



**CURRICULUM VITAE**  
**Monika Fleshner, PhD**

**I. PERSONAL INFORMATION**

Address: <sup>1</sup>**Department of Integrative Physiology**  
<sup>2</sup>**The Center for Neuroscience**  
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**Monika Fleshner, PhD** is a professor in the Department of Integrative Physiology, a member of the Center for Neuroscience, and the director of the Stress Physiology laboratory. Professor Fleshner was appointed in 2021 by the National Academies of Sciences, Engineering and Medicine to contribute to a congressionally requested study that will shape NASA’s role in supporting and utilizing biological and physical sciences research during a highly critical period for the U.S. space program. She is the winner of the international Norman Cousins Award from the Psychoneuroimmunology Research Society and the national Guyton Distinguished Lectureship Award from the Association of Chairs of Departments of Physiology. She teaches undergraduate and graduate immunology and has trained ~50 MS/PhD/Postdoctoral students. Her integrative research program focuses on understanding 1) the impact of acute and chronic stressor exposure (mental and physical) on behavior, neural, hormonal, and immunological function; 2) how such systems interact to affect the whole organism; and 3) the mechanisms of increased stress robustness (resistance/resilience) produced by exercise, prebiotics, and cannabis constituents. She has published ~190 peer-reviewed articles and has a GoogleScholar h-index of 84 and 10-index of 185. The National Science Foundation, the National Institutes of Health, the Department of Defense, and Mead Johnson Nutrition have previously funded her research program. Current funding is provided by the Office of Naval Research and NASA. She is a member of the College of Arts and Sciences Dean’s Budget Committee and has previously served as the President of the International Society for Exercise Immunology (ISEI, 2011-2013), and President (2011-2012) and Secretary/Treasurer (2004-2006) of the Psychoneuroimmunology Research Society (PNIRS).



**II. EDUCATION**

1991-1993	<b>Postdoctoral Fellow, Neuroscience</b> University of Colorado, Boulder, CO
1990-1991	<b>Postdoctoral Fellow, Microbiology/Immunology</b> University of Colorado Health Science Center, Denver CO
1988-1990	<b>PhD, Behavioral Neuroscience</b> University of Colorado, Boulder, CO
1986-1988	<b>MA, Behavioral Neuroscience</b> University of Colorado, Boulder, CO
1982-1984	<b>BS, Psychology</b> Iowa State University, Ames, IA



### III. PROFESSIONAL ACADEMIC POSITIONS

2009-present	<b>Professor with Tenure</b> Department of Integrative Physiology University of Colorado at Boulder CO
2003-2008	<b>Associate Professor with Tenure</b> Department of Integrative Physiology University of Colorado at Boulder CO
2002-present	<b>Faculty</b> Center for Neuroscience University of Colorado, Boulder CO
1997-2003	<b>Assistant Professor</b> Department of Integrative Physiology University of Colorado, Boulder CO
1996-1997	<b>Assistant Research Professor</b> Behavioral Neuroscience University of Colorado, Boulder CO
1993-1996	<b>Research Associate and Instructor</b> Behavioral Neuroscience University of Colorado, Boulder CO
1993-1995	<b>Instructor</b> Department of Psychology University of Colorado, Denver CO

### IV. LEADERSHIP/ADMINISTRATIVE POSITIONS (description of duties in IX. Service)

2018-present	<b>Radiation Safety Committee, Vice Chair</b> , University of Colorado at Boulder.
2017-2020	<b>Executive Committee</b> , Department of Integrative Physiology, University of Colorado at Boulder.
2014-2016	<b>Boulder Faculty Assembly Executive Committee</b> , University of Colorado at Boulder.
2014-2016	<b>Boulder Faculty Assembly Budget and Planning Committee, Chair</b> (elected position), University of Colorado at Boulder.
2009-2013	<b>Faculty Associate</b> <b>Office of the Vice Chancellor for Research</b> University of Colorado at Boulder CO
2011-2012	<b>Psychoneuroimmunology Research Society</b> ( <a href="https://www.pnirs.org/">https://www.pnirs.org/</a> ) <b>President</b> (elected position)
2011-2013	<b>International Society for Exercise Immunology</b> ( <a href="http://www.isei.dk/">http://www.isei.dk/</a> ) <b>President</b> (elected position)
2004-2006	<b>Psychoneuroimmunology Research Society</b> <b>Secretary/Treasurer</b> (elected position)

### V. HONORS and AWARDS

2023-2026	International <a href="#">Research Foundation Flanders</a> (FWO): <a href="#">Med5 Fellowship panel on Neurology, Neuroscience, ENT medicine, Ophthalmology, Psychiatry</a>
2021-2023	National Academies of Sciences, Engineering and Medicine, Space Biology Congressional Review Committee
2019	Norman Cousins Award, Psychoneuroimmunology Research Society (International) <a href="https://www.pnirs.org/society/society_awards.cfm">https://www.pnirs.org/society/society_awards.cfm</a>



2016	Arthur C. Guyton Distinguished Lectureship Award, Association of Chairs of Departments of Physiology (National)
2014	Boulder Faculty Assembly Service Recognition Award, University of Colorado, Boulder
2014	Student Award (Kristina Hulen) Everson Trust Undergraduate Scholarship for Women in Science
2012-2013	Excellence in Leadership Program, University of Colorado System
2013	Student Award (Parsa Ghasem) Best Poster Presentation @ Rocky Mountain Regional Neuroscience Group
2010-2013	College of CSR Reviewers, National Institutes of Health
2010	Public Broadcast System (PBS)- <i>The Science of Healing</i>
2009	Boulder Faculty Assembly Award-Excellence in Research
2002	National Public Radio- <i>The Infinite Mind</i> , Featured Scientist
2005	Independent Investigator Award, National Alliance for Research on Schizophrenia and Depression
2001	Motor Board Honor Society, Faculty Appreciation
1998	Young Investigator Award, Psychoneuroimmunology Research Society
1998	Junior Faculty Development Award, University of Colorado, Boulder CO
1997	Society for Neuroscience CNN (national and international), Featured Scientist
1992-1994	National Institutes of Health Behavioral Neuroscience Postdoctoral Fellowship
1991	National Institutes of Health Developmental Psychobiology Postdoctoral Fellowship
1988	Research featured on PBS, "The Mind"
1986-1990	National Institutes of Health Training Grant Fellowship
1984	Phi Kappa Phi
1984	Graduated with Honors, BS, Iowa State University, Ames, IA
1981	Rivercade Queen Undergraduate Scholarship Morningside College, Sioux City, IA

## **VI. GRANTS: ACTIVE, PENDING, APPLIED (not funded) and COMPLETED**

### ***i. Active***

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"Flash Bang Effects: Pressure Impulse"

Applied Research Associates, Inc, Ted Argo (PI)

Joint Intermediate Force Capabilities (JIFCO), Task Order#2, IDIQ Contract #M67854-22-D-7209

**Monika Fleshner (Technical Co-PI)**

**Period: 2022-2023**

**Award (Fleshner): \$278,000**

"Stress Response to Flash Bang Exposure"

Applied Research Associates, Inc, Ted Argo (PI)

**Monika Fleshner (Technical PI)**

**Period: 2022-2023**

**Award (Fleshner): \$473,979**

"Physiological impacts of oral hemp extracts". Charlotte's Web Targeted Donation-CU REACH.

**Principal Investigator, Monika Fleshner**

**Period: 2021-2022**



**Total Award: \$15,000**

“The microbiome and responsiveness to stress: Countermeasure Strategies for improving resilience to sleep and circadian disruption”

Office of Naval Research (ONR) MURI N00014-15-1-2809

**Multiple Principal Investigators (MPI), Ken Wright (Team Leader), Monika Fleshner, Chris Lowry, Fred Turek, Rob Knight, Pieter Dorrestein**

**Period: 2015-2022**

**Total Award: \$7,100,000. Fleshner Project (\$1,400,000)**

“A systems-biology approach to assessing the impact of a centrifugation model of spaceflight on cross-system communication”

NASA-NSPIRES, 16-ROSBFP\_PI-0079

**Research Opportunities in Space Biology (ROSBio) - Solicitation of Proposals for Flight and Ground Space Biology Research**

**Multiple Principal Investigators, Monika Fleshner (CU), Michael Pecaut (Loma Linda University), Christopher Wilson (Loma Linda University).**

**Period: 2018-2022**

**Total Award: \$950,000**

## **ii. Not Funded**

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“The S1 subunit of the SARS-CoV2 spike protein operates as a PAMP to produce neuroinflammation and behavioral change”

National Institutes of Allergy and Infectious Disease

NIH, **Multiple Principal Investigators, Fleshner, Maier, Frank**

**Period: 2022-2017**

**Total Award: \$3,891,899**

“Western Honey-Bee Biotransformation of Full Spectrum Hemp Extract: Impacts on Bioavailability and Physiological Efficacy.”

Institute of Cannabis Research CSU-Pueblo, **Multiple Principal Investigators, Fleshner, Palumbo, Breed**

**Period: 2022-2024**

**Total Award: \$249,664**

“Prebiotics and Stress-Opiate Relapse”

Ab Nexus, **Lead PI: Fleshner, Co-PI: Lozupone, Collaborators: Root, Thompson**

**Period: 2022-2023**

**Total Award: \$125,000**

“Suppression of glioma-driven astrocyte inflammatory responses by plasma extracellular vesicles derived from physically fit donors”

Ab Nexus, **Lead PI: Graner, Co-PI: Fleshner, Collaborators: DeSouza**

**Period: 2022-2023**

**Total Award: \$125,000**

“Cell-Derived Microparticles in Hypertension: Biomarkers, Vascular Mediators, and Therapeutic Targets”

NIH-HL-16-024, **Multiple Principal Investigators, DeSouza, Fleshner, Link, Stauffer, McQueen**



**Period: 2021-2024**

**Total Award: \$1,200,000**

**"Prediabetes, Exercise and Microparticles"**

**NIH, Multiple Principal Investigators, DeSouza, Fleshner, Stauffer**

**Period: 2021-2025**

**Total Award: \$1,150,000.**

***iii. Completed***

**"Nutritional Modulation of Brain Development, Cognitive Function, Sleep, and Stress Reactivity: The Role of the Gut Microbiota"**

