GISEL FLORES-MONTOYA
Carleton College
Department of Psychology
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ACADEMIC POSITIONS

2019-2023 **Assistant Professor**
Carleton College (Northfield, MN)
Department of Psychology

2017-2019 **Visiting Assistant Professor**
Carleton College (Northfield, MN)
Department of Psychology

EDUCATION

2017 **Ph.D. in Psychology**
The University of Texas at El Paso
Department of Psychology
Division of Neuroscience
Advisor: Christina Sobin, Ph.D.
Co-Advisor: Charlotte Vines, Ph.D.
Dissertation: A Behavioral and Neuroimmune System Model of the Effects of Chronic Low-Level Lead Exposure in Young Mice.

2013 **M.A. in Experimental Psychology**
The University of Texas at El Paso
Department of Psychology
Thesis: Behavioral Markers of Chronic Low-Level Lead Exposure in Young Mice.

2011 **B.A. in Psychology with a minor in Biology**
The University of Texas at El Paso
Department of Psychology
Thesis: The Effects of Chronic Low-Level Lead Exposure on the Behavior of C57BL/6 Mice.
Graduated with Honors.

RESEARCH INTERESTS

Behavioral neuroimmunology, behavioral neuroscience, neurotoxicology, health, translational science, interdisciplinary research.

RESEARCH OBJECTIVES

- The effects of chronic low-level exposure on behavior, brain, and immunity.
- Potential interventions to reverse the detrimental effects of chronic low-level lead exposure on mouse behavior and memory.

- Interactions between the central nervous system and immune system via meningeal lymphatics and cervical lymph nodes: role of the C-C chemokine receptor 7 (CCR7) on memory

RELEVANT GRADUATE COURSEWORK

Behavioral neuroscience, independent research in immunology and neuroscience, behavioral neuroendocrinology, neuroanatomy, neural systems of disease, advanced molecular biology, G-protein coupled receptors, analyses of variance, correlation and regression, research methods, and meta-analyses.

COURSES TAUGHT

The Psychology of Creativity A&I Seminar *Fall 2019*	**Carleton College** **Department of Psychology** Assistant Professor Psych 100, Lower Division Class size: 15 students Lower-level course for non-majors. Topics covered include but are not limited to the brain on improvisation and the neuroscinece of creativity
Principles of Psychology *Spring 2021* *Fall 2019* *Spring 2019* *Winter 2019*	**Carleton College** **Department of Psychology** Assistant Professor Psych 110, Lower Division Class size: from 23-69 students Lower-level course for majors and non-majors. Topics covered include but are not limited to development, cognition, health, and neuroscience.
Special Topics in Psychological Research *Fall 2021* *Fall 2020-Spring 2021* *Fall 2019-Spring 2020*	**Carleton College** **Department of Psychology** Assistant Professor Psych 300, Upper Division Class size: 8 students Lower-level course for majors and non-majors. Topics covered include but are not limited to development, cognition, health, and neuroscience.
Health Psychology *Fall 2021* *Fall 2020* *Spring 2020* *Fall 2018* *Fall 2017*	**Carleton College** **Department of Psychology** Visiting Assistant Professor Psych 260, Lower Division Class size: 29 students (2018); 30 students (2017) Lower-level course for majors and non-majors. Topics covered include but are not limited to sleep, diet, exercise, alcohol consumption, stress, psychoneuroimmunology, and chronic diseases.

