Grant reviewer, January 28-29, 2020

Health Research Board (HRB) Ireland, Definitive Intervention and Feasibility Awards Full 2020, August 28, 2020, declined

Beckman Scholars Program Advisory Panel, September 13/14; November 9/10 (declined)

Grant reviewer, National Science Center, Poland, September 27, 2021 (declined)

Science Foundation Ireland (SFI) Research Centre APC Microbiome Ireland review, December 7-9, 2021 (declined)

VA ORD MHBA Panel, Ad hoc member, November 30, 2021 (declined)

Swiss National Science Foundation, July 14, 2022 (declined)

Health projects in the France-Chili collaboration of the French-chilean ECOS-ANID exchange program (on behalf of the Ministries of Foreign affairs and Research and Education), July 12, 2022, (declined)

Human Frontier Science Program 2023 Postdoctoral Fellowship, October 10, 2022 (declined)

Biotechnology and Biological Sciences Research Council (BBSRC) Animal Sciences Committee, UK, ad hoc member, 2023 (declined due to previous commitments)

2023 Research & Innovation Innovative Seed Grant Review Panel, March 3, 2023

Steering committee for the 2023 Front Range Microbiome Symposium

Grant reviewer for National Science Center, Poland (declined due to previous commitments)

Editorial boards

Invitation to serve on editorial board of Microorganisms, Gut Microbiota Section (MDPI), January 19, 2023 (declined due to previous commitments)

Invitation to serve on the Editorial Board of Biomedicines, September 12, 2022 (declined due to previous commitments)

Invitation to Associate Editor, Frontiers in Psychiatry, Molecular Psychiatry, April 5, 2022 (declined due to previous commitments)

Editorial Board, Editorial Board of *Molecular Psychiatry* as Review Editor for *Frontiers in Psychiatry*, invited November 10, 2020

Editorial Board, Editorial Board of *Aging Psychiatry* as Review Editor for *Frontiers in Psychiatry*, invited September 14, 2020

Brain, Behavior, and Immunity Health, Editorial Board, Member, July 26, 2019-present

Brain, Behavior, and Immunity, Editorial Board, Member, April 16, 2018-present

Stress: The International Journal on the Biology of Stress, Editorial Board, Member, 2011-present

Journal of Alzheimer’s Disease, Associate Editor (2021-present)

Memberships, Honors¹, Awards

Memberships

Society for Neuroscience, 1990-present

J.B. Johnston Club for Evolutionary Neuroscience, 1994-present

International Society for Serotonin Research, 2002-present

¹ For service on non-NIH/NSF grant review committees, see Service section

Sigma Xi, The Scientific Research Society, 2010-present
International Behavioral Neuroscience Society, 2013-present
Public Responsibility in Medicine and Research (PRIM&R), 2014-present
Member, Board of Directors, inVIVO Planetary Health Nonprofit Organization, 2019-present
Member, Integrative Psychiatry Institute (IPI),
The Foundation for Young People's Mental Health (YPMH), participant in Briefing and Innovation workshops, November 17-December 17, 2020-present
Member, Psychiatric Genomics Consortium (PGC), PGC PTSD Microbiome workgroup, 2020-present; <https://www.med.unc.edu/pgc/pgc-workgroups/post-traumatic-stress-disorder/>
Member, Board of Directors, Trails Please Foundation Nonprofit Organization, 2021-present
Member, Steering Committee for the 2023 Front Range Microbiome Symposium

Honors

University of Wyoming Honors and Scholars Program, 1983-1987
Phi Beta Kappa Honor Society, 1987
University of Wyoming Honors, 1987
Scottish Rite Foundation of Wyoming, Floyd Holland Memorial Scholarship, 1987
Shirley B. Rennard Memorial Scholarship, 1987
Neuroendocrinology Charitable Trust Fellowship, UK, 2001-2002
Wellcome Trust Intermediate Level Research Career Development Fellowship (RCDF), 2002-2006
NSF Division of Integrative Organismal Systems, Modulation study section, Member, 2008-2010, 2014
Member, Human Affectome Project Task Force, Fear, 2016-present, <http://www.neuroqualia.org/taskforce.php>
Mary Murphy Endowed Lecture in Biology, Department of Biology, Clarke University, Dubuque, IA, USA, April 28, 2017
Contributing member of 'F1000Prime', *Neural Homeostasis Section*, invitation from Tracy Bale and Alan Sved, since June 1, 2017
The Brain and Behavior Research Foundation 2017 Meet The Scientist Webinar series. The microbiome and mental health. 2 p.m. ET, December 12, 2017. <https://vimeo.com/225144141>
Dean's Distinguished Seminar Speaker, Rowan University, April 13, 2018
LEED Indoor Environmental Quality Technical Advisory Group (EQ TAG). U.S. Green Building Council | usgbc.org, <https://www.usgbc.org/volunteer/leed-committees>; July 25, 2022, declined

Awards

Shirley B. Rennard Memorial Scholarship, 1987
Scottish Rite Foundation of Wyoming, Floyd Holland Memorial Scholarship, 1987
Sigma Xi Grant-in-Aid of Research, 1992
Individual National Research Service Award, National Institutes of Mental Health, 1992-1994
Rosalind Wulzen-Hugo Krueger Award for Graduate Physiological Research, 1994
Wellcome Trust Research Career Development Fellowship (RCDF), 2002-2006
Journal Prize, Organon UK, the British Association for Psychopharmacology, 2006
Wellcome Trust Value in People Award, The Wellcome Trust, UK, 2006
NARSAD Young Investigator Award, 2007-2009
National Science Foundation CAREER Award, 2009-2014
NARSAD Young Investigator Award, 2011-2013
Anxiety Disorders Association of America (ADAA) Donald F. Klein Early Career Investigator Award, 2011

Roy Garstang Memorial Lecture, Colorado Chapter of Sigma Xi, The Scientific Research Society, Chapter Awards Reception, April 13, 2015
 University of Colorado Boulder Provost's Faculty Achievement Award (tenured faculty), 2016
 2016 Research Highlights: Top 10 Advancements & Breakthroughs by Foundation Grantees in 2016. Brain & Behavior Research Foundation. <https://bbrfoundation.org/2016-research-highlights>
 Department of Integrative Physiology Excellence in Service Award, (2018-2019)

Grants

<i>Active</i>	Period	Direct Costs
Individual Investigator Awards		
Mountain West Microbiota Consortium Seed Grants Diet and microbiome interactions: application in posttraumatic stress disorder (D-MAPS). Matthew Bettini (University of Utah) PI, Christopher A. Lowry (CU Boulder) Co-I, Tiffany Weir, CSU (Co-I), \$33,000. January 1, 2024-December 31, 2024.	2023-2024	\$33,000
Lab Venture Challenge , Christopher Lowry (Integrative Physiology, PI) Christopher Stamper (Co-I), Adam Bohr (Co-I), with Mycobacteria Therapeutics Corporation (MTC; MycoTX), November 8, 2023, \$125,000. https://www.colorado.edu/venturepartners/lab-venture-challenge		\$125,000
A&S Dean's Innovation Fund Proposal: Improved STEM Mentoring for under-represented graduate students at CU-Boulder Proposers: Andrew Cowell, Director, Center for Native American and Indigenous Studies (CNAIS); Christopher Lowry, IPHY; Dana Stamo, STEM Routes, Bio Engineering; Saydie Sago, CNAIS and IPHY https://www.colorado.edu/asmagazine/2023/01/12/deans-innovation-fund-awards-317896-grants https://www.colorado.edu/asmagazine/sites/default/files/attached-files/improved_stem_mentoring_for_under-represented_graduate_students_at_cu-boulder.pdf https://www.colorado.edu/studentgroups/stemroutes/native-indigenous-mentorship-program	2023-2024	\$8,440
The Stanford Program for Integrated Neuroscience Technologies (SPrINT) , in collaboration with the NIH Brain Initiative, Pilot Project, Effects of 10(Z)-hexadecenoic acid on high-fat diet-induced neuroinflammation and anxiety-like behavior in mice. Luke Desmond (PI); Christopher Lowry (Co-PI)	2022-2023	N.A.
Institute of Cannabis Research, Colorado State University Pueblo , Preventative and treatment effects of broad-spectrum	2022-2025	\$293,908

cannabidiol (CBD) in a rat model of comorbid autism and epilepsy: A mechanistic study, \$367,753, Lowry, Christopher A. (PI); Barth, Daniel (Co-PI); Reuter, Jon (Co-PI). 10/1/22 to 9/30/25

LEAP Associate Professor Growth Grant. Advancing our understanding of the etiology and pathophysiology of posttraumatic stress disorder (PTSD): focus on development of effective countermeasures. Submitted 03/01/2022. Awarded, July 1, 2022-June 1, 2023, \$8,436.	2022-2023	\$8,436
FY 2023 Research & Innovation Seed Grant Broad-spectrum Cannabidiol (CBD) as a prevention/treatment of neuroinflammation in a rat model of comorbid autism and epilepsy. Lowry (PI); Barth (Co-PI); Reuter (Co-PI) submitted 01/28/2022. Period of award, July 1, 2022 – December 31, 2023. https://www.colorado.edu/researchinnovation/research-development/funding/rio-funding-opportunities-competitions/seed-grant-winners-2022	2022-2023	\$49,885
Institute for Cannabis Research (ICR) FY22 Cannabis Research Award Opportunity , Microbiome-mediated effects of Cannabis and CBD on neuronal molecular networks and anxiety, Nichole Reisdorph (PI), Catherine Lozupone (Co-I), Christopher Lowry (Consultant), Lisa Brenner (Consultant), due February 1, 2021 by 5 p.m. https://www.csupueblo.edu/institute-of-cannabis-research/research/funding-opportunity.html	2021-2023	N.A.
NSF ICORps , Mycobacteria Therapeutics Corporation Customer Discovery and Business Development	2021-2022	\$50,000
NRT-HDR: Integrated Data Science (Int dS): Teams for Advancing Bioscience Discovery project , (Award number: 2022138) Thomas Cech (PI), July 7, 2020-August 31, 2025, \$3,000,000, Faculty Participant	2020-2025	\$3,000,000
NIH NCCIH R01 (R01AT010005) , Biological signature and safety of an immunomodulatory probiotic intervention of Veterans with PTSD. Lisa A. Brenner (PI); Christopher A. Lowry (PI). PA-18-902, submitted March 5, 2019. https://grants.nih.gov/grants/guide/pa-files/pa-18-902.html ; CU Boulder subcontract, \$484,605	2020-2025	\$484,605
Deutsche Forschungsgemeinschaft (DFG) <i>Mycobacterium vaccae</i> immunization: Inducing resilience to stress during pregnancy in the dam and protecting her offspring. David Anthony Slattery (PI), Frankfurt am Main, Germany; Stefan Oskar Reber (PI), Ulm, Germany; Christopher A. Lowry (Collaborator), 07/01/19-06/30/22, €112,959; CU Boulder subcontract, €13,360.	2020-2023	€13,360

NIH NCCIH STTR (1R41AT011390) Lead compound discovery from proprietary mycobacterial strains for treatment of PTSD. Adam Bohr (PI), Christopher A. Lowry (Subcontract-PI). \$650,000	2020-2023	\$650,000
OEDIT Advanced Industries Accelerator Program (CTGG1-2020-3064) Lead compound discovery from environmental mycobacteria strains for treatment of PTSD. AI TTO POC FY20-1 Full Application: https://oedit.secure.force.com/oedit/PtGrantProgram?id=a1R14000003goNG . \$150,000, 7/1/2020 – 6/30/2021	2020-2021	\$150,000
NIH, NIA R01 (5R01AG062716-03) Targeting age-related neuroinflammation and postoperative cognitive decline: a microbial-based approach. Fonken, Laura K, (PI), Lowry (Consultant), 04/01/20-03/31/25.	2019-2025	\$317,050
I-Corps@CCTSI Customer Discovery Seed Grant (IIP 2051920). Colorado Clinical and Translational Sciences Institute. University of Colorado Anschutz Medical Campus Christopher A. Lowry (PI)	2019	\$2,500
Laureate Institute for Brain Research (LIBR) Investigating Floation-REST as a novel technique for reducing anxiety and depression. Christopher A. Lowry (PI)	2019-2021	\$88,924
2018 Research & Innovation Seed Grant Competition Global survey of environmental mycobacteria for prevention and treatment of inflammatory disease. Christopher A. Lowry (PI), Noah Fierer (Co-PI), Rob Dunn (Collaborator), Jennifer Honda (Collaborator).	2018-2019	\$50,000
NIMH R21 (1R21MH116263A-01) <i>Mycobacterium vaccae</i> and stress resilience: Neural mechanisms. Lowry, Christopher A. (PI); Maier, Steven (PI); Frank, Matthew (PI); Fonken, Laura (Co-I).	2018-2020	\$275,000
AALAS Grants for Laboratory Animal Science (GLAS), Multicentric evaluation of the effects of altitude on rat behavioral research. Jon Reuter, MPVM, DVM, ACLAM (PI), Mathias Leblanc, DVM, ACLAM, PhD (Co-I), Sean Adams, DVM, ACLAM, PhD (Co-I), Christopher A. Lowry, PhD (Co-PI).	2017-2019	\$50,000
Veterans Affairs, Intergovernmental Personnel Act (IPA) Christopher A. Lowry (PI)	2017-2019	\$26,009

Veterans Affairs, Intergovernmental Personnel Act (IPA) Jared Heinze (PI)	2017-2019	\$67,465
Alfred P. Sloan Foundation. Longitudinal assessment of the influences of the outdoor and indoor environments and human occupants on the MoBE in a cohort of Air Force Cadets. Grant 7077. Christopher A. Lowry (PI), Andrew J. Hoisington (Multiple PI), Lisa A. Brenner, Jack A. Gilbert, Kerry A. Kinney, Teodor T. Postolache (Co-Is).	2016-2019	\$516,490
Office of Naval Research (ONR) Multidisciplinary University Research Initiative (MURI) Award, Award No. N00014-15-1-2809 Host/gut microbiota response to stressors: informing resiliency (Co-I; subcontract PI; 100%, 2 months summer) (PI, Kenneth Wright)	2015-2022	\$7,489,280
Co-Investigator Awards		
VA RR&D SpiRE Award (1I21RX003894-01) Investigation of an optogenetic vagus nerve stimulation device in an animal model of post-traumatic stress disorder. Fontaine, Arjun (PI), Weir, Richard (PI), Caldwell, John (Co-I), Brenner, Lisa (Co-I), Bahraini, Nazanin H (Co-I), Lowry, Christopher (Co-I), January 1, 2020-December 31, 2024.	2022-2026	N.A.
VA Merit Award, (BX-21-007) (CX-21-007) BLRD and CSRD Collaborative Merit Review Award (BCCMA) (I01); BCCMA Targeting Gut Microbiome in Gastrointestinal and Liver Diseases in US Veterans; CMA4: At the Crossroads of the Gut Microbiome, Cirrhosis, and PTSD. Jasmohan Bajaj, Virginia Commonwealth University and McGuire VAMC (PI); Alexander Khoruts (Co-I); Dr. Ryan Balfour Sartor (Co-I); Dr. Huiping Zhou (Co-I); Dr. Phillip Hylemon (Co-I); Dr. Lisa Brenner (Co-I); Dr. Christopher Lowry (Co-I).	2022-2027	\$67,205 (Rocky Mountain MIRECC)
VA CSR&D Merit (Postolache) Suicide risk modification by statin prescriptions in US Veterans with common inflammation-mediated clinical conditions—a controlled, quasi randomized epidemiological approach The major goals of this project are to: 1) investigate if immune-mediated conditions (IMCs) and traumatic brain injury (TBI) interact synergistically in elevating suicide risk; 2) test if statins, often prescribed medications with known anti-inflammatory properties, reduce the hazards of suicide; and 3) uncover for whom the statins are most beneficial in attenuating the risk for suicide. Role: Consultant Impact score: 123; percentile: 1.6	2022-2027	As needed

NIH (NCCIH) R34 (R34AT011221-01A1) , Investigating an integrated whole-body hyperthermia (WBH) and behavioral treatment for major depressive disorder. Ashley Mason (PI); Rick Hecht (PI); Charles Raison (Consultant); Christopher Lowry (Consultant).	2021-2024	\$450,000
NIH (NIAAA) K23 (K23AA028238-01A1) , (Karoly) Exploring the effects of cannabinoids on alcohol consumption and the microbiota-gut-brain axis. The major goal of this observational study is to inform our understanding of the risks and potential harm-reduction benefits of cannabis among heavy drinkers by investigating the effects of THC in legal-market cannabis on acute and daily alcohol consumption, AUD symptoms, and MGBA function among heavy drinking, regular cannabis users. Role: Co-Mentor	2021-2026	As needed
Undergraduate Research Opportunities Program (UROP) Team Grant , Summer 2021, Host/gut microbiota response to stressors: informing resiliency. Christopher A. Lowry (PI)	2021	\$3,000
NIH T32 (HL149646) , Transdisciplinary training in sleep and circadian rhythms. Wright (PI), Lowry (Participating training faculty member). https://www.colorado.edu/iphy/research/sleep-and-chronobiology/t32-training-grant ; https://www.colorado.edu/iphy/research/sleep-and-chronobiology/t32-training-grant/training-faculty	2020-2025	\$109, 938
MINDSOURCE – Brain Injury Network (CMS IHEA 140755) – Microbiome, inflammation, and gut permeability: the onset of psychiatric conditions among those with acute mild traumatic brain injury (mTBI). Dr. Lisa A. Brenner (PI), Christopher Lowry (Co-I), Marian “Emmy” Betz (Co-I), Claire Hoffmire (Co-I), Andrew Hoisington (Co-I), Christopher Stamper (Co-I), Kelly Stearns-Yoder (Co-I), and Teodor Postolache (Co-I). MINDSOURCE Brain Injury Network, Contract IHEA #140755	2019-2021	\$372,529
Camden Health Research Initiative , A novel immunization strategy to combat cocaine addiction. Camden Research Initiative: Application for seed funding to support research at Cooper Medical School of Rowan University in Camden, New Jersey. Thomas M. Keck (PI), Bradford Fischer (Co-PI), Ileana Soto Reyes (Co-PI), Christopher A. Lowry (Consultant)	2019-2021	\$108,475
Understanding Disease Research Focus Areas (RFA) Grant Ready Seed Grant Application, La Trobe University, Melbourne, Australia. (200000243)	2018-2019	\$22,058 AUD

Understanding the behavioural, molecular and neuronal-network effects of antidepressant drugs

Matthew W. Hale (PI), Maarten van den Buuse (Co-I), Michael V. Baratta (Co-I), Christopher A. Lowry (Co-I)

CU Boulder Office of the Senior Vice Chancellor (SVC) & CFO 2017 Innovation Prizes. Shifting culture towards more shared lab equipment in collaborative spaces in Ramaley and Gold/Porter. Kathryn Ramirez-Aguilar, Ph.D., CU Green Labs Program Manager, kramirez@colorado.edu ; Stacey Smith, Ph.D., EBIO Faculty; Scott Taylor, Ph.D., EBIO Faculty; Deane Bowers, Ph.D., EBIO Faculty/Chair; Christopher A. Lowry, Ph.D., IPHY Faculty; Pei-San Tsai, Ph.D., IPHY Faculty; Corrie Detweiler, Ph.D., MCDB Faculty; Bradley Olwin, Ph.D., MCDB Faculty/Associate Chair; Edward von Bleichert, CEFP, FM Sustainability & Resiliency Program Manager	2017-2019	\$95,000
University of Colorado Denver Office of Research Services (ORS) Analysis of the gut microbiome in autoimmune/inflammatory and neurologic disease (MS, FM/CFS, and FXTAS). (CoI), Jim Grigsby (PI)	2017-2019	\$10,000
Office of Naval Research (ONR) Global (N00014-17-S-B001), Promotion of stress resilience by non-invasive immunoregulatory approaches. (Collaborator), Stefan O. Reber (PI)	2017-2019	\$352,427
Office of Research and Development (VA-ORD) Rehabilitation Research and Development (RR&D) Small Projects in Rehabilitation Research (SpiRE) (I21) (1 I21 RX002232-01) Biological signature and safety of an immunomodulatory probiotic intervention for Veterans with co-occurring mild TBI and PTSD. Department of Veterans Affairs. (Co-I) Lisa A. Brenner (PI)	2016-2019	\$200,000
Cancer Prevention and Control (CPC) Program, University of Colorado Cancer Center (UCCC) Is disruption of the human gut microbial environment associated with cognitive impairment following chemotherapy for breast cancer? (Co-I), Kristin Kilbourn (PI), Jim Grigsby (Co-I), Virginia Borges (Co-I), Amy Huebschmann (Co-I); no-cost extension until 9/30/2018	2016-2019	\$25,000

Investigating the prevalence and diversity of nontuberculous mycobacteria (NTMs) across the U.S. Crowd-funded project with (Collaborator) Noah Fierer (PI) and Rob Dunn

<http://robdunnlab.com/projects/showerheads/>

Colorado Department of Public Health and Environment, Medical Marijuana Research Grant Program Placebo- controlled blinded, randomized, crossover multi-site study of the safety and efficacy of four potencies of smoked marijuana among 80 veterans with chronic posttraumatic stress disorder (PTSD), DCEED-3510 (Sub-I) (PI, Marcel O. Bonn-Miller)	2015-19	\$72,379
Collaborator Awards		
Mechanisms of autonomic brainstem development NIH NS086413 (Collaborator) (PI, Pat R. Levitt)	2014-2017	N.A.
Sponsor of Individual Career Development Awards		
Postdoctoral Individual Career Development Awards		
Supervision of Sylvana Isaura S. Rendeiro de Noronha, Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES), Programa de Doutorado Sanduíche No Exterior (PDSE). Universidade Federal de Ouro Preto (UFOP)	2017-18	N.A.
Supervision of Dr. Odessa M. Gomez, Alfred P. Sloan Foundation Postdoctoral Fellow	2016-2017	N.A.
Supervision of Dr. Paula Yamashita, Brazilian National Council for Scientific and Technological Development (CNPq). Postdoctoral abroad (Pós-Doutorado no Exterior – PDE)	2014- present	\$59,493
Supervision of Dr. Melissa Scotti, NIMH Postdoctoral NRSA 1 F32	2013-2014	N.A.
Supervision of Dr. Jodi Lukkes, NIMH Postdoctoral NRSA 1 F32 MH084463-01A1	2009-2012	N.A.
Graduate Student Individual Career Development Awards		
Supervision of Glaucelino Crivelaro do Nascimento, Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES) SBN, University of São Paulo, Ribeirão Preto	2014	N.A.
Supervision of Bruna Balbino de Paula, Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES) SBN University of São Paulo, Ribeirão Preto	2014	N.A.
Undergraduate Awards	Total of Awards	
Beckman Scholars Program Award, Evan Holbrook	1 award	\$26,000
Beckman Scholars Program Award, Kadi Nguyen	1 award	\$26,000
Biological Sciences Initiative (BSI) Scholars Award	18 awards	\$45,000
BURST Awards (BURST)	34 awards	\$82,488

UROP Assistantships (UROP)	40 awards	\$39,500
UROP Individual Awards (UROP-I)	71 awards	\$119,832
UROP/HHMI Individual Awards (HHMI)	29 awards	\$62,549
UROP Team Awards	4 award	\$14,400
Total:		\$415,769

Rose Summers, for selection as a 2022 Barry Goldwater Scholar.
<https://goldwaterscholarship.gov/>, March 25, 2022

Sponsor of Trainee Awards

Postdoctoral Fellow Awards

Front Range Neuroscience Group, Outstanding Postdoctoral Trainee Poster Presentation Award, Jodi Lukkes, December 8, 2008.

Graduate Student Honors and Accomplishments

Stanford Advanced Techniques in Neuroimaging workshop. Luke Desmond (PI).
<https://med.stanford.edu/sprint/workshops/microscopy-workshops.html>, The Stanford Neuroscience Microscopy Service (A Wu Tsai Neuroscience Institute Community Lab) in collaboration with the Department of Molecular, Cell and Developmental Biology at the University of California Santa Cruz is announcing an Advanced Techniques in Neuroimaging Workshop from 4/15/2024 to 4/19/2024. The workshop aims to provide theoretical and practical knowledge in microscopy techniques for reproducible and cutting-edge neuroscience research.

GEBIN Young Presenter Award (Oral Presentation) at the German-Endocrine-Brain-Immune-Network (GEBIN) Meeting, September 28-30, 2023, in Ulm, Germany, Luke Desmond

Outstanding Poster Presentation Award at the German-Endocrine-Brain-Immune-Network (GEBIN) Meeting, September 28-30, 2023, in Ulm, Germany, Lyanna Kessler

Data Blitz Presentation for CU Sleep and Circadian Summer School, July 30th-August 4, 2023. Dawud, Lamya'a M, Effects of *Mycobacterium vaccae* ATCC 15483, a bacterium with anti-inflammatory and immunoregulatory properties, on negative outcomes following a “two-hit” stressor model of chronic disruption of rhythms and a high-fat diet in male and female C57BL/6N mice. <https://www.colorado.edu/iphy/research/sleep-and-chronobiology/t32-training-grant/summer-school>

2023-2024 American Indian Education Fund (AIEF) Graduate Scholarship to Saydie Sago, \$2,000

2023 Cobell Graduate Summer Research Fellowship to Saydie Sago, a highly competitive national fellowship with five (5) Cobell Fellows awarded each summer from a pool of about 100 applicants each year. Announced May 18, 2023.
<https://cobellscholar.org/>
<https://cobellscholar.org/wp-content/uploads/2023/05/2023-Cobell-Fellowship-Recipients-Announced-Saydie-Sago-PR.pdf>

CU Boulder J. Tour Scholarship in Arts and Sciences, to Andrew Lee (Kyo)

<https://colorado.academicworks.com/opportunities/18028>
Announced May, 8, 2023. \$600

AY23-24 Carol B. Lynch Memorial Fellowship to Lyanna Kessler. Announced April 22, 2023

SymbNET PhD Summer School on Host-Microbe Symbioses 2023, July 2-14, 2023 at Instituto Gulbenkian de Ciência (FCG-IGC), Lisbon, Portugal, to John Sterrett,
<https://symbnet.eu/agenda/symbnet-phd-summer-school-on-host-microbe-symbioses-2023/>.
Announced April 14, 2023

2023 Stanford Neurobehavior Workshop award to Luke Desmond. The Workshop is a week-long, in-person, interactive course on practical, mechanistic, and ethological aspects of behavioral phenotyping, with emphasis on neurodegenerative disease models and drug discovery. Automated tracking, quantification and behavioral classification will be taught by collaborating instructors from the Datta Lab.

There will be a two day kickoff symposium, open to the scientific community, June 24-25 taught by scientists at the forefront of the behavior field.

Topics include: Learning & Memory, Sensory & Motor, Anxiety & Depression, Addiction, and Automated Methods. Announced March 13, 2023

AY 22/23 Flower Family Graduate Student Award in the Beverly Sears & Cynthia H. Schultz Graduate Student Research Grant Program, Saydie Sago, January 11, 2023, \$2,000

A&S Dean's Innovation Fund Proposal:

Improved STEM Mentoring for under-represented graduate students at CU-Boulder

Proposers: Andrew Cowell, Director, Center for Native American and Indigenous Studies (CNAIS); Christopher Lowry, IPHY; Dana Stamo, STEM Routes, Bio Engineering; Saydie Sago, CNAIS and IPHY

<https://www.colorado.edu/asmagazine/2023/01/12/deans-innovation-fund-awards-317896-grants>
https://www.colorado.edu/asmagazine/sites/default/files/attached-files/improved_stem_mentoring_for_under-represented_graduate_students_at_cu-boulder.pdf

Figueroa Family Fellowship AY 22-23, Saydie Sago awarded in recognition of commitment to the achievement of a diverse student body and your work in improving the state of our world and its people. \$1,500. Announced December 23, 2022

IQ Biology Research Award to John Sterrett (\$10,000), October 1, 2022

Institute of Cannabis Research, Colorado State University Pueblo, Emerging Scientist Award for Nathan D. Anderson, \$5,000, Dr. Nichole Reisdorph (PI); Role, faculty mentor.

IQ Biology Research Award to Lyanna Kessler (\$10,000), October 1, 2021

Saydie Sago, Chancellor's Research Innovation Award, September 7, 2021-2022 academic year, \$12,500.

NIH T32 Postdoc award to Dr. Lamya'a Dawud, Transdisciplinary Training in Sleep and Circadian Rhythms Training Grant, entitled, Effects of *Mycobacterium vaccae*, a bacterium with anti-inflammatory and immunoregulatory properties, on negative outcomes following a "two-hit"

stressor model of chronic disruption of rhythms and a high fat diet in male and female C57BL/6N mice. May 1, 2021-April 30, 2023.

Rose Summers, 2022 Barry Goldwater Scholarship and Excellence in Education Program

Saydie Sago Scholarships, 2022-2023 Academic Year

IPHY Diversity Recruitment Initiative Award, Two summers, \$2,649/three months support as RA. Awarded August 10, 2021-September 9, 2023.

Native American Research Center for Health Fellowship, \$2,500 max/month, \$25,000 for academic year 2022-2023.

Mescalero Apache Tribal Education Scholarship, For enrolled tribal members only, \$5,000 per semester, \$10,000 for the 2022-2023 Academic Year, additional funds (\$200 per semester) are given out for students that have a 3.5 GPA or higher for the semester,
<https://mescaleroapachetribe.com/tribaledu/>

Massachusetts Indian Association Scholarship, \$1,000 per semester, \$2,000 2022-2023 Academic Year, Awarded September 18th, 2022

Catching the Dream Scholar, Lifetime award: \$500 per semester, 2022-2023 Academic Year,
<https://www.catchingthedream.org/>

Center for Native American and Indigenous Studies (CNAIS) Scholarship, Awarded \$1,000 for 2022-2023, Awarded March 25th, 2022

American Indian College Fund Scholarship- El Pomer Scholarship, Awarded \$3,750 for the 2022-2023 year

American Indian Science and Engineering Society (AISES) A.T. Anderson Scholarship, \$2,000/year, \$1,000 semester graduate level scholarship, awarded May 31, 2022

Achievement Rewards for College Scientists (ARCS) Foundation Scholarship, \$7,500 for the academic year, renewable for three years.

Native Forward (formerly AIGC) Science Post Graduate Scholarship, \$15,000/semester, \$30,000 for the year, renews up to four years for a PhD or Professional Degree, Awarded June 1, 2022

Saydie Sago Scholarships, 2021-2022 Academic Year

IPHY Diversity Recruitment Initiative Award, Two summers, \$2,649/three months support as RA. Awarded September 10, 2021.

Native American Research Center for Health Fellowship, \$2,500 max/month, \$25,000 for academic year 2021-2022, Processing renewal (need to start dissertation work to be funded) Before semester starts (August 23rd, 2021)

Mescalero Apache Tribe Scholarship, For enrolled tribal members only, \$5,000 per semester, \$10,000 2021-2022 Academic Year, additional funds (\$200 per semester) are given out for students that have a 3.5 GPA or higher for the semester, <https://mescaleroapachetribe.com/tribaledu/>

Massachusetts Indian Association Scholarship, \$1,000 per semester, \$2,000 2021-2022 Academic Year, Awarded September 18th, 2021

Catching the Dream Scholar, Lifetime award: \$500 per semester, 2021-2022 Academic Year, <https://www.catchingthedream.org/>

Saydie Sago Internship, Summer, 2021

Saydie Sago, Northwest Native American Research Center for Health (NW NARCH) Internship. \$2,000, awarded May 26, 2021

Saydie Sago Scholarships, 2020-2021 Academic Year

American Indian Graduate Scholarship, AIGC Named Graduate Scholarships: The Science Post Graduate Scholarship Fund (Undergraduate and Graduate): \$10,000 per semester, \$20,000, 2020-2021 Academic Year, <https://www.aigcs.org/>.

Cobell Graduate Summer Research Fellowship Program award. Graduate Mentor for Saydie Sago, Submitted January 10, 2020, Awarded \$6,250 per semester, \$12,500, 2020-2021 Academic Year.

Mescalero Apache Tribe Scholarship, For enrolled tribal members only, \$5,000 per semester, \$10,000 2020-2021 Academic Year, additional funds (\$200 per semester) are given out for students that have a 3.5 GPA or higher for the semester <https://mescaleroapachetribe.com/tribaledu/>

Catching the Dream Scholar, Lifetime award: \$250 per semester, \$500 2020-2021 Academic Year, <https://www.catchingthedream.org/>

Massachusetts Indian Association, \$750 per semester, \$1,500 2020-2021 Academic Year

Northwest Portland Area Indian Health Board (NPAIHB) Research Support Fellowship for American Indian/Alaskan Native Graduate Students, sponsored by the Native American Research Centers for Health (NARCH), Northwest Portland Area Indian Health Board, and OHSU Prevention Research, Faculty Mentor for Saydie Sago, Provides funding for American Indian graduate students conducting scientific research supervised under an academic mentor, financial support awarded on an hourly basis (maximum: 20 hours/week) until completion of research. Awarded, \$10,000 per semester, \$20,000 2020-2021 Academic Year.

Mescalero Apache Tribe Travel Scholarship, December 23, 2019, to attend the 2020 inVIVO Planetary Health meeting, Amsterdam, The Netherlands.

Saydie Sago Scholarships, 2019-2020 Academic Year

American Indian Graduate Scholarship, The Science Post Graduate Scholarship Fund (Undergraduate and Graduate): Awarded \$10,000 per semester, \$20,000, 2019-2020 Academic Year. Saydie Sago, <https://www.aigcs.org/>

Catching the Dream Scholar, Lifetime award: \$250 per semester, (\$500, 2019-2020 Academic Year). Saydie Sago, <https://www.catchingthedream.org/>

Mescalero Apache Tribe Scholarship, <https://mescaleroapachetribe.com/tribaledu/>, For enrolled members only: \$5,000 per semester, \$10,000 2019-2020 Academic Year, additional funds (\$200) are given out for student that have a 3.5 GPA or higher for the semester. Saydie Sago

Massachusetts Indian Association Scholarship, \$750 per semester, \$1,500 2019-2020 Academic Year, Saydie Sago

Rocky Mountain Indian Chambers of Commerce- <https://rmicc.org/>, \$2,000, fall, 2019. Saydie Sago

Mescalero Apache Tribe Travel Scholarship, December 23, 2019, to attend the 2020 inVIVO Planetary Health meeting, Amsterdam, The Netherlands. Saydie Sago

United Government of Graduate Students 2019-2020 Graduate Research Excellence Award. Christine Foxx

Lamya'a Dawud, Spring 2020 Outstanding Graduate Defense Award, University of Colorado, Dept. of Integrative Biology. April 28, 2020

United Government of Graduate Students 2018-2019 Graduate Research Excellence Award. M.C. Flux

Neuroscience Research Day 2018 Poster Award, University of Colorado Boulder, October 31, 2018.

Hassell Jr JE, Nguyen KT, Fox JH, Arnold MR, Siebler PH, Lieb MW, Schmidt D, Spratt EJ, Smith TM, Gates CA, Holmes KS, Schnabel KS, Loupy KM, Erber M, Lowry CA (2018) Treatment with heat-killed *Mycobacterium vaccae* enhances fear extinction in the rat fear-potentiated startle paradigm. Program No. 595.08. 2018 Neuroscience Meeting Planner. San Diego, CA, USA: Society for Neuroscience, Online. 2018.

Sigma Xi Grant-in-Aid of Research (GIAR), James Hassell, December 18, 2014, \$700.

2014 Dean's Graduate Student Research Grant. David Smith, November 5, 2014, \$2,588.

2015-2016 Roche/Achievement Rewards for College Scientists (ARCS) Foundation Scholar Award. Philip Siebler, Scholarships for educational expenses for academic year 2015-16. These scholarships are renewable for up to three years or until the ARCS Scholar's date of graduation. August 24, 2015, \$5,000.

2014-2015 Roche/Achievement Rewards for College Scientists (ARCS) Foundation Scholar Award. Philip Siebler, Scholarships for educational expenses for academic year 2014-15. These

scholarships are renewable for up to three years or until the ARCS Scholar's date of graduation. October 3, 2014, \$7,500.

Beverly Sears Graduate Student Grant Award *Mycobacterium*-derived small molecules that modulate host immune responses, David Smith, February 3, 2014, \$1,000.

Front Range Neuroscience Group Oral Presentation Award, Nina Donner, Front Range Neuroscience Group Chapter Meeting, Fort Collins, CO, November 28, 2012. Oral presentation and \$150 award.

Front Range Neuroscience Group Oral Presentation Award, Jodi Lukkes, Front Range Neuroscience Group Chapter Meeting, Fort Collins, CO, December 7, 2011. Oral presentation and \$150 award.

Sigma Xi Grant-in-Aid of Research (GIAR), Nina Donner, December 15, 2010, \$400.

Front Range Neuroscience Group, Outstanding Graduate Student Poster Presentation Award, Nina Donner, December 8, 2010, \$75.

Undergraduate Student Awards

IPHY Undergraduate Research Award Summer 2023, Shifa Gawandi, Announced May 31, 2023, \$2,000

Marshall Scholarship, Marshall Scholarship and plan to use it for a PhD through the departments of clinical neurosciences/stem cell biology & medicine at Cambridge, possibly in concert with the NIH OxCam program. Rose Summers, November 20 2022.

STEM Routes Uplift Program, Effects of *M. vaccae* ATCC 15483 in a rat model of high-fat diet-induced type 2 diabetes. Jamaika Naomi Elliot, day-to-day mentor, Saydie Sago, October 10, 2022-March 22, 2023.

2022 St. Jude Children's Research Hospital Graduate School of Biomedical Sciences National Symposium for Undergraduate Research (NSUR), Travel award to attend the symposium, October 21, 22, 2022, Memphis, Tennessee. Faculty sponsor for Evan Holbrook

2022 St. Jude Children's Research Hospital Graduate School of Biomedical Sciences National Symposium for Undergraduate Research (NSUR) Award, Travel award to attend the symposium, October 21, 22, 2022, Memphis, Tennessee. Faculty sponsor for Caelan Thomas Osborne Wright

National Western Stock Show Scholarship. Faculty mentor for Brandon Middlemist. This is a \$60,000 scholarship divided across the 4 years of medical school for a single student interested in practicing primary care in rural Colorado or Wyoming.
<https://nationalwestern.com/non-profit-mission/scholarship-trust/>

Harvard-Amgen Scholars Program, Rose Summers, Summer, 2022
<https://uraf.harvard.edu/amgen-scholars>
<https://hscrb.harvard.edu/labs/arlotta-lab/>
<https://hsci.harvard.edu/people/tracy-young-pearse-phd>

STEM Routes Uplift Program, Stress resilience effects of *Mycobacterium vaccae* on the gut microbiome, host metabolome, and behavior in adult male rats, Aidan Bryn Clifton, day-to-day mentor, Saydie Sago, October 5, 2021-March 22, 2022.

STEM Routes Uplift Program, Stress resilience effects of *Mycobacterium vaccae* on behavior and biological signatures of neuroinflammation in adult male rats, Aislinn Eve Concha, day-to-day mentor, Saydie Sago, October 5, 2021-March 22, 2022.

STEM Routes Uplift Program, Investigating parasitology of *Mycobacterium vaccae* toward dendritic cells in vitro, Nolan Watts, day-to-day mentor, Lyanna Kessler, October 5, 2021-March 22, 2022.

Bartkus Family Scholarship, Taylor Hirschberg, July 13, 2020, \$4,250.

Sigma Xi Grant-in-aid of Research (GIAR) Andrew (Kyo) Lee, December 15, 2019, Grant ID G20191001105953697, \$1,000.

Sigma Xi Undergraduate Research Award, Faculty sponsor for Thomas Gracie, University of Colorado Chapter, April 13, 2014.

2014 Tenth Anniversary Irene & Eric Simon (IES) Brain Research Foundation Summer Fellowship. Characterization of OCT-3 in the rat dorsal raphe nucleus. Faculty mentor for Piper Williams, \$2,500.

HHMI EXROP Award, Gerardo Lopez-Perez, 10-week fellowship to conduct research on neuronal development with Professor Yuh Nung Jan at the University of California San Francisco, Summer, 2014.

Sigma Xi Undergraduate Research Award, Faculty sponsor for Christopher Brazell, University of Colorado Chapter, April 21, 2014.