**Mead Johnson Nutrition, Principal Investigator, Monika Fleshner**

**Period: 2013-2017**

**Total Award: \$1,055,749**

**"Neurobiology of the Stress Resistant Brain"**

**R01-MH068283-06, NIH, Principal Investigator, Monika Fleshner**

**Period: 2010-2015**

**Total Award: \$1,200,000**

**"Extracellular Hsp72 is a DAMP Released by Stress"**

**IOS 1022451 NSF, Principal Investigator, Monika Fleshner**

**Period: 2010-2013**

**Total Award: \$539,045**

**"Enabling Stress Resistance with Controllable Exercise"**

**DARPA, W911NF-10-1-0050. Defense Science Office, Principal Investigator**

**Period: 2010-2012**

**Total Award: \$2,800,000**

**"Preventing Transition of Acute-to-Chronic Neuropathic Pain: Models, Mechanisms, and Treatment"**

**RO1-DE021966, NIH, Multiple Principal Investigators (MPI) PD/PI, Linda Watkins, Monika Fleshner, Dan Barth**

**Period: 2011-2016**

**Total Award: \$1,800,000**

**"Exercise Mitigates Stress-Induced Memory Disturbances"**

**RO3-NIMH, NIH, Co-PI, Monika Fleshner**

**Period: 2009-2012**

**Total Award: \$143,000**

**"Physiological Functions of the Gut Microbiome"**

**Innovative Seed Grant Program-U of CO, Principal Investigator, Monika Fleshner**

**Period: 2010-2012**

**Total Award: \$43,750**

**"Stress, Heat-Shock Proteins and Innate Immunity"**

**R01-AI057797-01, NIH, Principal Investigator, Monika Fleshner**



**Period: 2004-2010**

**Total Award: \$1,738,025**

**"Chemotherapy and Cognition in Older Breast Cancer Patients"**

(SUBCONTRACT) NIH, **Principal Investigator, Monika Fleshner**

**Period: 2004-2009**

**Total Award: \$154,000**

**"The Neurobiology of the Stress Resistant Brain"**

R01-MH068283-01, NIH, **Principal Investigator, Monika Fleshner**

**Period: 2004-2009**

**Total Award: \$1,804,225**

**"Prevention of the Negative Behavioral Effects of Acute Fluoxetine: Role of BDNF"**

NARSAD, **Principal Investigator, Monika Fleshner**

**Period: 2005-2009**

**Total Award: \$100,000**

**"Regulation of Brain IL-1 and Sickness Responses Following *E.coli* Challenge"**

R21-MH NIH, **Co-Investigator, Monika Fleshner**

**Period: 2007-2009**

**Total Award: \$403,820**

Leap Associate Professor Award

University of Colorado, **Principal investigator, Monika Fleshner**

**Period: 2004-2005**

**Total Award: \$5,000**

**"Stress, Exercise, and Innate Immunity"**

RO3-MH60301-01, NIH, **Principal Investigator, Monika Fleshner**

**Period: 1999-2001**

**Total Award: \$35,875**

**"Exercise Prevents the Immunosuppressive Effect of Stress"**

RO3-AI45576-01, NIH, **Principal Investigator, Monika Fleshner**

**Period: 1999-2001**

**Total Award: \$143,131**

**"Exercise, Stress and Immunity: Physiological Mechanisms"**

RO1-AI48555-01, NIH, **Principal Investigator, Monika Fleshner**

**Period: 2000-2004**

**Total Award: \$1,223,472**

**"Exercise and Stress Resistance: A Systems Biology Approach"**

CRCW, University of Colorado, **Principal Investigator, Monika Fleshner**

**Period: 2006-2007**

**Total Award: \$7,000**



**"Obesity/Insulin Resistance and Endothelial t-PA Release"**  
RO3-DK62061, NIH, **Co-Investigator, Monika Fleshner**  
**Period: 2002-2004**  
**Total Award: \$143,131**

**"Arousal and Motor Performance in Older Adults"**  
RO3-AG20339, NIH, **Co-Investigator, Monika Fleshner**  
**Period: 2002-2004**  
**Total Award: \$143,000**

**"Effect of Sleep Deprivation on Inflammatory Markers"**  
NIH, **Co-Investigator, Monika Fleshner**  
**Period: 2002-2004**  
**Total Award: \$290,369**

**"Potential Benefits of a Physically Active Lifestyle on Immune Response to Immunization"**  
protocol B5009, General Clinical Research Center-Boulder Satellite, NIH, **Principal Investigator, Monika Fleshner**  
**Period: 2000-2002**  
**Total Award: \$15,000**

**"Neural Mechanisms of the Stress-Resistant Brain"**  
University of Colorado, Council on Creative Work, **Principal Investigator, Monika Fleshner**  
**Period: 2002**  
**Total Award: \$2,500**

**"The Behavioral Analysis of the Protective Effect of Exercise"** Council on Research and Creative Work"  
University of Colorado, **Principal Investigator, Monika Fleshner**  
**Period: 1999-2000**  
**Total Award: \$6,730**

Junior Faculty Development Award, University of Colorado  
**Principal Investigator, Monika Fleshner**  
**Period: 1998**  
**Total Award: \$5,000**

**"Stress and Immunity: Behavioral and Physiological Mechanisms"**  
RO1-MH-4505, NIH, **Co-Investigator, Monika Fleshner**  
**Period: 1996-2001**  
**Total Award: \$1,725,994**

**"Effects of space flight on *in vivo* immune function and bone resorption"**  
BioServe-NASA (SUBCONTRACT), **Principal Investigator, Monika Fleshner**  
**Period: 1996**  
**Total Award: \$3,500**

University of Colorado Health Sciences Center Young Investigator Award  
**Principal Investigator, Monika Fleshner**



**Period: 1991-1992**  
**Total Award: \$3,000**

## **VII. PUBLICATIONS**

### **GoogleScholar**

**Total Citations (12.22): 25,5651**

**h-index: 86**

**10-index: 188**

#### **i. Manuscripts / Chapters Submitted (Peer-reviewed)**

*\*indicates 1<sup>st</sup> author is/was a student or postdoctoral fellow supervised by Dr. Fleshner*

\*Hopkins, S; Kelley, T; Roller, R; Thompson, RS; Colagiovanni, DB; Chupka, K; **Fleshner, M.** *Oral CBD-Rich Hemp Extract Modulates Sterile Inflammation in Male and Female Rats.* *Frontiers in Physiology, Integrative Physiology Section (2022)* in review.

#### **ii. Manuscript/Chapters Published or In Press (Peer-Reviewed)**

*\*indicates 1<sup>st</sup> author is/was a student or postdoctoral fellow supervised by Dr. Fleshner*

Bowers, SJ; Summa, KC; Thompson, RS; González A; Vargas, F; Olker C; Jiang, P; Lowry, CA; Dorrestein, PC; Knight R; Wright, Jr KP; **Fleshner, M;** Turek, FW; Vitaterna, MV. *A Prebiotic Diet Alters the Fecal Microbiome and Improves Sleep in Response to Sleep Disruption in Rats.* *Frontiers in Neuroscience (2022)* DOI: 10.3389/fnins.2022.889211.

Frank, MG; Nguyen, KH; Ball, JB; Hopkins, SL; Kelley, T; **Fleshner, M;** Maier, SF. *SARS-CoV-2 spike S1 subunit induces neuroinflammatory, microglial and behavioral sickness responses: evidence of PAMP-like properties.* *Brain, Behavior, and Immunity (2022)* DOI: 10.1016/j.bbi.2021.12.007.

Thompson, RS\*; Gaffney, M; Hopkins, S; Kelley, T; Gonzalez, A; Bowers, SJ; Hotz Vitaterna, M; Turek, FW; Foxx, CL; Lowry, CA; Vargas, F; Dorrestein, PC; Wright, KP Jr; Knight, R; **Fleshner, M.,** *Ruminiclostridium 5, Parabacteroides distasonis, and bile acid profile are modulated by prebiotic diet and associate with facilitated sleep/clock realignment after chronic disruption of rhythms.* *Brain, Behavior, and Immunity (2021)*  
doi.org/10.1016/j.bbi.2021.07.006.

**Fleshner, M. (2021).** *Mentorship Memoriam: Mark Laudenslager, PhD.* *Brain Behav Immun.*  
doi:10.1016/j.bbi.2021.01.006.

**Fleshner, M;** Epperson, N; & Dantzer, R. (2021). *Those we have lost: Dr. Mark L. Laudenslager.* *Psychoneuroendocrinology, 105126.* doi:10.1016/j.psyneuen.2020.105126.

Foxx, CL; Heinze, JD; González, A; Vargas, FD; Baratta, MV; Elsayed, AI; Stewart, JR; Loupy, KM; Arnold, MR; Flux, MC; Sago, SA; Siebler, PH; Milton, LN; Lieb, MW; Hassell, JE; Smith, DG; Lee, KAK; Appiah, SA; Schaefer, EJ; Panitchpakdi, M; Sikora, NC; Weldon, KC; Stamper, CE; Schmidt, D; Duggan, DA; Nguyen, KT; Gates, CA; Schnabel, K; Vitaterna, MH; Turek, FW; **Fleshner, M;** Dorrestein, PC; Knight, R; Wright, KP; and Lowry, CA. *Effects of Immunization With the Soil-Derived Bacterium Mycobacterium vaccae on Stress Coping Behaviors and Cognitive*





*Performance in a “Two Hit” Stressor Model.* *Frontiers in Physiology* (2020) 11, p. 524833, doi: 10.3389/fphys.2020.524833.

Bowers, SJ; Vargas, F; Gonzalez, A; He, S; Jiang, P; Dorrestein, PC; Knight, R; Wright, KP, Jr.; Lowry, CA; **Fleshner, M**; Vitaterna, MH; Turek, FW. *Immunization with a heat-killed bacterium, Mycobacterium vaccae NCTC 11659, prevents the development of cortical hyperarousal and a PTSD-like sleep phenotype after sleep disruption and acute stress in mice.* *Sleep* (2020) doi:10.1093/sleep/zsaa271.

Thompson, RS\*; Vargas, F; Dorrestein, PC; Chichlowski, M; Berg, BM; **Fleshner, M**. *Dietary Prebiotics Alter Novel Microbial Dependent Fecal Metabolites That Improve Sleep.* *Sci Rep*, (2020) 10(1): p. 3848.10.1038/s41598-020-60679-y.11131.

Bowers, SJ; Vargas, F; Gonzalez, A; He, S; Jiang, P; Dorrestein, PC; Knight, R; Wright, KP, Jr.; Lowry, CA; **Fleshner, M**; Vitaterna, MH; Turek, FW. *Repeated Sleep Disruption in Mice Leads to Persistent Shifts in the Fecal Microbiome and Metabolome.* *PLoS One*, (2020) 15(2): p. e0229001.10.1371/journal.pone.0229001.11132.

Arnold, MR; Greenwood, BN; McArthur, JA; Clark, PJ; **Fleshner, M**; Lowry, CA. *Effects of Repeated Voluntary or Forced Exercise on Brainstem Serotonergic Systems in Rats.* *Behav Brain Res*, (2020) 378: p. 112237.10.1016/j.bbr.2019.112237.11129.

**Fleshner, M**. *Bidirectional Gut-Microbial Mediated-Brain Signaling: A New Player in Stress Physiology? (Commentary on O'Mahony et al., 2019).* *Eur J Neurosci*, (2020) 52(5), 3487-3489. doi:10.1111.

Sprecher, KE; Ritchie, HK; Burke, TM; Depner, CM; Smits, AN; Dorrestein, PC; **Fleshner, M**; Knight, R; Lowry, CA; Turek, FW; Vitaterna, MH; Wright, KP. *Trait-Like Vulnerability of Higher-Order Cognition and Ability to Maintain Wakefulness During Combined Sleep Restriction and Circadian Misalignment.* *Sleep*, (2019) 42(8).10.1093/sleep/zsz113.11128.

Greenwood, BN\*; **Fleshner, M**. *Voluntary wheel running: A useful rodent model for Investigating the mechanisms of stress robustness and neural circuits of exercise motivation.* *Current Opinion in Behavioral Sciences* (2019) 28, p. 78-84 doi: 10.1016/j.cobeha.2019.02.001.

Mika, A\*; Gaffney, M; Roller, R; Hills, A; Bouchet, CA; Hulen, KA; Thompson, RS; Chichlowski, M; Berg, BM; **Fleshner, M**. *Feeding the Developing Brain: Juvenile Rats Fed Diet Rich in Prebiotics and Bioactive Milk Fractions Exhibit Reduced Anxiety-Related Behavior and Modified Gene Expression in Emotion Circuits.* *Neurosci Lett*, (2018) 677: p. 103-109.10.1016/j.neulet.2018.01.052.

**Fleshner, M**; Frank, MG; Watkins, LR; Maier, SF. Editorial: *Danger-associated molecular patterns in health and disease.* *Brain, Behavior, and Immunity* (2018) DOI: 10.1016/j.bbi.2018.06.022.

**Fleshner, M**. and Crane, CR\*. *Exosomes, DAMPs and miRNA: Features of stress physiology and immune homeostasis.* *Trends in Immunology*, (2017) 38 p. 63 doi: 10.1016/j.it.2017.08.002.

Thompson, RS\*; Roller, R; Greenwood, BN; Knight, R; Chichlowski, M; Berg, BM; **Fleshner, M**. *Dietary prebiotics and bioactive milk fractions support early-life NREM sleep quality, REM rebound sleep recovery following acute stress and ameliorate stress-induced decrease in alpha diversity in the rat.*



Frontiers in Behavioral Neuroscience, (2017) 10, 10:240. doi: 10.3389/fnbeh.2016.00240.