Health Psychology Laboratory *Fall 2021* *Fall 2020* *Spring 2020* *Fall 2018* *Fall 2017*	**Carleton College** **Department of Psychology** Visiting Assistant Professor Psych 261, Lower Division Class size: 21 students (2018); 16 students (2017) Lower-level course for majors and non-majors. Students apply their knowledge in the class by for example completing an animal stress study and report and engaging in a self-directed project to change a health behavior. Periodic demonstrations of health psychology techniques are given such as meditation, yoga, and biofeedback.
Behavioral Neuroimmunology *Spring 2021* *Spring 2019* *Spring 2018*	**Carleton College** **Department of Psychology** Visiting Assistant Professor Psych 370, Upper Division Class size: 10 students Upper-level course for majors and non-majors. In this course students learn about cutting-edge research in behavioral neuroimmunolgy including but not limited to brain lymphatics, mechanisms of immune cell migration, gut microbiota, and effects of peripheral cytokines on behavior.
BUILDing Scholars Program *Fall 2016*	**The University of Texas at El Paso** **Department of Biology** Instructor of Record Bio 1107, Lower Division Class size: 23 students Low-level course for biology majors Techniques and topics covered include but are not limited to DNA digestion, bacterial transformations, protein synthesis, analyses of DNA (agarose gel electrophoresis) and proteins (western blot.)
Work with a Scientist Program *Summer 2016*	**The University of Texas at El Paso** **Department of Biology** Instructor of Record Lower Division Class size: 8 students Upper-level course for majors and non-majors Low-level course for biology majors Purpose: Develop an antagonist to CCR7 to prevent leukemic cells from entering the brain.
Introduction to Statistics *Spring 2016* *Fall 2015*	**The University of Texas at El Paso** **Department of Psychology** Instructor of Record Psych 1303, Lower Division Class size: 40 students (spring); 48 students (fall) Introductory course for statistics in the behavioral sciences. Includes majors and non-majors. Topics covered include correlation and regression, T-tests, and One-way ANOVA.

	The University of Texas at El Paso
Introduction to Psychology	**Department of Psychology**
Spring 2015	Instructor of Record
Summer 2014	Psych 1301, Lower Division
Fall 2014	Class size: 42 students (spring 2015); 52 students (summer 2014); 111 students (fall 2014); 135 students (spring 2014)
Spring 2014	Introductory course for majors and non-majors

	The University of Texas at El Paso
	Department of Psychology
	Lecturer
General Experimental	Pysch 3101, Upper Division
Laboratory – APA	Class size: approximately 57 students
Fall 2013	Laboratory crouse for General Experimental Psycholgy (Research Methods)
	The purpose of the laboratory is to teach psychology majors the mechanics of APA style writing through lecture and completion of an APA style research paper.

	Paul L-Foster Medical School, Texas Tech University
	Instructor of Record (spring 2012); Teacher assistant (fall 2011)
Medical Spanish	Lower Division Class size: 20 students (spring 2012); 20 students (fall 2011)
Spring 2012	
Fall 2011	The purpose of this class was to teach medical terminology in Spanish to medical students so that they could both write and communicate effectively in Spanish with patients.

RESEARCH EXPERIENCE

	Carleton College
Behavioral	**Department of Psychology**
Neuroimmunology and	Principal Investigator: Gisel Flores-Montoya, Ph.D.
Neurotoxicology Lab	Research activities:

1) *Immunohistochemical analyses of microglia and macrophages in animals exposed chronically to low-levels of lead in brain, meninges, and deep cervical lymph nodes.*
2) *Effects of chronic low-level exposure on mouse memory and fine motor dexterity*.

Cell Signaling and Immunology Laboratory
Summer2015- Summer 2017

The University of Texas at El Paso
Department of Biology
Graduate Research Assistant
Principal Investigator: Charlotte Vines. Ph.D.
Research activities:

1) *Flow cytometric analyses of CCR7 and MHC II expression in microglial cells in animals exposed chronically to low-levels of lead.*
2) *Supervision of a study examining mouse behavior in CCR7 knock out and wild type mice.*

Neurocognitive Genetics and Developmental Neurocognition
Fall 2011-Summer 2017

The University of Texas at El Paso
Departments of Psychology and Health Sciences
Graduate Research Assistant
Principal Investigator: Christina Sobin, Ph.D.
Development and execution of studies examining effects of chronic low-level lead exposure on mouse behavior and brain that included:

1) *Design and execution of rodent behavioral batteries (e.g. object-in-place, unbaited nose poke, open field, rotarod, smell habituation/dishabituation)*
2) *Rater training methods.*
3) *Harvard PanLab SMART Video System.*
4) *Mouse colony management and animal breeding.*
5) *Full-body transcardial perfusion.*
6) *Anesthesia and surgical techniques including hippocampal sectioning.*

Data analytic methods for mouse studies of behavior and brain, including Generalized Linear Regression (SPSS, SAS, and Stat View) analyses.