Sigma Xi Undergraduate Research Award, Faculty sponsor for Erika Kolisch, University of Colorado Chapter, April 22, 2013.

Sigma Xi Undergraduate Research Award, Faculty sponsor for Brandon Kenneth-Kouso Fields, University of Colorado Chapter, April 22, 2012.

Sigma Xi Undergraduate Research Award, University of Colorado Chapter, Kathleen Dady, April 26, 2011.

Sigma Xi Grant-in-Aid of Research (GIAR), Benjamin Spannuth, December 15, 2010, \$800.

Sigma Xi Undergraduate Research Award, University of Colorado Chapter, Benjamin Spannuth April 21, 2009.

Front Range Neuroscience Group, Outstanding Undergraduate Student Poster Presentation Award, Benjamin Spannuth, November 11, 2009, \$75.

High School Student Awards

N.A.

Sponsor of Trainee Travel Awards

IPHY Fellowship Travel Award, Faculty mentor for Luke Desmond for attendance of the German-Endocrine-Brain-Immune-Network (GEBIN) Meeting, September 28-30, 2023, in Ulm, Germany \$600.

Professional and Academic Conference Endowment (PACE) Funds, Faculty mentor for Ian Rutherford, for attendance at the Society for Neuroscience Meeting, November 11, 2023 to November 15, 2023, Walter E. Washington Convention Center, Washington, DC, \$500.

CSU PASS Travel and Professional Development award, Faculty mentor for Dr. Lamy'a Dawud, for attendance at the German-Endocrine-Brain-Immune-Network (GEBIN) Meeting, September 28-30, 2023, in Ulm, Germany. \$600.

IPHY Travel Fellowship, Faculty mentor for Andrew (Kyo) Lee, Society for Neuroscience 2023, November 11-15, Walter E. Washington Convention Center, Washington, D.C., USA, \$600.

Graduate School Domestic Travel Grant, Faculty mentor for Andrew (Kyo) Lee to present at the 2023 Society for Neuroscience meeting, November 11-15, Washington DC, \$450.

Professional and Academic Conference Endowment (PACE) Award, Faculty mentor for Ian Rutherford, for attendance at the German-Endocrine-Brain-Immune-Network (GEBIN) Meeting, September 28-30, 2023, in Ulm, Germany \$500.

IPHY Travel Fellowship Award, Travel award to attend the PNIRS 2023, June 12-15, Hotel Boulderado, Boulder, CO, USA. 2023, \$600. Faculty sponsor for Nathan D. Anderson.

IPHY Travel Fellowship Award, Travel award to attend the 4th International Conference on Microbiota-Gut-Brain-Axis, 2023 Mind, Mood, & Microbes, May 10-11, 2023, Amsterdam, The Netherlands. 2023, \$600. Faculty sponsor for Lyanna Kessler.

IPHY Travel Fellowship Award, Travel award to attend the PNIRS 2023, June 12-15, Hotel Boulderado, Boulder, CO, USA. 2023, \$600. Faculty sponsor for Luke Desmond.

Professional and Academic Conference Endowment (PACE) Award, Faculty mentor for Aidan Clifton, Travel award to attend the Society for Neuroscience Meeting 2022, San Diego, CA, November 12-16, 2022, \$500. Faculty sponsor for Luke Desmond, submitted 18 August 2022.

Professional and Academic Conference Endowment (PACE) Award, Faculty mentor for PACE, Caelan Thomas Osborne Wright, Travel award to attend the Society for Neuroscience Meeting 2022, San Diego, CA, November 12-16, 2022, \$500. Faculty sponsor for Luke Desmond, submitted 18 August 2022.

Travel Awards for Aislinn E. Concha, Saydie A. Sago, and Caelan T.O. Wright to participate in a Panel Discussion: Ethical engagement, scientific training and research with Indigenous communities. The Many Hosts of Mycobacteria 9 (MHM9) Conference July 11–13, 2022, OSU Infectious Diseases Institute, Columbus, OH, USA. <https://u.osu.edu/mhm9/>

IPHY Travel Fellowship Award, Travel award to attend the Society for Neuroscience Meeting 2022, San Diego, CA, November 12-16, 2022, \$600. Faculty sponsor for Luke Desmond, submitted 18 August 2022.

IPHY Travel Fellowship Award, Saydie Sago for attendance of the Society for Neuroscience meeting, San Diego, CA, USA, November 12-16, 2022, \$600.

Faculty mentor for Saydie Sago, IPHY Travel Fellowship Award, \$600 to attend the NSAS Neuroinflammation Advanced Course, San Servolo, Venice, Italy, May 21-May 28, 2022, \$600 USD.

Faculty mentor for Lyanna Kessler, IPHY Travel Fellowship Award, to attend the NSAS Neuroinflammation Advanced Course, San Servolo, Venice, Italy, May 21-May 28, 2022, \$600 USD.

Faculty mentor for Lyanna Kessler, IQ Biology Travel Award, \$1,000 to attend the NSAS Neuroinflammation Advanced Course, San Servolo, Venice, Italy, May 21-May 28, 2022.

Faculty mentor for Sandra Appiah, Biological Sciences Initiative (BSI) Undergraduate Travel Grant to attend the inVIVO 2020 Meeting, June 18-20, Amsterdam, The Netherlands, \$700 USD.

Faculty mentor for Andrew (Kyo) Lee, inVIVO Planetary Health Meeting Travel Grant, 9th Annual Conference, Amsterdam, The Netherlands, June 17th-20th, 2020, \$1000 AUD, \$633 USD, Awarded February 21, 2020.

Professional and Academic Conference Endowment (PACE) Funds, Faculty mentor for Andrea Arnold, for attendance at the Society for Neuroscience Meeting, October 19-23, 2019, in Chicago, Illinois, USA \$500.

Professional and Academic Conference Endowment (PACE) Funds, Faculty mentor for Stephanie Salazar, for attendance at the Society for Neuroscience Meeting, October 19-23, 2019, in Chicago, Illinois, USA \$500.

Professional and Academic Conference Endowment (PACE) Funds, Faculty mentor for Amalia Luthens, for attendance at the Society for Neuroscience Meeting, October 19-23, 2019, in Chicago, Illinois, USA \$500.

IPHY Travel Fellowship Award, Christine Cho, Society for Neuroscience, San Diego, CA, USA, November 3-7, 2018. \$600.

IPHY Travel Fellowship Award, James Hassell, Jr, Society for Neuroscience, San Diego, CA, USA, November 3-7, 2018. \$600.

IPHY Travel Fellowship Award, Kelsey Loupy, Society for Neuroscience, San Diego, CA, USA, November 3-7, 2018. \$600.

IPHY Travel Fellowship Award, Christopher Stamper, Society for Neuroscience, San Diego, CA, USA, November 12-16, 2016. \$600.

Early Career Workshop on the Microbiology of the Built Environment. Christopher E. Stamper, April 26-29, 2016, Chicago, IL, USA. All travel expenses including airport transfers, flights, accommodation, and meal stipends (for meals that are not provided) will be reimbursed.

Graduate School Domestic Travel Grant (travel between 7/1/2015-12/31/2015), Faculty mentor for Mathew Arnold, Society for Neuroscience, October 17-21, Chicago, IL, USA, \$300.

Colorado Diversity Initiative Travel Grant. James Hassell, 44th Annual Meeting of the Society for Neuroscience, November 14-19, 2014, Washington, DC. \$950.

Institute on Teaching and Mentoring, Compact for Faculty Diversity Institute Travel Grant, James Hassell, Atlanta, GA, USA, October 30-November 2, 2014.

United Government of Graduate Students (UGGS). UGGS Travel Grant, David Smith, Clardy Laboratory, Harvard, Boston, Massachusetts, September 23, 2014, \$300.

8th International Congress of Neuroendocrinology 2014 (ICN2014), Nina Donner, International Neuroendocrine Federation (INF) Travel Grant award, Sydney, Australia, August 17-20, 2014. 500 AUD.

Professional and Academic Conference Endowment (PACE) Funds, Brandon Kenneth-Kouso Fields, Society for Neuroscience Meeting, November 9-13, 2013, in San Diego, CA, \$600.

United Government of Graduate Students (UGGS) Travel Grant, Evan Paul, Society for Neuroscience meeting, San Diego, CA, USA, November 9-13, 2013, \$300.

Society for Neuroscience Chapter Postdoctoral Fellow Travel Award, Nina Donner, Selected as Front Range Neuroscience Group (FRNG) nomination to the Society for Neuroscience Membership & Chapters Committee. Society for Neuroscience meeting, San Diego, CA, November 9-13, 2013, \$1,000 and complimentary registration.

IPHY Travel Fellowship Award, Mathew Arnold, Society for Neuroscience meeting, San Diego, CA, November 9-13, 2013, \$800.

IPHY Travel Fellowship Award, Kathleen Dady, Society for Neuroscience meeting, San Diego, CA, November 9-13, 2013, \$800.

Graduate Student Travel Award from the SfN Professional Development Committee. Nina Donner, Society for Neuroscience Meeting, New Orleans, LA, October 13-17, 2012, \$1,000 and complementary registration.

Professional and Academic Conference Endowment (PACE) Travel Award, Sofia Mani, \$500, Society for Neuroscience Meeting, New Orleans, LA, October 13-17, 2012, \$500.

IPHY Travel Fellowship Award, Philip Siebler, Society for Neuroscience meeting, New Orleans, LA, October 13-17, 2012, \$700.

IPHY Travel Fellowship Award, Christopher Stamper, Neurobiology of Stress Workshop 2012, Philadelphia, PA, June 12-15, 2012, \$700.

International Behavioural and Neural Genetics Society (IBANGS) Travel Stipend, 14th Annual Genes, Brain and Behavior Meeting of IBANGS Boulder, Colorado, USA, 15-19 May 2012, \$145.

International Behavioural and Neural Genetics Society (IBANGS) Travel Stipend, 14th Annual Genes, Brain and Behavior Meeting of IBANGS Boulder, Colorado, USA, 15-19 May 2012, \$145.

IBNS Travel Fellowship, Nina Donner, IBNS 21st Annual Meeting, Sheraton Keauhou Bay, Kailua-Kona, Hawaii, USA, June 5-10, 2012, \$1700.

IPHY Travel Fellowship Award, Nina Donner, Endocrine Society meeting, Boston, MA, USA, June 4-7, 2011, \$700.

IPHY Travel Fellowship Award, Nina Donner, Society for Neuroscience meeting, San Diego, CA, USA, November 13-17, 2010, \$700.

IPHY Travel Fellowship Award, Benjamin Spannuth, Society for Neuroscience meeting, San Diego, CA, USA, November 13-17, 2010, \$700.

Front Range Neuroscience Group, Matthew Hale, Chapter Travel Award, December 8, 2010, \$150.

IPHY Travel Fellowship Award, Evan Paul, Society for Neuroscience meeting, San Diego, CA, USA, November 13-17, 2010, \$700.

Front Range Neuroscience Group Travel Award, Jodi Lukkes, International Behavioral Neuroscience Society (IBNS) meeting, Villisimius, Sardinia, Italy, June 8-13, 2010, \$250.

Brain Travel Grant, Andrew Evans, Society for Neuroscience meeting, Washington, D.C., November 15-19, 2008, £245 GBP (\$420 USD).

Society for Behavioral Neuroendocrinology (SBN) Young Investigator Award, Jodi Lukkes, 13th Annual Meeting of the Society for Behavioral Neuroendocrinology, June 25-27, 2009, East Lansing, Michigan, \$1000.

Brain Travel Award, Katie Gardner, Annual Meeting of the Society for Neuroscience October 23-27, 2004, San Diego, California, £600.

Alumni Foundation Travel Fellowship, Katie Gardner, Annual Meeting of the Society for Neuroscience, October 23-27, 2004, San Diego, CA, £350.

Brain Travel Award, Phil Johnson, Annual Meeting of the Society for Neuroscience, November 8-12, 2003, New Orleans, Louisiana, £550.

Brain Travel Award, Jacob Hollis, Annual Meeting of the Society for Neuroscience, November 8-12, 2003, New Orleans, Louisiana, £500.

Alumni Foundation Travel Fellowship, Jolane Abrams, Annual Meeting of the Society for Neuroscience, November 8-12, 2003, New Orleans, Louisiana, £77.

FEBS Youth Travel Fund Award, Jon Ruddick, 4th FEBS Advanced Lecture Course, ATP-Binding Cassette (ABC) Proteins: From Multidrug Resistance to Genetic Disease. Presentation: ABCG2 is a marker of a subset of neural stem cells in the adult rat brain, March 1-8, 2003, Sport & Erlebnis Hotel, Gosau, Austria. Organized by Karl Kuchler, Course Secretary Maria Bausback.

Brain Travel Award, Annick de Vries, Annual Meeting of the Society for Neuroscience, November 2-7, 2002, Orlando, Florida, £500.

Brain Travel Award for Belinda Henry, Annual Meeting of the Society for Neuroscience November 2-7, 2002, Orlando, Florida, £500.

Alumni Foundation Travel Fellowship, Jolane Abrams, Annual Meeting of the Society for Neuroscience, November 2-7, 2002, Orlando, Florida, £273.

Alumni Foundation Travel Fellowship, Jacob Hollis, Annual Meeting of the Society for Neuroscience, November 2-7, 2002, Orlando, Florida, £350.

Alumni Foundation Travel Fellowship, Phil Johnson, Annual Meeting of the Society for Neuroscience, November 2-7, 2002, Orlando, Florida, £350.

Alumni Foundation Travel Fellowship, Jon Ruddick, Annual Meeting of the Society for Neuroscience, November 2-7, 2002, Orlando, Florida, £350.

Pending

N.A.

Submitted and in preparation for resubmission

N.A.

Completed

Individual Investigator Awards²

Oregon State University Zoology Research Funds Awards	1988-1991	\$1356
Oregon State University Graduate Student Senate Travel Grant	1991	\$150
Sigma-Xi Grant-in-Aid of Research	1992	\$450
Neural mechanisms of corticotropin-releasing factor ³ NIH National Research Service Award (PI)	1992-1994	
The role of 5-HT uptake mechanisms in CRH-mediated behavioural activity Neuroendocrinology Charitable Trust 95/96-102	1995-1997	£27,645

² UK funding agencies use diverse nomenclature to identify the equivalent of Principal Investigator or Co-investigator status frequently used by US funding agencies. The UK nomenclature is used here. Regardless of the nomenclature, I was principal author of the grants and the director of the research listed in this section.

³ cross-referenced in Memberships, Honors, Awards section

Identification of specific serotonergic neuronal systems regulated by corticotropin-releasing factor Neuroendocrinology Charitable Trust 97/98-100 (Main applicant) (Second applicant, Stafford Lightman)	1997	£14,066
Neuroanatomical specificity of the interactions between corticotropin-releasing factor and serotonin systems—two systems involved in the pathophysiology of major depression The Medical Research Committee of the Special Trustees for the United Bristol Hospitals 54-97 (PI) (Co-applicant) (Co-applicant, Stafford Lightman)	1997-1998	£7,500
Afferent neuronal signalling of inflammation from the lung to the hypothalamus Neuroendocrinology Charitable Trust 98/9964	1998-1999	£19,996
A specific role for serotonin in mediating signals of inflammation from the lung to the hypothalamus? Neuroendocrinology Charitable Trust PMS/VW-98/99-117 (Main applicant) (Second applicant, Stafford Lightman)	1999-2000	£54,400
Further characterization of subpopulations of serotonergic neurones—a role in signalling bronchopulmonary inflammation to the hypothalamo-pituitary-adrenal axis? Neuroendocrinology Charitable Trust PMS/VW-00/01-606 (Main applicant) (Second applicant, Stafford Lightman)	2000-2003	£138,487
The role of lung afferents in the regulation of central nervous system activity SR Pharma (PI)	2000-2003	£308,312
Afferent neural mechanisms underlying signalling of Th1- versus Th2-dominant bronchopulmonary inflammation to the central nervous system Neuroendocrinology Charitable Trust 01/02-804 (Main applicant)	2001-2002	£26,352
Interactions between anxiogenic drugs and an emotional motor system Neuroendocrinology Charitable Trust 01/02-802 (Main applicant)	2001-2002	£13,925
Molecular characterization of serotonergic neurones implicated in anxiety and hypothalamo-pituitary-adrenal (HPA) regulation Neuroendocrinology Charitable Trust 01/02-806 (Main applicant)	2001-2002	£49,365
Functional, topographical, and molecular characterization of stress-responsive versus non-responsive serotonergic systems, Biotechnology and Biological Sciences Research Council (BBSRC) 7/S14666 (Principal applicant, Stafford Lightman)	2001-2003	£313,872

Molecular basis of behavioural sensitization and anxiety states Neuroendocrinology Charitable Trust PMS/VW-01/02-808 (Main applicant)	2001-2004	£30,756
Functional sensitization of ABCG transport proteins SR Pharma, (PI)	2001-2004	£335,916
Interactions between anxiogenic drugs and brainstem serotonergic and noradrenergic systems Neuroendocrinology Charitable Trust PMS/VW-02/03-840 (Main applicant)	2002-2003	£25,561
Integrative physiology and behaviour of anxiety: sensitization of an 'emotional motor system' and central autonomic control? The Wellcome Trust RCDF 068558/Z/02/Z (Candidate) (Sponsor, David Nutt) ¹ ¹ cross-referenced in Memberships, Honors, Awards section	2002-2006	£483,508
Role of serotonin and CRF pathways in anxiety and HPA regulation NIH R01 MH065702 (Grant holder, University of Bristol subcontract) (PI, Anantha Shekhar)	2002-2007	£314,438
The effect of afferent signaling on mood and behavior, an immunohistochemical approach Neuroendocrinology Charitable Trust	2003	£12,704
Effects of <i>Mycobacterium tuberculosis</i> infection and bacterial antigens on neural pathways regulating the HPA axis Neuroendocrinology Charitable Trust PMS/MMS-03/04-880	2003-2006	£39,940
The dorsomedial hypothalamus as a site of rapid corticosteroid action: a collaborative, multidisciplinary project Institute for Advanced Studies, Leverhulme Visiting Fellowship, (Sponsor) (PI, Miles Orchinik)	2004-2005	£20,200
Neurochemical and neuroanatomical characterization of neural systems underlying acute and chronic anxiety states Indiana University Purdue University at Indianapolis, Department of Psychiatry	2004-2007	£61,000
<i>Title withheld upon request of funding agency, Pfizer</i> (PI)	2004-2005	£18,500
Wellcome Trust Value in People Award ⁴ The Wellcome Trust	2006-2007	£10,357

⁴ cross-referenced in Memberships, Honors, Awards section

Functional consequences of increased TPH2 mRNA expression in depression NARSAD Young Investigator Award (PI) ⁵	2007-2009	\$60,000
Role of TRPv4 in signaling peripheral immune activation to the brain Neuroendocrinology Charitable Trust	2007-2009	£23,100
Neural mechanisms underlying anxiety Council on Research and Creative Work (CRCW) Grant-in-Aid Award (PI)	2008-2009	\$6,252
CAREER: Afferent thermosensory mechanisms and social behavior NSF Research Experience for Undergraduates (REU) #6882442	2009	\$4,800
CAREER: Afferent Thermosensory Mechanisms and Social Behavior NSF Research Experience for Undergraduates (REU) #0929917	2010	\$4,800
Collaborative Research: Novel corticosteroid actions on neurotransmitter function NSF IOS #0921969 (PI)	2009-12	\$239,884
Nicotine exposure and vulnerability to a depression-like syndrome 2010 Innovative Seed Grant Program (PI) (Co-PI, Jerry Stitzel)	2011-12	\$43,999
Evaluation of tryptophan hydroxylase-2 expression in bipolar depressed patients ⁶ 2010 NARSAD Young Investigator Award (Brain & Behavior Research Foundation) (PI)	2011-13 (NCE)	\$60,000
Mechanisms underlying stress-induced activation of serotonergic systems NIH R01 MH086539 (PI)	2009-13	\$825,000
CAREER: Afferent thermosensory mechanisms and social behavior ⁷ NSF IOS #0845550 (PI)	2009-14	\$337,961
Safety and tolerability study using <i>Lactobacillus reuteri</i> in veterans	2014	\$10,917

⁵ cross-referenced in Memberships, Honors, Awards section

⁶ cross-referenced in Memberships, Honors, Awards section

⁷ cross-referenced in Memberships, Honors, Awards section

Veterans Administration Eastern Colorado Health System, Mental
Illness Research, Education and Clinical Center (MIRECC) (PI)

Role of serotonin and CRF pathways in anxiety and HPA regulations NIH R01 MH065702 (PI) (Multiple PI, Anantha Shekhar)	2009-14	\$625,000
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Preclinical validation of a novel class of antidepressant drugs Colorado Center for Drug Discovery (C2D2) 2014 Drug Discovery Research Project (DDRP) (PI)	2014-15 (NCE)	\$15,000
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Co-investigator Awards⁸

National Science Foundation (NSF) EPSCoR Systemic Improvement Plan Grant (Principle Investigators: Dr. Cliff H. Summers and *Dr. Kenneth J. Renner (University of South Dakota, Department of Biology, Vermillion, South Dakota), International Collaborator, CA Lowry) Grant No. OSR-9452894	1997	\$15,000
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The functional significance of a serotonin-accumulating neuronal system in the dorsomedial hypothalamus The Wellcome Trust 045843/Z/95/Z/WRE/MK/JAT (Co-I) (Principal applicant, Stafford Lightman)	1996-1998	£134,154
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Hypothalamic-pituitary-adrenal regulation and dysfunction: Role of the dorsomedial hypothalamus NIMH MH 60825 (Co-I) (PI, Joe DiMicco)	1999-2001	\$102,516
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Adenoviral vector studies—a role for high-affinity neuronal tryptophan transporters in the neuroendocrine correlates of depression Medical Research Council (MRC) G0000046 (Co-I) (Applicant, Stafford Lightman)	2000-2001	£49,728
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Neural Mechanisms regulating basal and stress-induced hypothalamo-pituitary-adrenal activity: role of limbic and hypothalamic inputs to the paraventricular nucleus The Wellcome Trust, Programme Grant (Applicant, ¹ Stafford L. Lightman, Co-applicant, ¹ Colin D. Ingram; Named collaborator, CA Lowry) 051846/Z/97	1997-2002	£976,064
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⁸ During the period 1995-2002, for many UK funding agencies, there were no mechanisms for non-HEFCE (Higher Education Funding Council for England)-funded researchers to be Principal Investigators, or in some cases, Co-investigators, on grants. However, I authored a number of such grants that were funded. These grants are listed here as “Co-investigator” when I authored the grants and directed the research.

Role of TRPV4 in signaling peripheral immune activation to the brain Neuroendocrinology Charitable Trust PMS/MMS-07/08-103 (Second applicant) (Main applicant, David Nutt)	2007-2008	\$46,498
Glucocorticoid regulation of TPH2 expression Neuroendocrinology Charitable Trust PMS/MMS-07/08-147 (Second applicant) (Main applicant, Stafford Lightman)	2008-2009	£6,100
Whole body hyperthermia for treatment of major depressive disorder The Depressive and Bipolar Disorder Alternative Treatment Foundation (DBDAT) (PI) (Multiple PI, Charles Raison)	2012-13 (NCE)	\$50,000
Glucocorticoid negative feedback: intrinsic and extrinsic mechanisms NIH R01 MH075968 (Co-I) (PI, Robert Spencer)	2011-13	\$39,148
The neurobiology of the stress-resistant brain NIH R01 MH068283 (Co-I; 10% effort) (PI, Monika Fleshner)	2010-15	N.A.
NEUROSTRESS, Dissecting the central stress response: Bridging the genotype-phenotype gap. European Research Commission (ERC), EURO-NEUROSTRESS, ERC Project Grant Number, 260463, Funded under: FP7-IDEAS-ERC. StG Frontier Research Grant, (Collaborator) (PI, Alon Chen).	2011-2016	€1,500,000
Microbial support for USAFA microbiome research United States Air Force Academy, Award No. FA7000-16-2-0013 (PI)	2016	\$22,546
Neural sensitivity to stress during drug withdrawal NIH R01 DA019921 (PI, CU Boulder subcontract) (PI, Gina Forster)	2011-2016	\$211,658
Determination of blood biomarkers of rapid antidepressant effects of infrared whole body heating (WBH) using RNAseq Colorado Clinical & Translational Sciences Institute (CCTSI) Center for NeuroScience “CNS-Pilot” Program Translational Team Science Award. CNSTT-15-145 (PI) (Multiple PI proposal with Robin Dowell)	2016-2017	\$100,000
Laureate Institute for Brain Research, Inc. Effects of float intervention on plasma cytokines using multiplex technology in depressed patients. Agreement Reference No. 17-06-0064 (PI)	2017	\$2,873

Undergraduate Research Opportunities Program (UROP) Team Grant, 2016-17 Academic Year, Host/gut microbiota response to stressors: informing resiliency. Christopher A. Lowry (PI), Faculty mentor for Michael Ogbaselassie and Yosan Mengesha (PI)	2016-2017	\$2,400
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The Arnold and Mabel Beckman Foundation 2017 Beckman Scholars Program Award , University of Colorado Boulder Award, Paul Muhlrads (PI), Brain S. DeDecker (Co-PI), Ryan Bachtell (Co-I), Corrie Detweiler (Co-I), Robin Deanne Dowell-Deeen (Co-I), Joseph Falke (Co-I), Pieter Jj Johnson (Co-I), Monique LeBourgeois (Co-I), Christopher A. Lowry (Co-I), Thomas Perkins (Co-I), Michael Saddoris (Co-I), Robert L. Spencer (Co-I), Tin Tin Su (Co-I), Dylan J Taatjes (Co-I), Linda R. Watkins (Co-I), Kenneth P. Wright (Co-I), Leslie Anne Leinwand (Co-I).	2017-2020	\$156,000
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The Arnold and Mabel Beckman Foundation 2020 Beckman Scholars Program Award , University of Colorado Boulder Award, Paul Muhlrads (PI), Brain S. DeDecker (Co-PI), Ryan Bachtell (Co-I), Corrie Detweiler (Co-I), Robin Deanne Dowell-Deeen (Co-I), Joseph Falke (Co-I), Pieter Johnson (Co-I), Monique LeBourgeois (Co-I), Christopher A. Lowry (Co-I), Thomas Perkins (Co-I), Michael Saddoris (Co-I), Robert L. Spencer (Co-I), Tin Tin Su (Co-I), Dylan J Taatjes (Co-I), Linda R. Watkins (Co-I), Kenneth P. Wright (Co-I), Leslie Anne Leinwand (Co-I)	2020-2023	\$156,000
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NIH Bridges to the Baccalaureate (B2B) Research Training Program at University of Colorado Boulder, T34 GM142601-01A1 , Lee Niswander (PI), Faculty Preceptor September 1, 2023-present	2023-present	
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Sponsor of Individual Career Development Awards

Pharmacological characterization of serotonergic neurons of the rat interpeduncular nucleus University of Bristol, Department of Anatomy Summer Studentship (¹ CA Lowry and *C.D. Ingram, Sponsored student, Joanne Rodda)	1998	£1,000
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Effects of corticotropin-releasing factor on serotonin transporter mRNA expression in mesostriatal serotonergic systems The Physiological Society Vacation Studentship Scheme (Sponsor) (PI, Daniel Hirsch)	1998	£780
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Needham Cooper Postgraduate Research Scholarship (Sponsor) (PI, Jon Ruddick)	1999-2002	£23,500
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Identification of the source of corticotropin-releasing factor (CRF) afferents to the serotonergic systems in the brainstem dorsal raphe nucleus: Implications for anxiety and depression Wellcome Trust Student Elective Prize (Sponsor) (PI, Joanne Rodda)	2000-2001	\$1,600
Effects of early life events on tryptophan hydroxylase mRNA expression in specific subpopulations of serotonergic neurons University of Bristol MSc Programme in Molecular Neuroscience (Katie Gardner, Supervisor, ¹ CA Lowry)	2000	£500
Functional, anatomical, and molecular characterization of corticotropin-releasing factor (CRF) responsive serotonergic neurons Needham Cooper Postgraduate Research Scholarship (Justna Muhith, Supervisors, CA Lowry , Drs. John T Isaac and Jack Mellor, University of Bristol, MRC Centre for Synaptic Plasticity)	2001-2005	£45,500
The effects of i.c.v. injection of low dose of CRF or urocortin 1 on mRNA expression of selected serotonin-related genes within the dorsal raphe nucleus University of Bristol Programme in Molecular Neuroscience (PI, CA Lowry , Co-PI, Dr. Belinda Henry. To support Lirui Cao, MSc Student)	2003	£1,000
The differential effects of corticotropin-releasing factor agonists on anxiety-responsive substrates in the dorsal raphe University of Bristol Programme in Molecular Neuroscience (PI, CA Lowry , Co-PI, Dr. Belinda Henry. To support Charlotte Chapman, MSc Student)	2003	£1,000
Signaling of acute and chronic bronchopulmonary inflammation induced by M. tuberculosis to the central nervous system: forebrain systems regulating the HPA axis Leonardo da Vinci II Scholarship (Sponsor) (PI, Vicky Griesdoom)	2003	£875
Signaling of acute and chronic bronchopulmonary inflammation induced by M. tuberculosis to the central nervous system: forebrain systems regulating the HPA axis: effects on brainstem monoaminergic systems Leonardo da Vinci II Scholarship (Sponsor) (PI, Katinka Goosen)	2003	£875
The role of the CNS in the modulation of physiological and behavioral responses to itch-inducing compounds	2004	£1,000

University of Bristol MSc Programme in Molecular Neuroscience (PI, CA Lowry , co-applicant, Jacob Hollis. To support Tahir Mohammed, MSc. Student)		
Wellcome Trust Value in People Award The Wellcome Trust (Sponsor) (PI, Belinda Henry)	2004	£8,864
Postgraduate Scholarship (Sponsor) (PI, Jacob Hollis)	2004-2005	£14,500
Universities UK Overseas Research Scholarship (Sponsor) (PI, Daniel Staub)	2004-2006	£30,720
Universities UK Overseas Research Scholarship (Sponsor) (PI, Andrew Evans)	2004-2007	£64,080
Pfizer (Sponsor) (PI, Andrew Evans)	2005	£250
Serotonergic regulation of neuroendocrine, autonomic, and behavioral responses to acute stress: The role of the dorsomedial hypothalamus NSF International Research Fellowship IRFP-02-149 (Sponsor) (PI, Paul Gasser)	2005-2007	\$165,643
The effects of early-life stress on serotonergic systems and behavior NIH F32 MH084463 (Sponsor) (Co-Sponsor, Steven Maier) (PI, Jodi Lukkes)	2009-2012	\$143,754
Elucidating beneficial pathways of Mycobacteriome exposures in our built environment Alfred P. Sloan Foundation, 2015 MoBE Postdoctoral Fellowship Grant No. G-2015-14165, (Sponsor) (PI, Odessa Gomez)	2016-2018	\$120,000
Early Career Workshop on the Microbiology of the Built Environment, Chicago, IL, USA, Christopher Stamper	April 26- 29, 2016	
2016 Strategies and Techniques for Analyzing Microbial Population Structures course at the Marine Biological Laboratory Christopher Stamper	August 3- 12, 2016	
NIH, K23 (AA026635) Common mechanisms of the microbiota- gut-brain axis in alcohol use disorder and depression: A genetically-informed investigation. Jarrod Martin Ellingson (PI); Christopher A. Lowry (Consultant), September 27, 2018-August 31, 2023, \$183,946 FY 2018; \$170,320 DC, \$13,626 IDC.	2018-2023	\$183,946 (FY 2018)
National Institutes on Alcohol Abuse and Alcoholism (NIAAA) K23 (1K23AA028238-01A1)	2020-2024	

Title: Exploring the Effects of Cannabinoids on Alcohol Consumption and the Microbiota-Gut-Brain-Axis. PI: Karoly, Hollis; Fleshner (Mentor). 2020-2024

National Institute of Mental Health (NIMH) K23.
(1K23MH132893-01A1)

2023-2028

\$914,444

Title: The role of inflammation in cognitive dysfunction in acute depression as determined by experimental inhibition of tumor necrosis factor-alpha signaling in a randomized controlled trial.
PI: Mac Giollabhui, Naoise; Mischoulon (Mentor)
Role: Co-mentor

Travel Awards

Neuroendocrinology Charitable Trust (Applicant, C.A. Lowry). 5th International Congress of Neuroendocrinology Travel Award, August 31-September 4, 2002, Bristol, UK, £2,855.

Winter Conference on Brain Research Travel Fellowship, Topographically and functionally organised subsets of CRF- and stress-responsive serotonergic neurones, as part of the Symposium, Role of CRF and serotonergic systems in stress-related behaviour; January 26-February 2, 2002, Snowmass, Colorado, \$1,200.

Society for Endocrinology Conference Grant, 29th Annual Meeting of the Society for Neuroscience, October 23-28, 1999, Miami Beach Convention Center, Miami Beach, Florida, £300.

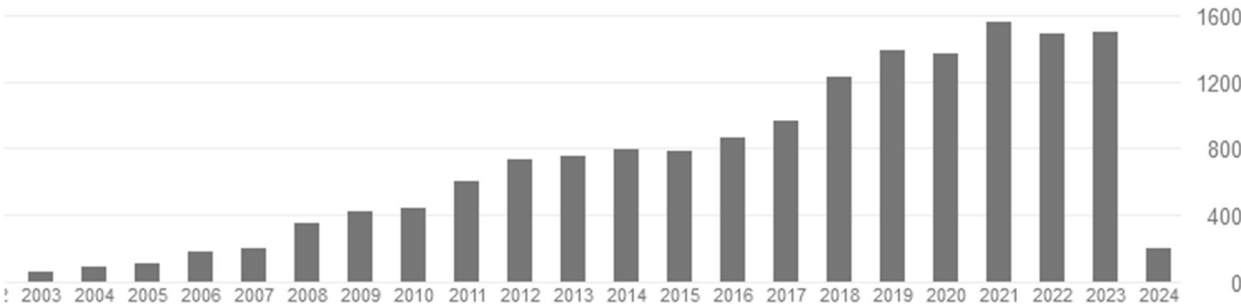
Publications

Summary of publications

Publication type	Before 2007	2007-2013	2014-Present	Total
Co-edited books	0	0	1	1
Peer-reviewed original research articles	31	38	106	175
Peer-reviewed review articles	6	16	39	61
Peer-reviewed book chapters	1	1	9	11
Peer-reviewed opinion articles	0	0	2	2
Non-peer-reviewed review articles	4	2	0	6
Non-peer-reviewed book chapters	1	8	0	9
Non-peer-reviewed editorial articles	0	0	4	4
Totals	43	65	161	268

Table does not include articles cited in F1000 publications or articles published in preprint servers

Research efforts in my laboratory and through my collaborations have resulted in 268 publications (161 manuscripts since 2014), 62 invited talks (including 21 international invited talks) and over 335 conference presentations. My H-index according to Google Scholar is 74 and the table below shows my citation indices from Google Scholar Report as of 16 February 2024.



Co-edited books

1. Rook G.A.W., Lowry C.A. (eds) Evolution, Biodiversity and a Reassessment of the Hygiene Hypothesis. Progress in Inflammation Research, 2022, vol 89, pp. 1-421, Springer Nature Switzerland, Cham, Switzerland. https://doi.org/10.1007/978-3-030-91051-8_10.

Guest Editor

1. Guest Editor for Neuroimmunomodulation. Microbiota and Gut-Brain Connection in Neuroinflammation; Co-editor, Raymond Chuen Chung Chang, The University of Hong Kong
2. Guest Editor for Frontiers in Neuroscience. The Microbiome-Gut-Brain Axis and Posttraumatic Stress Disorder. <https://www.frontiersin.org/research-topics/61932/the-microbiome-gut-brain-axis-and-posttraumatic-stress-disorder>

Articles cited in F1000

1. Enck P: F1000Prime Recommendation of [Hemmings SMJ et al., Psychosom Med 2017, 79(8):936-946]. In F1000Prime, 14 Dec 2017; DOI: 10.3410/f.727801934.793540396. F1000Prime.com/727801934#eval793540396

2. Hellhammer D, Kumsta R and Meinlschmidt G: F1000Prime Recommendation of [Reber SO et al., Proc Natl Acad Sci USA 2016 , 113(22):E3130-9]. In F1000Prime, 19 Jul 2016; DOI: 10.3410/f.726360227.793520850. F1000Prime.com/726360227#eval793520850
3. Taché Y: F1000Prime Recommendation of [Neufeld-Cohen A et al., Proc Natl Acad Sci USA 2010 , 107(44):19020-5]. In F1000Prime, 28 Oct 2010; DOI: 10.3410/f.5736956.5720054. F1000Prime.com/5736956#eval5720054
4. Dampney R: F1000Prime Recommendation of [Johnson PL et al., Neuropsychopharmacology 2008 , 33(9):2093-107]. In F1000Prime, 02 Jan 2008; DOI: 10.3410/f.1098622.554729. F1000Prime.com/1098622#eval554729
5. Duffin J: F1000Prime Recommendation of [de Vries A et al., Auton Neurosci 2005 , 123(1-2):62-75]. In F1000Prime, 05 Dec 2005; DOI: 10.3410/f.1029399.343723. F1000Prime.com/1029399#eval343723

Articles published in preprint servers (e.g., bioRxiv, PsyArXiv, Research Square, SSRN)

1. Mehrhoff, Erika A. and Booher, Winona C. and Hutchinson, Julianna and Schumacher, Grace and Borski, Curtis and **Lowry, Christopher A.** and Hoeffler, Charles A. and Ehringer, Marissa A., Diazepam effects on anxiety-related defensive behavior of high and low open-field activity inbred mouse strains. Available at SSRN: <https://ssrn.com/abstract=4439984>
2. Hoisington AJ, Stamper CE, Bates KL, Stanislawski MA, Flux MC, Postolache TT, **Lowry CA**, Brenner LA (2023) Human microbiome transfer in the built environment differs based on occupants, objects, and buildings. Research Square, posted 02/02/23 (for submission to Scientific Reports, Collection, Microbes in the built environment, <https://www.nature.com/collections/jdeiigdgfg>) <https://www.researchsquare.com/article/rs-2500455/v1>; <https://doi.org/10.21203/rs.3.rs-2500455/v1>
3. Schiller, Daniela et al., (2022) The Human Affectome. PsyArXiv. June 11. Doi:10.31234/osf.io/9nu32.
4. White BE, **Sterrett JD**, Grigoryan Z, Lally LT, Heine JD, Alikhan H, **Lowry CA**, Perez L, DeSipio J, Phadtare S (2021) Characterization of gut microbiome and metabolome in *Helicobacter pylori* patients in an underprivileged community in the United States (bioRxiv preprint, posted 05/25/21); bioRxiv preprint doi: <https://doi.org/10.1101/2021.05.23.445270>
5. Thompson RS, Gaffney M, Hopkins S, Kelley T, Gonzalez A, Bowers SJ, Vitaterna MH, Turek FW, **Fox CL**, **Lowry CA**, Vargas F, Dorrestein PC, Wright Jr KP, Knight R, Fleshner M (2021) Gut microbiota and bile acid profile are modulated by prebiotic diet and associate with facilitated diurnal clock/sleep realignment after chronic disruption of rhythms (bioRxiv preprint, posted 03/04/21)
6. Bowers SJ, Lambert S, He S, **Lowry CA**, Fleshner M, Wright Jr KP, Turek FW, Vitaterna MH (2019) Immunization with *Mycobacterium vaccae* NCTC 11659 prevents the development of PTSD-like sleep and behavioral phenotypes after sleep disruption and acute stress in mice. bioRxiv, May 8, 2020, <https://doi.org/10.1101/2020.05.07.082859>

7. McDonald et al., and The American Gut Consortium (2018) American Gut: an open platform for citizen-science microbiome research. bioRxiv, 2018, <https://www.biorxiv.org/content/early/2018/03/07/277970>

Published articles

Complete List of Published Work in MyBibliography:

<https://www.ncbi.nlm.nih.gov/myncbi/christopher.lowry.1/bibliography/public/>.