Lloyd, BA; Hake, HS; Ishiwata, T; Farmer, CE; Loetz, EC; **Fleshner, M**; Bland, ST; Greenwood, BN. *Exercise Increases Mtor Signaling in Brain Regions Involved in Cognition and Emotional Behavior*. Behav Brain Res, (2017) 323: p. 56-67.10.1016/j.bbr.2017.01.033.

**Fleshner, M**; Frank, M; Maier, SF. *Danger Signals and Inflammasomes: Stress-Evoked Sterile Inflammation in Mood Disorders*. Neuropsychopharmacology, (2017) 42(1): p. 36-45.10.1038/npp.2016.125.

Mika, A; Day, HE; Martinez, A; Rumian, NL; Greenwood, BN; Chichlowski, M; Berg, BM; **Fleshner, M**. *Early Life Diets with Prebiotics and Bioactive Milk Fractions Attenuate the Impact of Stress on Learned Helplessness Behaviours and Alter Gene Expression within Neural Circuits Important for Stress Resistance*. Eur J Neurosci, (2017) 45(3): p. 342-357.10.1111/ejn.13444.

Mika, A; Rumian, N; Loughridge, AB; **Fleshner, M**. *Exercise and Prebiotics Produce Stress Resistance: Converging Impacts on Stress-Protective and Butyrate-Producing Gut Bacteria*. Int Rev Neurobiol, (2016) 131: p. 165-191.10.1016/bs.irn.2016.08.004.

Speaker, KJ\*; Paton, MM; Cox, SS; **Fleshner, M**. *A Single Bout of Fasting (24 H) Reduces Basal Cytokine Expression and Minimally Impacts the Sterile Inflammatory Response in the White Adipose Tissue of Normal Weight F344 Rats*. Mediators Inflamm, (2016) 2016: p. 1698071.10.1155/2016/1698071.

Reber, SO; Siebler, PH; Donner, NC; Morton, JT; Smith, DG; Kopelman, JM; Lowe, KR; Campbell, K; Fox, JH; Hassell, JE; Greenwood, BN; Jansch, C; Lechner, A; Uschold-Schmidt, N; Füchsl, AM; Langgartner, D; Walker, FR; Hale, MW; Perez, GL; Van Treuren, W; González, A; Halweg-Edwards, AL; **Fleshner, M**. Raison, CL; Rook, GAW; Peddada, SD; Knight, R; Lowry, CA. *Immunization with a heat-killed preparation of the environmental bacterium Mycobacterium vaccae promotes stress resilience in mice*. Proc Natl Acad Sci U S A, (2016). 113(22): p. E3130-9PMC4896712.

Grace, PM; Fabisiak, TJ; Green-Fulgham, SM; Anderson, ND; Strand, KA; Kwilasz, AJ; Galer, EL; Walker, FR; Greenwood, BN; Maier, SF; **Fleshner, M**; Watkins, LR. *Prior Voluntary Wheel Running Attenuates Neuropathic Pain*. Pain, (2016) 157(9): p. 2012-23.10.1097/j.pain.0000000000000607.

Thompson, RS\*; Roller, R; Greenwood, BN; **Fleshner, M**. *Voluntary exercise increases core body temperature, improves sleep and reduces the stress-induced flattening of the diurnal rhythms in temperature and sleep*. Stress (2016) 1-13, doi: 10.1080/10253890.2016.1174852.

Mika, A.\* and **Fleshner, M.**, *Early-life exercise may promote lasting brain and metabolic health through gut bacterial metabolites*. Immunol Cell Biol, (2016). 94(2): p. 151-7 doi:10.1038/icb.2015.113.

Seetharaman, S; **Fleshner, M**; Park, CR; Diamond, DM. *Influence of Daily Social Stimulation on Behavioral and Physiological Outcomes in an Animal Model of Ptsd*. Brain Behav, (2016) 6(5): p. e00458PMC4834360.

Herrera, JJ\*; Fedynska, S; Ghasem, PR; Wieman, T; Clark, PJ; Gray, N; Loetz, E; Campeau, S; **Fleshner, M**; Greenwood, BN. *Neurochemical and Behavioural Indices of Exercise Reward Are Independent of Exercise Controllability*. Eur J Neurosci, (2016) 43(9): p. 1190-202.10.1111/ejn.13193.



- Mika, A\*; Bouchet, CA; Bunker, P; Hellwinkel, JE; Spence, KG; Day, HE; Campeau, S; **Fleshner, M**; Greenwood, BN. *Voluntary Exercise During Extinction of Auditory Fear Conditioning Reduces the Relapse of Fear Associated with Potentiated Activity of Striatal Direct Pathway Neurons*. *Neurobiol Learn Mem*, (2015) 125: p. 224-35.10.1016/j.nlm.2015.10.001.
- Mika, A\*; Van Treuren, W; Gonzalez, A; Herrera, JJ; Knight, R; **Fleshner, M**. *Exercise Is More Effective at Altering Gut Microbial Composition and Producing Stable Changes in Lean Mass in Juvenile Versus Adult Male F344 Rats*. *PLoS One*, (2015) 10(5): p. e0125889.10.1371/journal.pone.0125889.
- Clark, PJ\*; Amat, J; McConnell, SO; Ghasem, PR; Greenwood, BN; Maier, SF; **Fleshner, M**. *Running Reduces Uncontrollable Stress-Evoked Serotonin and Potentiates Stress-Evoked Dopamine Concentrations in the Rat Dorsal Striatum*. *PLoS One*, (2015) 10(11): p. e0141898.10.1371/journal.pone.0141898.
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Bennett, CM; Diamond, DM; **Fleshner, M**. Rose, GM; *Serum corticosterone level predicts the magnitude of hippocampal primed burst potentiation in urethane-anesthetized rats.* Psychobiology, 19(4) (1991) 301-307.

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**Fleshner, M**; Laudenslager, ML; Simons, L; Maier, SF. *Reduced Serum Antibodies Associated with Social Defeat in Rats.* Physiol Behav, (1989) 45(6): p. 1183-7, <https://www.ncbi.nlm.nih.gov/pubmed/2813542>.

Diamond, DM; Bennett, MC; Engstrom, DA; **Fleshner, M**; Rose, GM. *Adrenalectomy Reduces the Threshold for Hippocampal Primed Burst Potentiation in the Anesthetized Rat.* Brain Res, (1989) 492(1-2): p. 356-60, <https://www.ncbi.nlm.nih.gov/pubmed/2752305>.

Laudenslager, ML; **Fleshner, M**; Hofstadter, P; Held, PE; Simons, L; Maier, SF. *Suppression of Specific Antibody Production by Inescapable Shock: Stability under Varying Conditions.* Brain Behav Immun, (1988) 2(2): p. 92-101, <https://www.ncbi.nlm.nih.gov/pubmed/3148338>.

## VIII. PROFESSIONAL SEMINARS

### i. International

\* indicates the first author is/was a student or postdoctoral fellow supervised by Dr. Fleshner

**Fleshner, M**. Prebiotics, Probiotics, and a Stress Robust Phenotype, **Invited Speaker**, *Naturally Informed, Stress and Wellness Webinar (2022)*, National and International.

**Fleshner, M**. Dynamic role of exosomes, DAMPs, and miRs in stress physiology and immune homeostasis, **Invited Speaker**, *Society for Thermal Medicine (2022)*, National and International.

**Fleshner, M**. Prebiotics, Probiotics, and a Stress Robust Phenotype, **Invited Speaker**, *Neutraingredients\_USA Webinar (2021) ~600 registrants*, National and International.

**Fleshner, M**. Prebiotics, Probiotics and a Stress Robust Phenotype, **Invited Speaker**, *Swammerdam Institute for Life Sciences, University of Amsterdam, Amsterdam, Netherlands (2020)*.

**Fleshner, M**. Impacts of exercise and prebiotic dietary substrates on mind and body: The role of the gut



microbiome/metabolome. **Invited Speaker**, 14<sup>th</sup> *International Society of Exercise Immunology Symposium*, Shanghai, China (2019).

**Fleshner, M.** Microbial modulatory dietary substrates promote stress robustness, **Invited Speaker**, 9<sup>th</sup> *Mind-Body Interface International Symposium*, Taichung, Taiwan (2019).

**Fleshner, M.** Integrative stress physiology: Brain, Behavior & Immunity, **Invited Speaker**, Norman Cousins Award, [https://www.pnirs.org/society/society\\_awards.cfm](https://www.pnirs.org/society/society_awards.cfm), *Psychoneuroimmunology Research Society*, Berlin, Germany (2019).

**Fleshner, M.** Dietary prebiotic supplements prevent stress-evoked sleep disruptions, anxiety and gut microbial dysbiosis, **Invited Speaker**, *6th Beneficial Microbes Conference*, Amsterdam, The Netherlands (2017).

**Fleshner, M.** Early Life Exercise Promotes Changes in Gut Microbial Ecology, Persistent Stress Robustness & Metabolic Health, **Invited Speaker**, *The International Society of Exercise Immunology*, Coimbra, Portugal (2017).

**Fleshner, M.** Acute Stressor Exposure Modulates Plasma Exosomal miRNA cargo and Hsp72 expression. **Invited Speaker**, *The First International Congress: DAMPs*, Guanajuato, Mexico (2016).

**Fleshner, M.** The Neurobiology and Physiology of Exercise-Induced Stress Robustness. **The 2016 Arthur C. Guyton Distinguished Lectureship Award**. *The Association of Chairs and Directors of Departments of Physiology*, Cabo San Lucas, Mexico (2016).

**Fleshner, M.** Gut Microbiome Promotes Stress Robustness, **Invited Speaker**, *International Society for Exercise Immunology*, Vienna, Austria (2015).

**Fleshner, M.** Exercise and stress robustness: Benefits for physical and mental health. **Invited Speaker**, *University of Adelaide*, Adelaide, Australia (2013).

**Fleshner, M.** A healthy mind in a healthy body: Impacts of exercise on stress robustness. **Presidential Symposium**, *International Society for Exercise Immunology*, Newcastle, Australia (2013).

**Fleshner, M.** Stress and Immunity. **Invited speaker**, *Corsi Residenziali Di Neuroimmunologia. Centro Congressi Giovanni XXIII*, Bergamo-Italy (2013).

**Fleshner, M.** Stress-evoked sterile inflammation is modulated by physical fitness. **Keynote speaker**, *1st Brazilian Symposium of Immunology and Sport*, Sao Paulo, Brazil (2013).

**Fleshner, M.** Exercise produces stress resistance: Benefits for mental and physical health. **Keynote speaker**, *International Society for Exercise Immunology*, Oxford, England (2011).

**Fleshner, M;** Maslanik, T; Tannura, K; Mahaffey, L; Bennison, L. The role of the gut microbiota in the acute stressor evoked sterile inflammatory response. **Invited speaker**, *International Society for Exercise Immunology*, Oxford, England (2011).

**Fleshner, M.** Exosome-associated extracellular heat shock protein 72 is released by stress and functions as a DAMP. *Psychoneuroimmunology Research Society*, Dublin, Ireland (2010).

**Fleshner, M.** Exercise and central autonomic regulation: Mechanisms for the protective effect of



exercise on stress-induced immunosuppression. *International Society of Exercise Immunology*, Tübingen, Germany (2009).

**Fleshner, M.** Extracellular Hsp 72: A double edged sword for health. *Psychoneuroimmunology Research Society*, Arcachon, France (2007).

**Fleshner, M.** Extracellular Hsp 72: A double-edged sword for health. *International Cell Stress and Chaperone Society*, Budapest, Hungary (2007).

**Fleshner, M.** Elevated level of circulating cytokines and endotoxin are not necessary for the activation of the sickness or corticosterone responses produced by peripheral *E. coli* challenge. *Physiology and Pharmacology of Temperature Regulation*, Rhodes, Greece (2004).

**Fleshner, M.** Extracellular Hsp72 released by stress facilitates innate immunity: *In vivo and in vitro* support. *Psychoneuroimmunology Research Society*, Titisee, Germany (2004).

**Fleshner, M.** Hsps and the general stress response. *First International Congress on Stress Responses in Biology and Medicine*. Quebec City, Canada (2003).