Neurocognitive Genetics and Developmental Neurocognition
Fall 2009-Fall 2011

The University of Texas at El Paso
Department of Psychology
Undergraduate Research Assistant
Principal Investigator: Christina Sobin, Ph.D.
Research activities:
Execution of child studies examining effects of chronic low-level lead exposure on memory and motor function.

PUBLICATIONS

Flores-Montoya, M.G., Quintero, D., Chatterjea, D., Uttley, H., and Liphart, C., Tian Z., Yim, E., Fengping, H., 2023). The C-C Chemokine Receptor 7: As An Immune Molecule that Modulates Central Nervous System Function in Homeostasis and Disease. *Brain Behavior and Immunity - Health*, (in press).

Flores-Montoya, M.G., Tian Z., Michii, A. The effect of chronic low-level lead exposure on microglia and a test of possible mitigation by apigenin in young mice. (Manuscript under review).

Sobin, C., Gutierrez-Vega, M., **Flores-Montoya, G.**, Del Rio M, Alvarez, J.M., Obeng, A., Avila, J., Hettiarachchi, G. (2022). Improving equitability and inclusion in testing and detection of lead poisoning in U.S. children. *Milbank Quarterly* (in press).

Flores-Montoya, M.G., Vines, C., Bill, C., & Sobin C. (2019). Early chronic lead exposure reduced C-C chemokine receptor 7 in hippocampal microglia. *Toxicology Letters*, *314*, 106-116.

Dominguez, S., **Flores-Montoya, M.G.**, Sobin, C. (2019). Early chronic exposure to low-level lead alters total hippocampal microglia in pre-adolescent mice. *Toxicology Letters*, 302:75-82. doi: 10.1016/j.toxlet.2018.10.016. Epub 2018 Oct 21. PMID: 30352268.

Alvarez J., Del Rio, M., Mayorga T., Dominguez, S., **Flores-Montoya G.**, & Sobin, C. (2018). "A comparison of child blood lead levels in urban and rural children ages 5 to 12." *Archives of Environmental Contamination and Toxicology*, *75*(4), 503-511.

Sobin C., **Flores-Montoya, M. G.**, & Alvarez J. (2017). Early chronic low-level lead exposure alters global behaviors in young C57BL/6J mice during the object-in-place visual recognition memory task.*Journal of Neurotoxicology and Teratology*, *61*, 104-114.

Flores-Montoya, M. G., Alvarez, J., & Sobin C. (2015). Olfactory recognition memory is disrupted in young mice with chronic low-level lead exposure. *Toxicology Letters*, *236*(1), 69–74.

Sobin, C., **Flores-Montoya M. G.**, Gutierrez, M., Parisi N., & Schaub T. (2014). δ-aminolevulinic acid dehydratase single nucleotide polymorphism 2 (ALAD2) and peptide transporter 2*2 haplotype (hPEPT2*2) differently influence neurobehavior in low-level lead exposed children. *Journal of Neurotoxicology and Teratology*, *47*, 137-145.

Flores-Montoya, M. G., & Sobin C. (2014). Early chronic lead exposure reduces exploratory activity in young C57BL/6J mice. *Journal of Applied Toxicology*, *35*(7), 759–765.

Sobin C., **Flores, M. G.**, Parisi N., Schaub T., Cervantes M., & Armijos, R.X.M. (2013). Microglial disruption in young mice with early chronic exposure to lead. *Toxicology Letters*, *220*(1), 44-52.

PROFESSIONAL TALKS

Flores-Montoya, M.G. Examining the effects of an anti-inflammatory agent on neurotoxicity and neuroimmunity, *Macalester College*, spring 2021.

Flores-Montoya, M.G. Neuroimmune mechanisms underlying behavioral disruptions in chronic low-level lead exposed young mice, *Macalester College*, November 13, 2019.

Flores-Montoya, M.G Translational science: from environmental exposure to toxins to neuroimmune changes, *Macalester College*, November 13, 2019.