Peer-reviewed original research articles and systematic reviews

(Undergraduate student authors are underlined and italicized; graduate student authors are underlined)

2024

1. Mason AE, Kasl P, Soltani S, Green A, Hartogensis W, Dilchert S, Chowdhary A, Anglo C, Pandya LS, Siwik CJ, Foster S, Nyer M, **Lowry CA**, Raison CL, Hecht FM, Smarr BL (2023) Elevated body temperature is associated with depressive symptoms: Data from the TemPredict Study, Scientific Reports, 14, 1884 <https://doi.org/10.1038/s41598-024-51567-w>
2. Hoisington AJ, Stearns-Yoder KA, Stamper CE, Holliday R, Brostow DP, Penzenik ME, Forster JE, Postolache TT, **Lowry CA**, Brenner LA (2024) Association of homelessness and diet on the gut microbiome: A United States-Veteran Microbiome Project (US-VMP) study. mSystems , e01021-23.
3. Mohyuddin H, Laffon B, Teixeira JP, Costa S, Teixeira-Gomes A, Pásaro E, Constantine N, Dagdag A, Ortmeier HK, Tizenberg B, Afram L, Yen P, Marano C, **Lowry CA**, Hoisington AJ, RachBeisel JA, Valdiglesias V, Lema-Arranz C, Fernández-Bertólez N, Maseda A, Millán-Calenti JC, Kovacs EJ, Gostner JM, Fuchs D, Brenner LA, Lorenzo-López L, Postolache TT (2023) Toxoplasma gondii IgG serointensity is positively associated with frailty. J Gerontol A Biol Sci Med Sci. 2024 Mar 1;79(3):glad228. doi: 10.1093/gerona/glad228. PMID: 37939652.
4. Tyler MP, Wright BJ, Beaton R, Monger K, Raison CL, **Lowry CA**, Evans L, Hale MW (2023) Depression moderates the sympathoinhibitory effect of local skin warming following exposure to a social stressor Psychoneuroendocrinology. 2024 Jan;159:106420. doi: 10.1016/j.psyneuen.2023.106420. Epub 2023 Oct 18. PMID: 37866124

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(Undergraduate student authors are underlined and italicized; graduate student authors are underlined)

In press articles

N.A.

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¹This paper was selected for “Change the World, One Article at a Time”,

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Click on “The 2017 ‘Change the World, One Article at a Time’ Initiative”, then “Medicine and Public Health”, and find, “The Microbiota, Immunoregulation, and Mental Health: Implications for Public Health, which is summarized, “This paper presents state-of-the-art evidence supporting the hygiene hypothesis, which proposes that the epidemic of inflammatory disease in urban societies stems at least in part from reduced exposure to the microbes that normally suppress inappropriate inflammation.”

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11. **Lowry CA** (2002) Re-evaluation of the role of serotonin in stress—A “systems level” approach. In: *Stress: Neural, Endocrine and Molecular Studies* (R. McCarty, G. Aguilera, E. Sabban, R. Kvetňanský, eds) Taylor and Francis Inc, London, pp. 13-18.

Non-peer-reviewed book chapters

(Undergraduate student authors are underlined and italicized; graduate student authors are underlined)

1. Rook GAW, Raison CL, **Lowry CA**. Microbial “Old Friends”, immunoregulation and psychiatric disorders. In: *Old Herborn University Monograph 26*. PJ Heidt, T Midtvedt, V Rusch, J Versalovic (Eds). P. 61-90. Old Herborn University Press, 2013.
2. Hale MW, Rook GAW, **Lowry CA**. Pathways underlying afferent signaling of bronchopulmonary immune activation to the central nervous system. *Chem Immunol Allergy*, 98: 118-141, 2012.
3. **Lowry CA**, Hale MW. Serotonin and the neurobiology of anxious states. In: *The Behavioural Neurobiology of Serotonin*. CP Müller, BL Jacobs (Eds), “Handbook in Behavioral Neuroscience” series, series editor, Joe P Huston. Elsevier. ISBN: 978-0-12-374634-4, 2010.

4. **Lowry CA**, Hale, MW, Wright KP. Stress and arousal/sleep. In: *Encyclopedia of Behavioral Neuroscience* (G. Koob, M. Le Moal, R.F. Thompson, eds.). Elsevier, New York. Vol. 3, 295-303. ISBN-10: 0-08-044732-5, 2010.
5. Rook GAW, **Lowry CA**. The hygiene hypothesis and affective and anxiety disorders. In: *The Hygiene Hypothesis and Darwinian Medicine*, GAW Rook (Ed), Vol. 1, *Progress in Inflammation Research*, M Parnham (Ed). Birkhauser Publishing, Basel, Switzerland. ISBN: 978-3764389024, 2009.
6. Orchinik M, Gasser P, **Lowry CA**. Acute corticosteroid actions in the brain: cellular mechanisms and behavioral consequences, In: *Molecular Mechanisms of Hormone Actions on Behavior*. D. Pfaff, A. Etgen (Eds), Academic Press, San Diego, CA. ISBN: 978-0123749390, 2009.
7. Gasser PJ, **Lowry CA**, Orchinik M. Rapid corticosteroid actions on behavior: Mechanisms and implications. In: *Hormones, Brain and Behavior, 2nd Edition*. D. Pfaff, A. Arnold, A. Etgen, S. Fahrbach, R. Rubin (Eds). Elsevier, Oxford, UK. ISBN: 978-0080887838, 2009.
8. Nutt DJ, **Lowry CA**. How can we use current knowledge to improve antidepressant treatments? In: *Understanding depression: A translational approach*, C.M. Pariante, Ed. Oxford University Press, Oxford. ISBN: 978-0199533077, 2009.
9. **Lowry CA** (2002) Re-evaluation of the role of serotonin in stress—A “systems-level” approach. In: *Stress: Neural, Endocrine and Molecular Studies*, R. McCarty, G. Aguilera, E. Sabban, R. Kvetňanský, Eds. Taylor and Francis Inc, London, pp. 13-18.

Non-peer-reviewed editorial articles

(Undergraduate student authors are underlined and italicized; graduate student authors are underlined)

1. **Lowry CA**, Loupy KM (2020) Response to Letter to the Editor, A role for *Mycobacterium* in Alzheimer’s Disease? By Lawrence Broxmeyer, MD. *Journal of Alzheimer’s Disease*, October 26, 2020, <https://www.j-alz.com/content/role-mycobacterium-alzheimers-disease>
2. Frank MG, Fonken LK, Watkins LR, Maier SF, **Lowry CA** (2019) Viewpoint. Could probiotics be used to mitigate neuroinflammation? *ACS Chemical Neuroscience*, 2019 Jan 16;10(1):13-15. <https://doi.org/10.1021/acscchemneuro.8b00386>. Epub 2018 Aug 15.
3. Raison CL, Janssen CW, **Lowry CA** (2016) Hyperthermia for major depressive disorder?-Reply. *JAMA Psychiatr*, 73(10):1096-1097.
4. Davies SJ, **Lowry CA**, Nutt DJ. Panic and hypertension: brothers in arms through 5-HT? *J Psychopharmacol*, 21(6):563-566, 2007.

Other articles or chapters (non-refereed)

Could we see a stress vaccine in our lifetime? Our new research brings us one step closer. Thrive Global, Christopher Lowry, June 20, 2019, <https://thriveglobal.com/stories/stress-vaccine-nature-health-new-study-science/>

F1000 Prime Recommendations

- 1) Contributing member of 'F1000Prime', *Neural Homeostasis Section*, invitation from Tracy Bale and Alan Sved, since June 1, 2017
- 2) Lowry C: F1000Prime Recommendation of [Niraula A et al., J Neurosci 2018 , 38(9):2328-2340]. In F1000Prime, 11 Jul 2018; DOI: 10.3410/f.732587009.793547944. F1000Prime.com/732587009#eval793547944
- 3) Lowry C: F1000Prime Recommendation of [Chu C et al., Nature 2019 574(7779):543-548]. In F1000Prime, 18 Nov 2019; DOI: 10.3410/f.732587009.793547944. <https://f1000.com/prime/736798495>
- 4) Rook GAW, Raison CL, **Lowry CA**. Major depressive disorder, immunoregulation, inflammation and our changing microbial environment. *BrainImmune*, November 4, 2011.
- 5) Rook GAW, Raison CL, **Lowry CA**, Microbes and mood; a new approach to therapy of depression? *Microbiologist* 12: 32-36, 2011.

Undergraduate Honors theses published on CU Scholar

- 1) Luthens A (2022, embargoed until 2024) The effects of *Mycobacterium vaccae* NCTC 11659 treatment on fear extinction in female rats in the fear-potentiated startle paradigm.
- 2) Marquart BM, Loupy KM, Zambrano CA, Sago SA, D'Angelo HM, Olson JM, Weintraub RA, Amat J, Snyder CA, Wang X, Fonken LK, Frank MG, Maier SF, Lowry CA (2021, embargoed until 2023) Effects of the mycobacterium-derived anti-inflammatory lipid, 10(Z)-hexadecenoic acid, on stress-induced neuroinflammation and anxiety-like behavior in rats. CU Scholar, <https://scholar.colorado.edu/>
- 3) Liu, Chang (2020, embargoed until 2022) The wild rat versus outbred laboratory rat microbiome. CU Scholar, <https://scholar.colorado.edu/>
- 4) Appiah, Sandra A. (2020, embargoed until 2022) Investigating the composition of the gut microbiome in murine polytrauma and hemorrhagic shock. CU Scholar, <https://scholar.colorado.edu/>
- 5) Salazar, Stephanie N. (2020, embargoed until 2022) Evaluation of the effects of altitude on rat anxiety- and depressive-like behavioral responses. CU Scholar, <https://scholar.colorado.edu/>
- 6) Bernier AE, Barth DS, Saddoris MP, Lowry CA (2019) The effects of immunization with heat-killed *Mycobacterium vaccae* on maternal stress and terbutaline induced changes in microglial density. <https://scholar.colorado.edu/>

- 7) Holmes, Kaley Shay (2018-2019, embargoed until 2021) *Mycobacterium vaccae* and *htr1a* expression. CU Scholar, <https://scholar.colorado.edu/>
- 8) Nguyen, Kadi (2018-2019, embargoed until 2021) The effects of altitude on rat behavioral research and depression. CU Scholar, <https://scholar.colorado.edu/>
- 9) Hacker-Cary, Robin G. (2016-2017) Bathing in bacteria: Mycobacteria relative abundance on showerhead biofilms. CU Scholar, https://scholar.colorado.edu/concern/undergraduate_honors_theses/2v23vt850
- 10) Cleaver, Lakota K. (2015-2016) An evaluation of antibiotic resistance: Structure-activity relationship studies of tetracyclic indolines as a novel class of resistance-modifying agents for MRSA & analysis of recent FDA regulations on antibiotic use in livestock. CU Scholar, https://scholar.colorado.edu/concern/undergraduate_honors_theses/tq57nr54w
- 11) Perez, Gerardo Lopez. (2015-2016) The effect of *M. vaccae* preimmunization on anxiety- and Panic-like behaviors. CU Scholar, https://scholar.colorado.edu/concern/undergraduate_honors_theses/bk128b566
- 12) Spratt, Emma. (2015-2016) Bacteria for the brain: Subcutaneous immunization with heat-killed *M. vaccae* improves fear-potentiated startle responses and extinction learning in rats. CU Boulder, https://scholar.colorado.edu/concern/undergraduate_honors_theses/7w62f878q
- 13) Jones, Alexander. (2014-2015) The effects of whole-body heating on serotonergic systems: A novel mechanism for treating depression. CU Scholar, https://scholar.colorado.edu/concern/undergraduate_honors_theses/02870w344
- 14) Kolisch, Erika. (2013) The effects of norepinephrine microinjections into the central nucleus of the amygdala on serotonergic activity in the dorsal. CU Scholar, https://scholar.colorado.edu/concern/undergraduate_honors_theses/4f16c3438
- 15) Smith, David G. (2010) Discovery and characterization of an anti-inflammatory lipid derived from *Mycobacterium vaccae*. https://scholar.colorado.edu/concern/graduate_thesis_or_dissertations/41687h563

Conference proceedings

Summary of papers published in conference proceedings

(only papers published in conference proceedings since appointment year at CU Boulder in 2007 are shown)

Conference proceeding type	Before 2007	2007-2013	2014-Present	Total
Papers published in non-refereed conference proceedings	102	67	184	353
Papers presented at professional conferences but not published	0	78	33	111
Totals	102	145	217	464

Papers published in non-refereed conference proceedings

(Undergraduate student authors are underlined and italicized; graduate student authors are underlined)

1. Finkelstein L, **Lowry CA**, Arch J (2024) Bristol Stool Form is associated with anxiety and depressive symptoms in stressed adults. Front Range Microbiome Symposium, Fort Collins, CO, USA, April 18th-19th, 2024
2. Sago SA, Dawud LM, Desmond LW, Nguyen L, Clifton A, Elliot J, Rice M, Gawandi S, Zolla P, Marquart BM, Kessler LR, Sterrett JD, Andersen ND, **Lowry CA** (2024) Observing the effects of a diabetic induction model, Streptozotocin on gut microbiome and cognitive function in adult male Sprague Dawley rats. Front Range Microbiome Symposium, Fort Collins, CO, USA, April 18th-19th, 2024
3. Clifton A, Sago SA, Kessler, LR, Sterrett JD, Zambrano CA, Loupy KM, Marquart BM, D'Angelo HM, Fonken LK, Frank MG, Maier SF, **Lowry CA** (2024) Effects of Mycobacterium aurum DSM 33539 on biological signatures of stress-induced neuroinflammation, stress resilient behaviors, and gut microbiome in adult male rats. Front Range Microbiome Symposium, Fort Collins, CO, USA, April 18th-19th, 2024
4. Hoisington AJ, Stamper CE, Stearns-Yoder KA Postolache TT, **Lowry CA**, Brenner LA (2024) Major Findings and Lessons Learned in a Longitudinal Veteran Microbiome Study: The United States-Veteran Microbiome Project (US-VMP) Study. Front Range Microbiome Symposium, Fort Collins, CO, USA, April 18th-19th, 2024.
5. Postolache TT, Brundin L, Duncan E, Barnhart M, Joseph J, Dagdag A, Doty C, Mikadze M, Stiller JW, **Lowry CA**, Roche D, Brenner LA (2024) Plasma level of the antimicrobial peptide LL37 (cathelicidin) is negatively associated with alcohol use disorder in US Veterans. Society of Biological Psychiatry, 2024, May 9-May 11, 2024, Austin, Texas.
6. Mohyuddin H, Laffon B, Teixeira JP, Costa S, Constantine N, Kanwar J, Dagdag A, Hemadeh A, Lema-Arranz C, Maseda A, Millán-Calenti JC, Lorenzo-López L, **Lowry CA**, Valdiglesias V, Postolache TT (2024) Depression moderates the link between frailty and Toxoplasma gondii. Society of Biological Psychiatry, 2024, May 9-May 11, 2024, Austin, Texas.
<https://sobp.org/2024-sobp-annual-meeting/>

7. Hoisington AJ, Penzenik ME, Stearns-Yoder KA, **Lowry CA**, Postolache TT, Hoffmire CA, Betz M, Stamper CE, Forster JE, Brenner LA (2024) Longitudinal evaluation of gut microbiome and inflammation among those seeking care in the emergency department for acute mild traumatic brain injury. The North American Brain Injury Society's (NABIS) 17th Annual Conference on Brain Injury, March 27-30, 2024, Las Vegas, Nevada. <https://abi2024.org/>
8. Brenner LA, Hoisington A, Penzenik M, Stearns-Yoder K, Lowry C, Postolache T, Hoffmire C, Betz M, Stamper C, Forster J (2023) Alcohol Use Disorder and inflammation among those seeking care in the emergency department for acute mild traumatic brain injury. Alcohol & Immunology Research Interest Group (AIRIG), "Alcohol, Infection & Immunity" Friday, December 8, 2023, University of Colorado Anschutz Medical Campus.
9. Brenner LA, Hoisington A, Penzenik M, Stearns-Yoder K, Lowry C, Postolache T, Hoffmire C, Betz M, Stamper C, Forster J (2023) Alcohol use disorder and inflammation among those seeking care in the emergency department for acute mild traumatic brain injury. Alcohol, 113 (2023) 58.
10. Hemmings S, Rust C, Malan-Müller S, Swart PC, Lowry CA, PGC-PTSD Microbiome Workgroup, Seedat S (2023) The interaction between the gut microbiome and host genome in posttraumatic stress disorder. Abstracts of the World Congress of Psychiatric Genetics (WCPG), October 10-14, 2023, Montreal, Canada. European Neuropsychopharmacology, 75, S163.
11. Siwik CJ, Chowdhary A, Anglo C, Pandya L, Moran PJ, Hartogensis W, Lowry CA, Raison CL, Patrick R, Hecht FM, and Mason AE, (2024) Treating major depressive disorder with an integrated mind-body intervention: Whole-body hyperthermia and cognitive behavioral therapy, a case report. 2024 International Congress on Integrative Medicine and Health, April 9-13, 2024, Cleveland, Ohio, USA, <https://www.consortiumcongress.org/home#Home-Banner>
12. Hoisington AJ, Stamper CE, Stearns-Yoder KA, Postolache TT, **Lowry, CA**, Brenner LA (2023) Six years of longitudinal Veteran microbiome sampling, Major Findings and Lessons Learned: The United States-Veteran Microbiome Project (US-VMP) Study. Tri-Services Microbiome Consortium 7th Annual Meeting, 26-27 September, 2023, Washington DC, USA
13. Dawud LM, Marquart BM, Desmond LW, Andersen ND, Sago SA, Frank MG, Kessler LR, Zhang H, Hunter EA, Zabat RN, Espino MA, Concha AE, Kulakowski A, Sterrett JD, Gebert MJ, Broussard JL, **Lowry CA** (2023) Effects of immunization with *M. vaccae* in a two-hit stressor model of chronic disruption of rhythms and Western diet in C57BL/6N mice. Poster presentation for CU Sleep and Circadian Summer School, July 30th-August 4, 2023. <https://www.colorado.edu/iphy/research/sleep-and-chronobiology/t32-training-grant/summer-school>
14. Hunter, E.A.H., Rutherford I.R., Wright C.T.O., Holbrook E.M., **Lowry C.A.** (2023). Effects of 10(Z)-hexadecenoic acid, a lipid isolated from *Mycobacterium vaccae* NCTC 11659, on murine bone marrow-derived dendritic cells: A mechanistic analysis. German-Endocrine-Brain-Immune-Network (GEBIN) Conference 2023 in Ulm, Germany September 28th to 30th 2023.
15. Andersen ND, Kessler LR, Ly A, Marquart BM, Dawud LM, Desmond LW, Sago SA, Hunter EAH, Zhang H, Roybal EY, Akonom TN, Wright CTO, Holbrook EM, Lee KAK, Yockey B, Guerrero L, Root DH, Lowry CA. (2023) Sex differences in behavior and hippocampal mRNA expression following stress-enhanced fear learning (SEFL) model eliciting the incubation of

generalized fear and anxiety-like endophenotypes. German-Endocrine-Brain-Immune-Network (GEBIN) Conference 2023 in Ulm, Germany September 28th to 30th 2023.

Kessler LR, Frank MG, Lowry CA (2023) Effects of S1, a subunit of the spike protein of SARS-CoV-2, on the brain and behavior. German-Endocrine-Brain-Immune-Network (GEBIN) Conference 2023 in Ulm, Germany September 28th to 30th 2023. [\[Awarded Outstanding Poster Presenter Award\]](#)

16. Dawud LM, Marquart BM, Desmond LW, Andersen ND, Sago SA, Frank MG, Kessler LR, Zhang H, Hunter EA, Zabat RN, Concha AE, Espino MA, Johnson MG, O'Brien AEZ, Kulakowski A, Sterrett JD, Gebert MJ, Broussard JL, **Lowry CA** (2023) Effects of *Mycobacterium vaccae* ATCC 15483 on biobehavioral health outcomes following a “two-hit” model of chronic disruption of rhythms and a Western diet in male and female C57BL/6N mice. German-Endocrine-Brain-Immune-Network (GEBIN) Conference 2023 in Ulm, Germany September 28th to 30th 2023.

Desmond LW, Holbrook EM, Akonom T, Dawud LM, Marquart BM, Anderson ND, Kessler LR, Hunter EAH, Stuart BJ, Baoteng DA, Guerrero L, **Lowry CA** (2023) *Mycobacterium vaccae* ATCC 15483 immunization as an intervention for Western diet-induced physiological and behavioral changes in adolescent male mice. German-Endocrine-Brain-Immune-Network (GEBIN), September 28-30, 2023, University of Ulm, 89081 Ulm, Germany. [\[Awarded Outstanding Oral Presenter Award\]](#)

17. Lee KAK, Matney JR, Borden SN, Ortiz-Venzor P, Cisneros X, Frank MG, MacDonald AS, Reber SO, **Lowry CA** (2023) The effects of inescapable stress on leukocyte subpopulations in male rats previously treated with *Mycobacterium vaccae* NCTC 11659 Program No. 036.08. 2023 Neuroscience Meeting Planner. Washington, DC, USA: 11-15 November, 2022 Society for Neuroscience, Online.
18. Rutherford I.R., Hunter, E.A.H., Wright C.T.O., Holbrook E.M., **Lowry C.A.** (2023) Effects of a soil *Mycobacterium*-derived lipid, 10(Z)-hexadecenoic acid, on murine dendritic cells: A mechanistic analysis. Program No. 494.09. 2023 Neuroscience Meeting Planner. Washington, DC, USA: 11-15 November 2023 Society for Neuroscience, Online.
19. Stamper CE, Hoisington AJ, Stearns-Yoder KA, Hahhighi F, **Lowry CA**, Brenner LA (2023) Blood-based biomarkers for intestinal permeability: A pilot study of US Veterans with and without posttraumatic stress disorder. Program No. 035.05. 2023 Neuroscience Meeting Planner. Washington, DC, USA: 11-15 November 2023 Society for Neuroscience, Online.
20. Alikhan H, White B, Sterrett JD, Dawud LM, Farag MN, Lowry CA, Perez LJ, DeSipio J, Phadtare S (2023) Characterization of gut and gut microbiome signature in *Helicobacter pylori* patients. American Journal of Gastroenterology. 118(10S): p S1387, October, 2023, DOI: 10.14309/01.ajg.0000957112.75870.6f.
21. Alikhan H, White B, Sterrett JD, Dawud LM, Farag M, **Lowry CA**, Perez LJ, DeSipio J, Phadtare S (2023) Characterization of gut and gut microbiome signature in *Helicobacter pylori* patients. American College of Gastroenterology (ACG) 2023, Vancouver, Canada, October 20-25, 2023. [\[Awarded Outstanding Presenter Award\]](#)

22. Rutherford ID, Wright CTO, Holbrook EM, **Lowry CA** (2023) Effects of a soil *Mycobacterium*-derived lipid, 10(Z)-hexadecenoic acid, on murine dendritic cells: A mechanistic analysis. Front Range Microbiome Symposium. Friday, April 28, 2023, Fort Collins, CO, USA.
23. Guerrero L, Desmond LW, Holbrook EM, Wright CTO, **Lowry CA** (2023) Effects of immunization with *Mycobacterium vaccae* ATCC 15483, a bacterium with anti-inflammatory, immunoregulatory and stress resilience properties, on high-fat/high-sugar “Western” diet-induced weight gain, adiposity, neuroinflammation, and behavior in adolescent male mice. BSI Continuing Scholars Poster Session, Monday, April 24th, 2023, from 4:30-6:30 p.m. in the Rec Center Ice Arena Overlook Room.
24. Sha Q, Achtyes E, Wadhawan A, Dagdag A, Constantine N.T., Makkar H, Mohyuddin I, Brenner LA, RachBeisel JA, **Lowry CA**, Hoisington A.J., Spector AM, Hsu KL, Joseph J, Ernst RK, Leach R, Brundin L, Reynolds MA Postolache TT, (2023) *Porphyromonas gingivalis* K serotype seropositivity and serointensity are associated with peripartum depression. World Congress of Psychiatry (WCP 2023), Vienna, Austria, 28 September-1 October 2023.
25. Le D, Chambers M, Dawud L, Sterrett JD, **Lowry CA**, Pandey M, Phadtare S, Mercado K, Phadtare S, Gutowski C (2023) Characterization of the gut microbiome in an osteosarcoma mouse model. Musculoskeletal Tumor Society Annual Meeting, October 4-6, 2023, Banff, Canada.
26. Brenner LA, Hoisington AJ, Stamper CE, Stearns-Yoder KA, Haghighi F, **Lowry CA** (2023) Blood-based biomarkers for intestinal permeability: A pilot study of US Veterans with and without posttraumatic stress disorder. PNIRS 2023, June 12-15, Hotel Boulderado, Boulder, CO USA.
27. Desmond LW, Holbrook EM, Akonom T, Dawud L, Marquart B, Anderson N, Kessler L, Hunter E, Guerrero L, Boateng D, Stuart J, **Lowry CA** (2023) Effects of immunization with *Mycobacterium vaccae* ATCC 15483, a bacterium with anti-inflammatory, immunoregulatory and stress resilience properties, on high-fat/high-sugar “Western” diet-induced weight gain, adiposity, neuroinflammation, and behavior in adolescent male mice. PNIRS 2023, June 12-15, Hotel Boulderado, Boulder, CO USA.
28. Kessler L, Dawud L, Sterrett J, Elsayed A, Weiss B, Gould J, Pate K, Campbell WK, **Lowry CA** (2023) Ayahuasca-based psychedelic-assisted therapy for PTSD and its effects on the microbiome: a discovery cohort. PNIRS 2023, June 12-15, Hotel Boulderado, Boulder, CO USA.
29. Mazzari G, **Lowry CA**, Langgartner D, Reber SO (2023) Subcutaneous *Mycobacterium vaccae* ameliorates the sex-specific effects of early life adversity alone or in combination with chronic stress during adulthood in mice. PNIRS 2023, June 12-15, Hotel Boulderado, Boulder, CO USA.
30. Swart PC, Malan-Müller S, Seedat S, PGC-PTSD Microbiome Workgroup, Hemmings SMJ (2023) The interaction between the gut microbiome and host genome in posttraumatic stress disorder. 14th International Congress on Human Genetics 2023 (ICHG2023), Cape, South Africa, February 22-26, 2023. www.ichg2023.com
31. Kessler LR, Dawud LM, Sterrett JD, Elsayed AI, Weiss BM, Gould J, Pate K, **Lowry CA** (2021) Ayahuasca-based psychedelic therapy for PTSD and its effects on the microbiome: a discovery cohort. 4th International Conference on Microbiota-Gut-Brain-Axis, “Mind, Mood & Microbes”, a two-day event to be held in Amsterdam, The Netherlands on May 10-11, 2023.

32. Postolache TT, Sha Q, Achtyes E, Wadhawan A, Dagdag A, Constantine N, Makkar H, Upadhyaya SK, Mohyuddin I, Brenner LA, RachBeisel JA, **Lowry CA**, Hoisington A, Schifferle RE, Spector AM, Hsu KL, Joseph J, Ernst RK, Leach R, Brundin L, Reynolds MA (2023) *Porphyromonas gingivalis* K seropositivity is associated with peripartum depression scores, plasma cytokine concentrations, and kynurenic acid level. The 40th International Winter-Workshop on Clinical, Chemical and Biochemical Aspects of Pteridines and Related Topics, Innsbruck, Austria, February 7th -10th, 2023
33. Dagdag A, Kanwar J, Mohyuddin H, Pásaro E, Constantine N, Ortmeyer HK, Tizenberg B, Afram L, Marano C, **Lowry CA**, Hoisington AJ, RachBeisel JA, Lema-Arranz C, Wences-Chirino T, Fernández-Bertólez N, Maseda A, Millán-Calenti JC, Kovacs EJ, Brenner LA, Lorenzo-López L, Valdiglesias V, Laffon B, Postolach TT (2023) *Toxoplasma* IgG serointensity is positively associated with cognitive impairment in older adults even after adjustment for depression. The 40th International Winter-Workshop on Clinical, Chemical and Biochemical Aspects of Pteridines and Related Topics, Innsbruck, Austria, February 7th -10th, 2023
34. Ekin S, Withrow D, Kuppa A, Sprecher K, Fleshner M, Gonzalez A, Lowry CA, Turek FW, Vitaterna MH, Dorrestein PC, Knight R, Wright Jr KP (2023) The effect of a prebiotic diet on cognitive performance, sleepiness and mood. SLEEP 2023, June 3-7, 2023, Indianapolis, IN, USA, Sleep 46, Suppl 1, A89.
35. **Desmond LW**, Akonom T, Dawud L, Marquart B, Anderson N, Kessler L, Hunter E, Guerrero L, Boateng D, Stuart J, Lowry CA (2023) Effects of immunization with *Mycobacterium vaccae* ATCC 15483, a bacterium with anti-inflammatory, immunoregulatory and stress resilience properties, on a high-fat/high-sugar “Western” diet-induced weight gain, adiposity, neuroinflammation, and behavior in adolescent male mice. Presentation for PNIRS, 2023 PNIRS Spring Training Event, February 23 (21-23 GMT) and 24 (16-18 GMT), 2023.
36. Mason AE, Raison C, Hartogensis W, Siwik CJ, Pandya L, Chowdhary A, Patrick R, Moran P, Anglo C, Roberts S, Lupesko-Persky O, Lowry CA, Hecht FM (2023) Whole-body hyperthermia (WBH) as an additional treatment for depression: The HEATBED Study. 38th Annual Society for Thermal Medicine (STM) Meeting, San Diego, CA, USA, April 23-27, 2023.
37. Le D, Chambers M, Dawud L, Sterrett JD, **Lowry CA**, Pandey M, Phadtare S, Mercado K, Gutowski C (2023) Characterization of the gut microbiome In osteosarcoma mouse model. 2023 Annual Meeting of the Orthopaedic Research Society (ORS), February 10-14, Dallas, Texas, USA.
38. Concha AE, Zambrano CA, Holbrook EM, Wright CTO, **Desmond LW**, Middlemist BH, McCurdy LA, Marquart BM, Frank MG, MacDonald AS, Reber SO, **Lowry CA** (2022), *Mycobacterium vaccae* NCTC 11659, a soil-derived bacterium with anti-inflammatory, immunoregulatory, and stress resilience properties, induces a regulatory dendritic cell (DCreg) phenotype through a toll-like receptor 2 (TLR2)-dependent mechanism.. Front Range Neuroscience Group Meeting 2022, December 15, 2022, Hilton – Fort Collins, CO, USA. <https://frng.colostate.edu/>
39. Hunter EA, Dawud LM, Marquart BM, Zhang H, Concha AE, Zabat RN, Gebert MJ, Frank MG, **Lowry CA** (2022) Effects of *Mycobacterium vaccae* ATCC 15483, a bacterium with anti-inflammatory and immunoregulatory properties, on anxiety-like defensive behaviors following a “two-hit” stressor model of chronic disruption of rhythms and a high-fat diet in male and female

C57BL/6N mice. Front Range Neuroscience Group Meeting 2022, December 15, 2022, Hilton – Fort Collins, CO, USA. <https://frng.colostate.edu/>

40. Zhang H, Dawud LM, Marquart BM, Hunter EA, Concha AE, Zabat RN, Gebert MJ, Frank MG, **Lowry CA** (2022) Effects of immunization with *Mycobacterium vaccae* ATCC 15483 on cognitive function in a two-hit stressor model of chronic disruption of rhythms and high-fat diet. Front Range Neuroscience Group Meeting 2022, December 15, 2022, Hilton – Fort Collins, CO, USA. <https://frng.colostate.edu/>
41. Holbrook EM, Wright CTO, Desmond LW, **Lowry CA** (2022) Preventing mental health disorders with 10(Z)-hexadecenoic acid, a novel lipid derived from *Mycobacterium vaccae* NCTC 11659. St. Jude Children's Research Hospital Graduate School of Biomedical Sciences National Symposium for Undergraduate Research (NSUR), October 21, 22, 2022, Memphis, Tennessee, USA.
42. Wright CTO, Zambrano CA, Holbrook EM, **Lowry CA** (2022) *Mycobacterium vaccae* NCTC 11659, a soil-derived bacterium with anti-inflammatory, immunoregulatory, and stress resilience properties, attenuates lipopolysaccharide (LPS)-induced inflammation in murine bone marrow-derived dendritic cells. 2022 St. Jude Children's Research Hospital Graduate School of Biomedical Sciences National Symposium for Undergraduate Research (NSUR), October 21 – 22, 2022, Memphis, TN, USA. <https://www.stjude.org/education-training/predoctoral-training/undergraduate-students/national-symposium-for-undergraduate-research-nsur.html>.
43. Hoisington AJ, Stamper CE, Stanislawski MA, Simonetti JA, Stearns-Yoder KA, Postolache TT, Oslin DW, **Lowry CA**, Brenner LA (2022) Medications and gut, oral, and skin microbiomes: Implications for health and intervention: A United States-Veteran Microbiome Project (US-VMP) Study. Tri-Service Microbiome Consortium Meeting, September 27-28, 2022. https://www.ues.com/hubfs/TSMC_Annual_Program_2022.pdf
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Biological findings from a randomized controlled trial of heated yoga for depression. 11th Mind-Body Interface International Symposium. October 30-31, Taichung, Taiwan,
<https://www.mbisymposium.org/annualindex.php>

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¹² cross-referenced under *Scientific presentations*

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¹³ cross-referenced under *Scientific presentations*

¹⁴ cross-referenced under *Scientific presentations*

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¹⁵ This paper was selected as one of the 16 best posters (8 in preclinical and 8 in interface neuropsychopharmacology) to be presented during the annual congress of the European College of Neuropsychopharmacology (ECNP), which was held in Barcelona, Spain, 30 August - 3 September 2008.

¹⁶ cross-referenced under *Scientific presentations*

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2. Zaidi MA, Dagdag A, Reeves GM, Adsule P, Giegling I, Toma A, Snitker S, Gagnoli C, Mohyuddin I, Georgiou P, **Lowry CA**, Brenner LA, Rujescu D, Postolache TT (2017) Associations between trait-aggression and obesity reveal significant gender differences. ObesityWeek 2017, Washington, DC, October 29-November 2, 2017.
3. Bates K, Hoisingto AJ, Stearns-Yoder K, Bates K, **Lowry CA**, Kinney K, Gilbert J, Brenner LA (2017) Healthy Buildings Europe 2017, Lublin, Poland (July 2-5, 2017).
4. Jones J, Tran L, Heinze JD, Schmidt D, Siebler P, **Lowry CA**. Effects of *M. vaccae* on the circadian rhythms of locomotor activity and core body temperature during chronic circadian disruption. Fourth Annual Colorado Sleep and Circadian Research Symposium. June 1, 2017. Data Blitz Oral Presentation.
5. Elsayed A, Duggan D, Jones J, Trahn L, Heinze JD, Schmidt D, Siebler P, **Lowry CA**. The effects of immunization with *M. vaccae* on the microbiome during chronic circadian disruption. BSI Scholars Research Presentation day. 2017, 28 April; University of Colorado Boulder
6. Bates KL, Stamper CE, **Lowry CA**, Hoisington AJ (2017) Utilizing next generation sequencing to predict human occupation by sampling the built environment. Chemical and Biological Defense Science & Technology (CBD S&T) Conference, Long Beach, CA, USA, November 28-29, 2017.
7. Hoisington AJ, Bates K, Roddenberry A, Maestre J, Richardson M, Stearns-Yoder K, Stamper CE, Kinney K, Brenner L, Gilbert J, **Lowry CA** (2017) Longitudinal assessment of the influence of lifestyle homogenization on the MoBE in a cohort of United States Air Force Cadets. Tri-service meeting, May, 2017.
8. Stearns-Yoder KA, Hoisington AJ, Stamper CE, **Lowry CA**, Brenner LA. (2017) The microbiome-gut-brain axis and mental health in US Veterans. Department of Defense Microbiome Symposium, USAFA, USA, 5-7 April, 2017.
9. Stamper C, Richardson M, Maestre JP, Bates K, Stearns-Yoder K, Kinney K, Brenner L, Gilbert J, Hoisington A, **Lowry CA**. (2017) Longitudinal assessment of the influence of lifestyle homogenization on the MoBE in a cohort of United States Air Force Cadets. Department of Defense Microbiome Symposium, USAFA, USA, 5-7 April, 2017.
10. Hoisington A, Stearns-Yoder K, Bates K, **Lowry CA**, Kinney K, Gilbert J, Brenner L (2017) The microbiome and mental health: Results from longitudinal study of cadets at the United States Air Force Academy. Military Health System Research Symposium. Kissimmee, FL, USA, 27-30 August, 2017.

11. Postolache TT, Brundin L, Groer MW, **Lowry CA**, Seyfang A, Erlangsen A, Fuchs D, Brenner LA (2017) *Toxoplasma gondii*, inflammation and suicidal behavior: Premises for interventional studies. 2017 IASR / AFSP International Summit on Suicide Research, Green Valley Ranch Resort, Spa, & Casino, Henderson, NV, USA, November 5-8, 2017.
12. Postolache TT, Brundin L, Groer MW, Peng X, **Lowry CA**, Fuchs D, Brenner LA (2017) Inflammation and suicidal behavior: Defining clinical subgroups for meaningful interventional studies. 36th International Winter-Workshop Clinical, Chemical and Biochemical Aspects of Pteridines and Related Topics, Innsbruck, Austria, February 21st – 24th, 2017.
13. Raheja UK, Daue ML, Ryan KA, **Lowry CA**, Brenner LA, Zazem S, Mitchell BD, Postolache TT (2017) Immune function, adiponectin, and seasonality of mood and behavior in the Old Order Amish. 36th International Winter-Workshop Clinical, Chemical and Biochemical Aspects of Pteridines and Related Topics, Innsbruck, Austria, February 21st – 24th, 2017.
14. Roddenberry A, Stamper C, Bates K, **Lowry CA**, Hoisington A (2016). Predictive modeling of the origin of human hand microbiome found on personal formite”, Military Health System Research Symposium, Gaylord Palms Resort & Convention Center, Kissimmee, FL, USA, August 15-18, 2016.
15. Bates KL, Stamper CE, Rodenberry A, Kissenger R, Ohms S, **Lowry CA**, Hoisington AJ (2017) Introduction, passaging, and predicting microbe relationship within the built environment. 2017 American Society of Microbiology (ASM) Biothreats: Research, Response, and Policy, Washington, DC, USA, February 6-8, 2017.
16. Peng X, Brenner LA, Mathai AJ, Cook TB, Fuchs D, Postolache N, Groer MW, Giegling I, Hartmann AM, Konte B, Brundin L, Friedl M, Stiller JW, **Lowry CA**, Rujescu D, Postolache TT (2016) Moderation of the relationship between *T. gondii* seropositivity and impulsivity by dopamine precursors. 4th World Congress on Targeting Microbiota, International Society of Microbiota, Institut Pasteur, Paris, France, October 17-19, 2016.
17. Hoisington A, Brenner L, Bates K, Postolache T, Kinney K, **Lowry CA** (2016) The microbiome of the built environment and mental health. The National Academies of Sciences, Engineering, Medicine, Microbiomes of the Built Environment: From Research to Application. Beckman Center at the University of California, Irvine. October 17-18, 2016.
18. Yamashita PSM, Perez GL, Hassell JE, Siebler PH, **Lowry CA** (2016) Preimmunization with a heat-killed preparation of the environmental bacterium *Mycobacterium vaccae* induces anxiolytic-like effects in rats. 2nd Symposium on Serotonin in Anxiety and Depression, Ribeirão Preto-SP, Brazil, 14-16 September 2016, <http://www.symposiumserotonin.com.br/>
19. Postolache N, Peng X, Brenner LA, Mattai A, Cook TB, Fuchs D, Groer MW, Giegling I, Brundin L, **Lowry CA**, Rujescu D, Postolache TT (2016) Trait impulsivity and interactions between phenylalanine/ tyrosine ratio and *Toxoplasma gondii* seropositivity in healthy adults. 16th European Symposium on Suicide and Suicidal Behavior. Oviedo, Spain, September 8-10, 2016. <http://www.esssb16.org/>
20. Gomez OM, Hernandez MT, **Lowry CA** (2016) Characterizing responses of primary biological aerosols to oxidative atmospheric conditions/Elucidating beneficial pathways of *Mycobacteriome*

- exposures in our built environment. The 5th Annual SLOAN MoBE (Microbiology of the Built Environment) Conference, University of Colorado Boulder, June 1-3, 2016.
<http://microbiologybuiltenvironment.weebly.com/conference-program.html>
21. Hoisington AJ, **Lowry CA**, Brenner LA, Platform Presentation from Younger Research Initiatives: Potential pathways for a history of indoor microbiological exposures to manifest in psychological effects, The 5th Annual SLOAN MoBE (Microbiology of the Built Environment) Conference, University of Colorado Boulder, June 1-3, 2016.
<http://microbiologybuiltenvironment.weebly.com/conference-program.html>
 22. Roddenberry AK, Stamper CE, Bates KL, **Lowry CA**, Hoisington AJ. Predictive modelling of the origin of the human hand microbiome found on personal fomites. Military Health System Research Symposium (MHSRS). Kissimmee, FL, USA, August 15-18, 2016.
<https://mhsrs.amedd.army.mil/SitePages/Home.aspx>
 23. Malan-Müller S, Hoisington A, McQueen MB, Barnhart M, Brenner L, Heerse J, Steiner J, Postolache T, Stearns-Yoder K, Seedat S, **Lowry C**, Hemmings SMJ. Gut microbiome profile of PTSD patients from South Africa, Keystone Symposia, Gut Microbiota, Metabolic Disorders and Beyond, April 17-21, 2016, Newport, Rhode Island, USA.
 24. Hoisington AJ, Brenner LA, Kinney KA, Postolache TT, **Lowry CA**. The microbiome of the built environment and mental health. In: Beneficial microbial exposures and positive building interventions. Indoor Air, 2016, The 14th International Conference of Indoor Air Quality and Climate. July 3-8, 2016, Ghent, Belgium.
 25. Arnold M, Greenwood B, McArthur J, Clark P, Fleshner M, **Lowry C**. Effects of repeated voluntary or forced exercise on rat brain serotonergic systems. *13th Annual Front Range Neuroscience Group (FRNG) Meeting*, Fort Collins, CO, USA, December 9, 2015.
 26. Reber SO, Siebler PH, Donner NC, Morton JT, Smith DG, Kopelman JM, Lowe KR, Campbell K, Fox JH, Greenwood BN, Jansch C, Lechner A, Uschold-Schmidt N, Füchs AM, Langgartner D, Walker FR, Hale MW, Lopez Perez G, Van Treuren W, González A, Halweg-Edwards AL, Fleshner M, Raison CL, Rook GAW, Peddada SD, Knight R, **Lowry CA** (2015) Insights into stress-induced pathology. DNA Day 2015, San Diego, CA, September 16, 2015.
 27. Siebler PH, Fox JH, Hassell JE, **Lowry CA**. Immunization with the immunoregulatory saprophytic bacterium, *Mycobacterium vaccae*, enhances fear extinction in adult male Sprague Dawley rats. *Rocky Mountain Regional Neuroscience Group Meeting*, Gossard Forum, Fulginiti Pavilion for Bioethics and Humanities, Anschutz Medical Campus, Aurora, CO, USA, May 15, 2015.
 28. Boyll P, Talboom JS, **Lowry CA**, Arnold M, and Orchinik M. Expression of organic cation transporter 3 (OCT3/Slc22a3) mRNA in the rat midbrain raphe complex. *21st Annual School of Life Sciences Undergraduate Research (SOLUR) Symposium*, Tempe, AZ, April 4, 2014.
 29. Donner NC, Kubala KH, Drugan RC, Maier SF, **Lowry CA**. Inescapable tail shock increases *tph2* mRNA and Tph2 protein selectively in the dorso-caudal dorsal raphe nucleus, and interacts with cold swim stress to cause a proinflammatory cytokine milieu and depressive-like behavior. *International Congress of Neuroendocrinology (ICN)*. Sydney, Australia, August 17-20, 2014.