**Fleshner, M.** Stress, heat shock proteins and innate immunity: "The danger signal hypothesis". *International Society for Exercise Immunology*, Copenhagen, Denmark (2003).

Elphick, GF\*; **Fleshner, M.** B-1 cell depletion attenuates the enhanced *E. coli* clearance in physically active rats. *International Society for Exercise Immunology*, Copenhagen, Denmark (2003).

**Fleshner, M.** Leem, T; Campisi, J; Greenwood BN; The potential role of heat shock proteins in stress-induced modulation of innate and acquired immunity. *Psychoneuroimmunology Research Society*, Utrecht, Netherlands (2001).

**Fleshner, M.** Neuroendocrine regulation of the antibody response. *The International Society of Exercise and Immunology IV*, Rome, Italy (1999).

**Fleshner, M.** Leem, T; Kintzel, J; Moraska, A; Deak, T; Smith, TP; Physical activity facilitates bacterial inflammation resolution produced by stress. *The International Society of Exercise and Immunology IV*, Rome, Italy (1999).

## **ii. Domestic**

\* indicates the first author is/was a student or postdoctoral fellow supervised by Dr. Fleshner

**Fleshner, M.** Superheros Within! Immunity in Health and Disease (2022). *CU Wizards, Boulder, Colorado*, **Invited Speaker.**

**Fleshner, M.** Prebiotics, Probiotics and Sleep (2022). *ipa World Congress + Probiotic America* (2022), *Washington D.C.*, **Invited Speaker.**

**Fleshner, M.** Microbiome modulation to improve stress-induced disturbed sleep (2022). *University of Colorado Sleep and Circadian Summer School*, **Invited Speaker.**

**Fleshner, M.** Work-Life Balance. (2021). *IPHY Professional Skills Webinar*, **Invited Speaker.**



**Fleshner, M.** Superheros Within! Immunity in Health and Disease. (2021) *CU Wizards Webinar*, **Invited Speaker**

**Fleshner, M.** The Science of Wellness and Stress Resiliency. *Health and Wellness Summit, University of Colorado Boulder, Boulder, CO* (2020) **Invited Speaker.**

**Fleshner, M.** Prebiotics, Probiotics, and a Stress Robust Phenotype. *The Institute for Behavioral Medicine Research, Wexner Medical Center, The Ohio State University* (2020) **Invited Speaker.**

**Fleshner, M.** Early Life Prebiotics, Probiotics, and a Stress Robust Phenotype. *American Academy of Child and Adolescent Psychiatry, Chicago, IL* (2019) **Invited Speaker.**

**Fleshner, M.** Exercise and Prebiotic Diet Modulates the Gut Microbiota and Promotes Stress Robustness. *Cell and Molecular Biology Fall Seminar Series, Colorado State University, Fort Collins, CO* (2019) **Invited Speaker.**

**Fleshner, M.** Prebiotics, Probiotics, and a Stress Robust Phenotype. *Center for Neuroscience, University of Colorado-Boulder, Colloquium* (2019) **Invited Speaker.**

**Fleshner, M.** Dietary Prebiotics Impact Gut Microbiome and Metabolome: A Successful Countermeasure for Improving Resilience to Sleep & Circadian Disruption, *Integrative Physiology, University of Colorado-Boulder, Departmental Colloquium* (2018) **Invited Speaker.**

**Fleshner, M.** Dietary prebiotics & stress resistance: Impacts on the brain, sleep, inflammation and the gut microbiome/metabolome, *Probiota Americas, Miami, Florida* (2018) **Invited Speaker.**

**Fleshner, M.** Inflammatory Homeostasis: A role for MAMPs, DAMPs and microRNA, *Experimental Biology, San Diego, CA* (2018) **Invited Speaker.**

Thompson RS\*; Bowers SJ; Gonzalez A; Vargas F; Wright KP Jr; Lowry CA; Vitaterna MH; Turek FW, Knight R; Dorrestein PC; **Fleshner M.** Gut Microbial Modulatory Diet Reduces the Impact of Chronic Circadian Disruption on Sleep and Facilitates Rhythm Realignment, *Society for Research on Biological Rhythms, Amelia Island, Florida* (2018) **Selected Speaker.**

**Fleshner, M.** Stress evoked sterile inflammation: A role for MAMPs, DAMPs and microRNA, *Colorado State University, Health and Exercise Science Spring Seminar Series, Fort Collins, CO* (2018) **Invited Speaker.**

**Fleshner, M.** Dietary Prebiotics Impact Gut Microbiome and Metabolome: A Successful Countermeasure for Improving Resilience to Sleep & Circadian Disruption, *Integrative Physiology, University of Colorado-Boulder, Departmental Colloquium* (2018) **Invited Speaker.**

**Fleshner, M.** Dietary prebiotics & stress resistance: Impacts on the brain, sleep, inflammation and the gut microbiome/metabolome, *Probiota Americas, Miami, Florida* (2018) **Invited Speaker.**

**Fleshner, M.** Stress-evoked sterile inflammation & inflammatory homeostasis: A role for MAMPs and exosome-associated DAMPs & miRNA. *Immunology Current Topics Workshop, Iowa State University, Ames, Iowa* (2018) **Invited Speaker.**



**Fleshner, M.** Inflammatory Homeostasis: A role for MAMPs, DAMPs and microRNA, *Experimental Biology, San Diego, CA* (2018) **Invited Speaker.**

**Fleshner, M.** Neurobiology and Physiology of Exercise Induced Stress Robustness. *Department of Kinesiology, Iowa State University, Ames, Iowa* (2018) **Invited Speaker.**

**Fleshner, M.** The Microbiome and Responsiveness to Stress: Countermeasure Strategies for Improving Resilience to Sleep and Circadian Disruption: Prebiotic Countermeasure. *University of California San Diego, Office of Naval Research Review* (2018) **Project PI.**

Thompson RS\*; Bowers SJ; Gonzalez A; Vargas F; Wright KP Jr; Lowry CA; Vitaterna MH; Turek FW, Knight R; Dorrestein PC; **Fleshner M.** Gut Microbial Modulatory Diet Reduces the Impact of Chronic Circadian Disruption on Sleep and Facilitates Rhythm Realignment, *Society for Research on Biological Rhythms, Amelia Island, Florida* (2018) **Selected Speaker.**

**Fleshner, M.** Stress evoked sterile inflammation: A role for MAMPs, DAMPs and microRNA, *Colorado State University, Health and Exercise Science Spring Seminar Series, Fort Collins, CO* (2018) **Invited Speaker.**

**Fleshner, M.** Early life exercise promotes favorable changes in gut microbial ecology, persistent stress robustness, and metabolic health, *Duke University School of Medicine Interdisciplinary Symposium, Raleigh-Durham, North Carolina* (2017) **Invited Speaker.**

**Fleshner, M.** Inflammatory Homeostasis: A role for MAMPs, DAMPs and microRNA, *Integrative Physiology, University of Colorado-Boulder, Departmental Colloquium* (2017) **Invited Speaker.**

**Fleshner, M.** Early life exercise promotes favorable changes in gut microbial ecology, persistent stress robustness and metabolic health, *Department of Integrative Biology, University of Colorado-Denver, Fall Seminar Series* (2017), **Invited Speaker.**

**Fleshner, M.** The neurobiology and physiology of exercise-induced stress robustness. *ACSM: World Congress on the Basic Science of Exercise and the Brain, Denver CO* (2017), **Invited Speaker.**

**Fleshner, M.** Prebiotic diet modulates the impact of stress on REM sleep. *The Colorado Sleep and Circadian Research Symposium, The University of Colorado, Boulder, CO* (2016), **Invited Speaker.**

**Fleshner, M.** Danger signals, microRNA and the inflammasome: Stress-evoked sterile inflammation and its relevance in mood disorders. *American College of Neuropsychopharmacology, Hollywood, FL* (2016), **Invited Speaker.**

**Fleshner, M.** Exercise induces stress robustness across the lifespan: The role of the gut microbiota. *The Integrative Biology of Exercise, American Physiological Society, Phoenix, AZ* (2016), **Invited Speaker.**

**Fleshner, M.** Exercise induces stress robustness across the lifespan: The role of the gut microbiota. *Cousins Center Lectures in Psychoneuroimmunology (PNI) at UCLA School of Medicine. Los Angeles, CA* (2016), **Invited Speaker.**



**Fleshner, M.** Early life prebiotic diet promotes sleep and stress robustness. *Gordon Conference on Sleep*, Galveston, TX (2016), **Invited Speaker**.

**Fleshner, M.** Early life exercise and the gut microbiota: Long lasting impacts on brain, stress resistance, and metabolism. *Neurobiology of Learning and Memory, 40th Anniversary*. Park City, UT (2016).

**Fleshner, M.** Promoting Stress Robustness. Georgia State University, *Neuroscience Institute Distinguished Lecture Series*, Atlanta, GE (2015), **Invited Speaker**.

**Fleshner, M.** Stress, Exercise and Sleep. University of Colorado School of Medicine Anschutz, *Department of Neurology, Resident Sleep Seminar*, Denver, CO (2015).

**Fleshner, M.** Exercise promotes stress robustness: Modulation of brain serotonin neurocircuitry. University of Colorado Anschutz Medical Campus, *Integrated Physiology Graduate Program Seminar*, Denver, CO (2015).

**Fleshner, M.** Protecting our troops from damaging stress. *University of Northern Colorado School of Biological Sciences Symposium*, Greeley, CO (2015).

**Fleshner, M.** Acute stressor exposure modulates plasma exosomal miRNA and Hsp72 cargo. *Academic Health Research Seminars University of Minnesota School of Medicine*, Duluth, MN (2014).

**Fleshner, M.** Rhythm disruptions and stress sensitization. *The Colorado Sleep and Circadian Research Symposium*, The University of Colorado, Boulder, CO (2014).

**Fleshner, M.** Exercise promotes stress robustness. *The Society for Neuroscience* (Exercise, energy intake, and the brain, selected symposium). Washington, DC (2014).

**Fleshner, M.** Exercise and prebiotic modulation of the gut microbiome promotes stress robustness. *The Psychoneuroimmunology Research Society*, (Integrating the microbiome into PNI paradigm and Mind/Body science, selected symposium). Philadelphia, PA (2014).

**Fleshner, M.** Acute stressor exposure modulates plasma exosomal miRNA and Hsp72 cargo. *The Seventh International Symposium on Heat Shock Proteins in Biology and Medicine*. Washington, DC (2014).

**Fleshner, M.** Disruptions in body temperature rhythms predict stress sensitization. *The International Behavioral Neuroscience Society*, Las Vegas, NV (2014).

**Fleshner, M.** Mindful movement and movement of the minds. *The Diversity Summit*, University of Colorado at Boulder.

**Fleshner, M.** Exercise promotes stress robustness. *The American College of Neuropsychopharmacology*, Phoenix, AZ (2014) selected symposium.

**Fleshner, M.** Putting the ice on stress, aging and CNS trauma. *Winter Conference on Brain Research*, Steamboat, CO (2014).