Flores-Montoya, M.G. It is not just for health: how the immune system influences brain function. *Conversation on the Wonders of Science Talk (COWS), Carleton College, December 11, 2018.*

Flores-Montoya, M.G. & Sobin. An integration of health psychology, neurocognition, and brain science: From early chronic lead exposure to cognitive disruption through neuroimmune mechanisms. *Carleton College, April, 2017.*

Flores-Montoya, M. G., Alvarez J., & Sobin C. A study of the object in place visual recognition paradigm for measuring memory impairment in young mice with chronic low-level lead exposure. Interdisciplinary Health Forum. *The University of Texas at El Paso, October 29, 2015.*

Flores-Montoya, M.G., & Sobin C. Behavioral markers of chronic low-level lead exposure in young mice. Summer Program in Neuroscience Research and Survival (SPINES). *Marine Biological Laboratory, June, 2015.*

PRESENTATIONS AT NATIONAL CONFERENCES

Flores-Montoya, M.G., Vines, C., Bill, C., & Sobin C. (June 2018). Early chronic lead exposure reduced C-C chemokine receptor 7 in hippocampal microglia. Poster presented at the Forty-Second Annual Meeting of the Developmental Neurotoxicology Society conference, Clearwater FL.

hippocampal

Flores-Montoya M. G., Alvarez J., & Sobin C. (Nov 2015). A study of the object-in-place visual recognition paradigm for measuring memory impairment in young mice with early chronic low-level lead exposure. Poster presented at Society for Neuroscience, Chicago, IL.

Flores-Montoya M. G., Alvarez J., & Sobin C. (Nov 2014). A shortened version of the object-in-place visual recognition paradigm detects hyperactivity in chronic low-level lead exposed juvenile mice. Poster presented at Society for Neuroscience, Washington, DC.

Flores-Montoya M.G., & Sobin, C. (Nov 2013). Comparison of a novel object vs. novel odor recognition task for measuring short-term recognition memory in C57BL/6J mice. Poster presented at Society for Neuroscience, San Diego, California.

Flores-Montoya, M.G., Valencia, Benjamin., & Sobin, C. (May 2013). Behavioral markers of chronic low-level lead exposure in young mice. Poster presented at the Annual Convention of the Association for Psychological Science, Washington, DC.

Flores-Montoya, M. G., Solis O., Barbosa M., & Sobin C. (May 2012). The effects of chronic low-level lead exposure on the behavior of C57BL/6 mice. Poster presented at the Annual Convention of the Association for Psychological Science, Chicago, IL.

STUDENT PRESENTATIONS SUPERVISED

Tian Z., Quintero D., Yim E., Hu, H., Uttley H., and Liphart C. **Flores-Montoya, M.G.** (2021). The C-C Chemokine Receptor 7: As An Immune Molecule that Modulates Central Nervous System Function in Homeostasis and Disease. Poster presentedat Minnesota Undergraduate Psychology Conference (MUPC). Carleton College, Northfield, MN.

Taskintuna, K, Denne N., Hu H., Yim, E., Tian Z., **Flores-Montoya, M.G.,** Tian Z., (2022). Establishing the Methods for Rescuing the Detrimental Brain and Behavioral Effects of Chronic Low-Level Lead Exposure in Young C57BL/6j Mice. Poster presentedat Minnesota Undergraduate Psychology Conference (MUPC). Carleton College, Northfield, MN.

Flores M.G., Evan Wright, Zichen Tian, & Sobin C (Oct 18, 2019). Identifying behavioral tests that are sensitive to the effects of chronic low-level lead exposure in young mice. Posted presented at student research symposium and celebration at Carleton College. Northfield, MN.

Vidal-Munoz G. (May 22, 2019) Effects of bilingualism and cognitive academic language proficiency on standardized test scores of english-spanish speakers. Carleton College, Northfield, MN.

Sandy L., **Flores-Montoya M.G.**, & Wichlinski L. (April 8, 2018). Parental traumatic experiences might predispose children to develop post-traumatic stress disorder: An epigenetic perspective. Poster presented at Minnesota Undergraduate Psychology Conference (MUPC). Carleton College, Northfield, MN.