30. Hassell JE, Li H, Rogers J, Ferrell S, Orchinik O, **Lowry CA**, Renner KJ. Inhibition of organic cation transporter 3 (OCT3) in the central nucleus of the amygdala increases extracellular serotonin and reduces fear expression. *12th Annual Front Range Neuroscience Group (FRNG) Meeting*, Fort Collins, CO, USA, December 10, 2014.
31. Russo A, Richdale A, Dissanayake C, Lesku J, Kent S, Somers WG, **Lowry CA**, Hale M. Anxiety-like behaviour in a mouse model of Autism Spectrum Disorder. *Australasian Society for Autism Research (AsfAR)*, La Trobe University, Melbourne, 4-5 December, 2014. <http://asfar.org.au/2014-conference/>
32. Talboom JS, Molinaro JL, **Lowry CA**, Renner K, and Orchinik M (2014) Resolving the transport kinetics of the corticosterone-sensitive organic cation transporter 3 (OCT3/Slc22a3) in the male rat brain. *The 2014 Arizona Alzheimer's Consortium meeting*, Phoenix, AZ, June 5, 2014.
33. Waider J, Donner NC, Popp S, Kolter J, Lesch KP, **Lowry CA**. Differential activation of serotonin deficient neurons due to fear conditioning training. *27th European College of Neuropsychopharmacology (ECNP) Congress*, Berlin, Germany, 2014.
34. Talboom JS, Molinaro J, Tompkins HC, Mumaw L, **Lowry CA**, Renner K, and Orchinik M (2013) Localization of the corticosterone-sensitive organic cation transporter 3 (OCT3/Slc22a3) mRNA and protein in the male rat brain via in situ hybridization and immunohistochemistry. *The 2013 Arizona Alzheimer's Consortium meeting*, Phoenix, AZ, May 24, 2013.
35. Arnold MA, Greenwood BN, McArthur JA, Clark PJ, Fleshner M, **Lowry CA**. Effects of repeated voluntary or forced exercise on rat brain thermosensitive serotonergic systems. *Front Range Neuroscience Group Meeting*, Fort Collins, CO, USA, December 4, 2013.
36. Brooks LR, Woolaver RA, Enix CL, **Lowry CA**, Tsai PS. A developmentally compromised serotonergic system is associated with reduced serotonin neuronal activation in response to stress: the role of fibroblast growth factor 8. *Front Range Neuroscience Group Meeting*, Fort Collins, CO, USA, December 4, 2013.
37. Dady KF, Stamper CE, Quach A, **Lowry CA**. Effects of bilateral temporary inactivation of the rat lateral parabrachial nucleus on antidepressant-like behavioral effects of citalopram. *UROP/HHMI undergraduate poster session*, Boulder, CO, April 22, 2013.
38. Donner NC, Matti AJ, **Lowry CA**. Chronic glucocorticoid intake alters basal Tph2 protein expression in anxiety- and resilience-related midbrain serotonergic systems. *Front Range Neuroscience Group Meeting*, Fort Collins, CO, USA, December 4, 2013.
39. Donner NC, Mani S, Johnson PL, Fitz SD, Shekhar A, **Lowry CA**. Increased conflict anxiety and alteration of serotonergic gene expression after priming of CRF receptors in the bed nucleus of the stria terminalis. *22nd Annual Meeting of the International Behavioral Neuroscience Society (IBNS)*, Malahide, County Dublin, Ireland, June 25-30, 2013.
40. Donner NC, Paul ED, **Lowry CA**. CRF receptor type 1 and type 2 differentially control stress-induced brain serotonin synthesis, *45th Annual Meeting of the European Brain and Behaviour Society (EBBS)*, Munich, Germany, September 6-9, 2013.

41. Fields BK, Paul ED, Heinze JD, **Lowry CA**. Repeated defeat increases hypothalamic melanin-concentrating hormone (MCH) neuronal activation in the rat. UROP/HHMI Symposium, University of Colorado Boulder, April 22, 2013.
42. Flores, B, Zuniga, A, Siebler PHW, **Lowry CA**. The effects of *Mycobacterium vaccae* on serotonergic systems, immune activation, and behavior in the forced swim test. SMART program, Leadership Alliance National Symposium (2013 LANS), Stamford, Connecticut, USA, July 26-28, 2013,
43. **Lowry CA**. Serotonergic systems and emotional behavior. GK-Emotions – 15th Spring School 2013, Emotional Disorders and Their Neural Correlates, April 10th-12th, 2013, Tagungsstätte Schloss Schwanberg, Germany. <http://www.schwanberg.de/index.php/tagungsstaette.html>
44. **Lowry CA**, Dady, KF, Barbour PM, Donner NC, Kopelman JM, Russell DS, Scotti MA, Brazell CJ, Quach A, Marks MJ, Raison CL, Wang X (2013) A novel class of antidepressant drugs with potential for rapid onset of action, greater clinical efficacy, and fewer side effects. 6th Butcher Symposium, Westminster, CO, USA, November 1, 2013.
45. Kolisch E, Stamper CE, Fox JH, **Lowry CA**. The effects of norepinephrine microinjections into the central nucleus of the amygdala on serotonergic activity in the dorsal raphe nucleus and fear-related behavior. UROP/HHMI undergraduate poster session, Boulder, CO, April 22, 2013.
46. Lowe KR, Donner NC, Reber S, **Lowry CA**. Effects of *Mycobacterium vaccae* on *slc6a4* mRNA expression in psychosocially stressed mice. UROP/HHMI undergraduate poster session, Boulder, CO, April 22, 2013.
47. Mani S, Donner NC, Fitz SD, Shekhar A, **Lowry CA**. Altered serotonergic gene expression associated with anxiety-like behavior after Crh receptor priming in the bed nucleus of the stria terminalis. Front Range Neuroscience Group Meeting, Fort Collins, CO, USA, December 4, 2013.
48. Paul ED, Fields BKK, Heinze JD, Hale MW, Lukkes JL, Kerman IA, **Lowry CA**. Acute and repeated social defeat differentially activate hypothalamic orexin/hypocretin and melanin-concentrating hormone neurons in the male rat. Front Range Neuroscience Group Meeting, Fort Collins, CO, USA, December 4, 2013.
49. Siebler PHW, Hale MW, Lukkes JL, Donner NC, Kopelman JM, **Lowry CA**. Treatment with a heat-killed preparation of *Mycobacterium vaccae* activates a mesolimbocortical subset of serotonergic neurons and has antidepressant-like behavioral effects in mice. Anxiety Disorders and Depression Conference 2013. San Diego, CA, USA, April 4-7, 2013.
50. Shekhar A, **Lowry CA**, Johnson PL. Novel translational approaches to elucidate the pathophysiology of panic and agoraphobia. 1st World Symposium on Translational Models of Panic and Comorbid Disorders, Vitória, Brazil, 14-16 November, 2012.
51. Johnson, Dante, Donner NC, **Lowry CA**. Activate your anxiety network. SMART program, Leadership Alliance National Symposium (2012 LANS) Hartford Marriott Downtown, Hartford, Connecticut., <http://www.theleadershipalliance.org/> , July 27-29, 2012.

52. Villarreal, Marcos, Donner NC, **Lowry CA**. How *Mycobacterium vaccae* may cure chronic depression. SMART program, Leadership Alliance National Symposium (2012 LANS) Hartford Marriott Downtown, Hartford, Connecticut., <http://www.theleadershipalliance.org/> , July 27-29, 2012.
53. Stamper CE, Hennessey PA, Hale MW, Lukkes JL, Lowe K, Spencer RL, Renner KJ, Orchinik M, **Lowry CA** (2012) Development of a model for investigation of mechanisms underlying glucocorticoid-mediated fast feedback control of the hypothalamic-pituitary-adrenal axis using restraint stress and an automated blood sampling system. Neurobiology of Stress Workshop, University of Pennsylvania, Philadelphia, PA, June 12-15, 2012.
54. Enix C, Brooks L, **Lowry CA**, Tsai P.S. (2012) Fgf signaling, serotonergic system, and anxiety-like behavior. UROP/HHMI poster session, Boulder, CO, April 17, 2012.
55. Dawud LM, Paul ED, Hale MW, Lukkes JL, Donner NC, Hennessey PA, **Lowry CA** (2012) Adverse early life experience increases reactive coping behavior during social defeat in adult rats. UROP/HHMI poster session, Boulder, CO, April 17, 2012.
56. Lowe KR, Stamper CE, Hennessey PA, Hale MW, Spencer RL, Renner KJ, Orchinik M, **Lowry CA** (2012) Automated blood sampling technology for investigation of mechanisms underlying glucocorticoid-mediated fast feedback control of the hypothalamic-pituitary-adrenal axis. UROP/HHMI poster session, Boulder, CO, April 17, 2012.
57. Mani S, Donner NC, Siebler PH, **Lowry CA** (2012) Chronic corticosterone intake potentiates acoustic startle-induced increases of tryptophan hydroxylase activity in anxiety-related subdivisions of the dorsal raphe nucleus in male rats. UROP/HHMI poster session, Boulder, CO, April 17, 2012.
58. Matti AJ, Donner NC, Wacker AJ, **Lowry CA** (2012) Diurnal pattern of htr1a mRNA expression after chronic, non-invasive corticosterone treatment of adult, male rats. UROP/HHMI poster session, Boulder, CO, April 17, 2012.
59. Donner NC, Horton WJ, Kopelman JM, Stitzel JA, **Lowry CA** (2012) Depressive-like phenotype in male mice after two weeks of nicotine treatment . IBANGS, International Behavioural and Neural Genetics Society, Genes, Brain & Behavior 14th Annual Meeting, May 15-19, Boulder, CO, USA. Online.
60. Dady KF, Hale MW, Lukkes JL, Kelly KJ, Raison CL, **Lowry CA** (2012) Interactions between thermoregulatory challenge and antidepressant drugs on behavior. IBANGS, International Behavioural and Neural Genetics Society, Genes, Brain & Behavior 14th Annual Meeting, May 15-19, Boulder, CO, USA. Online.
61. Lukkes JL, Burke AR, Long MT, Armijo LM, Hale MW, **Lowry CA** (2012) Isolation-rearing during adolescence followed by re-socialization alters behavioral responses to social defeat in adulthood in association with altered functional responses of serotonergic neurons in the dorsal raphe nucleus of male rats. IBANGS, International Behavioural and Neural Genetics Society, Genes, Brain & Behavior 14th Annual Meeting, May 15-19, Boulder, CO, USA. Online.

62. Lukkes JL, Kopelman JM, Donner NC, Hale MW, **Lowry CA** (2012) Adolescent social isolation alters tryptophan hydroxylase 2 mRNA expression in the dorsal raphe nucleus of adult female rats. IBANGS, International Behavioural and Neural Genetics Society, Genes, Brain & Behavior 14th Annual Meeting, May 15-19, Boulder, CO, USA. Online.
63. Donner NC, Kubala KH, Drugan RC, Maier SF, **Lowry CA** (2012) Inescapable tail shock and cold swim stress interact to elevate tph2 mRNA expression in an anxiety-related subset of serotonergic neurons. IBNS 21st Annual Meeting, Sheraton Keauhou Bay, Kailua-Kona, Hawaii, USA, June 5-10, 2012.
64. Burke AR, Lukkes JL, Long MT, Armijo LM, Hale MW, **Lowry CA** (2012) Post-weaning social isolation alters behavioral responses to social defeat in adulthood in association with altered functional responses of serotonergic neurons in the dorsal raphe nucleus. IBNS 21st Annual Meeting, Sheraton Keauhou Bay, Kailua-Kona, Hawaii, USA, June 5-10, 2012.
65. Lukkes JL, Kopelman JM, Donner NC, Hale MW, **Lowry CA** (2012) Effects of adolescent social isolation on tryptophan hydroxylase 2 mRNA expression in the dorsal raphe nucleus of adult female rats. IBNS 21st Annual Meeting, Sheraton Keauhou Bay, Kailua-Kona, Hawaii, USA, June 5-10, 2012.
66. Dady KF, Hale MW, Lukkes JL, Kelly KJ, Raison CL, **Lowry CA**. Integrative physiology of antidepressant drug action. Front Range Neuroscience Group Meeting, Fort Collins, CO, USA, December 7, 2011.
67. Donner NC, Johnson PL, Fitz SD, Kellen K, Shekhar A, **Lowry CA**. Elevation of *tph2* mRNA expression in an amygdala priming model of chronic anxiety in rats. Front Range Neuroscience Group Meeting, Fort Collins, CO, USA, December 7, 2011.
68. Lukkes JL, Kopelman JM, Donner NC, Hale MW, **Lowry CA**. Effects of adolescent social isolation on *tph2* mRNA expression in female rats. Front Range Neuroscience Group Meeting, Fort Collins, CO, USA, December 7, 2011.
69. Lukkes JL, **Lowry CA** (2011) The effects of post-weaning social isolation on serotonergic systems and behavior, Front Range Neuroscience Group Meeting, Fort Collins, CO, USA, December 7, 2011.
70. Siebler PHW, Hale MW, Lukkes JL, **Lowry CA**. The nonpathogenic, saprophytic bacterium, *Mycobacterium vaccae*, selectively activates a subset of serotonergic neurons in the dorsal raphe nucleus in association with hypothermia in mice. Front Range Neuroscience Group Meeting, Fort Collins, CO, USA, December 7, 2011.
71. Kellen, K, Donner NC, Johnson PL, Fitz SD, Shekhar A, **Lowry CA**. Expression of serotonin transporter (sert) mRNA in a rat model of social-anxiety disorder. SMART program, Leadership Alliance National Symposium (2011 LANS), Greenwich, Connecticut, USA, July 29-31, 2011.
72. Wacker AJ, Donner NC, **Lowry CA** Dose-dependent effects of acute, non-invasive corticosterone delivery on activation of neuronal circuits relevant for anxiety and affective disorders. BSI / UROP-HHMI Poster Session, University of Colorado Boulder, USA, April 11, 2011.

73. Lukkes, JL, **Lowry CA**. The effects of post-weaning social isolation on serotonergic systems and behavior. International Behavioral Neuroscience Society (IBNS), Steamboat Springs, Colorado, USA, May 24-29, 2011.
74. Dady KF, Hale MW, Evans AK, **Lowry CA**. Evidence for *in vivo* thermosensitivity of serotonergic neurons in the rat dorsal raphe nucleus and raphe pallidus nucleus. Front Range Neuroscience Group Meeting, Fort Collins, Colorado, USA, December 8, 2010.
75. Paul ED, Hale MW, Lukkes JL, Valentine MJ, Sarchet DM, **Lowry CA**. Repeated social defeat increases reactive coping behavior in the male rat: a potential role for the dorsal raphe nucleus. Front Range Neuroscience Group Meeting, Fort Collins, Colorado, USA, December 8, 2010.
76. Donner NC, Montoya CD, **Lowry CA**. Chronic, non-invasive corticosterone delivery induces anxiety- and depression-like behavior, and disrupts the diurnal pattern of *tph2* mRNA expression and HPA axis activity. Front Range Neuroscience Group Meeting, Fort Collins, Colorado, USA, December 8, 2010.
77. Hale MW, Johnson PL, Abrams JK, Shekhar A, **Lowry CA**. Multiple anxiogenic drugs recruit a parvalbumin-containing subpopulation of GABAergic interneurons in the rat basolateral amygdala. Front Range Neuroscience Group Meeting, Fort Collins, Colorado, USA, December 8, 2010.
78. Kelly KJ, Donner NC, Hale MW, **Lowry CA**. *In vivo* evidence for a cold temperature sensitive serotonergic system. Front Range Neuroscience Group Meeting, Fort Collins, Colorado, USA, December 8, 2010.
79. Lukkes JL, Engelman GH, Hale MW, **Lowry CA**. Effects of post-weaning social isolation on behavior and anxiogenic drug-induced c-Fos expression in serotonergic neurons in the female rat dorsal raphe nucleus. Front Range Neuroscience Group Meeting, Fort Collins, Colorado, USA, December 8, 2010.
80. Stamper CE, Hale MW, **Lowry CA**. The distribution of urocortin 2-like immunoreactivity in the rat brain. Front Range Neuroscience Group Meeting, Fort Collins, Colorado, USA, December 8, 2010.
81. Harvey JC, Hale MW, Lukkes JL, Westerman AM, Shekhar A, **Lowry CA**. Neural systems regulating anxiety states and anxiety-related behavior: the role of serotonergic systems in the dorsal raphe nucleus. 2010 Annual Biomedical Research Conference for Minority Students (ABRCMS), Charlotte, North Carolina, USA, November 10-13, 2010
82. Harvey JC, Hale MW, Lukkes JL, Westerman AM, Shekhar A, **Lowry CA**. Neural systems regulating anxiety states and anxiety-related behavior: the role of serotonergic systems in the dorsal raphe nucleus. SMART/NIH-HHMI Summer Poster Session, Boulder, CO, USA, August 5, 2010.
83. Harvey JC, Hale MW, Lukkes JL, Westerman AM, Shekhar A, **Lowry CA**. Neural systems regulating anxiety states and anxiety-related behavior: the role of serotonergic systems in the dorsal raphe nucleus. SMART program, Leadership Alliance National Symposium (2010 LANS), East Brunswick, New Jersey, USA, July 30 to August 1, 2010.

84. Dady KF, Hale MW, Evans AK, **Lowry CA**. Evidence for *in vivo* thermosensitivity of serotonergic neurons in the rat dorsal raphe nucleus and raphe pallidus nucleus. Neurobiology of Stress Workshop 2010, Boulder, Colorado, USA, June 15-18, 2010.
85. Donner NC, Montoya CD, Wacker AJ, **Lowry CA**. Chronic corticosterone via the drinking water disrupts the circadian HPA axis rhythm and causes anxiety- and depressive-like behavior in adrenal-intact male rats. Neurobiology of Stress Workshop 2010, Boulder, Colorado, USA, June 15-18, 2010.
86. Doyle TB, Evans AK, **Lowry CA**. Electrophysiological evidence for a thermosensitive subpopulation of serotonergic neurons in the rat dorsal raphe nucleus. Neurobiology of Stress Workshop 2010, Boulder, Colorado, USA, June 15-18, 2010.
87. Engelman GH, Lukkes JL, Hale MW, **Lowry CA**. Post-weaning social isolation sensitizes female rats to anxiogenic drug-induced increases in c-Fos expression in serotonergic neurons in the dorsal raphe nucleus. Neurobiology of Stress Workshop 2010, Boulder, Colorado, USA, June 15-18, 2010.
88. Hale MW, Johnson PL, Abrams JK, Shekhar A, **Lowry CA**. Multiple anxiogenic drugs recruit a parvalbumin-containing subpopulation of GABAergic interneurons in the basolateral amygdala. Neurobiology of Stress Workshop 2010, Boulder, Colorado, USA, June 15-18, 2010.
89. Lukkes JL, Staub DR, Dietrich A, Truitt B, Neufeld-Cohen A, Chen A, Johnson PL, Shekhar A, **Lowry CA**. Topographical distribution of corticotropin-releasing factor type 2 (CRF₂) receptor-like immunoreactivity in the rat dorsal raphe nucleus: co-localization with tryptophan hydroxylase. Neurobiology of Stress Workshop 2010, Boulder, Colorado, USA, June 15-18, 2010.
90. Paul ED, Hale MW, Valentine MJ, Sarchet DM, **Lowry CA**. Repeated social defeat increases passive-submissive coping behavior in the male rat: a potential role for the dorsal raphe nucleus. Neurobiology of Stress Workshop 2010, Boulder, Colorado, USA, June 15-18, 2010.
91. Spannuth BM, Hale MW, Evans AK, Lukkes JL, Campeau S, **Lowry CA**. Fear-potentiated startle induces c-Fos expression in serotonergic neurons in the dorsal part of the dorsal raphe nucleus. Neurobiology of Stress Workshop 2010, Boulder, Colorado, USA, June 15-18, 2010.
92. Stamper CE, Hale MW, **Lowry CA**. The distribution of urocortin 2-like immunoreactivity in the rat brain. Neurobiology of Stress Workshop 2010, Boulder, Colorado, USA, June 15-18, 2010.
93. Westerman AM, Hale MW, Shekhar A, **Lowry CA**. Exposure to an open-field in low-light and high-light conditions increases c-Fos expression in phenotypically distinct subpopulations of neurons in the rat basolateral amygdala, Neurobiology of Stress Workshop 2010, Boulder, Colorado, USA, June 15-18, 2010.
94. Lukkes JL, Engelman GH, Hale MW, **Lowry CA**. Post-weaning social isolation sensitizes female rats to FG-7142-induced increases in c-fos expression in serotonergic neurons in the dorsal raphe nucleus. UROP/HHMI poster session, Boulder, Colorado, USA, April 19, 2010.
95. Dady KF, Hale MW, Evans AK, **Lowry CA**. Evidence for *in vivo* thermosensitivity of serotonergic neurons in the rat dorsal raphe nucleus and raphe pallidus nucleus. UROP/HHMI poster session, Boulder, Colorado, USA, April 19, 2010.

- 96.** Wacker AJ, Montoya CD, Donner NC, **Lowry CA**. Physiological effects of acute versus chronic pulsatile corticosterone treatment in adrenal-intact male rats. UROP/HHMI poster session, Boulder, Colorado, USA, April 19, 2010.
- 97.** Rozeske RR, Evans AK, Watkins LR, **Lowry CA**, Maier SF. Escapable and inescapable stress differentially alter 5-HT_{1A} receptor-mediated inhibition of neuronal firing rates within the dorsomedial dorsal raphe nucleus. International Behavioral Neuroscience Society (IBNS), Villasimius, Sardinia, Italy, June 8-13, 2010.
- 98.** Lukkes JL, Engelman GH, Hale MW, **Lowry CA**. Post-weaning social isolation sensitizes female rats to FG-7142-induced increases in c-Fos expression in serotonergic neurons in the dorsal raphe nucleus. International Behavioral Neuroscience Society (IBNS), Villasimius, Sardinia, Italy, June 8-13, 2010.
- 99.** Spannuth BM, Hale MW, Evans AK, Lukkes JL, Campeau S, **Lowry CA**. Fear-potentiated startle induces c-Fos expression in serotonergic neurons selectively within the dorsal part of the mid-rostrocaudal dorsal raphe nucleus. Front Range Neuroscience Group Meeting, Fort Collins, Colorado, USA, November 11, 2009.¹⁷
- 100.** Stamper CE, Hale MW, Staub DR, **Lowry CA**. Urocortin 2 activates a subpopulation of ventricle-projecting serotonergic neurons in the dorsal raphe nucleus. Front Range Neuroscience Group Meeting, Fort Collins, Colorado, USA, November 11, 2009.
- 101.** Westerman AM, Hale MW, **Lowry CA**. Exposure to an open-field in low-light and high-light conditions increases c-Fos expression in phenotypically distinct subpopulations of neurons in the rat basolateral amygdala. Front Range Neuroscience Group Meeting, Fort Collins, Colorado, USA, November 11, 2009.
- 102.** Nguyen T, Hale MW, Lukkes JL, **Lowry CA**. The effect of intragastric administration of *Mycobacterium vaccae* on the serotonergic systems. 14th Annual McNair Colloquium, Boulder, Colorado, USA, August 14, 2009,.
- 103.** Nguyen T, Hale MW, Lukkes JL, **Lowry CA**. The effect of intragastric administration of *Mycobacterium vaccae* on the serotonergic systems. National Annual McNair Conference, Berkeley, California, USA, August 2009..
- 104.** Montoya CD, Donner NC, **Lowry CA**. Effects of acute, pulsatile corticosterone treatment on water consumption, body weight, and the brain serotonergic system. SMART/NIH-HHMI Summer Poster Session, Boulder, Colorado, USA, August 6, 2009.
- 105.** Anbuhl, KL, Hale MW, **Lowry CA**. The effects of subcutaneous and intratracheal administration of *Mycobacterium vaccae* on catecholaminergic systems in mice. SMART/NIH-HHMI Summer Poster Session, Boulder, Colorado, USA, August 6, 2009.

¹⁷ Awarded Outstanding Undergraduate Poster Presentation

- 106.** Stamper CE, Hale, MW, **Lowry CA**. The distribution of serotonergic and non-serotonergic neuronal projections from the midbrain raphe complex to the basolateral nucleus of the amygdala. Sigma Xi Annual Meeting & Student Research Conference, Washington DC, USA, November 20-23, 2008.
- 107.** Evans AK, Heerkens J, **Lowry CA**. Corticotropin-releasing factor *in vitro* and aversive acoustic stimulation *in vivo* increase tryptophan hydroxylase activity in the caudal dorsal raphe nucleus. Program No. 31. Front Range Neuroscience Group Meeting, Fort Collins, Colorado, USA, December 8, 2008.
- 108.** Hale MW, Stamper CE, **Lowry CA**. Distribution of serotonergic and non-serotonergic neuronal projections from the midbrain raphe complex to the basolateral nucleus of the amygdala. Program No. 12. Front Range Neuroscience Group Meeting, Fort Collins, Colorado, USA, December 8, 2008.
- 109.** Staub DR, Dietrich A, Truitt B, Chen A, Johnson PL, **Lowry CA**. Corticotropin-releasing factor type 2 (CRF2) receptor-like immunoreactivity in the DR. Philadelphia Chapter of the Society for Neuroscience, Drexel University College of Medicine, Philadelphia, Pennsylvania, USA, February 5, 2008.
- 110.** Evans AK, Reinders N, Ashford K, Christie I, Wakerley JB, **Lowry CA**. Evidence for serotonin synthesis-dependent regulation of *in vitro* neuronal firing rates in subdivisions of the rat midbrain raphe complex. Annual Meeting of the Front Range Neuroscience Group (FRNG), Fort Collins, Colorado, USA, 10 December 2007.
- 111.** **Lowry CA**, Hollis JH, de Vries A, Pan B, Rosa Brunet L, Hunt JRF, Paton JFR, van Kampen E, Knight DM, Evans AK, Rook GAW, Lightman SL. Evidence for a population of brainstem serotonin neurones that respond to inflammation and regulate mood. The Association of Physicians Meeting, University of Bristol, Bristol, UK, 29-30 March 2007.

Colorado Multiple Institutional Review Board (COMIRB) Protocols

Protocol #: TBD, Evaluating the Effects of *Lactobacillus reuteri* DSM 17938 on State and Trait Stress in Stressed Adults. Lauren Finkelstein (PI). Convened IRB Modifications Required to Secure Approval for IRB Protocol October 28, 2022

Protocol #: 16-2076, Examining the relationship between microbiota, mental health, and exposure to canines among Veterans. Lisa A. Brenner (PI), Christopher A. Lowry (Co-I) Subcommittee on Research Safety (SRS) Approval, 04/28/2017 (SRS#: 17140)

Protocol #: 16-0177, Immune Activation and the Polytrauma Clinical Trial. Lisa A. Brenner (PI). Approved 11/22/2016. Subcommittee on Research Safety (SRS) Approval, 11/25/2016

Protocol #: 15-1885, Examining Gut, Oral and Skin Microbiota in Veterans. Lisa A. Brenner (PI), Christopher A. Lowry (PI). Approved 02/26/2016. VA Research Approval, 03/25/2016, Subcommittee on Research Safety (SRS) Approval, 07/28/2016, SRS CRV/Amend Approval, 02/24/17, SRS CRV/Amend Approval, 02/23/18

Protocol #: 14-1804, Acceptability and Feasibility of *L. reuteri* among Veterans: A Stress Resilience Model. Lisa A. Brenner (PI), Christopher A. Lowry (PI), Theresa D. Hernández (Co-I), Steve Bartlett

(Co-I), Jeri Forster (Co-I), Teodor Postolache (Co-I). Subcommittee on Research Safety (SRS) Approval, 09/23/2016 (SRS#: 16407); Amendment approved, Subcommittee on Research Safety (SRS) Approval, 12/21/2016 (SRS#: 16526)

Protocol #: 16-2138, Is disruption of the human gut microbial environment associated with cognitive impairment following chemotherapy for breast cancer? Kristin Kilbourn, PhD MPH (PI), (Co-I), Kristin Kilbourn (PI), Christopher A. Lowry (Co-I), Jim Grigsby (Co-I), Virginia Borges (Co-I), Amy Huebschmann (Co-I); Approved 05/02/17

Protocol #: 16-0117, Immune Activation and the Polytrauma Clinical Trial. (SRS#: 17499)

Protocol #: 17-2181, (SRS#: 17551) Approved 12/21/2017

Other Institutional Review Board Protocols

Health Research Ethics Committee 1 and 2, Stellenbosch University, The saNeuroGut Initiative: exploring the link between the gut microbiome and neuropsychiatric disorders in South African populations, Role: Sub-Investigator

Patents

US Patent awarded, Immunotherapeutic agent. Patent No. US 10,736,864 B2, Aug. 11, 2020

US Patent awarded, Protection from stress, anxiety, neuroinflammation, and cognitive dysfunction, Patent No. 11,433,126 B2, Sep. 6, 2022

Teaching

Teaching Activities at CU Boulder

Courses Taught at CU Boulder (2007-present)

IPHY 6010, Microbiome-gut-brain axis	25 students	Spring 2023, Spring 2024
IPHY 4440 Endocrinology	140 students/class	Spring 2022
MCDB/IPHY 1181 Biological Probiotic/Drug Discovery Through Hands-on Screens	16 students/class	Spring 2022
IPHY 1020, Introduction to IPHY, 1 1 h session; course instructor, Ruth Heisler	360 students/class	Fall 2021
Graduate Teacher Program Friday Workshops series , Instructor for 1 h workshop on Mentoring Undergraduate Research Students, Friday, March 22, 2019, https://www.colorado.edu/gtp/workshops/inclusive-classroom	12 students/class	2019
Health Professions Residential Program (HRAP) lab tour, April 10, 2019 (Course instructor, Tanya Alderete)	25 students/class	2019
IPHY/MCDB 1181, Biological probiotic/drug discovery through hands-on screens. Classroom Undergraduate Research Experience (CURE)	16 students/class	Spring 2019, Fall 2019, Spring 2022
NRSC 5110 – Introduction to Neuroscience II; “Respiratory and Cardiovascular Systems”. Neuroscience Core Course, (1 x 2 h, 30 min session; course instructor, Serge Campeau)	25 students/class	2019, 2020, Spring 2022, Spring 2023
Responsible Conduct of Research; lecturer for <i>Protection of Laboratory Animals</i> (1 1 h session; course instructor, Dale Mood; Mary A. Allen)	45 students/class	2016, 2017, Spring 2018, Fall 2018, 2019
Responsible Conduct of Research; breakout discussion group leader for <i>Use of Laboratory Animals</i> (1 1 h session; course instructor, Dale Mood)	45 students/class	2011, 2012, 2013
PSYC 5112, Scientific Integrity and the Responsible Conduct of Research, on the topic of ethical and practical issues faced by the UCB IACUC. Instructor, Rhee Soo Hyun.		2018

IPHY 1450 (2) Intro to STEM Research Method: In the Field and at the Bench. Introductory course for first generation students. Lecture on Immunization Strategies for Mental Health, November 6, 2017. Instructors, Tammy Maldonado and Kristin Swihart		2017
IPHY 3700, Scientific Writing in Integrative Physiology, Outside Reviewer of final reports; Taylor Mack (3 credits)		2017
ARSC 1470, Darwinian Medicine; invited lecturer, March 30, 2021, 25 MASP students, (course instructor, Katharine A. Semsar) (1 credit)		Spring 2021
ARSC 1492, Darwinian Medicine; invited lecturer, April 27, 2017, May 20, 2018, April 24, 2019, March 17, 2020, 25 MASP students, (course instructor, Katharine A. Semsar) (1 credit)		Spring 2017, Spring 2018, Spring 2019, Spring 2020
ARSC 1450, Introduction to STEM Research Methods; invited lecturer, March 30, 2015, 2-3 p.m., November 6, 2015, all MASP students (course instructors, Tammy Maldonado and Kristin Swihart)		2015, 2017
IPHY 6830 – Professional Skills for the Research Scientist; IACUC (45 min session; course instructor Kenneth Wright and Monique LeBourgeois)	30 students/class	2013, 2015 2019
IPHY 6010 – Graduate seminar in Stress Physiology	12 students/class	2013
IPHY 6010 – Methods in Integrative Physiology, Circadian, and Sleep Research (90 min session; course instructor Kenneth Wright and Mark Opp)	12 students/class	Spring 2022
IPHY 4440 – Endocrinology	75-140 students/class	2012, 2013, 2016, S17, F17, S20, S22, S24
IPHY 5440 – Graduate Endocrinology		S17
IPHY 4930 – Internship	1-2 students/class	S13, F13, S14(2), F14, S16, S17, S18
IPHY 3410 – Introduction to Human Anatomy	240 students/class	2007, 2009, 2011, 2012
IPHY 2910 – Practicum in Integrative Physiology	1 student/class	2008
IPHY 6830 – Professional Skills for the Research Scientist; Starting up a Lab: Some Tips and Advice (1 75 min session; course instructor Doug Seals)	25 students/class	2008, 2009

NRSC 5110 – Introduction to Neuroscience II; “Serotonin: Molecular, functional, and clinical aspects”. Neuroscience Core Course, (1 2 h, 30 min session; course instructor, Steven Maier)	25 students/class	2008, 2009
IPHY 4660 – Critical Thinking in Integrative Physiology: Neural mechanisms underlying stress responses	7-25 students/class	2009, 2011
IPHY 6830 – Professional Skills for the Research Scientist; Balancing Professional and Personal Life (1 75 min session; course instructor Doug Seals)	16 students/class	2011

Masters Teaching (other than at CU) including Masters classes, workshops, clinics, and residencies

Spring 2023, PGY-4 Psychiatry Residency program, Anschutz Health Sciences Building, University of Colorado Anschutz Medical Campus, Aurora, Colorado, USA, June 7, 2023, for Kyle Baird, Associate Program Director, Psychiatry Residency Training Program, University of Colorado School of Medicine	13 students/class	2023
Microbiome workshop, 2 nd , 3 rd , and 4 th year residents, St. Elizabeth’s Hospital, Department of Psychiatry, January 10, 2018	20 students/class	2018

IPHY 4860 – Undergraduate Independent Study at CU Boulder

Student	Research topic	Year(s)
Trevor Doyle	TRPv4, thermosensitivity of serotonergic systems	2009
Kelsey Anbuhl	<i>M. vaccae</i> and catecholaminergic systems	2009
Andra Wilkinson	Psychoneuroimmunology and economics	2009
Jon Harvey	Anxiogenic drugs and serotonergic systems	2010
Karen Kellen	Amygdala priming and <i>slc6a4</i> expression	2011
Andrew Wacker	Corticosterone and forebrain limbic systems	2011
Marcos Daniel Villarreal	<i>M. vaccae</i> and <i>slc6a4</i>	2012
Danté Johnson	BNST priming and <i>slc6a4</i>	2012
James Hulett	Nonapeptides and social bonding	2013
Brandon Fields	Case studies in endocrinology	2013
Thomas Gracie	<i>htr1a</i> expression in CRFR2 ^{5-HT} KO mice	2014
Gerardo Lopez Perez	Behavioral consequences of <i>tph2</i> deficiency	2015
Lakota Kaitlin Cleaver	Resensitization of antibiotic resistant bacteria	2015, 2016
Renzo Laynes	Illuminating stress resilience with optogenetics	2015
Emma Spratt	Neural mechanisms underlying fear	2015
Joe Gettler	Serotonergic systems in depressed suicide victims	2015
Sigrid Kite	Positive Emotion and Psychopathology Lab	2016, 2017

Pablo Porragas	Tryptophan metabolism in the CNS: medical implications	2018
Kadi Nguyen	Effects of altitude on anhedonia	2018
Chloe Gates	Effects of altitude on emotional behavior	S/F 2018
Kristin Cler	Synaptic localization of OCT3	2019
Chang Liu	Wild rat microbiome	2020
Lauren Milton	High/low anxiety mice and serotonergic systems	2020
Rose Summers	Organoids and neurodegenerative disease	S/F 2022
Haoting Zhang	Circadian rhythm disruption, inflammation, and PTSD with <i>M. vaccae</i> NCTC 11659	S 2023