- Fleshner, M.** Extracellular Hsp72 is a DAMP released by stress. *Experimental Biology*, Boston, MA (2013). [https://www.webges.com/cslide/e02816c/public/play\\_video/19](https://www.webges.com/cslide/e02816c/public/play_video/19) (ACVP Symposium: Inside-Out- Extracellular Roles for Heat Shock Proteins)
- Fleshner, M.** Protecting our troops from damaging stress. *Center for Neuroscience seminar*, University of Colorado, Boulder, CO (2013).
- Fleshner, M.** Novel gene targets of exercise-induced stress resistance in the dorsal raphe nucleus. *Winter Conference on Brain Research*, Breckenridge, CO (2013).
- Fleshner, M.** Impact of physical activity on stress robustness, *Department of Physiology & Neurobiology*, Dartmouth, Lebanon NH (2013).
- Fleshner, M.** Exercise and stress “robustness”: Benefits for physical and mental health. *Department of Psychology and Neuroscience*, Duke University, Durham, NC (2012).
- Fleshner, M.** Protecting our troops from damaging stress. *IPHY seminar*, University of Colorado, Boulder, CO (2012).
- Fleshner, M.** Exercise and stress resistance and resilience: Benefits for mental and physical health. University of Vermont **Macmillan Symposium, Keynote Lecture** (includes webcast to local colleges and high schools). Burlington, VT (2012).
- Fleshner, M.** Stress, inflammasomes and sterile inflammation. **Presidential Symposium Lecture**, *Psychoneuroimmunology Research Society*, San Diego, CA (2012).
- Fleshner, M.** DAMPs, MAMPs, & the Inflammasome in Stress-Evoked Sterile Inflammatory Protein Responses. **Presidential Symposium Lecture**, *Society for Behavioral Neuroendocrinology*, Madison, WI (2012).
- Fleshner, M.** Exercise and stress resistance and resilience: Benefits for mental and physical health. *Biology Department Colloquium*, Kent State University, Kent, OH (2011).
- Fleshner, M.** Exercise and stress resistance and resilience. *School of Life Sciences Lecture Series*, Arizona State University, Tempe, AZ (2011).
- Fleshner, M.** Stress, DAMPs and Immunomodulation. *Society for Leukocyte Biology Meeting PNIRS Symposium*, Kansas City, MO (2011).
- Fleshner, M.** Extracellular Hsp72 is an endogenous DAMP released by stress. *Biological and Immunological Sciences Seminar*, Ohio State University, Columbus, OH (2011).
- Fleshner, M.** Stress & Immunity in Experimental Animal Models. *PNIRS Educational Short Course*, Chicago, IL (2011).
- Fleshner, M.** Endogenous Hsp72: Releasing signals, cellular sources & releasing pathways. *Graduate PNI Seminar*, University of Denver, Denver, CO (2010).





- Fleshner, M.** Enabling stress resistance with exercise. *Neuroscience Seminar*, University of Illinois, Champaign, IL (2010).
- Fleshner, M.** Exercise and stress resistance: From brain to behavior. *Winter Brain Conference*, Breckenridge, CO (2010).
- Fleshner, M.** Enabling stress resistance with controllable exercise: Affective consequences and 5HT mechanisms. *Neuroscience Colloquium*, Smith College, Northampton, MA (2010).
- Fleshner, M.** The stress buffering effects of exercise: Immune consequences & SNS mechanisms. *Biology Colloquium*, Smith College, Northampton, MA (2010).
- Fleshner, M.** The stress buffering effects of exercise. *The Neurobiology of Stress Workshop*, Session Chair, Boulder, CO (2010).
- Fleshner, M.** The stress buffering effects of exercise. *The Winter Brain Conference on the Neurobiology of Learning and Memory*, Park City, Utah (2009).
- Fleshner, M.** Endogenous alarm signals: Immune consequences, releasing signals, and cellular sources. *Integrated Biomedical Science Seminar Series*, Loma Linda, CA (2008).
- Fleshner, M.** Extracellular Hsp72: Releasing signals and cellular source. *Integrative Physiology seminar*, University of Colorado, Boulder, CO (2008).
- Fleshner, M.** Extracellular Hsp72: A double-edged sword for health. *Center for Neuroscience seminar*, University of Colorado, Boulder, CO (2008).
- Fleshner, M.** Exercise and stress resistance: Neural mechanisms and health consequences. *The Repole Lecture*, University of Vermont, Birmingham VT (2007).
- Fleshner, M.** Exercise and stress resistance: Neural mechanisms and health consequences. University of California-Irvine, Irvine, CA (2007).
- Fleshner, M.** Exercise and stress resistance: Neural mechanisms and health consequences. *Integrative Physiology seminar*, University of Colorado, Boulder, CO (2007).
- Fleshner, M.** Exercise and stress resistance: Neural mechanisms and immunological consequences. *Anatomy and Physiology seminar*, Kansas State University, Manhattan, KA (2006).
- Fleshner, M.** Extracellular Hsp 72: A double-edged sword for health. *Integrative Physiology seminar*, University of Colorado, Boulder, CO (2006).
- Fleshner, M.** The protective effect of physical activity on stress-induced immunosuppression: neuroendocrine mechanisms. *Department of Physiology and Neuroscience*, University of Colorado Health and Science Center, Denver, CO (2006).
- Fleshner, M.** Extracellular Hsp 72: A double edged sword for host defense. *Pediatrics seminar*, University of California-Irvine, Irvine, CA (2006).
- Fleshner, M.** Physical activity suppresses the negative effect of stress: A systems biology approach. *Health and Exercise Science seminar*, Colorado State University, Fort Collins, CO. (2006).
- Fleshner, M.** Physical activity and tyrosine supplementation-Two effective interventions that prevent



stress-induced immunosuppression: Implications for aging. **Keynote Speaker**, *Seminar workshop of Center for Aging and the Life Course, Purdue University, West Lafayette, IN (2005).*

**Fleshner, M.** Sympathetic nervous system activation stimulates the release of heat shock protein 72 into the circulation: Potential immunological consequences. *NIH Biodefense workshop, Integrative Neural Immune Program.* Washington, DC (2005).

**Fleshner, M.** Adaptations in 5HT systems produced by exercise prevents stress-induced affective dysregulation. *Winter Conference on Brain Research, Winter Park, CO (2005).*

**Fleshner, M.** Endogenous Hsp72 is released by catecholamines and may function as a “danger signal” for immunity. *American Association of Immunologists (2005).*

**Fleshner, M.** Physical activity reduces the negative effects of stress on behavior, neural, endocrine and immune responses. **Keynote Address**, *American College of Sports Medicine (2005).*

**Fleshner, M.** Exercise and Stress Resistance: A Systems Biology Approach. *Pennington Research Conference Series, Baton Rouge, Louisiana. (2004).*

**Fleshner, M.** The protective effect of physical activity on stress-induced immunosuppression: Neuroendocrine mechanisms. *Integrative Neuroscience Colloquium Series, Marquette University, Milwaukee, WI (2004).*

**Fleshner, M.** Exercise prevents learned helplessness: The role of serotonin. *Susan Samuelli Center for Complementary and Alternative Medicine, College of Medicine, University of California-Irvine, Irvine, CA (2004).*

**Fleshner, M.** Heat shock proteins and the stress response: Implications for immunity. *School of Medicine Basic Science Seminar Series, Loma Linda University, Loma Linda, CA (2004).*

**Fleshner, M.** Heat shock proteins and the stress response: Danger signals for immunity. *Immunology Seminar Program, Department of Medicine, Ohio State University, Columbus, OH (2004).*

**Fleshner, M.** The neurobiology of the stress resistant brain. *Integrative Physiology Colloquium series.* University of Colorado, Boulder CO (2004).

**Fleshner, M.** A sedentary lifestyle reduces stress resistance. *Department of Kinesiology, University of Illinois, Urbana, IL (2003).*

**Fleshner, M.** Possible mechanisms of activation on the innate immune system by non-immune stressors: “The danger signal” hypothesis. *Presidential symposium, Psychoneuroimmunology Research Society, Amelia Island, Florida (2003).*

**Fleshner, M.** Stress, inflammation and heat shock proteins. *American College of Sports Medicine, Featured session, San Francisco, CA (2003).*

**Fleshner, M.** Stress-induced extracellular HSP72 is a functionally significant “danger signal to the immune system”. *American Association of Immunologists and International Society for NeuroImmunoModulation (ISNIM), Guest symposium.* Denver, CO (2003).

**Fleshner, M.** Exercise prevents learned helplessness: The role of 5HT. *Neuroscience Seminar Series,* University of Colorado, Boulder CO (2003).



- Fleshner, M.** A sedentary lifestyle reduces stress-resistance. *Institute of Behavioral Science, Population and Health Seminar*, University of Colorado, Boulder CO (2003).
- Fleshner, M.** Physical Activity and Depression: Neural mechanisms. *Introduction to Neuroscience II*, University of Colorado, Boulder CO (2003).
- Fleshner, M.** The immune system and its relationship to pain. *Internal Medicine Review: Pueblo Association for Interest in Neuroscience and TMD Study*, Pueblo, CO (2002).
- Fleshner, M.** The physiology of the stress response in sedentary and physically active organisms". *Rocky Mountain chapter of the American College of Sports Medicine*, Fort Collins, CO (2002)
- Fleshner, M.** The stress-susceptibility of a sedentary lifestyle. *University of Colorado Health Sciences Center, Center for Nutrition seminar*, Denver, CO (2002).
- Fleshner, M.** The stress susceptibility of a sedentary lifestyle: Brain neurocircuitry. *Department of Neuroscience Seminar Series*, University of Virginia (2001).
- Fleshner, M.** The immune system: A tutorial. *The Summer Institute for Psychoneuroimmunology Research II*, University of Washington (2000).
- Fleshner, M.** Stress-induced extracellular HPS72 is a functionally significant "danger signal" to the immune system. *Basic Science Conference, The Division of Medical Oncology*, University of Colorado Health Sciences Center, Denver, CO (2002).
- Fleshner, M.** Heat shock proteins and inflammation: The body's "danger signal", *American Association of Immunologists and PNIRS Guest symposium*, New Orleans, Louisiana (2002).
- Fleshner, M.** Campisi, J; Miller, JK; Kennedy, SL; Smith, TP; Physical activity reduced circulating and tissue cytokine and sympathetic responses to stress. *Psychoneuroimmunology Research Society*, Madison, Wisconsin (2002).
- Fleshner, M.** Leem, T; Campisi, J; Greenwood BN; The potential role of heat shock proteins in stress-induced modulation of innate and acquired immunity. *The International Society of Exercise Immunology*, Baltimore, MD (2001).
- Maier, SF; Nguyen, KT; Watkins, LR; **Fleshner, M.** Acute stress suppresses the KLH-specific but not mitogenic (ConA) proliferative response. *Research Perspectives in Psychoneuroimmunology, VIII*, (1998).
- Fleshner, M.** Moraska, A; The protective effect of exercise on stress-induced suppression of the specific antibody response. *Research Perspectives in Psychoneuroimmunology, VIII*, (1998).
- Fleshner, M.** The interface between brain, behavior and immunity: Is stress always bad? *The 19th annual conference of the New York Neuropsychology Group and New York Academy of Science*, New York, NY (1998).
- Fleshner, M.** Stress, Exercise and Immunity. *The Summer Institute for Psychoneuroimmunology Research*, University of Washington, Seattle, WA (1998).
- Moraska, A\*; Nguyen, KT; Mazzeo, RM; Roth, DA; **Fleshner, M.** Voluntary exercise potentiates whereas forced exercise suppresses anti-KLH responses. *Research Perspectives in Psychoneuroimmunology*,



VII. (1997).

**Fleshner, M.** Nguyen, KT; Effects of unweighting on innate and specific immunity. *Aerospace Gravitational and Space Biology XII*, Charlotte, NC (1996).

**Fleshner, M.** Watkins, LR; Laudenslager, ML; Maier, SF; A CD4+ T cell shift from Th1 to Th2: A mechanism of stress-induced reduction of the KLH-specific antibody response. *Research Perspectives in Psychoneuroimmunology, V*, (1994).

**Fleshner, M.** Stress-induced reduction in MLR is dependent on macrophages but not on changes in phenotypes. *Research Perspectives in Psychoneuroimmunology, IV*, (1993).

**Fleshner, M.** Watkins, LR; Lockwood, LL; Bellgrau, D; Laudenslager, ML; Maier, SF; Stress-Induced Changes in CD4+ and CD8+ Lymphocytes. *NIMH Research Training Directors Meeting*, Bethesda, MD (1991).

**iii. Administrative**

**Fleshner M.** Ways to get your scholarly work off to a great start. *Faculty Fair, Office of the Vice Chancellor for Research*, Boulder, CO (2013).

**Fleshner M.** Seed grants, competitions, applications and awards. *Faculty Fair, Office of the Vice Chancellor for Research*, Boulder, CO (2012).