Dorry J. & **Flores-Montoya, M.G.** (April 28, 2018). The effects of irregular ghrelin, leptin, and dopamine levels on the development of anorexia nervosa. Talk given at Minnesota Undergraduate Psychology Conference (MUPC). Carleton College, Northfield, MN.

Brambila, G., Broussard, A., **Flores-Montoya, M.G.** & Vines, C. (June 18, 2016). Comparison of Protein Expression in the Cytoplasm Vs Periplasm in E. Coli. Poster Presented at Work With a Scientist Program Proposal Presentation, UTEP, El Paso, TX.

Licon, D., **Flores-Montoya, M.G.**, Parada, Z., Torres, L., & Vines, C. (June 18, 2016). Impact of E. Coli Strain Variation and Comparison in Protein Expression and Purification of the CCL19 Antagonist 8-83. Poster Presented at Work With a Scientist Program Proposal Presentation, UTEP, El Paso, TX.

Medina, S., **Flores-Montoya, M.G.**, Najera, J., Parada, Z., & Vines, C. (June 18, 2016). Use of Pichia Pastoris to Analyze Protein Growth and Expression in Comparison to Standard BI21 (DE3) E. Coli. Poster Presented at Work With a Scientist Program Proposal Presentation, UTEP, El Paso, TX.

Beltran, J., **Flores-Montoya M.G.**, Parada, Z., Ramirez, V., & Vines, C. (June 18, 2016). Examining the Impact of Glucose on Protein Expression of Unstable, "Leaky " Plasmids in E. Coli. Poster Presented at Work With a Scientist Program Proposal Presentation, UTEP, El Paso, TX.
microglia in pre-adolescent mice. *Toxicology letters, 302*, 74-82.

Martinez, M., Martinez, V., **Flores-Montoya M. G.**, Parada, Z., Cervantes, J., Bill, C., & Vines C. The effect of C-C chemokine receptor 7 on mating behavior in mice. Poster presented at COURI symposium on April 29, 2017, UTEP, El Paso, TX.

Valencia B., **Flores M.G.,** & Sobin C (May 2012). Chronic low-level lead exposure and nose poke behavior in young mice. Poster presented at the COURI symposium at the University of Texas at El Paso, El Paso, TX.

MENTORSHIP ACTIVITIES

Independent Comps Research Mentor *Fall 2021 – Spring 2022*	**Carleton College Department** **Department of Psychology** Student's name: Zichen Tian, *Project:"Effects of chronic low-level lead exposure on Iba+1 cells in dura mater meninges"* *Awarded distinction for Comps*
Mellon Mays Research Mentor *Spring 2018 – Summer 2019*	**Carleton College** **Department of Psychology** Student's name: Grisel Vidal-Munoz Project: *"Effects of bilingualism and cognitive academic language proficiency on standardized test scores of english-spanish speakers"*

	Carleton College Department of Psychology
Comps Mentor *Fall 2017-Spring 2018*	Student's name: Dorry Jaffe Comps project: *"The effects of irregular ghrelin, leptin, and dopamine levels on the development of anorexia nervosa"*
	Carleton College Department of Psychology
Comps Co-Mentor *Fall 2017-Spring 2018*	Student's name: Sandy Lor Comps project: *"Parental traumatic experiences might predispose children to develop post-traumatic stress disorder: An epigenetic perspective"*
	The University of Texas at El Paso Department of Biology
Honors Thesis Methods Supervisor *Spring 2016-Spring 2017*	Students' name: Velia Martinez. Thesis Chair: Dr. Charlotte Vines. Thesis: *"Examination of the influence of the C-C chemokine receptor7 on mouse behavior"*

SCHOLARLY SERVICE

- Reviewer for manuscript entitled: "Protective Effect of Curcumin and Ascorbic acid Against Lead Induced Cardiotoxicity in Wistar Rats." (March 2023), *Cardiovascular Toxicology*, Indexed in MEDLINE.

- Reviewer for manuscript entitled "Datumetine Exposure Alters Hippocampal Neurotransmitters System in C57/BL6 Mice." (April 2020), *Drug and Chemical Toxicology*, Indexed in MEDLINE.