IPHY 4870 – Undergraduate Honors at CU Boulder

Erika Kolisch	Amygdala, serotonergic systems and behavior <i>cum laude</i> in Integrative Physiology	2013
Alexander Jones	Neural systems underlying thermosensation	2014-2015
Lakota Kaitlin Cleaver	Resensitization of antibiotic resistant bacteria	2015-2016
Gerardo Lopez Perez	“Old Friends” and anxiety-like behavior	2015-2016
Emma Spratt	<i>Mycobacterium vaccae</i> and fear extinction	2015-2016
Robin Hacker-Cary	Shower head microbiome project	2016-2017
Kaley Shay Holmes	<i>Mycobacterium vaccae</i> and <i>htr1a</i> expression	2017-2018
Kadi Nguyen	The effects of altitude on rat behavioral research and depression	2018-2019
Chloe Gates	Evaluation of the anxiety-related effects of altitude on rat behavioral research	2018-2019
Sandra Anna Appiah	Investigating the composition of the gut microbiome in murine polytrauma and hemorrhagic shock	2019-2020
Stephanie N. Salazar	Evaluation of the effects of altitude on rat anxiety- and depressive-like behavioral responses	2019-2020

IPHY 4930 – Undergraduate Internship at CU Boulder

Student	Internship	Year(s)
Morgan “Mo” Barber	Wong Orthodontics	2013
Sofia Mani	North Suburban Medical Center, Thornton, CO	2013
Jenny Ung	St. Anthony North Hospital, Westminster, CO	2013
Haley Ekren	Louisville Veterinary Clinic	2014
Rachel Laux	Fairview High School <i>Fitness Based Physical Education Program</i>	2014
Isabella Asamoah	Boulder Valley Women’s Health Center (BVWHC)	2014
Jodie Davis	The Fixt Movement in Boulder	2016

Connor Hoops	The Fixt Movement in Boulder	2017
Eiley McCormick	Pace West Physical Therapy	2018

MCDB 4840 – Undergraduate Independent Study at CU Boulder

Student	Research topic	Year(s)
Joey Malzbender	<i>slc6a4</i> expression in CRFR2 ^{5-HT} KO mice	2014
Kirill Novik	Weighted gene co-expression network analysis (WGCNA)	2014
Ryan Waters	<i>tph2</i> expression in CRFR2 ^{5-HT} KO mice	2014
Kadi Nguyen	Altitude and depression-like behavior	2018
William Jacob Sanders	<i>Mycobacterium</i> screening	2020
Caelan Wright	<i>M. vaccae</i> NCTC 11659 and NanoString platform	2021
Elizabeth Alexander-Holmes Hunter	Effects of 10(Z)-hexadecenoic acid in murine BMDCs	2023

Undergraduate Research Mentoring at CU Boulder

(supervision of 155 undergraduate student projects since 2007); ¹56% (52/85) women, minorities, 1st generation, disabled, or international students)

¹ Keflom, Ruta ^{HU}	Urocortin 2 distribution in rat brain	2007-2008
Satej Pradhan ^U	Thermosensitivity of serotonergic systems	2008
Trevor Doyle ^{U,C,B}	TRPV4, thermosensitivity of serotonergic systems	2008-09
Peter Hibi ^{U,B,H(2)}	Neural systems regulating anxiety states	2008-09
Benjamin Spannuth ^{‡BA/MS,U,B,NSF}	Stress-induced activation of serotonergic systems	2008-10
Christopher Stamper ^{†U,B,H}	Ucn 2 and ventricle-projecting serotonergic systems	2008-10
¹ Kelsey Anbuhl ^S	<i>M. vaccae</i> and catecholaminergic systems	2008-09
¹ Kathleen Dady ^{†B,H(6),UI}	Thermosensitivity of serotonergic systems	2008-11
¹ Hanna Nelson	Thermosensitivity of serotonergic systems	2008
Alex Westerman ^{†C,B,UI}	Amygdala, parvalbumin, CAMKII, and anxiety	2008-09
Michael Long ^{U,B,H(2)}	Post-weaning social isolation, serotonin and anxiety	2008-10
¹ Thanh Dan Ngoc Nguyen ^{M,NIH,UI}	Intragastric <i>M. vaccae</i> and serotonergic systems	2008-10
Philip Siebler ^{U,B,NSF}	TRPV4, thermosensitivity of serotonergic systems	2009-10
¹ Tamara Strickland ^{U,B}	CRF-TAMRA, a fluorescent CRF conjugate	2009-10
¹ Andra Wilkinson ^{*H}	Psychoneuroimmunology and economics	2009
Nicholas Alsofrom ^{U,B}	Lipopolysaccharide and serotonergic systems	2009-12
¹ Leonard Armijo ^B	Social isolation, amygdala, and anxiety	2009-11
¹ Lamya'a Dawud ^{B,UI(3), H}	Maternal separation and serotonergic systems	2009-13
Glenn Engelman ^{B,H}	Social isolation, serotonergic systems, and anxiety	2009-10
¹ Jon Charles Harvey ^S	Anxiogenic drugs and serotonergic systems	2009
¹ Christian Montoya ^{†NIH}	Chronic corticosterone and adrenal morphology	2009-10
Derek Sarchet ^{†B}	Social defeat and serotonergic systems	2009
¹ McKenzie Valentine ^{†B,UI(2)}	Maternal separation and serotonergic systems	2009-10
Andrew Wacker ^{B,H(3)}	Corticosterone and forebrain limbic systems	2009-11
¹ Naomi Zelin ^{B,UI}	Post-weaning social isolation and the amygdala	2009-10
¹ Kathryn Helmrick ^{B,H(2)}	CRF-TAMRA, a fluorescent CRF conjugate	2009-11
¹ Allison Matti ^{B,UI(3),H}	Amygdaloid serotonin type 2A receptors	2009-13
¹ Clifford Minn ^{U,H,T(2)}	CRF-TAMRA, a fluorescent CRF conjugate	2009-10
¹ Allison Stout ^B	Intragastric <i>M. obuense</i> and serotonergic systems	2009-10
Benjamin Nissen ^B	Neonatal endotoxin and catecholaminergic systems	2010
¹ Karen Kellen ^S	Amygdala priming and <i>slc6a4</i> expression	2011
Jared Heinze ^{UI(2)}	Social defeat and hypothalamic orexin	2011-14
¹ Erika, Kolisch ^{B,UI,H}	Amygdaloid activation of serotonergic systems	2011-13
Kenneth Lowe ^{B,UI(2),H}	Fast feedback control of the HPA axis	2011-13
Anthony Quach ^{B,UI,H}	Physiologic responses to antidepressant drugs	2011-14
Brandon Kenneth-Kouso Fields ^{B,UI(3),H}	Social defeat and melanin-concentrating hormone	2011-14
Taylor Frandsen	Chronic corticosterone and serotonergic systems	2011
Jakob Lupa	CRF-TAMRA, a fluorescent CRF conjugate	2011
¹ Sofia Mani ^{H,UI(3)}	Chronic corticosterone and tryptophan hydroxylase	2011-14
Taylor Whittier ^B	Spinoparabrachial sensory pathways	2011-12
Thomas Gracie ^{U,UI}	Stress effects on <i>htr1a</i> mRNA expression	2012-15
¹ Anne Trytko	Afferent control of serotonergic systems	2012
¹ Dante' Johnson ^S	Amygdala priming and <i>slc6a4</i> mRNA expression	2012

¹ Marcos Villareal ^S	“Vaccination” and stress resilience	2012
¹ Christopher Brazell ^{B, UI, H}	Peripheral acting SSRIs, serotonin and behavior	2012-14
¹ Gerardo Lopez-Perez ^{B, UI, X}	“Vaccination” and stress resilience	2012-16
¹ Jessica A. McArthur ^{U, UI}	Exercise and serotonergic systems	2012-15
¹ Martin Aguilar ^{B, U}	<i>M. fortuitum</i> and emotional behavior	2012-14
Peter Lampman ^U	Chronic recording in behaving animals	2012-14
Andrew Lamb ^{U, B, H}	<i>In vivo</i> microdialysis in behaving animals	2012-14
¹ Ryan Waters ^{U, UI(2)}	Chronic nicotine and <i>tph2</i> expression	2012-14
¹ Joey Malzbender ^{U, UI(2)}	Chronic nicotine and <i>slc6a4</i> expression	2012-14
¹ Piper Williams ^{U, UI(3)}	Distribution of OCT3 in the dorsal raphe nucleus	2012-15
¹ Bianca Flores ^S	<i>M. vaccae</i> , serotonergic systems and behavior	2013
Adam (AJ) Kapitz ^{B, U, UI}	Neural systems underling fear and panic	2013-15
¹ Kirill Novik ^{U, B}	Comparative genomics of <i>M. vaccae</i>	2013-15
Warren Ferrell ^B	Peripheral serotonergic systems	2014-15
Alexander Scott Jones ^{UI}	Thermosensory mechanisms	2014-15
¹ Joel Chuong ^{UI}	Adverse early life experience and <i>htr1a</i> expression	2014-15
¹ Michelle Koszalka	Panic physiology and behavior	2014-pres
¹ Orlando Antonio Rodriguez ^{B, H, UI, BSI}	<i>M. vaccae</i> and neuroinflammation	2015-17
¹ Emma Jane Spratt ^H	Neural mechanisms underlying fear	2015-pres
Joseph Gettler	Tph2 expression in postmortem bipolar brain	2015-pres
Kevin Michael McGunigal	Serotonergic systems and control of HPA axis	2015-pres
¹ Emma Simmerman ^U	mRNA expression changes in a <i>tph2</i> knockout	2015-pres
¹ Tessa M Smith ^{U, UI(2)}	mRNA expression changes in a <i>tph2</i> knockout	2015-pres
¹ Alexander Outzen ^U	mRNA expression changes in a <i>tph2</i> knockout	2015-pres
¹ Aubrey D. Eggett	Neural mechanisms underlying panic-like responses	2016-pres
¹ Ahmed Ibrahim Elsayed ^{BSI}	Interventions for circadian disruption	2016-19
David Alexander Duggan ^{BSI, UI}	Interventions for circadian disruption	2016-17
¹ Joslynn Dakota Jones ^{MASP, BSI(2), UI(2)}	<i>M. vaccae</i> and core body temperature rhythms	2016-pres
¹ Linh Tran ^{MASP, UI(2)}	<i>M. vaccae</i> diurnal rhythms of locomotor activity	2016-18
¹ Edwin Mendoza Olea ^{MASP, UI(2)}	The “Old Friends” and cognitive behavior	2016-pres
¹ Michael Ogbaselassie ^{UT, UI(2), M, McN}	Host/gut microbiota response to stressors: informing resiliency	2016-18
¹ Yosan Mengestab Mengesha ^{UT, UI(2), M, McN}	Host/gut microbiota response to stressors: informing resiliency	2016-18
¹ Kaley Shay Holmes ^{U(2)}	<i>M. vaccae</i> , fear-potentiated startle, and <i>tph2</i>	2016-pres
¹ Kadi Nguyen ^{U(2), UI(2), BS}	<i>M. vaccae</i> , fear-potentiated startle, and <i>htr1a</i>	2016-19
¹ K’Loni Schnabel ^{U(2), UI}	<i>M. vaccae</i> , fear-potentiated startle, and <i>slc6a4</i>	2016-19
Saydie Allopowa Sago ^{CNAIS, OYATE}	<i>M. vaccae</i> , circadian disruption and microbiome	2016
Chloe Anne Gates	Gene x environment interactions	2017-18
Lauren Milton ^{UI}	<i>M. vaccae</i> , fear-potentiated startle, and <i>crh</i>	2017-21
Kristin Cler ^{UI, BA/MS}	<i>M. vaccae</i> , fear-potentiated startle, and <i>slc6a4</i>	2017-20
Drake Kienzle ^{UI}	Whole-body heating and hedonic circuitry	2017-20
Pablo Porragas ^{UI}	Tryptophan metabolism: medical implications	2018-pres
Madison Baca ^{MASP, UI(2), BSI(2)}	<i>M. vaccae</i> , immunoregulation and mental health	2018-20
Attila Suto ^U	<i>M. vaccae</i> , <i>tph2</i> and stress-induced fear	2019-pres
Sandra Appiah ^{BSI}	ONR microbiome analysis	2019-20
Andrea Arnold ^{BSI}	FST analysis for WBH/sauna study; estrous cycle determination for altitude study	2019-22

Maab Hamid	Epigenetic programming of the gut microbiome (ONR)	2019-pres
Heraa Hashmi	Epigenetic programming of the gut microbiome	2019-20
Evan Holbrook ^{BS}	Ex vivo and in vitro assays for immunoregulation	2019-22
Alexandria Jenkins	N.A.	2019-pres
Andrew ('Kyo') Lee ^{BSI,L}	<i>M. vaccae</i> and fear-potentiated startle in females	2019-21
Amalia Luthens ^{U(2)}	<i>M. vaccae</i> and fear-potentiated startle in females	2019-21
Brandon Marquart ^{BSI, BA/MS}	<i>M. vaccae</i> as a neuromodulator of brain IL-4 signaling in a model of acute stress	2019-20
Sam Penhale	N.A.	2019-pres
Stephanie Salazar ^{BSI,L}	ONR microbiome analysis; FST analysis for WBH/Sauna study	2019-20
Jessica Stewart	Ex vivo and in vitro assays for immunoregulation	2019-pres
Tumim Yifru ^D	N/A (will be coming in towards end of summer)	2019-20
Kourtney Creaney	Nicotine, depressive-like behavior, and serotonin	2019-21
Aislinn Eve Concha ^{OYATE, SRUP}	<i>M. vaccae</i> and stress resilience	2019-23
Charlie Gans	<i>M. vaccae</i> , fear-potentiated startle in females	2019-pres
Kyle Kent	<i>M. vaccae</i> , chronic disruption of rhythms	2019-pres
Chang Liu ^{BSI,UI}	The gut microbiome of wild rats	2019-20
Catherine Nicholls		2019-pres
Evan Schaefer ^{UI}	<i>M. vaccae</i> and stress resilience	2019-21
Francisco Uribe ^{MASP}	Amphetamine withdrawal, anxiety, and amygdala	2019-20
Caelan Wright ^{U(2),UI}	Ex vivo and in vitro assays for immunoregulation	2020-22
Emily Brooke		2020-pres
Elizabeth Dubé ^U	A Darwinian Medicine approach to treatment of inflammatory disease	2020-pres
Savanna Diane Pierce ^U	Developing a "farm in a pill": identification of soil-derived bacteria with anti-inflammatory and immunoregulatory properties	2020-pres
William (Jake) Sanders ^{U,UI}	Global mycobacterium survey: Myco screening	2021-pres
Rose Summers ^{BSI,BG,A,L}	Chronic disruption of rhythms and inflammation	2021-22
Isaiah Shurtleff ^{BSI,U}	Chronic disruption of rhythms and inflammation	2021-pres
Nolan Watts ^{SRUP,BSI}	Investigating parasitology of <i>Mycobacterium vaccae</i> toward dendritic cells in vitro	2021-pres
Aidan Bryn Clifton ^{SRUP,UI}	Stress resilience effects of <i>Mycobacterium vaccae</i> on the gut microbiome, host metabolome, and behavior in adult male rats	2021-pres
Lucie Ngan Nguyen ^U	Stress resilience effects of <i>Mycobacterium vaccae</i> on the gut microbiome, host metabolome, and behavior in adult male rats.	2022-pres
Haoting Zhang ^{BSI}	Evaluation of <i>M. vaccae</i> NCTC 11659 as an intervention in a rat model of PTSD	2022-pres
Jamaika Naomi Elliot ^{SRUP}	Evaluation of <i>M. vaccae</i> NCTC 11659 in T2DM	2022-pres
Madison Rice	Evaluation of <i>M. vaccae</i> NCTC 11659 in T2DM	2022-pres
Zachary Chafee	Characterization of the effects of soil-derived bacteria on immune cell populations and stress resilience	

Dennis Boateng ^{UT}	Microbes prevent diet-induced obesity associated impairment of testicular health in mice: potential role of environmental bacteria	2022-pres
Joni Stuart ^{UT}	Microbes prevent diet-induced obesity associated impairment of testicular health in mice: potential role of environmental bacteria	2022-pres
Sarina Borden	Characterization of the effects of soil-derived bacteria on immune cell populations and stress resilience	2022-pres
Matthew Branney	Effect of whole body heating on the transcriptome	2022-pres
Xavier Cisneros ^{UT}	Characterization of the effects of soil-derived bacteria on immune cell populations and stress resilience	2022-pres
Rachel Effron	Characterization of the effects of soil-derived bacteria on immune cell populations and stress resilience	2022-pres
Dylan Gowins ^{UT,M}	Inflammation and PTSD symptom incubation: countermeasure strategies using environmental bacteria with immunoregulatory, anti-inflammatory, and stress resilience properties.	2022-pres
Lucas Guerrero ^{B2B}	Microbes prevent diet-induced obesity associated impairment of testicular health in mice: potential role of environmental bacteria	2022-pres
Addie Horton	PCR multiplexing: Validating and optimizing a multiplex PCR assay	2022-pres
Elizabeth Hunter	Chronic disruption of rhythms and inflammation; PCR multiplexing: Validating and optimizing a multiplex PCR assay; Microbes prevent diet-induced obesity associated impairment of testicular health in mice: potential role of environmental bacteria	2022-pres
Ian Rutherford	M. vaccae and murine BMDCs	2022-pres
Trinity Mason	LEAP-sponsored Associate Professor Growth Grant: Advancing our understanding of the etiology and pathophysiology of posttraumatic stress disorder (PTSD): focus on development of effective countermeasures	2022-pres
Jeff Matney	Characterization of the effects of soil-derived bacteria on immune cell populations and stress resilience	2022-pres
Paola Ortiz Venzor ^{UT}	Characterization of the effects of soil-derived bacteria on immune cell populations and stress resilience	2022-pres
Richard Zabat ^L	Chronic disruption of rhythms and inflammation	2022-pres
Sirisai Phanekham-Mouanghane	Investigating the mechanisms of <i>Mycobacterium vaccae</i> ATCC 15483 translocation across the blood-brain barrier	2022-pres
Emmalee Roybal		2022-pres

Brittney Yockey ^{UT}	Inflammation and PTSD symptom incubation: countermeasure strategies using environmental bacteria with immunoregulatory, anti-inflammatory, and stress resilience properties.	2022-pres
Philippa (Pippa) Linnea Zolla ^{SRUP}	Inflammation and PTSD symptom incubation: countermeasure strategies using environmental bacteria with immunoregulatory, anti-inflammatory, and stress resilience properties. The hygiene or “old friends” hypothesis and type 2 diabetes	2023-pres
Julissa Menjivar ^{B2B}	Inflammation and PTSD symptom incubation: countermeasure strategies using environmental bacteria with immunoregulatory, anti-inflammatory, and stress resilience properties.	2023-pres
Nicole Behnken		2023-pres
Sarina Borden		2023-pre
Annie O’Brien		2023-pres
Shifa Gwandi		2023-pres
Jack Hartig		2023-pres
Mackenzie Johnson		2023-pres
Alex Kramer		2023-pres
Adam Kulakowski		2023-pres
Andres Paredes		2023-pres
Logan Pritchard		2023-pres
Rebecca Schwendt		2023-pres
Zeb Trovinger		2023-pres
Donci Tshibangu		2023-pres
Kindyll Wetta ^{SL}		2024-pres

^AAmgen Scholars Program Fellowship
^{B2B}NIH Bridge to Baccalaureate (B2B) Summer 2022 Pilot program, Front Range Community College
^{BA/MS}Indicates BA/MS student trainee
^{BG}Indicates Barry Goldwater Fellowship
^BIndicates Bioscience Undergraduate Research Skills and Training (BURST) program undergraduate trainee
^{BS}Beckman Scholars Fellow
^{BSI}Indicates Biological Sciences Initiative Scholar Award
^CIndicates Council on Creative Work (CRCW) Grant-in-aid funding for student trainee
^{CNAIS}Center for Native American and Indigenous Studies
^DDell Foundation Scholar
^HIndicates UROP/HHMI Grant undergraduate trainee
^{HU}Indicates Hogeschool Utrecht (The Netherlands), undergraduate international research internship
^LIndicates Latin honors
^MIndicates McNair fellow trainee (requires over 90 credit hours for enrollment)
^{McN}Indicates McNeil fellow trainee (typically starting freshman or sophomore year)
^{MASP}Indicates Miramontes Arts & Sciences Program trainee
⁽ⁿ⁾Indicates number of awards when >1
^{NIH}Indicates NIH/HHMI Diversity Grant fellow trainee
^{NSF}Indicates NSF Research Experience for Undergraduates (REU) trainee
^{OYATE}Native American Student Organization at CU Boulder
^SIndicates SMART summer fellow trainee
^{SL}Indicated Studio Lab trainee
^{SRUP}Indicates STEM Routes Uplift Program trainee
^TIndicates TASC fellow trainee
^UIndicates UROP Assistantship undergraduate trainee
^{UI}Indicates UROP Individual Grant undergraduate trainee
^{UT}Indicates UROP Team Grant undergraduate trainee
^XHHMI Exceptional Research Opportunities Program (EXROP)
^{*}Indicates co-author on a published abstract
^{**}Indicates first author on a published abstract
⁺Indicates co-author on an unpublished conference proceedings abstract
⁺⁺Indicates first author an unpublished conference proceedings abstract
[†]Indicates co-author on a published manuscript
[‡]Indicates first author on a published manuscript

Undergraduate Research Day Events

All day showcase of undergraduate research projects within the Behavioral Neuroendocrinology Laboratory.

Undergraduate Research Day, April 21, 2017, 9 a.m.-5 p.m., UMC Rm 382. Presentations by David Duggan, Ahmed Elsayed, Kaley Holmes, Joslynn Jones, Edwin Mendoza, Kadi Nguyen, Mikale Ogbaselassie, Orlando Rodriguez, Saydie Sago, K'loni Schnabel, Tessa Smith, Linh Tran

UROP Symposium Meet-and-Greet, January 26, 2018, 10:00 a.m.-12:00 p.m., WILD Rm 200. Presentations by Christine Cho, David Smith, Michael Flux, Mathew Arnold, James Hassell, Sylvana Noronha, David Duggan, Ahmed Elsayed, Saydie Sago, Kelsey Loupy, Drake Kienzle, Jared Heinze.

High School Student Research Mentoring at CU Boulder

Sallie Guthrie ^B	Parthenolide, serotonergic systems, and migraine	2007-2008
Brian Atkinson ^B	Stress and serotonergic systems	2008-2009
Jakob Lupa	CRF-TAMRA, a fluorescent CRF conjugate	2009-2010
Basil Alias ^N	<i>M. vaccae</i> and serotonergic systems in <i>C. elegans</i>	2010-2011
Hannah Stobaugh ^B	Chronic corticosterone and emotional behavior	2011-2012
Erin Anderson ^B	Exercise and serotonergic systems	2012-2013
Liz Mota ^B	Exercise and serotonergic systems	2012-2013
Amaris Bouchard ^B	<i>M. vaccae</i> and chemically-induced escape	2015-2016
Jessica Rose Gloe ^{NE}	<i>M. vaccae</i> and fear expression	2015-2016
Michelle Nguyen ^{P-CDP, L}	Microbiome of the built environment	2016-2017
Caleb Blichfeldt ^S	Microbiome and stress resilience	2016-2017
Maria Mathias ^{CUSD}	Mycobacteria and immunoregulation	2019
Riya Adhikari ^{CUSD}	Mycobacteria and immunoregulation	2019
Angele Crowe ^D	Microbiome-gut-brain axis	2024-2025

^B, Boulder Valley School District Science Research Seminar

^{CUSD}, CU Science Discovery STEM Research Experience

^D, Dobbs Ferry Science Program, Dobbs Ferry, New York

^N, Niles North High School Research Seminar, Skokie, IL

^{NE}, Nederland High School

^{P-CDP}, Pre-collegiate Developmental Program

^L, Legacy 2000 Internship Program

^S, Silver Creek High School, A Leadership Academy Focus School

IPHY 5840/6840 – Graduate Independent Study at CU Boulder

Benjamin Spannuth (BS/MA)	Stress-induced activation of serotonergic systems	2007-2011
Kyle Kelly	Thermosensitivity of serotonergic systems	2009-2011
Patrick Hennessey	Neuroendocrine correlates of amygdala priming	2009-2012
Mathew Arnold	Exercise effects on thermoregulation and behavior	2011-2013
Christopher Stamper	Fast feedback control of the HPA axis	2011-2014
Kathleen Dady	Thermosensitivity of serotonergic systems	2012-2014
Peter Hibl	Tryptophan hydroxylase and bipolar disorder	2012-2014
Sofia Mani (BS/MS)	Mechanisms underlying chronic anxiety states	2012-2013
Alfredo Zuniga	<i>M. vaccae</i> and stress resilience	2012-2014
Kenneth Lowe (BS/MS)	<i>M. vaccae</i> and stress resilience, <i>tph2</i> , <i>slc6a4</i>	2013-2015
Lamya'a Dawud	Neural systems underlying emotional coping	2013-2015
Philip Siebler	<i>M. vaccae</i> and stress resilience	2012-2016
Margaret Lieb (BS/MS)	Serotonergic gene expression in <i>tph2</i> KO mice	2016-2017
Kelsey Marie Loupy	<i>M. vaccae</i> and stress resilience, <i>crh</i> , <i>crhr1</i> , <i>crhr2</i>	2017-2018
Kristin Cler (BS/MS)	<i>M. vaccae</i> and stress resilience	2019-2020
Brandon Marquart (BS/MS)	10(Z)-hexadecenoic acid and stress resilience	2020-2022
Saydie Sago (MS)	<i>M. aurum</i> Aogashima and stress resilience	2019-2022
John Sterrett (MS)	Microbiome, physiology, and behavior	2019-2020
Luke Desmond (MS)	<i>M. vaccae</i> NCTC 11659 and BV2 cells	2020-pres
Luke Desmond (MS)	Effects of <i>M. vaccae</i> ATCC 15483 on high-fat diet	2022-pres
Andrew (Kyo) Lee	Effects of <i>M. vaccae</i> NCTC 11659 on immunity	2022-pres

Pre- and Postdoctoral Trainees at CU Boulder

Masters students (need to add)

Predoctoral Students

Nina Donner		2009-2012
Present Position:	Project manager & Science communication Concentris Research Management, https://concentris.de/en/eu-project-management-services/	
Evan Paul		2009-2014
Present Position:	Chief Scientific Officer Multiplex DX International https://www.multiplexdx.com/	
Leah Brooks		2010-2014
Present Position:	Instructor Regis University	
David Smith		2012-2017
Present Position:	Senior Postdoctoral Fellow Thomas Jefferson University http://www.jefferson.edu	
Mathew Arnold		2013-2018
Present Position:	Teaching Assistant Professor, Organizational Leadership and Information Analytics, Leeds School of Business, CU Boulder	
James Hassell		2013-2019
Present Position:	Postdoctoral Research Fellow Texas A&M	
Christopher Stamper		2014-2018
Present Position:	Program analyst - US Dept of Veteran Affairs, Assistant Professor, University of Colorado Anschutz, Co-Founder COO - Mycobacteria Therapeutics	
Bruna Balbino de Paula		2014
Present Position:	Postdoctoral Researcher University of Florida: Gainesville, Florida, US	
Glauce Crivelaro do Nascimento		2014
Present Position:	Professor of Dentistry University of São Paulo, Ribeirão Preto, SP, Brazil	

Jamie Morton		2015
Present Position:	Tenure-track investigator Eunice Kennedy Shriver National Institute of Child Health and Human Development	
Michael C. Flux		2017-2021
Present Position:	Science Communication Illustrator & Strategist, Social Creatures Inc.	
Christine Foxx		2017-2020
Present Position:	Postdoctoral Research Fellow, Postdoctoral Research Associate, Bioinformatics and Computational Biology Veterinary Microbiology and Preventative Medicine, Iowa State University, College of Veterinary Medicine; defended July 13, 2020	
Sylvana Isaura S. Rendeiro de Noronha	Doctoral Candidate (pre-comprehensive examination) Universidade Federal de Ouro Preto (UFOP) Instituto de Ciências Exatas e Biológicas Departamento de Ciências Biológicas Laboratório de Fisiologia Cardiovascular 35400-000 Ouro Preto, MG, Brazil	2017-2020
Kelsey Loupy		2018-2021
Present Position:	Senior Clinical Research Scientist, Somalogic; defended April 6, 2021	
Saydie A. Sago	Doctoral Candidate	2022-pres
Tyler Akonom	Doctoral Candidate	2020-pres
Nathan D. Anderson	Doctoral Candidate	2020-pres
Lyanna R. Kessler	Doctoral Candidate, IQ Biology	2021-pres
John D. Sterrett	Doctoral Candidate, IQ Biology (since August 2020)	2020-pres
Andrew (Kyo) Lee	Doctoral Candidate	2020-pres
Luke W. Desmond	Doctoral Candidate	2023-pres
Brook Santangelo	Doctoral Candidate; Brook Santangelo, appointed Graduate Faculty member in Computational Bioscience at the University of Colorado Anschutz Medical Campus (Comprehensive Examination	2023-pres

Committee for Brook Santangelo), January
24, 2023

Miguel Espino	Doctoral Candidate	2023-pres
<u>Postdoctoral Fellows</u>		
Paul Gasser, PhD		2005-2007
Present Position:	Associate Professor, Marquette University	
Matthew Hale, PhD		
Present Position:	Senior Lecturer School of Psychological Science La Trobe University, Melbourne, Australia	2007-2011
Jodi Lukkes, PhD		
Present Position:	Instructor in Psychiatry Laboratory for Developmental Neuropharmacology, McLean Hospital/Harvard Medical School, Dr. Susan L. Andersen	2008-2012
James Fox, PhD		
Present Position:	Research Associate Dept. of Integrative Physiology, CU Boulder	2011-2013
Melissa Scotti, PhD		
Present Position:	Research Fellow Dept. of Integrative Physiology, CU Boulder	2013-2014
Nina Donner, PhD		
Present Position:	Postdoctoral Research Associate Max Planck Institute of Psychiatry	2012-2014
Paula Yamashita, PhD		
Present Position:	Research Associate Dept. of Integrative Physiology, CU Boulder	2014-2016
Dominic Schmidt, PhD		
Present Position:	Research Associate Dept. of Integrative Physiology, CU Boulder	2016-2017
Odessa Gomez, PhD		2016-2017
	Alfred P. Sloan Foundation Fellow Dept. of Integrative Physiology, CU Boulder Current position: Indoor Air Quality Engineer, Colorado Department of Public Health and Environment (CDPHE); Research Associate, University of Colorado Boulder	
Cristian Zambrano, PhD	Research Associate Dept. of Integrative Physiology, CU Boulder	2018-2022
Lamya'a Majdi Dawud, PhD	Research Associate Dept. of Integrative Physiology, CU Boulder	2020-2023
Matthew G. Frank, PhD	Senior Research Associate	2023-present

Member of Comprehensive Examination Committee Member (other than Principal Advisor)

Shelby Hopkins	Department of Integrative Physiology (Fleshner)	2023-2024
Tel Kelley	Department of Integrative Physiology (Fleshner)	2023-2024
William Patterson	Department of Integrative Physiology (Alderete)	2023-2024

Member of Dissertation/Thesis Committee (other than Principal Advisor)
(only committee memberships since appointment year at CU Boulder in 2007 are shown)

Dissertation Committee Member

Kyla Siletti	Psychology and Neuroscience (Saddoris)	2020-2022
Matthew Hartsock	Psychology and Neuroscience, (Spencer)	2019-2022
Brianna L. Minshall	Miami University, Oxford Ohio Dr. Jennifer Quinn	2021-present
Raeghan Lea Mueller		2021-present
Eduardo O. Primini	Faculty sponsor of 9-month international internship for Eduardo O. Primini, from the laboratory of Christie R.A. Leite-Panissi, Department of Psychology, Faculty of Philosophy Science and Letters of Ribeirão Preto, University of São Paulo, Ribeirão Preto, 14040-901, SP, Brazil, supported by Coordenação de Aperfeiçoamento de Pessoal de Nível Superior – Brazil (CAPES, Finance Code 001)	2019-2020
Matthew Gebert	Ecology & Evolutionary Biology Dr. Noah Fierer	2020-present
Emily Beam	Environmental Studies Program (Dr. Joanna E. Lambert	2020-present
Alex Kirk	Psychology and Neuroscience (Dr. Joanna Arch)	2020-present
Kathleen Murphy	Psychology and Neuroscience (Dr. Zoe Donaldson)	2020-present
Florencia Bercum	Psychology and Neuroscience, Behavioral Neuroscience (Dr. Michael Saddoris)	2020-2020
Bilenduke, Emily	Clinical Health Psychology, University of Colorado-Denver Kilbourn	2019-present
Raeghan Lea Mueller	Psychology and Neuroscience Dr. Kent Hutchison	2019-present
Strnad, Helen K.	Psychology and Neuroscience Dr. Robert Spencer	2019-present

Winona Caterine Booher	Department of Integrative Physiology Dr. Marissa Ehringer	2018-present
Sophie Yorkwilliams	Psychology and Neuroscience Dr. Kent Hutchison	2018-2021
Zachariah Smith	Psychology and Neuroscience Dr. Daniel Barth	2018-present
Sarah Louise Hagerty	Clinical Psychology and Neuroscience Dr. Kent Hutchison	2018-present
Mattia Amoroso	Clinic for Psychosomatic Medicine and Psychotherapy, Ulm, Germany	2017-2021
Samuel James Bowers	Department of Neurobiology Dr. Fred Turek, Northwestern University	2017-present
Annie Miller	Department of Integrative Physiology Dr. Pei-San Tsai	2015-present
Adam Csakai	Department of Chemistry and Biochemistry Dr. Hubert Lin	2017
Sam D. Dolzani	Department of Psychology & Neuroscience Dr. Steven Maier	2017-2018
Matthew Hartsock	Department of Psychology & Neuroscience Dr. Robert Spencer	2017-present
Yoni K. Ashar	Department of Psychology & Neuroscience Dr. Tor Wager and Dr. Sona Dimidjian	2016-2017
Aggie Mika	Integrative Physiology Dr. Monika Fleshner	2015-2016
Scott Schafer	Department of Psychology & Neuroscience Dr. Tor D. Wager	2015-2016
Sonya Belimezova	Integrative Physiology Dr. Marissa Ehringer	2015-2017
Coral Janine Cabrera-montalvo	Integrative Physiology Dr. Jerry Stitzel	2014-present
Dominik Langgartner	Clinic for Psychosomatic Medicine and Psychotherapy, Ulm, Germany	2013-2017
Rob Thompson	Integrative Physiology	2013

	Dr. Monika Fleshner	
Lida Beninson	Integrative Physiology Dr. Monika Fleshner	2013
Nathan Kleist	Ecology & Evolutionary Biology Drs. Alex Cruz and Rob Guralnick	2013-2017
William J Horton	Integrative Physiology Dr. Jerry Stitzel	2013
Chad Osterlund	Psychology and Neuroscience Dr. Robert Spencer	2013
Tara Jean Nyhuis	Psychology and Neuroscience Dr. Serge Campeau	2012
Jamie Justice	Integrative Physiology Dr. Roger Enoka	2012
Thomas LaRocca	Integrative Physiology Dr. Douglas Seals	2012
Roseline Kaiser	Clinical Psychology and Neuroscience Dr. Sona Dimidjian and Dr. Marie Banich	2011-2012
Hannah Snyder	Cognitive Psychology and Neuroscience Dr. Yuko Munakata	2011-2012
Paul Vincent Strong	Integrative Physiology	2010-2012
Wolfgang Pauli	Psychology and Neuroscience Dr. Randy O'Reilly	2010-2011
Robert Rozeske	Psychology and Neuroscience Dr. Steven Maier	2010-2011
Rachel Markwald	Integrative Physiology Dr. Kenneth Wright	2010
Teresa Foley	Integrative Physiology Dr. Monika Fleshner	2009
Michael Baratta	Psychology and Neuroscience Dr. Steven Maier	2008-2009
Marc Weinberg	Psychology and Neuroscience Dr. Robert Spencer	2008-2009

Zachary Riley	Integrative Physiology Dr. Roger Enoka	2007-2008
Marianne H. Larsons	University of Copenhagen	2007
Robert Bina	Arizona State University	2007
<u>Thesis Committee Member, Masters Students</u>		
Katrina Rodheim	Integrative Physiology Dr. Kenneth Wright	2021-present
Aggie Mika	Integrative Physiology Dr. Monika Fleshner	2014
Sarah Ramelli	Integrative Physiology Dr. Pei-San Tsai	2013-present
Alice Brianne Loughridge	Integrative Physiology Dr. Monika Fleshner	2012
Brittany Jenkins	Ecology and Evolutionary Biology Dr. Rebecca Safran	2010-2012
Leah Brooks	Integrative Physiology Dr. Pei-San Tsai	2009
Paul Strong	Integrative Physiology	2009
<u>Thesis Project Review Committee Member, Masters Students</u>		
Surayut Kluaiphanngam	Integrative Physiology Dr. Pei-San Tsai	2023
Sanna Darvish	Integrative Physiology Dr. Douglas R. Seals	2023
Grace S. Mauer	Integrative Physiology Dr. Douglas R. Seals	2023
<u>Thesis Committee Member, Undergraduate Honors Students</u>		
Hannah Jacobs	Psychology and Neuroscience Susanna Molas	2023-2024
Rose Summers	Generation of microglia-containing APOE4 cerebral organoids as a model of Down syndrome- associated Alzheimer's disease	2022-2023
Richard Zabat	The effects of <i>Mycobacterium vaccae</i> ATCC 15483, a bacterium with anti-inflammatory and	2022-2023

	immunoregulatory properties, on anxiety-like behavior following a two-hit” stressor model of chronic disruption of rhythms and a Western diet in male and female C57BL/6N mice	
Amalia K. Luthens	The effects of <i>Mycobacterium vaccae</i> NCTC 11659 treatment on fear extinction in female rats in the fear-potentiated startle paradigm	2022
Kourtney Creaney	Effects of chronic nicotine on emotional behavior	2022
Evan Holbrook	Effect of <i>M. vaccae</i> NCTC 11569 on immunophenotype of THP-1 derived macrophages	2022
Ethan R. Rowe	The role of prefrontal cortex-amygdala circuits in fear extinction learning	2022
Andrew (Kyo) Lee	The effects of inescapable stress on leukocyte subpopulations in male rats previously treated with <i>Mycobacterium vaccae</i> NCTC 11659; defended April 2, 2021	2021
Richard Park	Dr. Christopher Lowry Synergistic potential of combining emerging therapies for post-traumatic stress disorder	2021
	Dr. Barbara Demmig-Adams (<u>published in 2021-2022 Honors Journal</u>)	
Chang Liu	The wild rat versus outbred laboratory rat microbiome	2019-2020
Julia Kaufman	Dr. Christopher Lowry Impact of online mindfulness based cognitive therapy on suicidal ideation	2019-2020
Stephanie Salazar	Dr. Sona Dimidjian, Psychology and Neuroscience Evaluation of the effects of altitude on rat anxiety- and depressive-like behavioral responses	2019-2020
Sandra A. Appiah	Dr. Christopher Lowry Investigating the composition of the gut microbiome in murine polytrauma and hemorrhagic shock	2019-2020
Chloe Gates	Dr. Christopher Lowry Evaluation of the anxiety-related effects of altitude on rat behavioral research	2018-2019
	Dr. Christopher Lowry	
Kadi Nguyen	The effects of altitude on rat behavioral research and depression	2018-2019
	Dr. Christopher Lowry	
Eric Mitten	Psychology and Neuroscience Dr. Linda Watkins/Dr. Steven Maier TLR2, TLR4, naloxone and multiple sclerosis	2018-present
Anouk Schrama	Psychology and Neuroscience Dr. Linda Watkins/Dr. Steven Maier TLR2, TLR4, microglia and multiple sclerosis	2018-present

Haley Elizabeth Lippman	Psychology and Neuroscience Dr. Linda Watkins/Dr. Steven Maier Helminthic parasites and mental health	2018-present
Hannah V. Chatwin	Molecular Cellular and Developmental Biology Dr. Kenneth Krauter The human microbiome and health	2018-present
Rebecca Anne Bolen	Neuroendocrinology Dr. Pei-San Tsai Neuroendocrinology	2018-present
Allison Bernier	Psychology and Neuroscience Dr. Daniel Barth <i>Mycobacterium vaccae</i> , autism, and epilepsy	2018-present
Kaley Shay Holmes	<i>Mycobacterium vaccae</i> and htr1a expression Dr. Christopher Lowry	2017-2018
Robin Grace Hacker-Cary	Integrative Physiology Dr. Noah Fierer	2016-2017
Robin Hacker-Cary	Shower head microbiome project Dr. Christopher Lowry	2016-2017
Orlando Antonio Rodriguez	<i>Mycobacterium vaccae</i> and anxiety states Dr. Christopher Lowry	2016-2017
Emma Spratt	<i>Mycobacterium vaccae</i> and fear extinction Dr. Christopher Lowry	2015-2016
Gerardo Lopez Perez	“Old Friends” and anxiety-like behavior Dr. Christopher Lowry	2015-2016
Solana Archuleta	Adolescent caffeine consumption and anxiety http://scholar.colorado.edu/honr_theses/1090/ Dr. Christopher Lowry	2015-2016
Lakota Kaitlin Cleaver	Resensitization of antibiotic resistant bacteria Dr. Christopher Lowry	2015-2016
Ryan Waters	CRFR2 deletion and <i>slc6a4</i> mRNA expression Dr. Christopher Lowry	2014-2016
Joey Malzbender	CRFR2 deletion and <i>tph2</i> mRNA expression Dr. Christopher Lowry	2014-2016
Piper Williams	OCT3 and 5-HT _{1A} receptor autoinhibition	2014-2015

	Dr. Christopher Lowry	
Jessica McArthur	Chronic exercise and serotonergic systems Dr. Christopher Lowry	2014-2015
Alexander Jones	Neural systems and underlying thermosensation Dr. Christopher Lowry	2014-2015
Thomas Gracie	CRFR2 deletion and <i>htr1a</i> mRNA expression Dr. Christopher Lowry	2014-2015
Christopher Brazell	N-methyl-citalopram effects on brain serotonin <i>Magna cum laude</i> in Integrative Physiology Dr. Christopher Lowry	2013-2014
Brandon Kenneth- Kouso Fields	miR-19, norepinephrine, and emotional behavior <i>summa cum laude</i> in Integrative Physiology Dr. Christopher Lowry	2012-2014
Heidi Joy Guenther	Psychology and Neuroscience Dr. Jerry Rudy	2012-2013
Erika Kolisch	Amygdala, serotonergic systems and behavior <i>Cum laude</i> in Integrative Physiology Dr. Christopher Lowry	2012
Seerat Poonia	Psychology and Neuroscience Dr. Serge Campeau	2010-2011
Christine Barthe	Molecular Cellular and Developmental Biology Dr. Kenneth Wright	2009-2010
Joshua Jennings	Psychology and Neuroscience Dr. Steven Maier	2009-2011
Andra Wilkinson	Integrative Physiology	2007-2008

Member of Masters or Ph.D. Qualifying Examination Committee

Emily Beam	Environmental Studies Program	2022
Matthew Gebert	Ecology and Evolutionary Biology	2022
Brianna Minshall	Ohio University, Oxford, Ohio	2022
Brook Santangelo	Computational Bioscience Program CU AMC	2022
Dana Withrow	Integrative Physiology	2022
Eammon Duffy	Integrative Physiology	2022
Kayla Siletti	Psychology and Neuroscience	2020
Zachary Smith	Psychology and Neuroscience	2018
Ann Virginia Miller	Integrative Physiology	2016
Sonya Belimezova	Integrative Physiology	2015-2017

Agnieszka Mika	Integrative Physiology	2015-2016
Coral Janine Cabrera-montalvo	Integrative Physiology	2014-present
Kenneth Kubala	Psychology and Neuroscience	2013-2015
Leah Brooks (Chair)	Integrative Physiology	2012-2014
Chad Osterlund	Psychology and Neuroscience	2011-2012
William Horton	Integrative Physiology	2011-2012
Robert Thompson	Integrative Physiology	2011-2012
Lida A. Beninson	Integrative Physiology	2011
Tara Jean Nyhuis	Psychology and Neuroscience	2011
Paul Vincent Strong	Integrative Physiology	2011 ¹⁸
Kristin Speaker	Integrative Physiology	2010
Robert Rozeske	Psychology and Neuroscience	2010
Rachel Markwald	Integrative Physiology	2009
Zachary Riley	Integrative Physiology	2007
Michael Baratta	Psychology and Neuroscience	2007
Marc Weinberg	Psychology and Neuroscience	2007

Department curriculum development

Development of IPHY/MCDB 1181, Biological Probiotic/Drug Discovery Through Hands-on Screens, Spring, 2019, 16 students.