**Fleshner M.** Level 1 Research. *Postdoc Career Development Retreat*, Denver, CO (2013).

**IX. SERVICE**

**i. Departmental**

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1998, 2001	Faculty Search Committee, member
2002, 2008, 2010	Faculty Search Committee, member
2005-2006	Faculty Search Committee, Chair
2003-2008	Graduate Admissions Committee
2003-2013	Future Hiring/Steering Committee
2005-2013	Strategic Planning Committee
2005	Grievance Committee (special appointment)
2005	Tenure and Promotion Committee (Pei-San Tsai)
2006-2008	Identity Task Force Committee, Chair
2008	Tenure and Promotion Committee PUEC (Wright)
2009-2010	Tenure and Promotion Committee PUEC (Allen)
2010-2011	IPHY Student Board Lecture
2011	Tenure and Promotion Committee PUEC (Tsai, Chair)
2011	Program Review: Space and Infrastructure, Chair
2011	Awards Committee, Chair
2010-2013	Welfare Committee, Chair
2005-2013	Space Committee, Chair
2014	Tenure and Promotion Committee PUEC (Wright, Chair)
2015-2016	Search Committee, Joint IPHY/PSYCH, Chair
2015-2022	Wilderness Place Space Committee
2017-2020	IPHY Executive Committee
2018-2019	IPHY Academic Review and Planning Advisory Committee (ARPAC): Internal Report: Research



2021 Promotion and Tenure Committee PUEC (Chair, Ehringer)  
**2021-present Graduate Curriculum Committee (Ad-hoc)**  
 2021 Amanda Schaezstel Peer Class Review  
 2021 Abigail Casso, Comprehensive Review Committee  
**2022 Promotion and Tenure Committee PUEC (Lowry)**  
**2022-2023 Computational TTT Hire Chair**  
**2022-2023 DEI TTT Hire Co-Chair**

**ii. University**

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1997 Dean’s Master Plan Task Force  
 1997-2007 Institutional Animal Care & Use Committee (IACUC) Co-Chair  
 1998 Undergraduate Honor’s Council  
 1999-2002 Neuroscience Ph.D. Steering Committee  
**2002-present Neuroscience Ph.D. Admissions and Curriculum Committee**  
 2004-2009 Integrative Physiology Graduate Admissions Committee  
 2005 McNair Program Summer Minority Research Opportunity Program  
 2006-2011 Biological Science Initiative Faculty Board  
 2007-2011 Executive Advisory Committee  
 2009-2011 East Campus Advisory Committee  
 2010 VC for Research Office IT Search Committee, Chair  
 2011 LEAP/Faculty Affairs Workshop “Management”  
 2011-2012 College of Arts and Sciences Dean’s Search Committee (40+ hrs)  
 2012 CV Workshop (Postdoctoral Association)  
 2012-2013 Vice Chancellor for Research: Research Review Board (2 hrs per month)  
 2012-2013 Office of Animal Research OLAW Assurance Task Force (3 hrs per wk)  
 2009-2013 Faculty Associate to the Vice Chancellor for Research  
 2010-2014 College of Arts and Sciences Personnel and Tenure Committee (20 hrs per mo)  
 2012-2014 Boulder Faculty Assembly Budget and Finance Committee (1 hr per wk)  
 2013-2016 Academic Affairs Budget Advisory Committee  
 2014-2016 Boulder Faculty Assembly Budget and Finance Committee (Chair, 1 hr per wk)  
 2014-2016 Boulder Faculty Assembly Executive Committee (1 hr per wk)  
 2014 Boulder Faculty Assembly Discrimination/Harassment Policy and Procedure  
 2015 Carlson Renovation and Re-purposing Committee  
 2016 Academic Review and Planning Advisory Committee (ARPC)  
 2016 Leeds External Personnel Actions Committee  
 2016 Base Budget Steering Committee  
 2016 BFA Research Awards Committee (chair)  
 2015-2017 Associate Vice Chancellor Advisory Committee (AVC)  
 2015-2017 Radiation Safety Committee (2 hr per mo)  
 2019 Academic Review and Planning Advisory Committee (ARPAC) Internal Reviewer  
 Institute for Cognitive Science  
 2016-2022 College of Arts & Sciences Dean’s Budget Committee (4 hr per mo)  
**2021-present [Boettcher Webb-Waring Biomedical Research Awards Program](#) Reviewer**  
**2018-present Radiation Safety Committee, Co-Chair (2hr per mo)**  
**2021-present Colorado Clinical and Translational Science Institute (CCTSI) reviewer**  
**2022-2023 Associate Dean of Research Search Committee**  
**2022-2023 Natural Sciences Dean Search Committee**  
**2022 Research Innovation Office (RIO), Panelist**



### iii. Professional

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#### Journal Reviewer (selected list):

American Journal of Reproductive Immunology  
American Journal of Physiology  
Behavioral Brain Research  
Biological Psychiatry  
Brain, Behavior and Immunity  
Brain Research  
Behavioral Neuroscience  
Cell Biochemistry and Function  
Developmental Psychobiology  
European Journal of Physiology  
Exercise Science and Sport Reviews  
Expert Reviews in Vaccines  
Frontiers  
International Journal of Behavioral Medicine  
Journal of Applied Physiology  
Journal of Immunology  
Journal of Neuroscience  
Journal of Neuroimmunology  
Journal of Gerontology: Medical Sciences  
Neuroscience  
Neurosignals  
Neurobiology of Aging  
Nutrients  
Physiology and Behavior  
Pharmacology, Biochemistry, and Behavior  
PlosONE  
Psychopharmacology  
Psychosomatic Medicine  
Stress: The International Journal on the Biology of Stress  
Synapse

#### Journal Editor:

2002-2005	Assistant Editor: Exercise Science and Sport Reviews
2002-2007	Editorial Board: Journal of Applied Physiology
2011-2013	Section Editor: BioMedCentral: Physiology
2008-2014	Editorial Board: Frontiers in Neuroscience
2011-2016	Editorial Board: Brain, Behavior and Immunity
2017-2018	Special Issue Editor: Brain, Behavior and Immunity
2014-2020	Editorial Board: The Neurobiology of Stress

#### Grant Reviewer:

1999-2015	National Science Foundation (NSF)
1999-2015	Undergraduate Research Opportunities Program (UROP)
2000-2001	National Aeronautics and Space Administration (NASA)
2000	National Institutes of Health (NIH) ad hoc reviewer
2001	National Institutes of Health CSR (IFCN-2) ad hoc reviewer
2000-2001	National Aeronautics and Space Administration (NASA)



2003 National Institutes of Health: Special Emphasis Panel  
2003 National Science Foundation Postdoctoral Fellowship review panel:  
Microbiology, Physiology, and Neuroscience section.  
2004-2008 National Institutes of Health: Neurobiology of Motivated Behavior, regular  
member  
2008 National Institutes of Health: Special Emphasis Panel  
2008 Swiss National Science Foundation  
2008 National Aeronautics and Space Administration  
2010 Deutsche Forschungsgemeinschaft (DFG) in Regensburg, Germany  
2010-2012 National Institutes of Health: College of CSR Reviewers  
2010 Army Research Office  
2010 Medical Research Council, United Kingdom  
2011 National Science Foundation Postdoctoral Fellowship Review Panel:  
Microbiology and Cell Biology Section  
2011 National Institutes of Health Study Section, NNRS, Baltimore, MD  
2011 National Institutes of Health Study Section, APDA, San Francisco, CA (2011)  
2012 National Institutes of Health Study Section, BBBP, Washington DC  
2013 National Aeronautics and Space Administration (Immunology), Review,  
Washington DC (2013).  
2013 National Science Foundation, Neural Systems Cluster Integrative Organismal  
Systems / BIO  
2013 Inserm Institut National, Institut des sciences biologiques  
2013 Netherlands Organization for Scientific Research  
2015 National Institutes of Health: Neurobiology of Motivated Behavior, *ad hoc*.  
2016 Knut and Alice Wallenberg Foundation, Stockholm, Sweden.  
2016 National Institutes of Health Study Section Biobehavioral Regulation, Learning,  
and Ethology (BRLE), *ad hoc*, Washington DC  
2017 Knut and Alice Wallenberg Foundation, Stockholm, Sweden.  
2017 Crohn's and Colitis Foundation, New York, NY.  
2017 NIH-National Center for Complementary and Integrative Health (NCCIH / NIH)  
2018 NIH-Fellowship, Career Development, and Research Grant Programs *Ad hoc*  
*reviewer*.  
2018 NIH-Biobehavioral Regulation, Learning and Ethology Panel (BRLE/NIH) *Ad hoc*  
*reviewer*.  
2018-present Crohn's and Colitis Foundation, *Grant reviewer*  
2019 NIH Helping to End Addiction Long-Term (HEAL), *Grant Reviewer*  
2020 NIH-Biobehavioral & Behavioral Processes (BBBP), *Grant Reviewer*  
2020 NIH-Sleep, Stress, Motion, and Taste, *Grant Reviewer*  
2020 NIH- Special Emphasis Panel/SRG, Exosomes and SUDs, *Chair*.  
2021 Science Foundation Ireland, APC 8<sup>th</sup> Year Center Review  
2021 CCTSI Grant Reviewer  
2021 NASA Grant Reviewer: HERO Appendices C&D Immunology Panel  
**2022 Colorado Clinical and Translational Sciences Institute (CCTSI) grant reviewer**  
**2022 Boettcher Foundation Reviewer**  
**2022 NASA Space Biology Animal Studies Sleep-Circadian Rhythms Grant Reviewer**  
**2022 NIH-Neurobiology of Pain and Itch Study Section (NPI), Integrative, Functional**  
**and Cognitive Neuroscience Integrated Review Group**  
**2022 NIH-ME/CFS (Chronic Fatigue) U54/U24 Center Grant Review**



**2022-2023**

**National Academy of Sciences Congressional Mandated Review of NASA Space Biology**

**2022**

**Crohn's and Colitis Foundation, Scientific Consultant/Reviewer, New York, NY.**

**Professional Society:**

**1990-present**

**Society for Neuroscience, Member**

**2000-present**

**International Society for Exercise Immunology, Member**

**1995-present**

**Psychoneuroimmunology Research Society, Member**

2001-2010

American Association of Immunologist, Member

2003-2010

Cell Stress Society International, Member

1998-2001

Psychoneuroimmunology Research Society, Nomination Committee

2000

Psychoneuroimmunology Research Society, Session Chair

1999-2001

Psychoneuroimmunology Research Society, Advisory Committee

2001

International Society for Exercise Immunology-Session Chair

2001-2004

Psychoneuroimmunology Research Society, Scientific Council (elected position)

2001-present

International Society for Exercise Immunology, Scientific Program committee

2003

International Society for Exercise Immunology, Session Chair

2002-2004

Psychoneuroimmunology Research Society, Scientific Program Committee

2003

Psychoneuroimmunology Research Society, Session Chair

2005

Psychoneuroimmunology Research Society, Co-Host, Annual Meeting Denver, CO

2004-2006

Psychoneuroimmunology Research Society-Officer Secretary/Treasurer (elected position)

2004

Psychoneuroimmunology Research Society, Scientific Program Committee

2003-2004

American Physiological Society: Human use of animals: exercise design

workshop

2005-2006

American Physiological Society: Animal Care and Experimentation Committee (ad hoc member)

2007-2011

American Physiological Society: Animal Care and Experimentation Committee (Regular member)

2008-2013

Psychoneuroimmunology Research Society-Scientific Program Committee

2009

Psychoneuroimmunology Research Society-Co-Host of Annual Meeting Breckenridge, CO

2011-2012

Psychoneuroimmunology Research Society-President (elected position)

2011-2013

International Society for Exercise Immunology (ISEI), President (elected position)