- Reviewer for manuscript entitled "Persistent effects on cardiorespiratory and nervous systems induced by long-term low-level lead exposure: results from a longitudinal study" (NTRE-D-19-00292) (October 2019). *Neurotoxicity Research,* Indexed in MEDLINE.

SERVICE

2022-2023

- Member of the IDE committee
- STEM Board Neuroscience Division Representative

2019-2021

- Member teaching and center (LTC) committee
- Member of the STEM board committee (representing the neuroscience division)
- Mac Lab Coordinator, Psychology Department

2018-2019

- Advisor of SDAs, Psychology, Carleton College.
- Academic advising: Advised eight undergraduate frosh students
- Student portfolio reader

PEDAGOGICAL DEVELOPMENT

- Winter 2019. New faculty winter workshop, Carleton College
- Fall 2019. Participated in a teaching advising circle (LTC) with three other faculty members teaching an answer and inquiry (A&I) seminar

PROFESSIONAL DEVELOPMENT WORKSHOPS

Society for Neuroscience Workshops (fall 2019, Chicago, IL.)

- Science management
- Building a neuroscience career at a teaching focused institution
- Getting creative with course-based research experiences to enhance scholarship and generate publishable data

TECHNICAL SKILLSET TRAINING

University of Virginia, (winter 2019, Charlottesville , Virginia)

- Dura mater meningeal lymphatics dissection
- Leptomeninges dissection
- Deep cervical lymph nodes dissection

University of California San Diego (spring 2019, San Diego, CA)

- Theoretical training on stereological methods, training given by Peter Mouton, PhD

FELLOWSHIPS

Marine Biological Laboratory (MBL), Woods Hole, MA.
Summer Program in Neuroscience, Excellence, and Success (SPINES) Fellowship.
June 21 – July 19, 2014.
Amount: $ 2,683.75

Marine Biological Laboratory, Woods Hole, MA.
Post-course research
July 20 – August 20, 2014.
Amount: $ 2,020.31
Techniques used: *in vitro* electrophysiology and confocal microscopy.

SCHOLARSHIPS

Scholarship-GIA.
Purpose: Graduate tuition
2011-2013

Amount: $8, 859.31

Scholarship-GIA.
Purpose: Undergraduate tuition
2009-2011
Amount: $ 12, 273.66

LANGUAGES

Fluent in written and oral Spanish.
Understanding of written and oral French.

PROFESSIONAL AFFILIATIONS

Faculty for Undergraduate Neuroscience
Society for Neuroscience
American Psychological Society
Developmental Neurotoxicology Society
Psi Chi

SOFTWARE SKILLS

Flow Jo
SAS
SPSS
Stat View
SMART software system, Hardvard PanLab (automated examination of mouse behavior)
StereoInvestigator

MOUSE COLONY MANAGEMENT

Breeding of C57BL/6J mice.
Animal management via animal management system (AMS).
Intraperitoneal injections.
Animal euthanasia and tissue collection.

BEHAVIORAL TESTING SKILLS

Human behavioral testing: Memory, fine-motor dexterity**,** cognitive flexibility**,** theory of mind, and child suggestibility.

Mouse behavioral testing: Memory**,** exploratory ambulation, exploratory activity**,** gross motor dexterity, muscular strength**,** anxiety, sexual behavior, and developmental milestones.

BRAIN AND MOLECULAR TESTING SKILLS

Mouse brain: Transcardial perfusions**,** dissections of brain and hippocampus, dissection of dura mater meninges and deep cervical lymph nodes, dissociation of neuroimmune cells, tissue sectioning, and labeling of cells with primary and secondary antibodies

Mammalian cells: Sterile technique and cell culture.

Bacterial cells: Sterile technique**,** cell culture, cloning and sub-cloning of DNA, generation of calcium

competent *E. Coli*, bacterial transformations, and controlled expression of mammalian proteins in *E. Coli*

Molecular techniques: Immunohistochemistry, DNA and protein analyses via agarose gel electrophoresis, and SDS-PAGE.

Apparatus: Flow cytometer; Light microscope; Fluorescent microscope; brain sectioning with cryostat