Work with Science Education Initiative (SEI) Science Teaching Fellows (STFs) to develop archive of learning goals, clicker questions, homework questions for IPHY 3410, Introduction to Human Anatomy, Spring, 2010.

Work with Science Education Initiative (SEI) Science Teaching Fellows (STFs) on research project: Reducing cognitive load in anatomy figures to improve learning, Spring 2009.

Work with Science Education Initiative (SEI) Science Teaching Fellows (STFs) to develop weekly online homework assessments for IPHY 3410, Introduction to Human Anatomy, implemented Spring 2009.

Work with the Science Education Initiative to develop a comprehensive pre/post-test for assessment of learning gains in IPHY 3410, Spring 2008.

Work with the Science Education Initiative and Ad-hoc curriculum committee to establish common learning goals for Introduction to Human Anatomy course (IPHY 3410), Spring 2008.

Professional Development Activities (including programs such as LEAP, FTEP and ELP)

Faculty Leadership Institute (FLI) Office of Faculty Affairs (OFA) FLI helps identify and support emerging leaders; it provides an opportunity for faculty across the CU Boulder campus to work together to break down barriers and build community, collaboration and connectedness across schools, programs and departments.

<https://www.colorado.edu/today/2023/09/21/faculty-leadership-institute-announces-years-fellows>

¹⁸ Committee Chair

Inclusive Communities of Practice (IcoP), Wednesday, September 2nd, 2020, from 12:00-1:15 pm.; Invited by Becca Ciancanelli, PhD, Inclusive Pedagogy Lead, Center for Teaching and Learning; Presentations by Julie Graf & Lisa Romero Mendoza, Christopher Lowry and Dana Stamos (STEM Routes).

FTEP, **Be the Change**: *practicing inclusive excellence for student success and faculty well-being*. CU Dialogues Program, Faculty Teaching Excellence Program, Graduate Teacher Program and Student Academic Success Center, invitation-only seminar hosted in partnership with the Bringing Theory to Practice Project, <http://www.bttop.org/grants-funding/awarded-grants/university-colorado-boulder-be-change-practicing-inclusive-excellence>, with support from the S. Engelhard Center and the Christian A. Johnson Endeavor Foundation. This one-day seminar gathers teaching and learning expertise from our three groups of campus educators: faculty, graduate student instructors, and undergraduate instructional assistants. Our goal is to create a community of practice that connects those of us working for inclusion at the heart of higher education: the classroom. January 11, 2017.

Faculty Teaching Excellence Program (FTEP) Natural Science Faculty Early Career Teaching Program, 2011-2012.

2011 Engaged Faculty Institute course, Students and Communities are Calling: An Engaged Faculty Institute, Spring, 2011.

Faculty Teaching Excellence Program (FTEP) course, Well Argued? Well Written!, Fall, 2008.

Leadership Education for Advancement and Promotion (LEAP) Workshop, Introductory Leadership Workshop, Spring, 2008.

Education-related papers presented at professional conferences but not published

Semsar K, Foley T, Benay F, Heisler R, Saul L, **Lowry CA**. Shoulders, knees, and toes. What concepts should your Anatomy students know? CU Science Education Initiative End-of-Year Event, British Studies Room, Norlin Library, Boulder, Colorado, May 6, 2010.

Lowry CA. Co-evolution of me and my clicker questions, SEI End-of-Year Event, Boulder, Colorado, USA, May 7, 2009.

Saul L, Heisler R, **Lowry CA**. Finding a way to make homework helpful & valued. SEI Team and Anatomy Faculty Working Group, SEI End-of-Year Event, Boulder, CO, USA, May 7, 2009.

Routh J, Benay F, Foley T, Saul L, **Lowry CA**, Heisler R, Semsar K. Can color-coding guide the way through complicated anatomy figures?, SEI End-of-Year Event, Boulder, CO, USA, May 7, 2009.

Teaching Activities at the University of Bristol

Lecturer Activities at the University of Bristol

3 rd Year Anatomy-Serotonergic control of the HPA Axis	1998
MSc in Molecular Neuroscience—Tutorial on indoleamines and anxiety	1998

MSc in Molecular Neuroscience- Central pathways mediating neuroendocrine responses		1998
MSc in Molecular Neuroscience-Introduction to neurochemistry and neuropharmacology		1999
3 rd Year Anatomy – Neuroendocrine and Stress Unit	10-15 students/class	1998-2007
MSc in Molecular Neuroscience – Central pathways mediating HPA responses	10-15 students/class	1998, 2000-2006
MSc in Molecular Neuroscience – Receptors and Signal Transduction	10-15 students/class	1998
MSc in Molecular Neuroscience— Serotonin Interactions	10-15 students/class	1998
MSc in Molecular Neuroscience— Selected Transmitters (-indoleamines)	10-15 students/class	1999
MSc in Molecular Neuroscience – Introduction to Neurochemistry and Neuropharmacology	10-15 students/class	1999
3 rd Year Anatomy-Role of serotonin in controlling the HPA axis		2000-2001, 2003
MSc in Molecular Neuroscience— Serotonin, cortisol, and affective disorders	10-15 students/class	2000-2003, 2005
Msc in Molecular Neuroscience— Introduction to electrophysiology	10-15 students/class	2002-2004
MSc in Molecular Neuroscience – Molecular Pharmacology and Neuronal Signaling	10-15 students/class	2002-2005
MSc in Molecular Neuroscience— Ion channels	10-15 students/class	2005
MSc in Molecular Neuroscience – Serotonergic systems regulating anxiety	14 students/class	2006
MSc in Molecular Neuroscience— Examiner, poster presentations	14 students/class	2006

Undergraduate Research Mentoring at the University of Bristol

(30 undergraduate students from 1997-2007; 87% (26/30) women, minorities, 1st generation, disabled, or international students)

Daniel Hirsch*,**	CRF effects on <i>slc6a4</i> mRNA expression	1997-1999
Joanne Rodda*†	CRF actions on serotonergic neuronal firing	1998
Helen Todd	3 rd year Honours research project	1999
Ingalill Williams*	Restraint stress and serotonergic systems	1999-2001
Alexandra Wilson	3 rd year Honours research project	2000
Anna Evans*	Co-localization of CRF ₁ receptors and serotonin	2001
Jennifer Bolas	Confocal imaging of CRF receptor subtypes	2002
Sarah Barrington	<i>M. vaccae</i> actions on intracellular calcium	2002
Wynne Smith	<i>M. vaccae</i> and nociception	2003
Vicky Griesdoorn*	<i>M. tuberculosis</i> and forebrain limbic systems	2003-2004
Katinka Goosen*	<i>M. tuberculosis</i> and serotonergic systems	2003-2004
Katherine Dick	<i>M. vaccae</i> and nociception	2003
Kimberly Bruce-Venables	Endotoxin, prostaglandins, and serotonergic systems	2003
Kim Waterer	CRF/serotonin interactions <i>in vitro</i>	2004
Erik van Kampen*†	<i>M. vaccae</i> actions on emotional behavior	2004-2005
Tamsin Sparrow	<i>M. vaccae</i> , Aδ fibers, C fibers and nociception	2004
David Shatti	<i>M. vaccae</i> actions, effects of vagotomy	2004
Lauren Madden	3 rd year Honours research project	2004
Peter Jack	Maternal separation and forebrain limbic systems	2004
Katherine Hillard	3 rd year Honours research project	2004
Neel Desai	<i>M. vaccae</i> and vagal signaling	2004
Linsey Davidson	<i>M. vaccae</i> and nociception	2004
Emily Bisson	3 rd year Honours research project	2004
Harriet Bartlam	<i>M. vaccae</i> and nociception	2004
Isabel Christie†	Tryptophan availability and serotonergic firing	2004
Katie Ashford†	CRF, urocortin 2, and neuronal firing	2004
Becky Amos	Basolateral amygdala and anxiety states	2005
Jasper Heerkens†	Acoustic stress and serotonergic systems	2005-2006
Mathieu Parent	Distribution of organic cation transporter 3	2006
Niels Reinders†*	Tryptophan availability and serotonergic firing	2006-2007

* Indicates co-author on a published abstract

** Indicates first author on a published abstract

+ Indicates co-author on an unpublished conference proceedings abstract

++ Indicates first author an unpublished conference proceedings abstract

† Indicates co-author on a published manuscript

‡ Indicates first author on a published manuscript

Graduate Independent Study at the University of Bristol (Masters Students)

Youn-bok Lee	Neonatal endotoxin and catecholaminergic systems	2000
Katherine Gardner*,**‡	Maternal separation and serotonergic systems	2000
Jolane Abrams*,**†‡	Anxiogenic drugs and serotonergic systems	2001
Charlotte Chapman	CRF, urocortins, and serotonergic systems	2003
Lirui Cao	CRF, urocortins, and serotonergic systems	2003
Tahir Mohammed	Neural systems and pruritis	2004

* Indicates co-author on a published abstract

** Indicates first author on a published abstract

+ Indicates co-author on an unpublished conference proceedings abstract

++ Indicates first author on an unpublished conference proceedings abstract

† Indicates co-author on a published manuscript

‡ Indicates first author on a published manuscript

Pre- and Postdoctoral Trainees at the University of Bristol

Predoctoral Students

Jon Ruddick, PhD		1999-2002
Present Position:	Scientific Counsel Chandler Chicco Companies, London, UK	
Jacob Hollis, PhD		2000-2004
Present Position:	Research Officer Department of Physiology Monash University, Victoria, Australia	
Philip Johnson, PhD		2001-2005
Present Position:	Assistant Professor Department of Anatomy and Cell Biology Indiana University School of Medicine	
Katherine Gardner, PhD		2001-2006
Present Position:	Medical writing and market strategy United BioSource Corporation London, UK	
Justna Muhith, PhD		2001-2007
Present Position:		
Daniel Staub, PhD		2003-2007
Present Position:	Postdoctoral Research Assistant Department of Anatomy and Cell Biology Center for Substance Abuse Research Temple University School of Medicine	
Andrew K. Evans, PhD		2004-2009
Present Position:	Postdoctoral Research Assistant Department of Biology Stanford University	

Research Assistant

David Knight		
Present Position:	Research Assistant Department of Integrative Neuroscience and Endocrinology University of Bristol	2002-2005

Postdoctoral Fellows

Baohan Pan, PhD		2000-2001
	Research Associate	

Present
Position: Department of Biomedical Engineering
Johns Hopkins School of Medicine

Annick de Vries, 2001-2004
PhD

Present Position: Visiting Professor
Katholieke Universiteit, Leuven, Belgium

Sue Oldfield, PhD 2001-2004

Present
Position: Research Assistant
Department of Physiology and Pharmacology
University of Bristol

Belinda Henry, 2001-2005
PhD

Present
Position: CJ Martin Research Fellow
Department of Physiology, Faculty of Medicine, Nursing
and Health Sciences
Monash University, Victoria, Australia

Francesca Spiga, 2002-2004
PhD

Present
Position: Research Associate
Department of Neuroscience and Endocrinology
University of Bristol

Adriaan 2003-2005
Bouwknicht, PhD

Present
Position: Research Scientist
Johnson and Johnson, Beerse, Belgium

Paul Gasser, PhD 2005-2007

Present
Position: Assistant Professor
Department of Biomedical Sciences
Marquette University

Visiting Scholars at the University of Bristol

Miles Orchinik, PhD 2005

Department of Life Sciences
Arizona State University

Service

Intramural

University of Bristol

1999-2000, Board of Management, Division of Medicine, Bristol Royal Infirmary, Staff Representative

Department of Integrative Physiology

2008, Faculty Peer Teaching Evaluation Committee (PUEC), Member
2008-09, IPHY Stress Physiology Faculty Position Search Committee, Member
2008-09, IPHY Awards Committee, Member
2009-11, IPHY Awards Committee, Chair
2010, Primary Unit Evaluation Committee (PUEC; Instructor reappointment), Member
2011, Faculty Peer Teaching Evaluation Committee, Member
2012, Animal Care Committee, Member
2013, Spring, Faculty Peer Teaching Evaluation Committee, Member
2013, Fall, Faculty Peer Teaching Evaluation Committee, Member
2013, Fall-present, Faculty mentor for Charles Hoeffler
2014, Spring-present, IPHY Animal Care Committee, Chair
2015-2020, Welfare Committee, Member
2018-present, Member, Curriculum Review Workgroup, 2018 IPHY Program Review
2017-2020, Welfare Committee, Chair
2019, Primary Unit Evaluation Committee (PUEC), Review of Celine Vetter for 3-year reappointment
2020, IPHY Return to Research Ad Hoc Committee (to advise the Chair as IPHY prepares to return to research activities after the COVID-19 pandemic)
2021, Summer-present, Faculty mentor for Tanya Alderete
2021, Faculty Peer Teaching Evaluation Committee, Member
2021- 2022, IPHY Graduate Curriculum Review Subcommittee (Moni Fleshner, Teresa Foley, Ruth Heisler, Chris Link, Christopher Lowry, Andrew Tan, Ken Wright)
2021-present, IPHY Executive Committee, Member
2022, Primary Unit Evaluation Committee (PUEC), Review of Teresa Foley for 3-year reappointment
2022, Co-Chair, Faculty Search Committee, Two Tenure-Track Assistant Professor Positions in Integrative Physiology, Fall, 2022
2023, Primary Unit Evaluation Committee (PUEC), Review of Tanya Alderete for tenure
2023, Faculty Peer Teaching Evaluation Committee, Member
2023, Sloan Grant - Equity in Graduate Initiative Liaison IPHY Departmental Liaison for CU Boulder's Sloan Foundations' Sloan Centers for System Change, a grant-funded project to improve doctoral participation rates, experiences, and outcomes for Black, Indigenous, and Latina/o/x populations. This work will pursue systemic change at the university, college, and departmental levels. The project will be led by the Graduate School, the Office of the SVP for DEI, the College of Arts and Sciences, and the College of Engineering and Applied Science.
https://sloan.org/storage/app/media/programs/higher_education/sloan-foundation-higher-education-scsc-call.pdf

University of Colorado Boulder

2008, IPHY Behavioral Core Advisory Committee, Member
2010, NIH Initiative for Maximizing Student Diversity CU Boulder Site Visit Discussion Panel,

Member

2010-present, UROP Advisory Board, Member; renewed in 2016
2011, Norlin Scholar Selection Committee, Member
2011, McNeill Program, Student Academic Services Center Power Hour Workshop, Member
2011, NSF Science, Technology, Engineering, and Math Talent Expansion Program (STEP) proposal, Faculty Steering Committee (PI, Bob Boswell), Contributor
2011, Buff Essentials Presentation, *What's happening in IPHY labs?*
2012, 2019, CU Boulder Innovative Seed Grant Biomedical Sciences Review Panel, Member
2012, Faculty Search Committee, Institute for Behavioral Genetics (IBG), Member
2013, Search committee, Attending Veterinarian and Director, Office of Animal Resources, Member
2013, Task Force, Office of Animal Resources, Member
2013, IACUC, Alternate Member
2014-2017, IACUC, Member
2014, Radiation Safety Committee, Member
2014-2016, Wilderness Place Renovation Architect and Contractor Selection, Schematic Design, and Design and Development Committee, Member
2014, Faculty advisory committee for the PREP program, 2014 application for NIH PREP funding, Kraus (PI); Boswell (PI), Member
2017-present, Wilderness Place Administrative Committee (WPAC), Member; 2022-present
2017-present, Faculty Director of the Institutional Animal Care and Use Committee (IACUC) in the Research & Innovation Office at the University of Colorado Boulder, IACUC, Chair (overseeing CU Boulder's first AAALAC accreditation in July 12, 2018; renewed July 8, 2021)
2020, CU Boulder Undergraduate Research Panel with Terri Fiez, Saydie Allapowa Sago, Allison Paige Anderson, Alexander Kryuchkov, John Calvin Barrall, Elizabeth Sloan Remnant, Chris Yankee, Matthew Tyrie, Amy Lester Ellis, October 14, 2020
2020, CU Boulder's 2020 Chancellor's Celebration of Donors event, Thursday, November 19, 2020. <https://www.youtube.com/watch?v=6uiIE3dLphU&feature=youtu.be>
2022, Invited speaker, IPHY Diversity Event, hosted by the IPHY DEI committee, September 8, 2022
2023, Panelist, Making the Most of Your Sabbatical, Office of Faculty Affairs, University of Colorado Boulder, April 5, 2023.

Extramural

2000, Meeting organizer, NIMH Research Network, HPA Regulation in Stress: the Dorsomedial Hypothalamus
2002-present, NSF Behavioral Neuroscience and Neuroendocrinology Panel, Ad Hoc Reviewer
2002, NSF Behavioral Neuroscience and Neuroendocrinology panel, ad hoc member
2003, Meeting organizer, Meeting of the IUPUI/University of Bristol NIMH Consortium, Neural systems underlying acute and chronic anxiety states
2003, 2010, 2023 Wellcome Trust Project Grant Review Panel, ad hoc member
2004, Meeting organizer, Meeting of the IUPUI/University of Bristol NIMH Consortium, Neural systems underlying acute and chronic anxiety states
2005-2007, Invited, registered consultant for Network of Advisors, Clinical Advisors LLC
2006, Invited Reviewer for proposal for a new journal, "Vigilance" by Birkhäuser Publishing Ltd., to be edited by S.R. Pandi Perumal
2006, External reviewer for doctoral candidate, Marianne H. Larsens, University of Copenhagen, Denmark
2007, U.S. Civilian Research & Development Foundation Grant Review Panel, ad hoc member
2007-09, Medical Research Council (UK) Project Grant Review Panel, ad hoc member

2007, Israel Science Foundation Project Grant Review Panel, ad hoc member
 2008, Science Foundation Ireland Grant Review Panel, ad hoc member
 2008, Alzheimer's Association Grant Review Panel, ad hoc member
 2008-09, Executive Committee for the Rocky Mountain Regional Neuroscience Group, Member
 2008-10, NSF Division of Integrative Organismal Systems, Modulation, Panel member
 2008, BBSRC Biochemistry & Cell Biology Committee, UK, ad hoc member
 2009, Ontario Mental Health Foundation Grant Review Panel, ad hoc member
 2009, NSF Animal Behavior Program Review Panel, ad hoc member
 2009, Multiple Sclerosis Research Australia Grant Review Panel, ad hoc member
 2010-present, CU Chapter, Sigma Xi Executive Committee, Member
 (Sigma Xi Chapter of Excellence Award for distinguished performance during the year ending June 30, 2011, awarded to the University of Colorado Boulder chapter, one of eight chapter awards nationwide)
 2010, Local Organizing Committee, 2010 Workshop on Stress Neurobiology, June, 2010
 2010, Research Corporation for Science Advancement Grant Review Panel, ad hoc member
 2010, M. J. Murdock Charitable Trust Grant Review Panel, ad hoc member
 2010, French National Research Agency, Open Research Area for the Social Sciences in Europe Grant Review Panel, ad hoc member
 2010, Netherlands Organisation for Scientific Research Grant Review Panel, ad hoc member
 2010, BBSRC Animal Systems, Health and Wellbeing Committee, UK, ad hoc member
 2011, International Advisory Committee, Tenth Symposium on Catecholamines and Other Neurotransmitters in Stress, Smolenice Castle, Slovakia, June 25-30, 2011
 2011, NSF Division of Integrative Organismal Systems Grant Review Panel, ad hoc member
 2012, NIH, NIMH Neurobiology of Motivated Behavior (NMB) Study Section, ad hoc member
 2012, Swiss National Science Foundation, ad hoc member
 2013, European Research Council (ERC) Grant Review Panel, ad hoc member
 2014, Swiss National Science Foundation, ad hoc member
 2014, International Advisory Committee of the Eleventh Symposium on Catecholamines and Other Neurotransmitters in Stress, Smolenice Castle, Slovakia, June 20-25, 2015
 2015, NIH, Special Emphasis Panel in response to RFA-MH-15-850, Gut-Microbiome-Brain Interactions and Mental Health (R21/R33) ZMH1 ERB-M (02) R meeting
 2015, Swiss National Science Foundation, ad hoc member
 2015, NIH Special Emphasis Panel/Scientific Review Group 2015/10 ZRG1 IFCN-Z (02) M, ad hoc member
 2015, Danish Council for Independent Research, DFF-MOBILEX mobility grants, ad hoc member
 2015, National Council for Scientific and Technological Development (CNPq), National Institutes of Science and Technology (INCT) Program, Brazil, ad hoc member
 2017, NASA Behavioral Health and Performance NASA Specialized Center of Research review panel consisting of proposals received in response to the recent NASA Human Exploration Research Opportunities (HERO) ad hoc member
 2018, Army Research Office (ARO), Presidential Early Career Award for S&E's (PECASE), June 1, 2018
 2018, NIH Special Emphasis Panel (SEP), ZRG1 IFCN-L(02), Member conflict, Integrative Neuroscience, meeting on July 12, 2018
 2019, International Advisory Committee, the Twelfth Symposium on Catecholamines and Other Neurotransmitters in Stress, Smolenice Castle, Slovakia, June 15 through June 20, 2019.
 2019, Advisor, Canine Healthy Soil Project: Restoring the Ancestral Microbiota, www.caninehealthysoil.com

2020, NIH, NIMH Neurobiology of Motivated Behavior (NMB) Study Section, ad hoc member, declined due to conflicts with teaching

2020, NIH, NCCIH, Special Emphasis Panel/Scientific Review Group 2020/05 ZAT1 JM (07) L, ad hoc member

2019, Swiss National Science Foundation, ad hoc member

2020, Swiss National Science Foundation, ad hoc member

2021, NIH, NIMH Neurobiology of Motivated Behavior (NMB) Special Emphasis Panel Study Section, ad hoc member

2021, NIH, Special Emphasis Panel/Scientific Review Group Small Business Panel for Drug Discovery Involving The Nervous System (ETTN-14) on Mar 23-24, 2021 (declined due to previous commitments)

2021, The Foundation for Young People's Mental Health (YPMH), participant in Briefing and Innovation workshops, November 17-January 20, 2020; The Foundation for Young People's Mental Health, Changing Hearts, Changing Minds. Evidence-based approaches to the prevention, diagnosis and treatment of depression in young people. The William Templeton Foundation for Young People's Mental Health (YPMH)

2021, University of Cambridge, IfM Engage and The William Templeton Foundation for Young People's Mental Health, participation in: *A Game-Changing Approach to Depression in Young People and Community Resilience* (GCA), from November 12, 2021. The project 'A Game-Changing Approach to Depression in Young People and Community Resilience' (GCA) builds on the ideas for early intervention published in 'Changing Hearts, Changing Minds' in September 2021. The aims of the GCA project, which is funded until early June 2022, are to:

1. Build a Community of Interest comprising people from across the ecosystem, including researchers, clinicians, industry, education institutions, employers, mental health support charities, and young people and their families to collaborate in the project.
2. Identify what needs to be done to translate promising innovations for early intervention into practice in:
 - a. Self-care by individuals, families and their support network
 - b. The healthcare system
 - c. The wider mental health ecosystem, including education institutions, employers and mental health support charities
3. Identify stakeholders to develop the most promising innovations.

2021, Meeting panelist, Project Earthrise, The 10th Annual Conference of inVIVO Planetary Health, December 1-7, 2021. <https://www.invivoplanet.com/2021-meeting.html>.

2022, NIH/NCCIH Natural Product Early Phase Clinical Trial Award Special Emphasis Panel (PAR20-217 / PAR-20-218) ZAT1 MH (01), ad hoc member, September 30, 2022.

2023, NIH/NCCIH, ZAT1 SH (11) Early Phase Clinical Trials of Natural Products (NP), ad hoc member, July 12th, 2023

2023, NIH, Neurobiology of Motivated Behavior (NMB) study section, ad hoc member, November 2-3, 2023.

Journal editorial board memberships

2023	Handling Editor, <i>Frontiers in Science</i> , May 24, 2023 (declined)
2023-present	<i>Journal of Mood and Anxiety Disorders</i> TM , Editorial Board,
2020-present,	<i>Frontiers in Psychiatry</i> Editorial Board of <i>Aging Psychiatry</i> as Review Editor
2019-present,	<i>Brain, Behavior, and Immunity Health</i> , Editorial Board, Member

2011-present, *Stress: The International Journal on the Biology of Stress*, Editorial Board member
2018-present, *Brain, Behavior, and Immunity*, Editorial Board member

Journal editorial boards, ad hoc member

From Journal

(ad hoc reviewer for 62 journals in behavioral neuroscience, physiology, and pharmacology since 1996)

My Elsevier Reviews profile page

<https://www.reviewerrecognition.elsevier.com/#!/profile/38206986-c8f3-4a9b-8b65-ead6d7986b84>

Reviewer since

- 2023 *Future Microbiology*
Journal of Mood and Anxiety Disorders
- 2022 *AJP: Gastrointestinal and Liver Physiology*
IJMS (International Journal of Molecular Sciences)
Journal of the American Society for Horticultural Science
Science
- 2021 *Journal of Alzheimer's Disease* (Handling Associate Editor)
Journal of the American Society for Horticultural Science
- 2020 *Bulletins of the Pharmaceutical Society of Japan*
Frontiers in Psychiatry
Bulletins of the Pharmaceutical Society of Japan
- 2019 *BMC Biology*
Current Biology
Gastroenterology & Hepatology: Open Access
Journal of Affective Disorders
Journal of Head Trauma Rehabilitation
Journal of Clinical Tuberculosis and Other Mycobacterial Diseases
Tuberculosis
Nature Communications
- 2018 *International Microbiology*
MDPI Challenges
Nature Reviews Neuroscience
Frontiers in Microbiology | Microbial Physiology and Metabolism
- 2017 *ACS Chemical Neuroscience*
Cell Reports
Frontiers in Neuroendocrinology
Genes and Nutrition
The Harvard Review of Psychiatry
- 2016 *BMC Complementary and Alternative Medicine*
Current Neuropharmacology
Expert Opinion On Biological Therapy
International Journal of Biodiversity
Journal of Infection
Neurobiology of Stress
Scientific Reports (Nature Publishing Group)
- 2014 *Comprehensive Physiology*
Frontiers in Neural Circuits
Hippocampus
Journal of Neuroscience Methods

Molecular and Cellular Endocrinology
Molecules (MDPI)
Perspectives on Psychological Science
Proceedings of the Royal Society B: Biological Sciences
The Lancet Psychiatry
Schizophrenia Bulletin
Translational Psychiatry
2013 *AJP: Endocrinology and Metabolism*
Genes, Brain and Behavior
Glia
Proceedings of the National Academy of Sciences (PNAS)
Psychology & Neuroscience
Research in Veterinary Science
2012 *Animal Behaviour*
Brain Structure and Function
Cerebral Cortex
Journal of Neurochemistry
Pharmacological Research
PloS ONE, Acknowledgement: (2018) PLOS ONE 2017 Reviewer and Editorial Board
Thank You. PloS ONE 13(3): e0194158. Doi.org/10.1371/journal.pone.0194158
Psychiatry Research
BMC Medicine
2011 *Brain Behavior and Immunity* (Elsevier recognized reviewer status)
Cellular and Molecular Neurobiology
Medical Hypotheses
2010 *Anatomical Record*
Cancers
Psychological Reports
Trends in Neuroscience
2009 *CNS Neuroscience & Therapeutics*
Gastroenterology
Hormones and Behavior
Journal of Comparative Neurology
Sleep Medicine Reviews
2008 *Behavioral Neuroscience*
British Journal of Pharmacology
FASEB Journal
Journal of Comparative Neuroanatomy
Neurochemistry International
Physiology and Behavior
Psychopharmacology
2007 *Experimental Brain Research*
FEBS Letters
Journal of Physiology
Neuropsychopharmacology
Progress in Neuro-Psychopharmacology & Biological Psychiatry
2006 *The International Journal of Neuropsychopharmacology*
Journal of Psychopharmacology
2005 *Journal of Histochemistry and Cytochemistry*

	<i>Nature Reviews in Drug Development</i>
	<i>Psychoneuroendocrinology</i>
	<i>Stress: the International Journal on the Biology of Stress</i>
2004	<i>Molecular Brain Research</i>
	<i>Neuroscience and Biobehavioral Reviews</i>
	<i>Neuroscience Letters</i>
2003	<i>Behavioural Brain Research</i>
	<i>European Journal of Neuroscience</i>
	<i>European Neuropsychopharmacology</i>
	<i>Neuroembryology</i>
	<i>Neuroscience</i>
2002	<i>Endocrine</i>
	<i>Neuropharmacology</i>
2001	<i>Biological Psychiatry</i>
	<i>Brain Research</i>
	<i>Comparative Biochemistry and Physiology</i>
1998	<i>General and Comparative Endocrinology</i>
	<i>Journal of Neuroendocrinology</i>
1996	<i>Endocrinology</i>
	<i>Journal of Neuroscience</i>
	<i>Life Sciences</i>

Invited scientific presentations

Summary of invited scientific presentations

Scientific presentation type	Before 2007	2007-2013	2014-Present	Total
Plenary lectures	0	0	5	5
Symposium organizer	0	0	2	2
Invited symposia and meeting presentations	18	14	31	63
Invited departmental seminars or colloquia presentations	23	16	22	61
Totals	41	30	60	131

Plenary lectures

1) **The microbiome –gut-brain axis and brain health**

Keynote lecture, 33rd Annual Gersten Day, Rehabilitation Scientific Symposium
University of Colorado Anschutz Medical Campus, Aurora, CO, USA
June 12, 2020,

2) **The microbiome and mental health**

Dean's Distinguished Seminar Speaker, on behalf of Karen Magee-Sauer, Dean of the College of Math and Sciences
Rowan University, Stratford, Glassboro, and Camden campuses in South Jersey
April 13, 2018

3) **Mary Murphy Endowed Lecture in Biology, Your microbiome, your mental health**

Department of Biology, Clarke University, Dubuque, IA, USA.
April 28, 2017

4) **Old Friends: the Indoor Environment and the Hygiene Hypothesis. How Mycobacteria exposures add more pieces to an already complicated puzzle**

The 4th Annual Sloan Conference on the Microbiology of the Built Environment, July 15-18, 2015, University of Colorado Boulder
July, 2015

5) **Autism and the microbiome: past, present, and future**

Autism in Transition. Banff Conference, Banff, Alberta, March 15-18, 2015
March, 2015

Symposia organizer

1) **The role of the gut microbiome in anxiety spectrum disorders**

Co-Chair of Symposium at World Federation of the Societies of Biological Psychiatry (WFSBP), in Vancouver, Canada. <http://www.wfsbp-congress.org/home/>; Symposium title, Presentation title: The microbiome and mental health: focus on anxiety spectrum disorders. Co-Chair: Sian Hemmings, Stellenbosch University, South Africa. June 2-6, 2019.
June, 2019

2) **Warm feelings, warm thoughts: Thermosensation, emotional behavior, and mental health**

International Behavioral Neuroscience Society (IBNS) Annual Meeting, Symposium organizer and speaker, Red Rock Resort, Las Vegas, Nevada, USA, June 10-15, 2014.
June, 2014

Session Chair

- 1) **Lowry CA** (2018) Session Chair, in-FLAME, Canmore, Canada, <http://www.in-flame.org> ;
“Stress, sleep, inflammation and aging”, April 4-6, 2018.

Invited symposia and meeting presentations

- 1) Lowry CA (2024) invited speaker, First PNIRASia-Pacific symposium at the Chinese Association for Physiological Sciences Committee of Traditional Chinese Medicine and Brain Homeostasis Regulation (CAPS-TCMBHR), Taiyuan City, Shanxi Province, People's Republic of China, May 9-11 (tentative dates), 2024. Symposium Chair, Keith W. Kelly, speakers, Aeson Chang, Monash University, Christopher Lowry, University of Colorado Boulder, and Leah Pyter, The Ohio State University.
- 2) Lowry CA (2023) 2023 Nova Annual Conference, Seeds of Change, Inspiring a Better Future, which will be held virtually on December 7-8, 2023, “From the Exposome to the Human Affectome: Synthesizing the physical and metaphysical aspects of human emotion and wellbeing”
<https://novainstituteforhealth.org/forums/events/annual-conference-2023/>
<https://novainstituteforhealth.org/forums/events/annual-conference-2023/conference-program/>
- 3) Lowry CA (2024) invited speaker, International Meeting Steroids and Nervous System, ~23-24 February, 2024, Torino Italy.
- 4) Lowry CA (2024) invited speaker, Vail Health, Behavioral Health Innovation Center Lecture

Series, Session 7: Old Friends & Mental Health: Role of Co-Evolved Micro-Organisms in Stress Resilience, January 4, 2024, 12:00-1:00 p.m. MST, Zoom (Online)

Vail Health Behavioral Health:

www.VailHealthBH.org/InnovationSeries

University of Wisconsin-Madison

<https://ce.icep.wisc.edu/novel-approaches-session-7>

- 5) Lowry, CA (2023) Invitation to speak in the University of South Dakota's Center for Brain and Behavior Research (www.usd.edu/cbbre) annual symposium CBBRe Research Symposium 2023 August 9-10, 2023, University of South Dakota, Vermillion, South Dakota. Declined due to other commitments.
- 6) **4th International Conference on Microbiota-Gut-Brain-Axis, "Mind, Mood & Microbes"**, a two-day event to be held in Amsterdam, The Netherlands on May 10-11, 2023. Session on The microbiota-gut-brain axis and psychiatric disorders, Chaired by Jane Foster.
<https://www.mindmoodmicrobes.org/>
- 7) **4th International Conference on Microbiota-Gut-Brain-Axis, "Mind, Mood & Microbes"**, a two-day event to be held in Amsterdam, The Netherlands on May 10-11, 2023. Panelist in a 30-min panel on psychiatric disorders and the gut-brain axis, moderated by John Cryan, Mind, Mood & Microbes conference, Amsterdam, The Netherlands, May 11, 2023.
- 8) **2023 Rocky Mountain Coaching Retreat & Symposium**, YMCA of the Rockies, September 23-34, 2023, <https://www.catalystcoachinginstitute.com/retreat/>. Invited speaker
- 9) **2023 American College of Sports Medicine (ACSM) Annual Meeting and World Congresses**. Infrared Whole-Body Heating and Thermoregulation: Implications for Psychiatry. In: Highlighted Symposium, The Mental Health Crisis: The Impact of Exercise and the Environment on Psychobiological Function, Denver, CO, USA, May 30-June 2, 2023.
- 10) **Cumming Foundation Mountain West Microbiome Meeting** to be held at Snowbird ski resort, Utah on March 20-22, 2023. Invited speaker
- 11) **FASEB and the Endocrine Society: The Mechanisms of Allostasis Conference: Stressed or Stressed Out**, in Symposium: *Stress and the gut microbiome-brain axis*, Translational research for novel approaches to prevention and treatment of posttraumatic stress disorder (PTSD). Christopher A. Lowry, September 20, 2022, Crowne Plaza New Orleans French Quarter, New Orleans, Louisiana, USA
- 12) **The Many Hosts of Mycobacteria 9 (MHM9) Conference** Modulation of the psychological stress response by Mycobacterium vaccae The Many Hosts of Mycobacteria 9 (MHM9) Conference July 11-13, 2022, OSU Infectious Diseases Institute, Columbus, OH, USA.
<https://u.osu.edu/mhm9/>
- 13) **2nd Annual University of Colorado Sleep and Circadian Summer School**, 18th-20th August 2021. Presenter, Virtual Happy Hour Professional Development Discussion Group on the topic Work-Life Balance on August 19th, from 1700-1900 (Mountain Time Zone).
- 14) **ACRM 98th Annual Conference, ACRM Dallas, Progress in Rehabilitation Research**,

Translation to Clinical Practice. Special Symposium: Exploring the Impacts of the COVID-19 Pandemic Mental Health and Suicide Risk in Veterans: Building an Evidence Base to Inform Pandemic Recovery; Amy Herrold, Bryann DeBeer, Christopher Lowry, 24-29 September, 2021, Dallas, Texas, USA

<https://www.eventscribe.net/2021/ACRM/index.asp?presTarget=1560542>

15) inVIVO Planetary Health Conversation at the Campfire

Member, Discussion Panel, Live Interactive Discussion, inVIVO Planetary Health, May 19, 2021.

16) inVIVO Planetary Health Conversation at the Campfire

Member, Discussion Panel, Live Interactive Discussion, inVIVO Planetary Health, February 10, 2021.