2012-2013

Psychoneuroimmunology Research Society, Election & Awards Committee, Chair

2016-2018

Industrial Hemp Research Foundation: Founding member of the board

**2018-present**

**CU-Research Education, and Application in Cannabinoids and Health: Founding member of the board.**

2018-2021

Psychoneuroimmunology Research Society Finance Committee

**2018-present**

**CCAPM IACUC**

**2015-present**

**Immunitybio IACUC**

**2019 -present**

**Psychoneuroimmunology Research Society, Election & Awards Committee, Chair**

**Community:**

1998-2000

Community Outreach High School Research Advisor





2002	Internal Medicine Review: Pueblo Association for Interest in Neuroscience and TMD Study
2005-2015	High School Outreach Program. Annual group lab visits and presentations to students from inner city Denver High Schools
2011	Boulder Country Day Science Fair Judge (8 hrs)
2011	Medical Advance Community Lecture (Thornton, CO, 4 hrs)
2011-2015	Promoting Athletic Performance Recovery and Stress Resistance (PAPRR) Development Board (+4 hrs)
2013	CU at the Library Outreach, "Exercise & stress robustness: Benefits for mental physical health" (+5 hrs)
2015	CAPS (Counseling & Psychological Services) at CU, "Exercise Promotes Stress Robustness"
2015	CAPS (Counseling & Psychological Services) at CU, "Exercise and Prebiotic Diet Promotes Stress Robustness"
2018	CU Media Lab Presentation: Open Access Publishing Video Interview
2019	"Cannabis Science Today" Podcast Interview
2020	"The Science of Wellness and Stress Resiliency", Boulder Flatirons Rotary Club
2020	"Realities of Medical Cannabis Research", Boulder Cannabis Industry Meetup
2012-present	<b>CU Wizards, "Immunity in Health &amp; Disease: The Army Within" (+12 hrs per show/per year)</b>

#### **X. SELECTED MEDIA RELATIONS: *Featured scientist***

**Fleshner, M.** MSNBC, November 29, 2006, "Can stress actually be good for you?"

**Fleshner, M.** Psychology Today, August 10, 2006, "A case for double edged optimism."

**Fleshner M;** "O" The Oprah magazine, January 2007, "Why it's so hard to change yourself".

**Fleshner, M.** Body and Soul, November 2008, "Stay healthy this season."

**Fleshner, M.** US World & News Report, June 2008, "Relax! Stress can be good for you."

**Fleshner, M.** PBS TV Special, November 2009, "The Science of Healing".

**Fleshner, M.** Fitness, September 2010, "Stop stress for good."

**Fleshner, M.** *Doctor Radio*, Sirius Radio, September 5, 2014, "Nutrition, Health and Fitness with Samantha Heller".

**Fleshner, M.** *Early life exercise and the gut microbiota*. January 1st 2016, Channel 7 News, 5pm, 6pm, and 10pm. <https://shar.es/16gvDZ>.

**Fleshner, M.** *Could your workout impact your gut health? Yes and here's why*. Vogue, March 25, 2016. <http://www.vogue.com/13420406/gut-health-microbiome-good-bacteria-exercise-new-studies-research/>

**Fleshner, M.** Prebiotics in early life may boost sleep and daytime rhythms, 2016. <http://www.nutraingredients-usa.com/Research/Prebiotics-in-early-life-may-boost-sleep-and->



[daytime-rhythms Study?utm\\_source=copyright&utm\\_medium=OnSite&utm\\_campaign=copyright](#)

Calmer Waters, *The Caregiver's Journey through Alzheimer's and Dementia*, by Barbara Cohn. Blue River Press, Indianapolis, IN. (2016). Contributing Author, "Exercise and Stress Robustness: Benefits for Mental and Physical Health" pp 173-177.

Fleshner, M. Live healthy: Sleep-Stress Connection. Shape, Sept 2017, pg. 114. <https://shape.com>.

Fleshner, M. 2021, KDVR, Fox 31 TV.

Fleshner, M. 2021, Prebiotics keep body clocks running on time. WebMD (Amanda Loudin).

Fleshner, M. 2021, Is your body clock off schedule? Prebiotics may help. CU Boulder Today (Lisa Marshal).

## XI. TEACHING

### i. Graduate Seminars/Courses

*Courses are each a semester in duration (3 hrs lecture/ contact per week) at the University of Colorado at Boulder, unless otherwise indicated.*

<b>2022</b>	<b>IPHY 5840, Independent Study (Josh Havassy)</b>	
<b>2007-present</b>	<b>IPHY 5600 Graduate Immunology</b>	<b>25 students/class</b>
2006-2013	<b>IPHY 6830 Professional Skills, 2 lectures per year</b>	<b>20 students/class</b>
2002, 2003, 2006		
2013, 2016	<b>IPHY 5100 Colloquium</b>	<b>25 students/class</b>
2003-2011	<b>ARSC 5110 Neuroscience II, 1 lecture per year</b>	<b>25 students/class</b>
1998-1999	<b>IPHY 6010 Exercise Immunology</b>	<b>20 students/class</b>
1996	Behavioral Neuroscience	<b>25 students/class</b>
1994	Stress and Immunity	<b>15 students/class</b>

### ii. Undergraduate Seminars/Courses

*Courses are one semester in duration (3 hrs lecture/ contact per week) at the University of Colorado at Boulder, unless otherwise indicated.*

<b>2022</b>	<b>IPHY 4860, Independent Study (Geetali Lal)</b>	
<b>2022</b>	<b>IPHY 4100 Colloquium</b>	<b>30 students/class</b>
2020-2021	IPHY-2010-RAP, Hot Topics in Immunology	<b>10-20 students/class</b>
<b>2007-present</b>	<b>IPHY 4600 Immunology</b>	<b>100-200 students/class</b>
2006	IPHY Student Board Lecture	<b>15 students/class</b>
2005-2006	<b>IPHY 3600 Immunology</b>	<b>125 students/class</b>
2003-2004	<b>IPHY 4770 Mind-Body Health</b>	<b>75 students/class</b>
1998-2001, 2004	<b>IPHY 4660 Critical Thinking: Exercise Immunology</b>	<b>30 students/class</b>
2002	<b>IPHY 4750 Psychological Kinesiology</b>	<b>75 students/class</b>
2001	<b>IPHY 4100 Colloquium</b>	<b>30 students/class</b>
1993, 1996	Behavioral Neuroscience, Dept of Psychology	<b>35 students/class</b>
1993, 1996	Introductory Psychology, U of Colorado-Denver	<b>200 students/class</b>
1995	BioPsychology, Dept of Psychology	<b>45 students/class</b>
1994	Behavioral Neuroscience, U of Colorado-Denver	<b>30 students/class</b>



1993, 1994  
1992  
1991

Drugs and Behavior, U of CO-Denver  
Intro Psychology, Front Range Community College  
Physiological Psychology, University of Denver

**40 students/class**  
**40 students/class**  
**20 students/class**

**iii. Training Grant Faculty Advisor**

2021-2025 PI: Case, Adam: Fleshner (Consultant)  
R01HL147285-01

National Institutes on Heart, Lung and Blood

Title: "T-lymphocyte Mechanisms of Psychological Stress-induced Hypertension"

2018-2023 PI: Lindheimer, Jacob; Fleshner (Mentor)

NIH Career Development Award: GRANT12478366

Research Health Scientist | William S. Middleton Veterans Memorial Hospital

Honorary Fellow | UW-Madison Department of Kinesiology

Title: "Acute exercise tolerance among Veterans with Gulf War Illness"

2020-2024 PI: Karoly, Hollis; Fleshner (Mentor)

1K23AA028238-01A1

National Institutes on Alcohol Abuse and Alcoholism (NIAAA)

K23

Title: Exploring the Effects of Cannabinoids on Alcohol Consumption and the Microbiota-Gut-Brain-Axis Study explores the effects of smoked cannabis containing THC on alcohol consumption, craving, intoxication and alcohol-related biomarkers (e.g., gut microbiome, peripheral inflammatory markers)

2020-2024 PI: Wright, Ken; Fleshner (Preceptor)

NHLBI T32

Title: "Sleep and Circadian"

**iv. Supervised Trainees (Primary Mentor)**

*Date / Student name / Research topic*

**Graduate Students" Current Master's and BA/MA Students**

**2022-present** Josh Havassy, Flashbang-Evoked Stress Responses

**Graduate Students: Past Master's Students**

1997-1998 Jen Kintzel, "Exercise, stress and inflammation", MS advisor

1997-1998 Taro Smith, "Exercise, stress, and hormones", MS thesis advisor

1998-1999 Ted Leem, "Stress and inflammation", MS advisor

1997-1998 Bristol Sorensen, "CFS and exercise", MS thesis advisor

1998-1999 Gwen Elphick, "Exercise, stress and antibody", MS advisor

1999-2000 Jay Campisi, "Stress and inflammation", MS advisor

1999-2000 Jill Miller, "Exercise, stress and cytokines", MS advisor

1999-2000 Kim Hansen, "Exercise and aging", MS thesis advisor

1999-2001 Danielle Stinchfield, "Exercise and Parkinson's", MS advisor

1999-2001 Ben Greenwood, "Exercise, stress and c-Fos", MS advisor

2002-2003 Julianne West, "Microbiology of inflammation", MS advisor

2001-2003 Karianne Higgins, "Age and intracellular HSPs", MS advisor

2001-2003 Molly Nickerson, "Physical activity and brain cytokines", MS advisor

2004-2006 Kyle Kirby, "Stress and the DRN", MS thesis advisor



2003-2006 Craig Sharkey, "Stress and Inflammation" MS thesis advisor  
 2010-2011 Arman Serebrakian, BA/MS, "ADR signaling of adipose cytokines", MS thesis advisor  
 2010-2012 Brianne Loughridge, MS, "Gene array analyses of DRN", MS advisor  
 2011-2012 Justin Hellwinkel, MS, "Behavioral Consequences of Stress and Exercise on Fear Conditioning". MS advisor  
 2011-2013 Stuart Cox, "Beta3 ADR signaling of IL1beta in adipose." BA/MS advisor  
 2011-2013 Katie Spence, "Exercise and brain plasticity", BA/MS advisor  
 2012-2014 Madeline Paton, "Stress, Nutrition and Sterile Inflammation" BA/MA advisor  
 2012-2014 Jon Herrera, "The role of dopamine circuitry in the reward of exercise", MS advisor  
 2015-2017 Camille Crane, MS advisor  
 2015-2017 Donald Borchert, MS advisor  
 2016-2017 Rebecca Hall, "The Second Brain: The Impact of Intestinal Microbiota on Stress-Induced Behavioral Depression", MS advisor  
 2016-2018 Rachel Roller, "Oral Phytochemical and Sterile Inflammation", MS advisor.  
 2019-2021 Trey Jouard, MS advisor  
 2021 Kelley Anne Stockelman, Dissertation Committee  
 2021 Abigail Casso, Comprehensive Exam Committee  
**2022 L. Madden Brewster, Dissertation Committee**  
**2022 Charleen Gust, Dissertation Committee, Psych&NS**  
**2022 Camden L. C. McFarland, Honor's Committee Member, Psych&NS**

**Graduate Students: Current PhD Students**

**2019-present Shelby Hopkins, "Bolstering Stress Robustness: Prebiotics and CBD"**  
**2020-present Tel Kelley, "State Dependent Modulation of Microvesicle Cargo"**  
**2022-present Josh Havassy, "Overpressure, Stress, and Behavioral Performance"**

**Graduate Students: Past PhD Students**

1997-1999 Michael Pecaut, "Spaceflight and immunity", PhD advisor  
Current Position: Associate Professor, Dept of Radiation Medicine/Division of Radiobiology, Loma Linda University  
 1998-2001 Albert Moraska, "Exercise, stress and antibody", PhD advisor  
Current Position: Professional Research Associate, UCHSC  
 1999-2003 Gwen Elphick, "nlgM and exercise", PhD advisor  
Current Position: Research Fellow, Brown Medical School  
 2000-2003 Jay Campisi, "Stress, Hsp and Inflammation", MS and PhD advisor  
Current Position: Associate Professor and Chair, Dept of Biology, Regis University  
 1998-2004 Taro Smith, "Aging and physical activity: Implications for human immune function and health", PhD advisor  
Current Position: Product Development  
 1999-2005 Sarah Kennedy, "Exercise, stress and catecholamines", PhD advisor  
Current Position: Medical Science Liaison, Immunology, UCB Pharmaceuticals



2001-2005  
Current Position: Ben Greenwood, "Neurocircuitry of stress", PhD advisor  
Assistant Professor, Dept of Psychology, University of Colorado at Denver

2001-2006  
Current Position: Molly Nickerson, "A role for estrogen in the expression of heat shock protein 72", PhD advisor  
Translational Medical Scientist at Mitsubishi Tanabe Pharma

2002-2009  
Current Position: Teresa Foley, "The neurobiology of exercise", MS advisor, PhD advisor.  
Science Education Fellow, University of Colorado

2007-2012  
Current Position: Paul Strong, "Neurobiology, stress and exercise", MS advisor, PhD advisor  
Scientific Communications Manager, Medical Affairs, Spectranetics Inc.