17) The microbiome-gut-brain axis and mental health

In: Szimpóziumi pályázat MITT 2021, Budapest (Meeting of the Hungarian Neuroscience Society), Gut feelings: the interaction between the brain and the gastrointestinal system during stress. Invited speakers include Ludmila Filaretova, Pavlov Institute of Physiology, St. Petersburg, Russia; Dániel Kuti, Institute of Experimental Medicine, Budapest, Hungary; Christopher A. Lowry, CU Boulder, Boulder, CO, USA; Dora Zelena, Institute of Experimental Medicine, Budapest, Hungary. January, 2021

18) Environmental mycobacteria as next-generation immunobiotics for mental health. 8th

Microbiome & Probiotics R&D & Business Collaboration Forum USA, In: *Gut-Brain Axis Symposium*, San Diego, CA, USA, November 5-6, 2020

19) Immunization with a soil-derived bacterium, *Mycobacterium vaccae*, prevents stress-induced anxiety, neuroinflammation, and microglial priming.

In: *Session 4: Microbiome Rewilding: restoring health of human and environmental habitats*. InVIVO Planetary Health, 8th Annual Conference, Detroit, USA, May 15-17, 2019.

20) An immunization strategy for the prevention and treatment of psychiatric disorders

Integrative Psychiatry Institute; also, Instructor in IPI Integrative Psychiatry Fellowship Program Boulder, CO, USA, 2019

21) An immunization strategy for the prevention and treatment of psychiatric disorders

Integrative Psychiatry Institute
Boulder, CO, USA, October 19-21, 2018

22) Biofingerprinting in office and home environments

7th International Microbial Forensics Symposium, Facilitated by the Chemical, Biological, Radiological, Nuclear, and Explosives (CBRNE) subgroup of CTTSO, an entity of the United States Department of Defense (DoD), the FBI, and the Public Health Agency Canada. Federal Bureau of Investigation (FBI) Operational Response Center in Fredericksburg, Virginia, USA, May 15-17, 2018. Presented by Christopher E. Stamper

23) Association of the gut microbiome with severe insomnia in a cohort of U.S. Veterans

5th Annual Colorado Sleep and Circadian Research Symposium
Boulder, CO, USA, May 18, 2018

- 24) **Dysbiosis, the microbiome-gut-brain axis, and mental health**
27th Symposium on Intestinal Microbiota
Tokyo, Japan, October 26, 2018
- 25) **An immunization strategy for prevention of stress-related psychiatric disorders**
4th International Symposium on Resilience Research
Mainz, Germany, September 26-28, 2018
- 26) **Natural environments, microbiota, and immunoregulation in mental health: Implications for public health**
in-FLAME, Canmore, Canada, <http://www.in-flame.org>
April 4-6, 2018
- 27) **Microbiome-gut-brain axis and behavior**
New Frontiers Symposium, The Radboud Institute for Molecular Life Sciences (RIMLS),
Nijmegen, The Netherlands
October, 2017
- 28) **$\alpha 7$ Nicotine acetylcholine receptor ($\alpha 7$ nAChR) negative allosteric modulators: next generation anxiolytics.**
30th European College of Neuropsychopharmacology (ECNP) Congress, Paris, France,
September 2-5, 2017. Brainstorming Session, BS.02.
https://www.ecnp.eu/about-ecnp/history/past-ecnp-meetings/past-congresses/Paris2017/Programme_overview.aspx#
- 29) **An immunization strategy for prevention of stress-related psychiatric disorders**
NSF-sponsored CSU Summer Symposium: Computational Biology and Sensing: Focus on the
Microbiome (CSU, Duke, Iowa State, University of Georgia)
Fort Collins, CO, USA
June 12-13, 2017
- 30) **Microbial inputs and immunoregulation: Implications for health benefits of exercise**
American College of Sports Medicine (ACSM) World Congress on Basic Science. 2017 1st Basic
Science Research Symposium, Exercise and the Brain, Denver, CO, USA
May 31, 2017
- 31) **An immunization strategy for prevention of stress-related psychiatric disorders**
Alfred P. Sloan Foundation Department of Defense (DoD) Microbiome Symposium,
US Air Force Academy, USA
April 5-7, 2017
- 32) **The microbiome-gut-brain axis and traumatic brain injury.**
12th World Congress on Brain Injury. New Orleans, LA, USA
March 29-April 1, 2017
- 33) **An immunization strategy for prevention of stress-related psychiatric disorders**
1st Munich Winter Conference on Stress, Garmisch-Partenkirchen, Germany
March, 2017

- 34) **The microbiome-gut-brain axis: implications for the pathophysiology of anxiety disorders.**
The American Neuropsychiatric Association (ANPA) Atlanta, 28th Annual Meeting, Atlanta, GA, USA
March, 2017
- 35) **An immunization strategy for prevention of stress-related psychiatric disorders**
2017 PRPS (Puerto Rico Physiological Society) Annual Meeting. Microbiome, key to human health. Universidad Central del Caribe, Bayamon, Puerto Rico
February, 2017
- 36) **Serotonergic systems, anxiety, and affective disorders: focus on the Deakin and Graeff mesolimbocortical serotonergic system implicated in stress resilience**
2nd Symposium on Serotonin in Anxiety and Depression, Ribeirão Preto-SP, Brazil
September 2016
- 37) **An immunization strategy for prevention of stress-related psychiatric disorders**
In: *Fear and anxiety: contributions from below the brain*. 49th Annual Winter Conference on Brain Research, Breckenridge, CO, USA
January, 2016
- 38) **An immunization strategy for prevention of stress-related neuropsychiatric disease**
In: *The mechanisms of stress resilience and safety: Implications for stress-related neuropsychiatric disease*. International Behavioral Neuroscience Society (IBNS) Annual Meeting, Victoria, British Columbia, Canada
June, 2015
- 39) **A bioimmunomodulatory approach for prevention of stress-related psychiatric disorders and their medical comorbidity**
The Rockefeller University Center for Basic and Translational Research on Disorders of the Digestive System (CDDS) Microbiome Symposium, Rockefeller University, New York, New York, USA
October, 2014
- 40) **Topographically organized serotonergic systems in the dorsal raphe play diverse roles in anxiety and depression**
27th ECNP Congress, Berlin, Germany
October, 2014
- 41) **Integrative physiology of subjective well-being**
2013 Subjective Well-Being and Law Conference, University of Colorado Boulder
June, 2013
- 42) **Serotonergic systems and emotional behavior**
GK-Emotions – 15th Spring School 2013, Emotional Disorders and Their Neural Correlates, Tagungsstätte Schloss Schwanberg, Germany
April, 2013
- 43) **Serotonergic systems, anxiety, and affective disorders: twenty years of support for the**

Deakin/Graeff hypothesis

1st World Symposium on Translational Models of Panic and Comorbid Disorders, Vitória, Brazil
November, 2012

- 44) **Serotonergic systems, anxiety, and affective disorders: twenty years of support for the Deakin/Graeff hypothesis**
Serotonergic systems and anxiety. University of São Paulo, Ribeirão Preto, SP, Brazil
June, 2012
- 45) **Stress meets serotonin: A search for clues to affective and anxiety disorders**
2011 Annual Vanderbilt Conte Center Symposium, Lumos: casting light on serotonin's impact on development and behavior. Vanderbilt University, Nashville, Tennessee, USA
October, 2011
- 46) **Stress-related serotonergic systems: implications for affective and anxiety disorders**¹⁹
Tenth Symposium on Catecholamines and other Neurotransmitters in Stress, Smolenice Castle, Bratislava, Slovakia
June, 2011
- 47) **Adverse early life experience programs tryptophan hydroxylase 2 mRNA expression and behavior**
Society of Biological Psychiatry, 66th Annual Meeting, San Francisco, California
May, 2011
- 48) **Neural systems regulating anxious states**²⁰
7th Forum of European Neuroscience (FENS), Amsterdam, The Netherlands
July, 2010
- 49) **Can we target specific neuronal populations to improve the efficacy and safety of antidepressants?**²¹
16th World Pharma Congress for Basic and Clinical Pharmacology (formerly IUPHAR), Copenhagen, Denmark
July, 2010
- 50) **Early life experience, stress, and serotonergic systems**
Satellite meeting to the Federation of European Neurosciences (FENS) Meeting, Geneva, Switzerland
July, 2008
- 51) **Functional connectivity maps of the dorsal raphe nucleus, specific focus on stress circuits**
Workshop on Theoretical and Experimental Perspectives on Serotonin Function, Lisbon, Portugal
October, 2007
- 52) **Serotonin and behavior: the good, the bad, and the ugly.**
Celebration of 30 Years of Neuroscience at UW, Laramie, Wyoming
April 2007.

¹⁹ cross-referenced under *Papers published in non-refereed conference proceedings*

²⁰ cross-referenced under *Papers published in non-refereed conference proceedings*

²¹ cross-referenced under *Papers published in non-refereed conference proceedings*

- 53) **Early life experience, stress, and serotonergic systems**
In: *Basic Sciences 3 – Stress and Neurotransmitters*, 6th World Congress on Stress, Vienna, Austria
October, 2007
- 54) **Early life experience, stress, and serotonergic systems**
In: *Functional Neuroanatomy of Stress Responses*, Ninth Symposium on Catecholamines and Other Neurotransmitters in Stress. Smolenice Castle, Slovakia; Bratislava, Slovakia.
June 2007
<http://www.stress.sav.sk/> Chair of Poster Session, Functional Neuroanatomy of Stress Responses,
Lowry CA. Proceedings to be published in *Ann NY Acad Sci*. Abstract published in *Endocrine Regulations*, 41:101.
- 55) **Immune interactions with serotonin, depression, and HPA function**
In: HPA Axis Function in Health and Disease, Endocrinology, Bratislava, Slovakia. Joint meeting of the Physiological Society (UK), Federation of European Physiological Societies (FEPS), and the Slovak Physiological Society.
September, 2007
- 56) **Urocortin 2, serotonergic systems, and behavior**
In: New Insights into Urotensin Endocrinology, from Fish to Man, 23rd Conference of European Comparative Endocrinologists 2006 (CECE), Renold Building, University of Manchester, Manchester, UK
August 29-September 2, 2006.
<http://www.cece.man.ac.uk/2006/>
- 57) **Regulation of behavioral responses by CRF and other stress hormones**
In Symposium: Novel Functions of the Corticotropin-Releasing Factor System, 15th International Conference on Comparative Endocrinology (ICCE) Boston Park Plaza Hotel, Boston,
May 2005
<http://www.bu.edu/dbin/icce15/corticotropin.php>
- 58) **Modulation of Stress Circuits by Serotonergic Pathways**
5th World Congress on Stress. *Symposium: Stress pathways in panic and mood disorders*.
Additional speakers, Anantha Shekhar, Stress, amygdala and its role in panic and mood disorders; Don Rainnie, Stress-induced synaptic plasticity in the extended amygdala; Tammy Sajdyk, Role of neuropeptide Y in stress response regulation; Sabina Beretta, Cortical regulation of stress circuits: animal models and human post-mortem studies. Kings College, London
June, 2004
- 59) **The role of serotonergic systems in emotional behavior**
Symposium: Hormones, brain and behaviour: which comes first? Winter Meeting of the Association for the Study of Animal Behaviour. Zoological Society of London Meeting Rooms, London Zoo, Regent's Park, London, UK
December, 2003
<http://www.societies.ncl.ac.uk/asab/index.html>. Organizers: Jacques Balthazart (Univ. Liège, Belgium) and Rui Oliveira (ISPA, Lisboa, Portugal). Confirmed invited speakers are Greg Ball

(John Hopkins University, USA), Norbert Sachser (University of Muenster, Germany) and Matthew Grober (Georgia State University, USA).

60) Effects of stress and stress-related neuropeptides on topographically organized subsets of serotonergic neurons

In: *Functional Neuroanatomy of Stress Responses*, Eighth Symposium on Catecholamines and Other Neurotransmitters in Stress. Smolenice Castle, Slovakia; Organizer: Dr. Richard Kvetňanský, Chairman, Institute of Experimental Endocrinology, Bratislava, Slovakia.
June 28 – July 3, 2003

<http://www.stress.sav.sk/> Chair of Poster Session, Functional Neuroanatomy of Stress Responses, Lowry CA. Proceedings to be published in *Ann NY Acad Sci*.

61) Functional subsets of serotonergic neurones: Implications for stress-related psychiatric disorders

Avera Symposium—Frontiers in Treatments for Brain Dysfunction. Other speakers, Tom Insel, Director NIMH. Craig Evinger – SUNY Stony Brook, Control of eye blinks and origins of cranial dystonias like blepharospasm; Bruce Pollock – University of Pittsburgh College of Physicians and Surgeons; Serotonin modulation in Alzheimer's dementia; Ann Kelley, Chair of Psychiatry at Wisconsin School of Medicine; Glutamate and dopamine receptors in brain plasticity, learning, memory and addictions. Sponsored by the University of South Dakota School of Medicine and Avera McKennan Hospital as part of an initiative to establish a new Brain Research Centre.

62) Serotonergic systems—functional topographical organization

Symposium: Multidisciplinary approaches to understanding the role of serotonergic systems in stress-related physiology and behaviour. Organiser: Dr. C.A. Lowry. Jenner Museum Conference Centre, Berkely, Gloucester, UK (<http://www.jennermuseum.com/>).
April 2003

63) Serotonin pathways integrating neuroendocrine and behavioural function

Organisation of Stress-Responsive Neural Pathways. Ares Sereno Symposium in Association with the International Congress of Neuroendocrinology (ICN 2002; The Neuroendocrine-Behaviour Interface in the Post-Genome Era. University of Bristol, Bristol, U.K; Other speakers—Professor James P. Herman, University of Kentucky Medical Center, Lexington, KY, Professor Huda Akil, University of Michigan.
September, 2002

64) Topographically and functionally organized subsets of CRF- and stress-responsive serotonergic neurons

In: *Role of CRF and serotonergic systems in stress-related behaviour*. Winter Conference on Brain Research, Snowmass, Colorado
January 26-February 2, 2002

65) Electrophysiological and neuroendocrine actions of central CRH: Possible relevance to the serotonergic basis of mood and anxiety disorders

First World Congress of Women's Mental Health, Berlin, Germany
March 2001

- 66) **New Insights into the role of 5-HT neuronal systems in depression**
In: *The New Psychopharmacology of Depression*, British Association for Psychopharmacology
2001 Summer Meeting, Harrogate, UK, <http://www.bap.org.uk>
July 2001
J Psychopharmacol 15(3):A7
- 67) **Corticotropin-releasing factor (CRF) increases *in vitro* firing rates of serotonergic neurones in the rat dorsal raphe nucleus: Evidence for selective activation of a topographically organized mesolimbocortical serotonergic system**
In: *Neurobiology of stress*. British Association of Psychopharmacology (BAP) meeting, Kings
College, Cambridge, U.K.
July, 2000
- 68) **Re-evaluation of the role of serotonin in stress—A “systems level” approach**
In: *Functional Neuroanatomy of Stress Responses*. Seventh Symposium on Catecholamines and
Other Neurotransmitters in Stress. Smolenice Castle, Slovakia
June 28 – July 3, 1999
(Proceedings to be published as *Stress: Neural, Endocrine and Molecular Studies* by Gordon &
Breach Science Publishers, New York, NY, U.S.A.).
- 69) **Corticotropin-releasing factor control of locomotion in male rough-skinned newts (*Taricha granulosa*)**

Second Annual Oregon State University Biology Graduate Student Symposium, Newport, Oregon
February, 1988
- 70) **MCH and the paraventricular organ in lower vertebrates: evolutionary and functional implications**
Satellite Symposium on Molecular Ancestry of Vertebrate Polypeptide Hormones and
Neuropeptides, Waseda University, Tokyo
November, 1997
- 71) **Evidence for a role for serotonin in CRF-mediated behavior: Neurochemical and electrophysiological studies**

Elba International Neuroscience Program, 1996 Workshops and Summer School. Marino di
Campo, Elba,
Italy, September, 1996
- 72) **Neuroendocrine correlates of sexual plasticity in amphibians: Emphasis on vasotocin neurons in the roughskin newt**
In: International Ethology Conference, Honolulu, Hawaii
August, 1995
- 73) **Steroid-neuropeptide interactions in the control of amphibian reproductive behaviors**
In: *Hormone-Sensitive Neural Systems Mediating Reproductive Behavior*, Conference on
Reproductive Behavior
Other Speakers, Barry J. Everitt, Cambridge, U.K., Andrew H. Bass, Cornell University,
New York, James D. Rose, University of Wyoming.

East Lansing, Michigan
June, 1993

74) **Neurochemical and neuroanatomical conservation in the vertebrate brain**

Sixth Annual Oregon State University Biology Graduate Student Symposium, Newport, Oregon
February 29-March 1, 1992

Invited departmental seminars or colloquia presentations

(only departmental seminars or colloquia presentations since appointment year at CU Boulder in 2007 are shown)

- 1) ***Eat, drink, and be merry: The “Old Friends” hypothesis and stress-related psychiatric disorders***
Graduate Seminar Series Department of Food Science and Human Nutrition at CSU,
Johnson, Sarah Sarah.Johnson@colostate.edu, September 14, 2023
- 2) ***The Farm Effect: implications of diverse microbial exposures for the microbiome and mental health***
Harvard’s Integrative Medicine Grand Rounds Lecture at our Osher Center for Integrative Medicine, jointly based at Harvard Medical School and Brigham and Women’s Hospital.

[Online] July 11, 2023, 8 a.m. EDT, <https://oshercenter.org/oc-event/july-11-the-farm-effect-implications-of-diverse-microbial-exposures-for-mental-health-grand-rounds/>
- 3) ***Translational research for novel approaches to prevention and treatment of posttraumatic stress disorder (PTSD)***
Department of Integrative Physiology Colloquium, University of Colorado Boulder, Boulder, Colorado, USA
August 29, 2022
- 2) ***An immunization strategy for prevention of psychiatric disorders: focus on microglial priming and neuroinflammation***
William K. Warren, Jr. Frontiers in Neuroscience conferences series, Laureate Brain Research Institute (LIBR), Tulsa, Oklahoma, USA
January 7, 2020
- 3) ***An immunization strategy for prevention of psychiatric disorders***
AFIT, Dayton, Ohio, USA
December 9, 2019
- 4) ***An immunization strategy for prevention of psychiatric disorders: focus on microglial priming and neuroinflammation***
Harvard School of Public Health, HSPH NIEHS Center for Environmental Health Colloquium Speaker Series
December 13, 2018
- 5) ***The hygiene hypothesis and innate immunity: mechanisms underlying microbial suppression***

of inflammation and neuroinflammation

CU Anschutz Medical Campus, The GI and Liver Innate Immune Program (GALIIP)

November 29, 2018

- 6) **An immunization strategy for mental health**
Florida State University, Department of Psychology, Tallahassee, FL, USA.
March 22, 2018
- 7) **The microbiome and mental health**
CU Anschutz Medical Campus, Microbiome Research Interest Program (RIP). Co-presented with Dr. Lisa Brenner.
January 17, 2018
- 8) **Microbial ‘Old Friends’ and human health**
Grand Rounds, D.C. Department of Behavioral Health seminar, St. Elizabeths, Washington, DC
<http://stelizabethshospitalresidency.org/home>
January 10, 2018
- 9) **The microbiome and mental health**
CU Boulder Neuroscience seminar series, CU Boulder, Boulder, CO, USA,
December 5, 2017. <https://drive.google.com/drive/folders/0BzoyFQlFKmZwazlwTDBKQnFjSkE>
- 10) **An immunization strategy for prevention of stress-related psychiatric disorders**
Institute of Cognitive Science (ICS), CU Boulder, Boulder, CO, USA
February 3, 2017
- 11) **An immunization strategy for prevention of stress-related psychiatric disorders**
Department of Psychology, University of Colorado Denver
January 30, 2017
- 12) **Connecting the personal and built environment microbiomes to mental health**
GMC Grand Rounds, Geriatric Research Education and Clinical Center (GRECC), Mental Illness Research, Education, and Clinical Center (MIRECC), and Center of Innovation for Veteran-Centric and Value-Driven Research (COIN). Veterans Affairs (VA), Denver, CO, USA
January 26, 2017
- 13) **Me, myself, and m”I”crobiome: the role of the microbiome in mental health**
CU Anschutz Medical Campus, Microbiome Research Interest Program (RIP), Denver, CO, USA
December 13, 2016
- 14) **Health benefits of exposure to heat-killed mycobacteria: *Mycobacterium vaccae* as an “Old Friend”**
NTM Center of Excellence, National Jewish Health, Denver, CO, USA
November 30, 2016
- 15) **An immunization strategy for prevention of stress-related psychiatric disorders**
School of Biological Sciences, University of Northern Colorado (UNC), Greeley, CO, USA
September 23, 2016

- 16) **Environmental microbial exposure and mental health**
Department of Environmental Health, Harvard T.H. Chan School of Public Health, Harvard,
Boston, MA, USA
November 4, 2015
<https://sites.sph.harvard.edu/hoffman-program/2017/01/19/video-for-dr-lowrys-seminar/>
<https://youtu.be/DaAD5p0hzXM>
- 17) **An immunization strategy for prevention of stress-related psychiatric disorders**
Department of Integrative Physiology, University of Colorado Boulder, Boulder, CO, USA
October 26, 2015
- 18) **Mental and physical health, and microbial Old Friends**
Department of Psychiatry, MIRECC Science meeting, University of Maryland School of
Medicine, Baltimore, Maryland, USA
September 8, 2015
- 19) **Coming to our senses: modulation of sensory pathways for prevention and treatment of
anxiety and affective disorders**
Clinic for Psychosomatic Medicine and Psychotherapy, University of Ulm, Ulm, Germany
October, 2014
- 20) **A bioimmunomodulatory approach for prevention of stress-related psychiatric disorders and
their medical comorbidity**
Max Planck Institute of Psychiatry, Munich, Germany
October, 2014
- 21) **Can we immunize against anxiety and affective disorders?**
Division of Molecular Psychiatry, University of Wuerzburg, Wuerzburg, Germany
October, 2014
- 22) **Can we immunize to prevent anxiety and affective disorders?**
Department of Psychology, University of Denver, Denver, Colorado, USA
September, 2014.
- 23) **Can we vaccinate against anxiety and affective disorders?**
Center for Neuroscience and Neuropharmacology, Albany Medical College
December, 2013
- 24) **Can we vaccinate against anxiety and affective disorders?**
Center for Neuroscience Seminar Series, University of Colorado Boulder, Boulder, CO, USA
December, 2013
- 25) **Can we vaccinate against anxiety and affective disorders?**
CU Boulder's *Wardenburg* Health Center, University of Colorado Boulder, Boulder, CO, USA
October, 2013
- 26) **MicroRNAs as novel therapeutic targets for the treatment of anxiety and depression**
Institute for Behavioral Genetics, University of Colorado Boulder, Boulder, CO, USA
May, 2013

- 27) **Vaccinations for anxiety and affective disorders**
Department of Integrative Biology, University of Colorado Denver, Boulder, CO
April, 2013
- 28) **Vaccinations for anxiety and affective disorders: potential role of the gut microbiome**
Bioinformatics Supergroup, University of Colorado Boulder, Boulder, CO, USA
December, 2012
- 29) **Vaccinations for anxiety and affective disorders**
Department of Integrative Physiology, University of Colorado Boulder, Boulder, CO,
September, 2012.
- 30) **Serotonergic systems, anxiety and affective disorders**
Department of Pharmacology, University of Pennsylvania Perelman School of Medicine,
Philadelphia, Pennsylvania
March 2012
- 31) **Serotonergic systems, anxiety and affective disorders**
Institute for Behavioral Genetics, University of Colorado Boulder, Boulder, CO
January, 2012
- 32) **Mechanisms underlying stress-induced modulation of serotonergic systems**
Hungarian Academy of Sciences, Institute of Experimental Medicine, Budapest, Hungary
June, 2011
- 33) **The hygiene hypothesis and psychiatric disorders: focus on serotonergic systems**
Neuroscience Frontiers seminar series, Department of Psychiatry and Behavioral Sciences, Emory
University School of Medicine, Atlanta, Georgia, USA
November, 2009
- 34) **Neural systems regulating anxiety states: focus on serotonergic systems**
Integrative Neuroscience Research Center, Marquette University, Milwaukee, Wisconsin, USA
November, 2009
- 35) **Does that warm fuzzy feeling activate brain serotonin neurons? Temperature and
serotonergic systems**
Department of Integrative Physiology, University of Colorado Boulder, Boulder, Colorado, USA
September, 2008
- 36) **Identification and characterization of subsets of serotonergic neurons: implications for
anxiety and depression**
Lundbeck Research USA, Inc., Paramus, New Jersey, USA
July, 2008
- 37) **Serotonin: Molecular, functional, and clinical aspects**
Department of Psychology, Boulder, Colorado, USA
March, 2008

- 38) **Early life experience, stress, and serotonergic systems**
Department of Health and Exercise Science, Colorado State University, Fort Collins, Colorado, USA
March, 2008
- 39) **Early life experience, stress, and serotonergic systems regulating anxiety**
Department of Integrative Physiology, University of Colorado Boulder, Boulder, Colorado, USA
February, 2008
- 40) **Characterization of CRF 2 receptors in the DRN**

University of Pennsylvania, Department of Animal Biology
November, 2006
- 41) **Serotonergic systems and anxiety**
University of Cambridge, Department of Pharmacology
November, 2006
- 42) **Swimming, Walking, Running: Serotonergic systems and stress-related behavior, fish, amphibian, and mammalian studies**

University of Wyoming, Physiology Society
April, 2006
- 43) **Modulation of motor and anxiety circuits by serotonergic systems**

University of Colorado, Boulder, Department of Integrative Physiology
March, 2006
- 44) **Modulation of stress and anxiety circuits by serotonergic pathways**

NeuroSearch A/S, Pederstrupvej 93, 2750 Ballerup, Denmark
September, 2005
- 45) **Corticotropin-releasing factor, serotonin, and anxiety**
Oxford University, Neurobiology of mood disorders' seminar series, University Department of Psychiatry, Warneford Hospital
June, 2004
- 46) **Anxiety, Friend or Foe?**
University of Bristol, Henry Wellcome Laboratories for Integrative Neuroscience and Endocrinology, Bristol, UK. Presentation to Convocation
July, 2004
- 47) **Multidisciplinary approaches to understanding the role of serotonergic systems in stress-related physiology and behaviour**
University of Newcastle, School of Neurology, Neurobiology, and Psychiatry, Newcastle-Upon-Tyne
October, 2003

- 48) **Multidisciplinary approaches to understanding the role of serotonergic systems in stress-related behaviour**
Pfizer, Sandwich, a division of Pfizer Inc., New York, NY
October, 2003
- 49) **The role of topographically organized serotonergic systems in stress responses**
University of Bristol, Department of Physiology
March, 2002.
- 50) **5HT neurones that respond to stress – the “anxiety neurones”?**
University of Bristol, Department of Psychopharmacology,
February, 2002
- 51) **In search of the anxiety neuron**
Oregon State University, Department of Zoology, Corvallis, Oregon
January, 2002
- 52) **Neurotransactions of 5HT and stress responses**
University of Manchester, Neuroscience and Psychiatry Unit, Host, Professor Bill Deakin October, 2001
- 53) **Identification and characterisation of stress-responsive subpopulations of serotonergic neurones: implications for understanding neural systems underlying anxiety and depression**
University of Bristol, University Research Centre for Neuroendocrinology,
October, 2001
- 54) **New insights into the neural substrates of stress and depression—A multidisciplinary approach**
Arizona State University, Center for the Study of Stress and Adaptation, Phoenix, Arizona
August, 2001
- 55) **Do serotonergic systems play role in behavioural responses to stress?**
University of Colorado, Department of Psychology and Neuroscience Group, Boulder, Colorado
October, 2000
- 56) **Corticotropin-releasing factor (CRF) increases serotonergic cell firing rates in vitro: implications for neural systems mediating anxiety**
University of Bristol, Department of Anatomy. University of Bristol, Department of Anatomy
October, 1999
- 57) **A two foci model for the role of serotonin in anxiety and depression**

University of Bristol, Department of Psychopharmacology
September, 1999

58) **Corticotropin-releasing factor (CRF)-serotonin interactions: Implications for anxiety and depression**

UIPS 6th International Seminar Programme, Utrecht Institute for Pharmaceutical Sciences,
Universiteit Utrecht
August, 1999

59) **“Systems level” interactions between corticotropin-releasing factor and serotonin**

University of Bristol, Department of Medicine
May, 1997

60) **Interactions between corticotropin-releasing factor and serotonergic systems: electrophysiological, behavioural and endocrine studies**

University of Bristol, Department of Anatomy
March, 1997

61) **The role of the dorsomedial hypothalamic nucleus in regulating stress and anxiety responses**

University of Bristol, Department of Psychopharmacology
February, 1997

62) **Behavioural and neurochemical effects of CRF: A role for serotonin**

University of Bristol, Department of Anatomy
October, 1996

63) **Neurochemical basis of CRH-mediated behavior**

University of Bristol, Department of Medicine
March, 1996

Outreach

Teaching Activities

Courses Taught at Universities other than the University of Colorado (2007-present)

Neuroscience Seminar, Neuroscience Program, Regis College, 15 students/class 2008
Denver, Colorado, USA; Effects of stress on serotonergic
neurotransmission in the hypothalamus (1 60 min session; course
instructor Robin Cloues)

Member of Dissertation/Thesis Committee (other than Principal Advisor)

(only committee memberships since appointment year at CU Boulder in 2007 are shown)

Thesis Committee Member, Masters Students

Clemens Janssen	University of Girona	2011-2012
	Clinical Psycho-Neuro-Immunology	
Dominik Langgartner	University of Ulm	2014-2017
	Psychosomatic Medicine	
Mattia Amoroso	University of Ulm	2017-2020
	Psychosomatic Medicine	

Public outreach

Sponsor for high school student, Angela Crowe, enrolled in Dobbs Ferry High School, Dobbs Ferry, New York, Science Research Program, <https://www.dfsd.org/domain/353>. The Dobbs Ferry Science Research Program is a rigorous 3-year sequence that exposes students to 21st century information literacy skills and authentic lab-based experiences. It begins with a 10th grade course that teaches students how to conduct peer reviewed literature searches on a college level. It includes an emphasis on journal article dissection and research paper writing. The second year of the course focuses on developing and implementing research plans with the assistance of a cooperating mentor. By the final year of the program, students analyze collected data and learn how to present their findings for review and critique.

Participation in Upward Bound, <https://www.colorado.edu/precollege/cu-upward-bound-program>, guest lecturer and Behavioral Neuroendocrinology Laboratory “open house” for 25 third year high school students from the target community of 13 Native American high schools, June 22, 2023. The program targets 13 high schools belonging to the Comanche Nation, Jemez Pueblo, Lumbee Indian Community, Navajo Reservation, Pine Ridge Reservation, Ramah Navajo Community, Southern Ute Reservation, and Umatilla Reservation.

Columbine Elementary School, Longmont, CO, USA, one 1 h interactive presentation to 4th grade students on how the human brain processes information, by Maddison Rice and Brandon Marquart.
<https://columbine.dpsk12.org/>. Nina Starks, Fall, 2022.

Watershed School, Boulder, CO, USA, two 1 h lectures to Kevin Shepard’s 8th grade class, 20 students each, The microbiome-gut-brain axis and mental health. In: *Transformations of Thinking and Self*
<http://www.watershedschool.org/>, December 10, 2021

Denver Urban Gardens, Food for Thought: Earth Week, 2021, April 19th-23rd, 12:00 p.m.-1:00 p.m. MT daily. Friday, April 23, 2021, Wellness in the garden: mind, body, + spirit, with Carolyn Anello, Asia Dorsey, Jim Garcia, and Christopher Lowry. <https://dug.org/earth-week/>

TEDxMileHigh, Chris Lowry on Gut Bacteria and Mental Health, by Anushka Bose, March 3, 2021. <https://www.tedxmilehigh.com/chris-lowry-on-gut-bacteria-and-mental-health/>

TEDxMileHigh (speaker), Vision, Ideas Worth Spreading, December 5, 2020, (see program, p. 21), https://issuu.com/tedxmilehigh2015/docs/ted_vision_program_issuu
For the talk, scroll to 2:16:00, <https://www.youtube.com/watch?v=XiTm7YyMVqM>

TED platform: Plants, the microbiome, and mental health | Christopher A. Lowry | TEDxMileHigh: <https://www.youtube.com/watch?v=AJG3zYqNgnE>, February 1, 2021

Top 8 TED Talks on the Microbiome, Viome Blog, <https://www.viome.com/blog/top-8-ted-talks-on-the-microbiome>

Saydie Sago, Selected to give the keynote speech at the graduation ceremony for BVSD Native American students. <https://www.dailycamera.com/2020/07/18/bvsd-celebrates-american-indian-high-school-graduates-Saturday/>, July 18, 2020

Saydie Sago, Judge for the Science Research Symposium (virtual)- April 25th, 2020

Saydie Sago, Instructor for the CU Upward Bound Program, teaching and developing an online class called Health of the Reservation- June 8th-July 18th

Watershed School, Boulder, CO, USA, 1 h lecture to Andrew Wacker's/Kevin Shepard's 8th grade class, 20 students, The microbiome-gut-brain axis and mental health. <http://www.watershedschool.org/>, February 11, 2020

Trust Your Gut: how diet influences the microbiome-gut-brain axis and mental health, Organized by Teresa DeAnni, Healthy Aging Programs manager, Nutrition, Wellness, Isolation and Medicare Education and Counseling Services, Boulder County Area Agency on Aging and Hope Coalition of Boulder County, Community Services Department, Direct: 303-441-4995 | Main Line: 303-441-3570 | Resource Help Line: 303-441-1617 For information about resources, visit BoulderCountyHelp.org Sign up for the Aging Well e-newsletter. Wednesday, February 18, 2019.

Active Minds chapter meeting. "Microbiome-gut-brain axis, and mental health". Active Minds is a club committed to destigmatizing mental health issues and focusing on suicide prevention, January 29, 6 p.m. Alexandra Shea Reuter <Alexandra.Reuter@colorado.edu>

Cillers, Marie, London, UK, Interview for final year at high school, project titled "Psychobiotics; Could altering your microbiome be used to treat depression?" toward her Medical School University application. September 22, 2019

Nutrition for Mental Health, City of Longmont Many More Tomorrow's Festival of Mental Wellness, Saturday, September 14, 2019, 4-5 p.m., Longmont Museum Auditorium. <https://www.dailycamera.com/2019/09/03/longmont-series-to-support-mental-health-with-art-music-and-food/>; <http://bit.ly/MMT-guide>

Boulder Rotary Club #1091, District 5450, Boulder, Colorado, USA, “ Microbiome-gut-brain axis, health, and disease” September 6, 2019, video at <https://www.youtube.com/watch?v=H3e70Nwtj5A&feature=youtu.be>

CU Science Discovery STEM Research Experience, Cristian Zambrano served as a mentor for two high school students, June-July, 2019, Mariah Mathias and Riya Adhikari, June-July, 2019

<https://www.colorado.edu/sciencediscovery/programs/stem-research-experience>

<https://www.colorado.edu/sciencediscovery/programs/paid-mentorship-opportunities>

CU Science Discovery’s STEM Research Experience is a 4-week summer mentorship program that partners high school students with CU researchers. CU faculty and graduate students act as mentors to highly motivated high school students interested in gaining real world laboratory experience. Each mentor works with 2 students, based on research interest.

Students are expected to work 30-35 hours a week, Monday-Friday on their research project. Work schedules may vary among different labs. Readings and assignments may be assigned prior to the start of the program. Participants will be offered an optional Research Methods class designed to prepare them to become productive members of the research community. This course will meet 1-2 times weekly and will focus on research topics such as how to find and read scientific articles, how to determine the validity of data and good writing techniques.

Presentation, Miramontes Arts & Sciences Programs (MASP) Undergraduate Colloquium series, 2019

Celebrating the Brain, Northeastern Junior College, Sterling, Colorado, USA, “Understanding inflammation and minimizing its effects on brain function and development”, by Loupy, Kelsey, February 8, 2019. <https://outreach.colorado.edu/news/article/creating-brain-awareness-in-eastern-colorado>; http://www.journal-advocate.com/sterling-local_news/ci_32443779/area-gifted-students-attend-brain-awareness-day?source=rss

Brain Awareness Week, University of Colorado, Boulder, Colorado, USA, “Understanding inflammation and minimizing its effects on brain function and development”, by Loupy, Kelsey, March 14, 2019.

Your Brain on Good Food panel, Organized by Teresa De Anni, Healthy Aging Programs manager at Boulder County’s Area Agency on Aging, Boulder Jewish Community Center, Boulder, CO, USA. March 13, 2019

Science on Tap, presented by Gunbarrel Brewing Company, Country boys vs. city slickers: why growing up on a farm may increase stress resilience. January 15, 2019, 7-9 p.m.

Science Content Workshop for Teachers, in collaboration with Kristin Swihart and Tammy Maldonado, Biological Sciences Initiative, CU Boulder, <http://bsi.colorado.edu/k12/workshops.html> February 24, 2018

Science Content Workshop for Teachers, in collaboration with Kristin Swihart and Tammy Maldonado, Biological Sciences Initiative, CU Boulder, <http://bsi.colorado.edu/k12/workshops.html> October 21, 2017

Presentation, Miramontes Arts & Sciences Programs (MASP) Undergraduate Colloquium series, 2017

Ignite Boulder 32 held on Thursday May 18th, 2017 at the Boulder Theatre in Boulder Colorado. A novel approach for the treatment of depression, presented by Mathew Arnold.
https://m.youtube.com/watch?list=PLs77-lcVm76G-DkxRWieTsuber_diKiAq&v=s8KQj4N-V7c

Science Content Workshop for Teachers, in collaboration with Kristin Swihart and Tammy Maldonado, Biological Sciences Initiative, CU Boulder, <http://bsi.colorado.edu/k12/workshops.html> October 8, 2016

Boulder Torch Club, Can we immunize to prevent stress-related psychiatric disorders? Boulder, Colorado, September 21, 2016

Science Content Workshop for Teachers, in collaboration with Kristin Swihart and Tammy Maldonado, Biological Sciences Initiative, CU Boulder, <http://bsi.colorado.edu/k12/workshops.html> April 23, 2016

Boulder Rotary Club #1091, District 5450, Boulder, Colorado, USA, “Can we immunize against anxiety, PTSD and depression?” August 28, 2015

Frasier Meadows Retirement Community. Can we vaccinate against anxiety and affective disorders? February 18, 2015

The Kavli Foundation, Spotlight Live: The Microbiome & the Brain – A New State of Mind. Live Google Hangout: The Microbiome & the Brain – A New State of Mind, January 15, 12:00-12:30 PST Live. Christopher Lowry and Sarkis Mazmanian answer your questions during a live webcast.
<http://www.kavlifoundation.org/science-spotlights/spotlight-live-microbiome-brain-new-state-mind#.WWY5VYTyupo>

The Kavli Foundation, Kavli Spotlight on the gut microbiome-brain connection. Roundtable with Lindsay Borthwick Lborthwick@kavlifoundation.org. Roundtable discussion with experts on the gut microbiome/brain connection, with Sarkis Mazmanian and Tracy Bale. December 1, 2014. Posted online January 8, 2015
<http://www.kavlifoundation.org/science-spotlights/mind-bending-power-bacteria#.VK784Ht-eaq>

Invited speaker, Society of Asian Scientists and Engineers (SASE) Lab Coordinator Panel Discussion, November 5, 2014

Invited speaker, Miramontes Arts & Sciences Programs (MASP) Undergraduate Colloquium series, April 2, 2014

2014 Native Welcome. Presentation to Native American community to discuss availability of undergraduate research opportunities. September 8, 2014

Upward Bound, <http://www.colorado.edu/odece/cuub/index.html>, guest lecturer to 25 third year high school students from the target community of 13 Native American high schools, June 23, 2014. The program targets 13 high schools belonging to the Comanche Nation, Jemez Pueblo, Lumbee

Indian Community, Navajo Reservation, Pine Ridge Reservation, Ramah Navajo Community, Southern Ute Reservation, and Umatilla Reservation.

Upward Bound, <http://www.colorado.edu/odece/cuub/index.html>, personal lab tours to 25 third year students from the target community of 13 Native American high schools, June 23, 2014.

Café Scientifique, Can we vaccinate against anxiety and affective disorders. Public outreach lecture, Outlook Hotel, Tuesday August 12th, 2014, sponsored by Sigma Xi, The Scientific Research Society, <http://www.cafesciboulder.org/Pages/Past.html>

Judge, Corden Pharma Colorado Regional Science Fair, University of Colorado Boulder, 2012

Judge, Roche Colorado Regional Science Fair, University of Colorado Boulder, 2011

Volunteer, Adelante!, a program to support at-risk Latino students at Boulder High School, 2008-2009.

Volunteer, Brain Awareness Week, organized by @Bristol and Bristol Neuroscience, 12-18 March 2007, Bristol, UK

Presentation, Miramontes Arts & Sciences Programs (MASP) Undergraduate Colloquium series, April 2, 2014

Faculty mentor for Gerardo Lopez-Perez, First generation college student, <http://artsandsciences.colorado.edu/magazine/2014/03/first-generation-scholarship-like-icebreaker-for-others/>

Café Scientifique, Getting Dirty May Lift Your Mood. Public outreach lecture, Coach's Corner at the Millennium Hotel, Tuesday August 10th, 2010, sponsored by Sigma Xi, The Scientific Research Society, <http://www.cafesciboulder.org/Pages/Past.html>

Written or broadcast reviews of our work

AAAS EurekAlert, The Global Source for Science News

Exposure to 'good bacteria' during pregnancy buffers risk of autism-like syndrome. Study in rats suggests prenatal microbial exposures influence neurodevelopment. May 26, 2020
https://www.eurekalert.org/pub_releases/2020-05/uoca-et052620.php

AAAS EurekAlert! Healthy fat hidden in dirt may fend off anxiety disorders, May 29, 2019.
<https://www.colorado.edu/today/2019/05/28/healthy-stress-busting-fat-found-hidden-dirt>

AAAS EurekAlert! Is a stress shot on the horizon? Immunization with beneficial bacteria makes brain more stress resilient, study shows. June 6, 2018.
https://www.eurekalert.org/pub_releases/2018-06/uoca-ias060618.php

AAAS EurekAlert, City upbringing, without pets, boosts vulnerability to mental illness. 'Hygiene hypothesis' likely applies to psychiatric disorders too, study suggests. April 30, 2018,
https://www.eurekalert.org/pub_releases/2018-04/uoca-cuw042618.php

AAAS EurekAlert, Noise from oil and gas operations stresses birds, hinders reproduction. Featured on the front page of EurekAlert, January 9, 2018, https://www.eurekalert.org/pub_releases/2018-01/uocanfo010318.php

Avera Symposium—Frontiers in Treatments for Brain Dysfunction
<http://www.usd.edu/neurogroup/researchsymposium/>

Interview by Australian human behaviour/high performance researcher Andrew Meikle, 14 July 2005. This was a one hour video/audio interview by Andrew Meikle, <http://www.meiklefiles.com.au/>. Andrew's broad research interest is human potential.

As a broad perspective, his research work ranges from interviewing high-achieving individuals who have dealt with major change in their life or work (such as Nelson Mandela and Sir Edmund Hilary), to studying group environments in which change occurs, as well as meeting with leading scientists particularly of evolution and in areas related to brain function. Andrew's focus is on discussing observations of elements which lead to change in the human brain and genetic structure. For example he has met on this topic with Howard Bloom, Marian Diamond, Richard Dawkins and Ernst Mahr. He has also met on several occasions with Dylan Evans, who you may know. Late last year Andrew travelled to Savoonga on St Lawrence Island, Alaska, which is one of the most remote Eskimo communities in the world to study an environment of change. He has also interviewed POWs (including the Iraq conflict); conducted research with the heads of leading bodies in the United States which are working to reform criminal offenders and addicts; and investigated environmental factors at the Juilliard School in New York (with School Dean, Stephen Clapp). Andrew is undertaking ongoing studies with Scott Snook, former US Lieutenant Colonel, now of Harvard University Leadership School. (The Harvard Business School is currently undertaking a case study of Andrew's work.) Andrew is a Visiting Fellow with the Centre for the Mind, a national think-tank investigating the 'emotional DNA' of mentally and physically gifted individuals in a joint initiative of Sydney University and the Australian National University. He is also the founder and director of The Meikle Files, an educator in elite human performance.

The topic of the interview was neural systems underlying emotional behaviour.

University of Colorado Boulder Research & Creative Work

Research and Creative Work, 2017-18, Growing up with pets and dust. By Lisa Marshall.
<https://www.colorado.edu/research/report/2017-18>

Research and Creative Work, 2016-17, Could a dose of good bacteria prevent PTSD? By Lisa Marshall, November 10, 2017.
<https://www.colorado.edu/research/research-report/2016-17>
<https://www.colorado.edu/research/research-report/2016-17/could-dose-good-bacteria-prevent-ptsd>

Research and Creative Work, 2015-16, Gut check. Understanding how stressors affect our gut microbes could lead to better performance—by the military and you.
<http://www.colorado.edu/research-report/2015-16/gut-check>

The Renée Crown Wellness Institute

The microbiome-gut-brain axis and sleep in COVID-19 times. The Renée Crown Wellness Institute, University of Colorado Boulder, <https://www.colorado.edu/crowninstitute/feed-your-body-forest>

CU Boulder press releases

The Colorado Sun, Are your cats trying to kill you? No, probably not, but their parasites might be, by John Ingold, Wednesday, November 29, 2023. <https://coloradosun.com/2023/11/29/temperature-20231129/>

The Denver Post, Cat-borne parasite may cause people to become more frail. Parasite is also associated with risk-taking behavior and mental illness CU Boulder research finds, by Olivai Doak, November 16, 2023. <https://www.denverpost.com/2023/11/16/cat-borne-parasite-frailty/>

CU Boulder Today, University of Colorado Boulder, How a dirty litter box could slow you down as you age. by Lisa Marshall, November 6, 2021. <https://www.colorado.edu/today/2023/11/06/how-dirty-litter-box-could-slow-you-down-you-age>

Webconsultas, Revista de salud y bienestar, Un parásito transmitido por gatos se asocia con fragilidad en los mayores, by Eva Salabert, November 11, 2023, <https://www.webconsultas.com/noticias/tercera-edad/un-parasito-transmitido-por-gatos-se-asocia-con-fragilidad-en-los-mayores>

Colorado Arts and Sciences Magazine, University of Colorado Boulder, *Diet and exercise can improve teens' mental health*. By Clay Bonnyman Evans, November 2, 2021. <https://www.colorado.edu/asmagazine/2021/11/02/diet-and-exercise-can-improve-teens-mental-health>

Participation in National Association of Science Writers Conference, October 8 to 11 “lunch with a scientist”, Boulder, Colorado, USA, “Development of the “Dirt Vaccine”: how the environment affects your brain”
<https://www.colorado.edu/today/2023/10/12/when-650-science-writers-show-theres-no-shortage-curiosity>

CU Boulder Today, CU professors take to virtual stage Dec. 5 at TEDx MileHigh, <https://www.colorado.edu/today/2020/12/03/cu-professors-take-virtual-stage-dec-5-tedx-milehigh>

CU Boulder Today, Science writer wins top honor among national peers. October 22, 2020, <https://www.colorado.edu/today/2020/10/22/science-writer-wins-top-honor-among-national-peers>

CU Connections, CU Boulder researchers contributing to CU Anschutz podcasts starting June 30, by Chris Yankee, June 18, 2020. [Ttps://www.colorado.edu/researchinnovation/2020/06/18/cu-boulder-researchers-contributing-cu-anschutz-podcasts-starting-june-30](https://www.colorado.edu/researchinnovation/2020/06/18/cu-boulder-researchers-contributing-cu-anschutz-podcasts-starting-june-30)

CU Boulder Today, Prenatal exposure to ‘good bacteria’ prevents autism-like syndrome. By Lisa Marshall. May 27, 2020. <https://www.colorado.edu/today/2020/05/27/prenatal-exposure-good-bacteria-prevents-autism-syndrome>

CU Boulder Today, Big problems, little solutions, by Juia Medeiros. April 29, 2020. <https://cires.colorado.edu/news/big-problems-little-solutions>

CU Boulder Today, COVID-19 test, PTSD treatment take top honors at New Venture Challenge, by Daniel Strain, April 10, 2020, <https://www.colorado.edu/today/2020/04/10/covid-19-test-ptsd-treatment-take-top-honors-new-venture-challenge>

Why dirt may be nature's original stress buster, by Lisa Marshall. May 30, 2019.
<https://www.colorado.edu/today/2019/05/09/natures-original-stress-buster>

CU Boulder Today, Healthy, stress-busting fat found hidden in dirt, by Lisa Marshall, May 28, 2019.
<https://www.colorado.edu/today/2019/05/28/healthy-stress-busting-fat-found-hidden-dirt>; This article was awarded the National Association of Science Writers 2020 Excellence in Institutional Writing Award in the short-form category. <https://www.nasw.org/article/2020-excellence-institutional-writing-award-winners>

CU Boulder Today, 10 CU Boulder science stories you won't want to miss from 2018. December 14, 2018. How growing up with pets, dust may boost mental health.
<https://www.colorado.edu/today/2018/12/14/10-cu-boulder-science-stories-you-wont-want-miss-2018>

Colorado Arts and Sciences Magazine, University of Colorado Boulder, Stalking the dirt vaccine. Can good bacteria make the brain more stress-resilient? Christopher Lowry has dedicated his career to finding out, by Lisa Marshall, Fall, 2018.

CU Boulder Today, Is an immunization for stress on the horizon? By Lisa Marshall, May 6, 2018
<https://www.colorado.edu/today/2018/06/06/immunization-stress-horizon>

Featured as one of the "Five Best Ideas of the Day" by the Aspen Institute, June 8, 2018.
<https://www.aspeninstitute.org/>

CU Boulder Today, How city living could increase risk of mental illness. By Lisa Marshall
April 30, 2018
<https://www.colorado.edu/today/2018/04/30/how-city-living-could-increase-risk-mental-illness>

CU Boulder Today, Noise pollution causes chronic stress in birds, hindering reproduction. By Lisa Marshall
January 9, 2018
<https://www.colorado.edu/today/2018/01/09/noise-pollution-causes-chronic-stress-birds-hindering-reproduction>

CU Boulder Today, Proposal for shared equipment, labs tops recent Short Experiment Competition, November 21, 2017.
<https://www.colorado.edu/today/2017/11/21/proposal-shared-equipment-labs-tops-recent-short-experiment-competition>

Coloradan Magazine, Lauren Price, Editorial Assistant, Immunoregulatory probiotics and PTSD, July 18, 2017; Lauren Price Lauren.A.Price@colorado.edu

Cooperative Institute for Research in Environmental Sciences, *The World Inside Your Showerhead*, <http://cires.colorado.edu/news/world-inside-your-showerhead>, June 19, 2017

Colorado Arts and Sciences Magazine, University of Colorado Boulder, Beckman Scholars Program to give students research experience, by Clint Talbott, February 7, 2017.

<http://www.colorado.edu/asmagazine/2017/02/07/beckman-scholars-program-give-students-research-experience>

CU Boulder Today. Study linking beneficial bacteria to mental health makes Top 10 list for brain research, January 5, 2017

<http://www.colorado.edu/today/2017/01/05/study-linking-beneficial-bacteria-mental-health-makes-top-10-list-brain-research>

CU Boulder. Gut check. Understanding how stressors affect our gut microbes could lead to better performance—by the military and you. Research and Innovation. Catalyzing Ideas to Transform our Future. Together, 2015-16.

<http://www.colorado.edu/research-report/2015-16/gut-check>

Trent Knoss, CU media relations, Immunization with bacteria promotes stress resilience, coping behaviors in mice, CU Boulder study finds

<http://www.colorado.edu/news/releases/2016/05/16/immunization-bacteria-promotes-stress-resilience-coping-behaviors-mice-cu>

Clint Talbott, CU media relations, Raising body temperature relieves depression, study finds. May, 2016.

http://www.colorado.edu/news/features/raising-body-temperature-relieves-depression-study-finds?utm_source=Colorado.edu&utm_medium=Raising%20body%20temperature%20relieves%20depression%2C%20study%20finds&utm_content=News%20and%20events&utm_campaign=Home_page

Laura Snider, CU media relations, 303-735-0528; Laura.Snider@colorado.edu; Rural microbes could boost city-dwellers' health, according to new paper involving CU Boulder. April, 2014.

<http://www.colorado.edu/news/releases/2014/04/23/rural-microbes-could-boost-city-dwellers%E2%80%99-health-according-new-paper>

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Vaccine hope for post-traumatic stress. Development of anxiety and fear alleviated by manipulating immune system in rodents, by Sara Reardon, 2015, Nature, doi:10.1038/nature.2015.17746.

Photograph contribution to an article on “Stress, addiction and depression”, *Re:search, Neuroscience Issue*, July 2004, p. 7, University of Bristol.

http://www.bristol.ac.uk/neuroscience/extfiles/re-search_pdf/

Books

Book, work featured in *Mind the Gut: Power up Your Immune System, Stress Resilience & Mental Wellness Through Your Gut-Brain*, by Kelly Haugh, Kelly Haugh Productions. 2020. ISBN 978-0-578-72862-9

Book, work featured in *Freedom to be Happy: The Business Case for Happiness*. By Matthew Phelan, October 30, 2020. ISBN-13: 979-8665222325.

Book, work featured in *Losing Eden: Why Our Minds Need the Wild*, by Lucy Clohessy Jones, 2018, a book about the natural world and the human psyche for Penguin, in preparation, interview April 17, 2018; published March 26, 2020.

Book, work featured in *The Well-Gardened Mind: The Restorative Power of Nature*, by Sue Stuart-Smith, Scribner, New York, 2020. Interview by Sue Stuart-Smith, 2019.

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Book, work featured in *Biology of Depression*, by Scott Carney, 2018. Interview, May 9, 2018.

Book, work featured in “*Spontaneous Happiness*” by Andrew Weil, MD, Little, Brown, and Company, New York, New York, USA, 2011, p. 124-125.

Book, work featured in *An Epidemic of Absence: A New Way of Understanding Allergies and Autoimmune Diseases*, Moises Velasquez-Manoff. Scribner. New York, New York, Interview June 15, 2010. **ISBN-10:** 1439199388

Book, work featured in *Eat the Yard*, by Michelle Owens, Rodale Publishing, Emmaus, PA. Interview March 11, 2010. **ISBN 13:** 9781605295893

Book, work featured in *Good Germs Bad Germs*, by Jessica Snyder-Sachs, 2007, 304 pp., Farrar, Straus and Giroux, New York, NY. **ISBN-10:** 0809050633

Magazine articles

(representative examples of over 25 magazine articles since 2007)

Everyday Health, Could Heat Therapy One Day Treat Depression? A surprising connection between body temperature and depression has researchers looking beyond talk therapy and medication for symptom relief, by Lisa Rapaport, February 9, 2024. <https://www.everydayhealth.com/depression/could-heat-therapy-one-day-treat-depression/>

Everyday Health, interview with Lisa Rapaport, on Mason AE, Kasl P, Soltani S, Green A, Hartogensis W, Dilchert S, Chowdhary A, Anglo C, Pandya LS, Siwik CJ, Foster S, Nyer M, Lowry CA, Raison CL, Hecht FM, Smarr BL (2023) Elevated body temperature is associated with depressive symptoms: Data from the TemPredict Study, Scientific Reports, 14, 1884 <https://doi.org/10.1038/s41598-024-51567-w>, February 8, 2024

UCSF Pulse, Are Body Temperature and Depression Linked? Science Says, Yes. New study may support heat-based treatment to stimulate self-cooling as new treatment. By Jess Berthold, February 5, 2024. https://www.ucsf.edu/news/2024/01/427051/are-body-temperature-and-depression-linked-science-says-yes?utm_medium=email&utm_source=Pulse%20of%20UCSF&utm_campaign=Edition_219

Live Science, Infection with cat parasite Toxoplasma may drive 'inflammation aging' in older adults, by Emily Cooke, <https://www.livescience.com/health/viruses-infections-disease/chronic-infection-linked-with-cat-parasite-toxoplasma-may-drive-inflammation-aging-in-older-adults>

News-24.fr L'infection par le parasite du chat Toxoplasma peut entraîner un « vieillissement inflammatoire » chez les personnes âgées, December 22, 2023, <https://news-24.fr/linfection-par-le-parasite-du-chat-toxoplasma-peut-entraîner-un-vieillissement-inflammatoire-chez-les-personnes-agees/>

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Institute for Cannabis Research, Colorado State University Pueblo, Annual Report 2023, Does cannabidiol (CBD) treat or prevent combined autism and epilepsy?, p. 9

HotNews.ro, July 17, 2023, Ce efecte are grădinaritul asupra sănătății și de ce este considerat o formă de antrenament [What effects gardening has on health and why it is considered a form of exercise] https://www.hotnews.ro/stiri-minte_si_corp-26397382-efecte-are-gradinaritul-asupra-sanatatii-este-considerat-forma-antrenament.htm

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Healthnews, How Improving Gut Health Can Optimize the Immune System, by Allison Krug, MPH, April 11, 2023 <https://healthnews.com/health-conditions/immunity-infections/5-foods-to-fight-infection-microbiome-and-the-immune-system/>

Institute for Cannabis Research, Colorado State University Pueblo, Research Spotlight, January 2023 e-Newsletter, Volume 15
https://www.csupueblo.edu/institute-of-cannabis-research/_doc/enewsletter-january-2023-final2.pdf

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Technology Networks, The Scientific Observer, Issue 18, September, 2022, Could We Develop Vaccines for Depression and Anxiety? By Simon Spichak, <https://go.technologynetworks.com/the-scientific-observer-issue-18-1-0>

Better Humans, Let's get down and dirty. The benefits of gardening on mental health. Dr. Stacey Maples, <https://betterhumans.pub/lets-get-down-and-dirty-71bf6dca53e4>

LA Times, How gardening may extend your life and make it better, by Jeanette Marantos, LA Times, @jmarantos. Writer for Saturday Garden & Lifestyle, health benefits of gardening, September 1, 2022. <https://www.latimes.com/lifestyle/story/2022-09-01/gardening-helps-mental-health>

Technology Networks Will we ever develop vaccines for depression and anxiety? By: Simon Spichak, M.Sc. <https://www.technologynetworks.com/>

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- BBC Future*, “Within the piece, I’d very much like to cover your research on *Mycobacterium vaccae* and the ways it may moderate the stress response.” July 25, 2022
- Paula*, Written interview with Daniela González A., periodista | editora, @danielamga_, for the Chilean magazine, *Paula*, www.paula.cl, on health benefits of *M. vaccae* and nature exposures. April 21, 2022
- Real Simple*, Interview with Jessica Migala, story about the gut-brain connection, focused on nutritional psychiatry and how the microbiome affects our mental health for the September issue of Real Simple magazine. April 13, 2022
- Men’s Health (The Netherlands)* Waarom buiten zijn je gezond en gelukkig maakt. En hoe je alleen al met door het bos wandelen de voordelen hiervan plukt. Translation: Why being outside makes you healthy and happy. And how you can reap the benefits just by walking through the forest. Men’s Health (NL), January 24, 2022. <https://www.menshealth.com/nl/gezondheid/a38567259/tuinieren-gezond-goed-gezondheid-microbiom/>
- Medium*, Dirty hands, clean minds? The scienc of soil microbes, neurotransmitters, and happiness, by Nathan Allen, January 8, 2021. <https://medium.com/mind-cafe/dirty-hands-clean-minds-clc754b169e9>
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PA_Update_RD&cpn=Latuda582304%2cLatuda74200LH%2cpsych_all%2cLatuda82474LL&hmSubId=&NID=1609890953&dl=0&spMailingID=15462076&spUserID=MzA3NTI4MDAwMDgS1&spJobID=861513534&spReportId=ODYxNTEzNTM0S0

The Ringer, The Burning Desire for Hot Chicken, Three days, three Nashville restaurants, and three revelations about why we love what hurts, by Danny Chau, August 31, 2016, <https://theringer.com/the-burning-desire-for-hot-chicken-bf87446b4dda#.tiv98p581>

Brain & Behavior Research Foundation. Treatment with immune-regulating gut bacteria may boost immune system against stress. July 14, 2016. https://bbrfoundation.org/brain-matters-discoveries/treatment-with-immune-regulating-gut-bacteria-may-boost-immune-system?enews&utm_source=eNews+List&utm_campaign=224cdf7edd-eNews_7_13_2016_A_B_Test&utm_medium=email&utm_term=0_fb7d503c0e-224cdf7edd-159658237&goal=0_fb7d503c0e-224cdf7edd-159658237

Medical Economics. Smarter Business. Better Patient Care. Soil bacterium could help combat stress, psychiatric problems, by Rachael Zimlich. June 23, 2016. <http://medicaleconomics.modernmedicine.com/medical-economics/news/soil-bacterium-could-help-combat-stress-psychiatric-problems>

Deutschlandfunk, German national radio station. Impfen gegen Stress? by Volkart Wildermuth, June 14, 2016. http://www.deutschlandfunk.de/immunsystem-impfen-gegen-stress.676.de.html?dram:article_id=357184

CBCnews Manitoba, New study suggests digging in the dirt could reduce stress, inflammation. May 22, 2016. <http://www.cbc.ca/news/canada/manitoba/gardening-could-reduce-stress-on-gut-level-1.3595981?cmp=rss>

BuzzFeed News, The latest treatment for depression: heat lamps? By Nidhi Subbaraman, May 20, 2016. https://www.buzzfeed.com/nidhisubbaraman/depression-heat-treatment?utm_term=.ox4e5r9e9l#.ieb02YV0Va

STAT, Reporting from the frontiers of health and medicine, Can a stint in the ‘fever machine’ treat depression? by Eric Boodman, July 19, 2016, <https://www.statnews.com/2016/07/19/depression-fever-machine/>

The Kavli Foundation, Spotlight Live: The Microbiome & the Brain - A New State of Mind. Live Google Hangout: The Microbiome & the Brain – A New State of Mind, January 15, 12:00-12:30 PST Live. Christopher Lowry and Sarkis Mazmanian answer your questions during a live webcast

The Kavli Foundation, Kavli Spotlight on the gut microbiome-brain connection. Roundtable with Lindsay Borthwick LBorthwick@kavlifoundation.org. Roundtable discussion with experts on the gut microbiome/brain connection, with Sarkis Mazmanian and Tracy Bale. December 1, 2014. Posted online January 8, 2015 <http://www.kavlifoundation.org/science-spotlights/mind-bending-power-bacteria#.VK784Ht-eaq>

Livescience, Can Microbes in the Gut Influence the Brain? Lindsay Borthwick, The Kavli Foundation, January 8, 2015 12:07pm ET

<http://www.livescience.com/49373-google-hangout-on-brain-and-microbiome.html>

News Team Boulder, CU study links dirt to happiness, By Marc Stoecker , September 22, 2009.
<http://www.newsteamboulder.org/science/cu-study-links-dirt-happiness>

Arts and Sciences Newsletter, University of Colorado at Boulder, Depression Rx: Get dirty, get warm, by Clint Talbott, September 15, 2009,
<http://artsandsciences.colorado.edu/magazine/2009/09/depression-rx-get-dirty-get-warm/>

BBC Online, Dirt exposure ‘boosts happiness’, April 1, 2007.
<http://news.bbc.co.uk/1/hi/health/6509781.stm>

Brief article on the public awareness website, <http://www.defeatdepression.org>, *The role of 5-HT neuronal systems in depression*. Contribution to Defeat Depression website. Defeatdepression.org is an initiative of the Sir Robert Mond Memorial Trust, a mental health charity registered in the UK. Registered charity number 1065456. Through Defeatdepression.org's website, publications, conferences and the development of support groups, it provides accessible information, education, support and better understanding of the most common, yet serious, mental health problems. The site is designed for consumers, carers, and families of those affected with mental health problems.
http://www.defeatdepression.org/search_results.php?purpose=2&the_id=10&searchstring='lowry'&the_code=21&curr_page=1

Radio

(representative examples of over 20 radio interviews since 2007)

December 6, 2021 CU Boulder Radio 1190, News Underground (long form interviews), interview by Claire McFadden

January 20, 27, February 3, 10, 17, or 24, 2021 Live radio interview with Pamela Wilson, Internet radio program called The Caring Generation® airs worldwide live on Wednesday evenings LIVE at 7 pm MST.
<https://pameladwilson.com/caregiver-radio-programs-the-caring-generation/>

9-June-20 The Lisa Show with BYU radio, <https://www.byuradio.org/show/fbb6e706-8810-488e-b8d2-644beb04f938/the-lisa-show>, request by Kiersten Holiday, Assistant Producer. *The Lisa Show* is our morning show airing daily from 6am – 8am MT. Our signal is heard nationwide on Sirius XM channel 143 and simulcasting on 107.9 FM Salt Lake City and throughout Utah. We’re also on DISH Network channel 980, all major podcast platforms, and streamed live at <https://byuradio.org/listen>. Tuesday, June 9, 2020, 6:20 a.m.
<https://www.byuradio.org/episode/3be35f66-ef8c-4e1d-872d-69204ada0d81/3be35f66-ef8c-4e1d-872d-69204ada0d81?playhead=960&autoplay=true>

8-Aug-19 Radio New Zealand, with Jim Mora, Jim.Mora@rnz.co.nz, *Mycobacterium vaccae* and the joys of gardening. Pre-recorded interview, August 8, 2019,
<https://www.rnz.co.nz/national/programmes/sunday>

17-Jul-19 KGNU Radio, How what we eat impacts our emotional and mental health. A 1 h call-in show featuring Dr. Christopher Lowry of the Integrative Physiology Department at CU Boulder and Dr. Will Van Derveer of the Integrative Psychiatry Institute about the gut-

- brain connection. Hosted by Maeve Conran, July 18, 2019, <https://news.kgnu.org/2019/07/how-what-we-eat-impacts-our-emotional-and-mental-health/>
- 5-Jun-19 TalkRadio (UK), Paul Ross Late Late Early Early show June 5, 2019. Live radio interview with Paul Ross, on an immunization for prevention of stress-related psychiatric disorders. <https://talkradio.co.uk/paul-ross-full-set-breakfast>
- 8-May-19 Your brain on good food – How what we eat impacts our emotions and health. Hosted by Maeve Conran, <https://news.kgnu.org/2019/05/your-brain-on-good-food-how-what-we-eat-impacts-our-emotions-and-health/>, May 8, 2019
- 22-Jan-19 Colorado Public Radio, Colorado Matters with Andrea Dukakis, Suffering From allergies, or PTSD? Someday you may take a CU Professor's 'Farm In A Pill'. By Michelle P. Fulcher, Michelle.Fulcher@cpr.org, 9:30 a.m. MST, January 22, 2019. <http://www.cpr.org/news/story/suffering-from-severe-allergies-or-ptsd-try-this-cu-professors-farm-in-a-pill>
- 11-Jun-18 KCBS News Radio, San Francisco, An immunization for stress resilience, live radio interview with anchor Rebecca Corral, 12:30 p.m. MDT, June 11, 2018
- 11-Jun-18 Canadian Broadcasting Corporation, weekly science show, Quirks & Quarks, Probiotics for mood disorders, Sissi Wang, June 11, 2018
- 7-Jun-18 Stephan Kaufman, An immunization for stress resilience. CBS News Radio, Interview June 7, 2018 for broadcast Saturday, May 9, 2018. <https://www.cbsnews.com/radio/>
- 7-May-18 Stephan Kaufman, Urban versus rural influences on risk of mental health. CBS News Radio, Interview May 3, 2018 for broadcast Monday, May 7, 2018. <https://www.cbsnews.com/radio/>
- 9-Jan-17 Colorado Public Radio, by Sam Brasch. Noise pollution causes birds to have symptoms similar to PTSD.
- 21-Apr-17 Live interview with Allan Loudell, News Hour, WDEL Radio, 101.7FM, 1150AM, Wilmington, DE, USA, wdel.com, The troubling link between springtime allergies and suicide. Pollen can cause inflammation that leads to impulsive, fatal behavior, researchers say
- 9-Jan-16 Interview with Andrea Dukakis. Beta Test feature on Colorado Public Radio.
- 9-Jan-16 Susan Moran, *Bacterial treatment for PTSD-study v0.1*, KGNU's "How on Earth" program, 88.5 FM, Boulder, Colorado, January 9, 2017.
- 24-May-16 Live radio interview with Susan Moran, The connection between soil and gut microbes, KGNU's "How on Earth" program, 88.5 FM, Boulder, Colorado, May 24, 2016, <http://howonearthradio.org/archives/5403>
- 17-Oct-11 Swedish National Radio, www.sverigesradio.se/p1, A health and science programme for Swedish national radio, called Kropp & Själ (Body & Soul), Interview by Helene Almqvist, helene.almqvist@telia.com, scheduled program, serotonin and depression
- 25-Aug-08 www.microbeworld.org, Finger Lakes Productions International production, American Society for Microbiology, 90-second radio feature, MicrobeWorld, that is being heard across the country on primarily public radio stations, released August 25, 08; www.microbeworld.org
- 2-Apr-07 BBC Science Radio Unit
- 2-Apr-07 BBC Radio Scotland
- 2-Apr-07 BBC Radio Wales
- 2-Apr-07 BBC Northern Ireland
- 3-May-07 Cal-tech radio's "The Loh Down on Science"

Podcasts

Yoga with Jake, Podcast interview with Jake Panasevich, Yoga For Men & Athletes, yogawithjake.com, Dr. Christopher Lowry: How Our Microbiome Effects Our Mental Health, The Microbiome Gut-Brain Access and How Heat Exposure Benefits Mental Health. December 4, 2023; <https://podcasts.apple.com/us/podcast/yoga-with-jake-podcast/id1547267890?i=1000638171901>

Building the Elite Podcast with Craig Weller and Kate Pate, Tuesday, June 20, 2023, <https://www.buildingtheelite.com/>

How Humans Work Podcast, with Jeff Szilagyi, May, 22, 2023, howhumanswork.us/podcast

Future Tripping Laura van Dernoot Lipsky, podcast about trying to overcome isolation and trauma. December 14, 2022. <https://traumastewardship.com/podcast/>; <https://traumastewardship.com/2023/06/dr-christopher-lowry-your-microbiome-why-its-more-important-than-you-think/>

The Mark Groves Podcast: Making Life Make Sense. Discussion with Rob Herring (who created the documentary about soil called *The Need to Grow*; references to research using *M. vaccae*: <https://podcasts.apple.com/us/podcast/whats-soil-health-and-how-its-affecting-you-with-rob-herring/id1282044290?i=1000586087332>

The Ampersand, Podcast for the University of Colorado Boulder College of Arts and Sciences, by Erika Randall, Associate Dean for Student Success, and Tim Grassley, Communications Manager for Student Success. November 29, 2022, to be released Spring, 2023

Gastropod Podcast, Gut Feeling, August 16, 2022, <https://gastropod.com/gut-feeling/>

The Catalyst Coaching Institute Catalyst Health, Wellness & Performance Podcast, US Corporate Wellness, Inc. Interview by Bradford Cooper, PhD, MSPT, MBA, ATC. @Catalyst2Thrive, <https://www.catalystcoachinginstitute.com/podcast/>, June 10, 2021

Happiness and Humans podcast, Matthew Phelan, Co-Founder: The Happiness Index. Author: Freedom To Be Happy: The Business Case for Happiness. *Can soil really make you happy?* October 27, 2020.

Mind the Brain, Mental Health in the Time of COVID-19, The microbiome and mental health July 21, 2020, with Neill Epperson, Neill.Epperson@cuanschutz.edu <https://medschool.cuanschutz.edu/psychiatry/covid-19-support/mind-the-brain>

CU Boulder Today Brainwaves, *Mycobacterium vaccae*, interview by Lisa Marshall, July 1, 2019. <https://www.colorado.edu/today/brainwaves>; <https://soundcloud.com/onthebrainwaves/gardening-how-getting-dirty-planting-things-has-surprising-health-benefits>

Art of the Float podcast, <https://artofthefloat.com/2018/09/150-floating-inflammation-with-guest-flux/>, Michael C Flux, September 28, 2018.

Float Conference. Podcast on Laureate Institute for Brain Research study on possible link between floating and the immune system, Float Conference, August 18-19, 2018, by Ashkahn Jahromi, June 25, 2018, Running Time, 26:34, <http://floatconference.com/131-michael-flux-caruso-researcher/>

Science Sessions Podcasts, the PNAS podcast program. Biodiversity hypothesis. Jenni Lehtimäki and Stefan Reber explore links between animal exposure in upbringing and immune system function. July 2, 2018 | Running Time: 7:48

The Higher Practice Podcast, Interview with Keith Kurlander, CEO of Higher Practice, March 5, 2018 for broadcast the week of March 12, 2018. <https://higherpractice.com/podcast/>

BacterioFiles, The Podcast for Microbe Lovers with Jesse Noar, BacterioFiles 282 – Mycobacteria make mice mellow. Monday, January 16, 2017. <http://www.bacteriofiles.com/>

Rocky Mountain MIRECC, Huggins, J. (Producer) & Hoffberg A.S. (Host). (2016, May 16). The Microbiome and Suicide Prevention. Rocky Mountain MIRECC Short Takes on Suicide Prevention [Audio podcast]. Retrieved from http://www.mirecc.va.gov/visn19/education/media/#lowry_vaccae_podcast

BBC World Service, The Why Factor, *Gardens*, weekly program broadcast and podcast every Friday, based on an interview with Helena Merriman, Radio Current Affairs, BBC World Service radio in London, radio documentary looking at why people get pleasure from gardening, interview on August 8, 2014, broadcast on August 29, 2014, available play online here, <http://www.bbc.co.uk/podcasts/series/whyfactor>, or to download here, http://downloads.bbc.co.uk/podcasts/worldservice/whyfactor/whyfactor_20140829-1845a.mp3.

Super Human Radio, Rural microbes could boost city dwellers' health, May 14, 2014.

CU Boulder Office of News Services, Serotonin: the anxiety modulator, <http://www.colorado.edu/news/podcasts/>

Sign of Science, audio feature called “Hear the Answer”, <http://www.heartheanswer.com/index.php?action=feature&qid=468>

TikTok

helenaspeaking

Helena Bowen, January 2, 2021

It doesn't taste as bad as you'd expect!! #newyearnewme #mentalhealthmatters #healthyrecipes

<https://www.tiktok.com/music/original-sound-6912953618723654406?lang=en>

Public response

<https://www.tiktok.com/foryou?lang=en#@janetsehomes/video/6915574608892562694>

<https://www.tiktok.com/foryou?lang=en#@katesearly/video/6915894463348919557>

https://www.tiktok.com/@kallivant/video/6914765025307626757?sender_device=pc&sender_web_id=6906496274931287558&is_from_webapp=v1

https://www.tiktok.com/@katesearly/video/6916353563006340357?sender_device=pc&sender_web_id=6906496274931287558&is_from_webapp=v1

Television

24-May-23 Interview for BBC4 BBC Radio 4, Documentary series, “‘An Almanac for Anxiety – In Search of a Calmer Mind’ Anna Miles and Helen Needham,

Interview May 24, 2023. Broadcast, August 1, 2023,
<https://www.bbc.co.uk/programmes/m001p6vt>

- 18-Oct-22 JAX4 Television Morning Show, Stress less, age less: Stress finds stress accelerates immune aging, October 18, 2022.
<https://www.news4jax.com/news/morning-show/2022/10/18/stress-less-age-less-study-finds-stress-accelerates-immune-aging/>
- 2-Sep-20 Interview for Slovene national television show Bite the Science with Anja Čuček, Anja.Cucek@rtvslo.si, Izobraževalni program, RTV Slovenija, Kolodvorska 2, 1550 Ljubljana, T: +386 1 475 3095 | M: +386 41 605 602, September 2, 2020
- 25-Jul-19 *Love Productions*, Theo Browne, Assistant Producer, Theo.Browne@loveproductions.co.uk, Stress and anxiety, <https://www.loveproductions.co.uk/>
- 23-Jul-19 *Ivanhoe Media*, interview July 25, 2019, An immunization strategy for prevention of stress-related psychiatric disorders. [https://www.ivanhoe.com/9NEWS\(KUSA\).Is.a.stress.shot.on.the.horizon?Joshua.Aldredge,9NEWS.Producer,broadcast.on.May.6,2018,09:14.PM,Local.market.viewership,64,213,local.publicity.value,\\$11,263.63.per.30.sec](https://www.ivanhoe.com/9NEWS(KUSA).Is.a.stress.shot.on.the.horizon?Joshua.Aldredge,9NEWS.Producer,broadcast.on.May.6,2018,09:14.PM,Local.market.viewership,64,213,local.publicity.value,$11,263.63.per.30.sec)
- 6-May-18 *9NEWS (KUSA)*. Is a stress shot on the horizon? Joshua Aldredge, 9NEWS Producer, broadcast on May 6, 2018, 09:14 PM, Local market viewership, 64,213, local publicity value, \$11,263.63 per 30 sec
<http://mms.tveyes.com/PlaybackPortal.aspx?SavedEditID=454c1845-b7f8-405d-bb2a-e942e9fc4974>
- 3-May-18 *Ciencia Salud Tecnología “CST” – NTN24 Channel*. Video interview for science program on rural versus urban upbringing and mental health. By Shadia Rujana Artunduaga, Bogota, Columbia.
- 9-Jan-18 *9News.com*. Noise pollution causes birds to have symptoms similar to PTSD. February 9, 2018.
<http://www.9news.com/article/news/local/science/study-noise-pollution-causes-birds-to-have-symptoms-similar-to-ptsd/73-506627512>
- 22-Sep-09 *NewsTeam Boulder*, Interview by Stephanie Louise May for television broadcast <http://www.newsteamboulder.com/>, live 12 p.m., 6 p.m., and 10 p.m., Tuesday, September 22, 2009
- 24-Apr-08 *KBS-TV*, South Korea, www.kbs.co.kr (KBS-TV official website), Producer, Gina McDonald, interview for documentary, April 24, 2007
- 3-Apr-07 *British Satellite News*
- 18-Apr-07 *France 2*
- 10-May-07 *BBC Points West*

Film documentaries

- 16-Apr-18 *Human Microbiome*. Produced by Carl Lindahl and Pedram Shojai (OMD), Well.Org®
- 13-Nov-16 *Life on Us*. Released on VHX, <http://lifeonus.vhx.tv/>
- 27-Jul-16 *VICE*, HBO documentary. Interview related to documentary on new medical science surrounding the microbiome and health. Interview with Lyle Kendrick.
- 19-Dec-14 *Life on Us: Superhuman*. National Geographic, December 19, 2014
- 27-Apr-14 *Life on Us*. TWO-PART SERIES: PREMIERED Sunday, 27 April 2014 at 8:30 p.m. on SBS ONE, Australia. 2-part science documentary on microbiome

research; interview and filming by Annamarie Talas, PO Box 507, Avalon 2107, NSW, Australia, +61(0)400432600, <https://www.facebook.com/lifeonus>
<http://www.sbs.com.au/programs/life-on-us/>
<http://www.sbs.com.au/programs/life-on-us/article/2014/04/16/better-medicine>

Creative projects, museum press releases, and exhibitions

Reload my Pharmacy: Muddy Habits, by Anna Neumerkl, Ege Kökel, Georg Sampl, and Florian Semlitsch, student team from the University of Applied Arts Vienna, accompanied by an online video, March 16, 2015, *Muddy Habits*, <https://vimeo.com/122309871>, Ege Kökel ege-kokel@hotmail.com, <https://egekokel.com/about>; <https://georgsampl.com/about/>; <https://floriansemlitsch.com/cv>; <https://www.facebook.com/florian.semlitsch>; <https://annaneumerkel.at/about>

Florida Museum, Noise pollution causes chronic stress in birds, with health consequences for young. By Natalie van Hoose. January 8, 2018. <https://www.floridamuseum.ufl.edu/science/noise-pollution-causes-stress-in-birds/>

London Science Museum, 'Friendly' bacteria help boost happiness. April 5, 2007

Fictional representations of our work

Solum, by Rose Malana (Mattie Rose mad.rose339@gmail.com), <https://www.magtwentytwenty.com/post/solum-rose-malana>