2007-2012  
Current Position: Tom Maslanik, "Defining stress-induced sterile inflammatory responses: Network, signal, and pathways", MS advisor, PhD advisor  
Product Manager, Novus Biologicals

2008-2012  
Current Position: Kristin Speaker, "The effects of habitual exercise and fasting on stress-evoked cytokine expression in non-obese white adipose tissue", PhD advisor  
Postdoctoral Fellow & Transformational Weight Loss Coach, Anschutz Health and Wellness Center, Denver, CO

2006-2013  
Current Position: Robert Thompson, "Biotelemetric analyses of stress physiology: The impact of stressor chronicity, stressor controllability and exercise" MS/PhD advisor  
Postdoctoral Fellow, Department of Integrative Physiology

2007-2013  
Current Position: Lida Beninson, "The emerging role of exosomes in stress physiology" MS/PhD advisor  
National Academy of Sciences, Program Officer, Washington, DC.

2012-2016  
Current Position: Aggie Mika, "The long-term impact of exercise across the lifespan", PhD advisor  
Medical Associate, Health Care Consultancy Group, NY, NY.

**Postdoctoral Fellows: Past Fellows**

2002-2007  
Current Position: John D. Johnson, PhD, Postdoctoral Fellow Mentor,  
Associate Professor, Neuroscience Dept, Kent State University

2006-2007  
Current Position: Josh Friedman, PhD, Postdoctoral Fellow Mentor.  
Medical Liaison, Immunology, Roche Pharmaceuticals

2007-2008  
Current Position: Isaac Bernstein-Hanley, PhD, Postdoctoral Fellow Mentor,  
Harvard School of Medicine, Research Liaison

2005-2008  
Current Position: Sarah Kennedy, PhD advisor/Postdoctoral Fellow Mentor.  
Medical Science Liaison, Immunology, UCB Pharmaceuticals



2005-2014 Ben Greenwood, Postdoctoral Fellow Mentor  
Current Position: Assistant Professor, Department of Psychology, University of Colorado at Denver

2011-2013 Peter Clark, PhD, Postdoctoral Mentor  
Current Position: Assistant Professor, Iowa State University

2013-2014 Lida Beninson, Postdoctoral Mentor  
Current Position: National Academy of Sciences, Program Officer, Washington, DC.

2016-2018 Aggie Mika, Postdoctoral Mentor  
Current Position: Medical Associate, Health Care Consultancy Group, NY, NY.

**Postdoctoral/Research Associate Level Trainees: Current**

2018-2021 Heidi Grabenstatter, Postdoc/Research Associate Advisor  
 2013-2021 Robert Thompson, Postdoctoral advisor  
**2022-present** Robert Thompson, Research Associate

**Junior Faculty Supervised: Past and Present**

2010-present Monique LeBourgeois, PhD-Assistant Professor, IPHY  
 2004-2010 Marissa Ehringer, PhD-Associate Professor, IPHY & The Institute of Behavioral Genetics

**Undergraduate Student Researchers Supervised: Past and Present**

1998 Karianne Higgins, "Tissue catecholamines", Hughes Undergraduate Research Assistant Program (URAP)  
 1998 Ted Leem, "Bacterial inflammation", Honor's student  
 1999 Mary Nickerson, "Brain *c-fos* activity", Undergraduate Research Opportunity Program (UROP)  
 1999 Jason McCarl, "Total immunoglobulin", UROP  
 2000 Kate Robinson, "Stress and catecholamines", Independent study  
 2000 Kristine Thompson, "Celiac ganglion *c-fos*", UROP  
 2000 Deric McIntosh, "Autonomic brain nuclei and *c-fos*", UROP  
 2001 Heather Crump, "Stress and inflammation", UROP  
 2001 Silvie Kilworth, "Stress and innate immunity", Independent study  
 2001 Danielle Frey, "Cytokines and aging", Independent study  
 2001 Julianna West, "Cell Localization of Intracellular HSP", UROP  
 2001 Alexander Tran, "Splenic Sympathetic Content", URAP  
 2001 Stephanie Cho, "Extracellular HSP and inflammation", URAP  
 2001 Lisa Umphrey, "Exercise and brain *c-fos*", URAP  
 2001 Teresa Foley, "nIgM and Exercise", URAP  
 2001 Deric McIntosh, "Neural basis of frustration", Independent study  
 2002-2003 Daniel Burhans, "Exercise and BNST", UROP, Work study  
 2002-2003 Melissa Hippley, "nIgM and Exercise", Independent study/URAP  
 2002-2003 Leah Brooks, "Neurochemistry of exercise", Independent study  
 2002 Karen Tal Oren, "Exercise and aging", Independent study



2002	Probin Shrestha, Volunteer medical aid - Kanti Children's Hospital Nepal, Independent study
2002	Lindsay Levkoff, "Exercise and nlgM", URAP
2002	Peter Bekker, "Aging and the antibody response", Volunteer
2002	Heather Crump, "Brain responses to bacteria and prior stress", UROP
2003	Brittany Shock, "Stress and splenic NE", URAP
2003	Katherine Hooley, "E. coli and brain IL1", URAP
2003	Craig Sharkey, "Stress and bacterial inflammation", URAP
2003	Carla Amat, "5HT1A and exercise", Independent study
2003	Lisa Malloy, "SERT and stress", Independent study
2004	James Lish, "BK vascular leaking and Hsp72", Independent study
2004	Jeff Kimes, "Hsp72 in brain and spleen", Independent study
2004	Ashley Eyre, "Stress and brain Hsp72", Independent study
2005	Garth Huberty, "EAE and neuroinflammatory pain", Independent study
2005	Robert Thompson, "Neural mechanism of the protective effects of exercise on stress-induced affective dysregulation", Independent study
2005-2006	Paul Strong, UROP, Independent study
2005-2007	Kristen Hetzler, "Heat shock proteins and stress", Independent study
2005-2007	Hugo (Trey) Hanson, "IL1 and the brain", Work study
2006	Valerie Cortez, SMART student, "NE and brain IL1"
2006-2007	Sarah Naguse, UROP
2006	Delsa Phillips, Independent study sponsor for Global Service Corp
2006-2008	Janelle Posey, "Brain Hsps", NIMH minority undergraduate trainee
2008	Lydia Urrutia, "Brain and 5HT", UROP
2006-2009	Sam Bowers, "Bacteria, brain and stress", High School Student Worker
2008-2009	Bradley Frazier, "Stress, 5HT and behavior", UROP
2008-2009	Brianne Loughridge, "Stress, 5HT and behavior", UROP
2008-2009	Tony Le, "Exercise and Motivation", Independent study
2008-2009	Katharine Strelitz, "Stress, 5HT and behavior", Independent study
2008-2009	Julia Rennick, "Stress and vascular cytokines", Independent study
2009-2011	Arman Serebrakian, "Stress & Adipose", Independent study
2009-2011	Danielle Crevling, HHMI, Independent study, "Stress, 5HT and behavior"
2009-2011	Justin Hellwinkel, "Stress, 5HT and behavior", Independent study
2010	Sierra Wohlman, "Stress and immunity", Independent study
2010-2011	Wendy Craig, "Stress and cardiovascular adaptations", Independent study
2010-2012	Katie Spence, "Stress, 5HT and behavior", Independent study
2010-2012	Lucas Macaffey, "Stress and Immunity", Independent study, UROP
2010-2012	Kate Tannura, "Stress and immunity" Independent study, UROP
2010-2012	Noaura Sadaoui, Work study, NIH HHMI, "Gene array analyses of DRN"
2010-2012	Stewart Cox, Independent study
2011	Phillip Adams, "Gene array analyses of DRN", Work study
2011	Charlie Bowers, High School Student Worker
2011	Leslie Blacksheer, "Stress, fat and cytokines", Volunteer
2011-present	Jonathan Herra, "Stress, fat and cytokines", Independent study
2011-2012	Jodie Rigali, "Stress, 5HT and behavior", Independent study
2011-2012	Michael Murphy, "Hsp72 and releasing signals", Independent study, BURST applicant
2011-2012	Abigail Hills, Independent study



2011	Brittany Sak, Internship
2011	Taylor Schmidt, Internship
2012-2014	Parsa Ghasem Independent study, Honor's Thesis (HHMI awardee)
2012-2014	Samantha Engel Independent study (Honor's student)
2013-2014	Courtney Bouchet, Independent study, HHMI applicant, Honor's Thesis
2013-2014	Roxie Christ, Independent study (UROP awardee)
2013-2014	Michelle Keag, Independent study (HHMI fellow)
2013-2014	Tyler Wieman, Independent study (BURST awardee)
2013-2014	Erika Sisneros (HHMI fellow)
2013-2014	Haley Manchester (BURST awardee)
2013-2014	Preston Bunker (HHMI awardee)
2013-2014	Sara McConnell (UROP awardee)
2013-2014	Tyler Woodworth (UROP, Independent Study)
2014	James Needle (RA)
2014	Nicco Baumann (Independent Study)
2013-2016	Kristina Hulen (HHMI awardee RA)
2013-2015	Donald Borchert (HHMI fellow, Independent Study)
2013-2016	Nicole Rumian (Independent Study, HHMI Awardee)
2014-2015	Mira Guha (Monarch High School, Science Research Seminar Program)
2014-2017	Alex Martinez (RA)
2014-2016	Michelle Gaffney (BURST Awardee & HHMI Awardee)
2014-2016	Rachel Roller (BURST Awardee & HHMI Awardee, Honors Awardee)
2015-2017	Kevin O'Connor (BUST Awardee)
2016-2017	Monica Patten (BUST Awardee)
2016-2017	Shelby Hopkins (BURST Awardee, BSI Awardee, RA)
2016-2018	Brooke Bower (BSI Awardee, Honors Awardee)
2016-2018	Leah Ramey (BSI Awardee)
2016-2019	Tel Kelley (Work Study, BSI Awardee)
2017-2019	Trey Jouard (Independent Study, Honors)
2016-2018	Brooke Bower (BSI Awardee, Honors Awardee)
2016-2018	Leah Ramey (BSI Awardee)
2016-2019	Tel Kelley (Work Study, BSI Awardee)
2017-2019	Trey Jouard (Independent Study, Honors)
2019-2019	Hash Brown (Independent Study)
2019-2021	Abbey Marye (BSI Awardee, Honors Advisor)
2020-2021	Jonathan Noe (BSI Awardee)
2020-2021	Sean Pierce (BSI Awardee, Honors Advisor)
2020-2021	Sarah Bellati (Independent Study)
2020-2021	Perry Hayman (Independent Study)
2021	Anna E. Cohen: Honors Thesis Committee Member.
<b>2021-2022</b>	<b>Geetali Lai, BSI winner, Independent Study, Diversity</b>
<b>2021-present</b>	<b>Daniyaal Syed, Independent Study, Diversity</b>
<b>2021-present</b>	<b>Krishna Shenoy, BSI winner, Diversity</b>
<b>2021-present</b>	<b>Sophia Blasco, BSI winner, Goldwater Scholar Campus Candidate, Diversity</b>
<b>2022-present</b>	<b>Zackry Schultz, Independent Study</b>