

Education

- 09/2007 — 12/2012 **California Institute of Technology** Pasadena, CA
Doctor of Philosophy in Neurobiology
- 09/2003 — 12/2006 **University of California, Los Angeles** Los Angeles, CA
Bachelor of Science in Microbiology, Immunology and Molecular Genetics

Appointments

- 07/2015 — present **Assistant Professor, UCLA Department of Integrative Biology & Physiology**
- 09/2015 — present **Joint Appointment, UCLA Department of Medicine, Digestive Diseases**
- 10/2015 — present **Member, UCLA Brain Research Institute**
- 01/2016 — present **Member, UCLA California NanoSystems Institute (CNSI)**
- 01/2016 — present **Member, UCLA Eli & Edyth Broad Center of Regenerative Medicine & Stem Cell Research (BRCS)**
- 05/2016 — present **Member, UCLA Molecular Biology Institute**
- 07/2015 — present **Visiting Associate, Caltech Biology & Biological Engineering**
- 09/2014 — 07/2015 **Research Assistant Professor, Caltech Biology & Biological Engineering**
- 09/2013 — 09/2014 **Senior Research Fellow, Caltech Biology & Biological Engineering**
- 01/2013 — 09/2013 **Postdoctoral Scholar, Caltech**
Mentors: Rustem F. Ismagilov, Chemistry & Chemical Engineering
Sarkis K. Mazmanian, Biology & Biological Engineering
- 09/2007 — 01/2013 **Graduate Student, Caltech**
Mentor: Paul H. Patterson; Biology & Biological Engineering
- 03/2007 — 09/2007 **Associate, Pre-Clinical Formulations, Amgen, Inc.**
Supervisor: Karen Erickson

Academic and Professional Honors

- 07/2017 **Klingenstein-Simons Fellowship Award in Neuroscience**
- 04/2017 **UCLA Life Sciences Excellence Award for Outstanding Research Publication**
- 01/2017 **UCLA Chancellor's Post-doctoral Mentoring Award Nominee**

02/2016	Alfred P. Sloan Research Fellow in Neuroscience
10/2015 — 10/2020	UCLA De Logi Chair in Biological Sciences
05/2016, 09/2015	Member, White House Office of Science & Technology Microbiome Forum
11/2015	Kavli Fellow of the National Academy of Sciences
08/2015	TEDYouth Speaker
06/2015	National Geographic Emerging Explorer Award
08/2014	Forbes' "30 Under 30 in Science & Healthcare"
09/2013	NIH Director's Early Independence Award (DP5)
05/2013	2013 Caltech Everhart Lecturer
01/2013	Global Young Scientist Summit Travel Award, Singapore
03/2012	Keystone Symposium Scholarship
09/2012	TEDxCaltech Speaker
09/2011 — 09/2013	Gregory O. & Jennifer W. Johnson Caltech Innovation Fellowship
01/2012	International Society for Developmental Neuroscience Travel Award, India
09/2011 — 09/2013	NIH/NRSA Ruth L. Kirschstein Pre-doctoral Fellowship
09/2009 — 09/2011	Autism Speaks Dennis Weatherstone Pre-doctoral Fellowship

Extramural Service and Entrepreneurship

03/2017	Member, NIH Special Emphasis Panel ZRG1 BBBP-L (40) P; Autism Centers of Excellence (ACE) Programs (P50) Review Group
02/2017	<i>Ad hoc</i> Member, NIMH CNN- Clinical Neuroscience and Neurodegeneration Study Section; Center for Scientific Review
01/2017	Member, Microbiome Gut and Brain-Neurovascular Unit Review Panel; Department of Defense Parkinson's Research Program
12/2016	Member, NIH Special Emphasis Panel ZDA1 GMX-A (15) R; SBIR Laboratory and Diagnostic Tools to Advance Microbiome-Brain Research Review Group
10/2016	<i>Ad hoc</i> Member, NIMH CNNT- Clinical Neuroplasticity and Neurotransmitters Study Section; Brain Disorders and Clinical Neuroscience Integrated Review Group
07/2016 — present	Member, National Academy of Sciences Committee on Advancing Understanding of the Implications of Environmental-Chemical Interactions with the Human Microbiome
07/2016 — 12/2016	Member, NIMH Interagency Autism Coordinating Committee (IACC): Strategic Plan Update for ASD Research
06/2016	<i>Ad hoc</i> Member, NIH Study Section, Biobehavioral Mechanisms of Emotion, Stress & Health (MESH); Biobehavioral and Behavioral Processes Integrated Review Group

12/2016, 06/2016	Member, NIMH Special Emphasis Panel ZMH1 ERB-B (07) S; Fellowship and Dissertation Grants Review
06/2016	Session Chair, American Society for Microbiology Microbe 2016
05/2016	External Reviewer, National Health and Medical Research Council of Australia
04/2016	Organizing Committee Member, International Mind, Mood & Microbes Symposium
03/2016 — 09/2016	Scientific Consultant, Kaleido Biosciences
01/2016	Reviewer, US-Israel Binational Science Foundation
11/2015	Session Chair, National Academy/ Kavli Foundation Frontiers in Science Meeting
10/2015 — 2/2017	Co-editor, Special Issue of Psychosomatic Medicine (Journal of Biobehavioral Medicine) on the Microbiome
01/2015 — present	<i>Ad hoc</i> reviewer Nature Neuroscience, Cell, Journal of Neuroscience; Nature; Cell Host and Microbe; Nature Microbiology; ACS Chemical Neuroscience, EBioMedicine; Brain, Behavior, Immunity; Molecular Psychiatry; Biological Psychiatry; Neuropharmacology; Psychoneuroendocrinology; Molecular Autism, Journal of Autism and Developmental Disorders; Behavioural Brain Research, Neuroscience Letters, Brain Research, Neuroscience
03/2015 — 12/2015	Member, American Society for Microbiology Microbiome Outreach Taskforce
09/2014 — 09/2015	Faculty Advisor, Caltech Women Mentoring Women Program
10/2014	Section Chair, Forbes' Under 30 Summit- Science & Healthcare
05/2014	Member, NIMH Pushing Translational Boundaries: Neuroimmunology & Mental Health Workshop
04/2014	Session Chair, Keystone Symposium: Understanding Biochemical Transformations in the Human Microbiome
03/2014	Member, NIMH R21/R33 Special Emphasis Panel, ZMH1 ERB-M (04)
12/2013 — 12/2016	Co-founder, Axial Biotherapeutics (formerly Neurobiotix Health); Co-founders: Sarkis Mazmanian and Paul H. Patterson; CEO: Michael Glemmbourt (2013-2016), David Donabedian (2016-present)

UCLA Intramural Service

03/2017 (accepted)	Faculty Judge, University of California Leadership Excellence through Advanced Degrees (UC LEADS) Research and Leadership Symposium Promoting advancement to STEM graduate programs for underrepresented UC students
02/2017	Participant, UCLA Faculty Technology Commercialization Panel Helping to prioritize initiatives and focus efforts for UCLA's Technology Development Office
12/2016	Speaker, UCLA David Geffen School of Medicine Board of Visitors Meeting,

Organizer: Dean Kelsey Martin

- 11/2016 **Member, UCLA Undergraduate Research Fellow Program Review Committee**
Advised underrepresented minority students on writing graduate and medical school application essays
- 11/2016 **Faculty Reviewer, UCLA MSD Scholars, MARC, Beckman and UC Leads Programs: Applying to Graduate School; Instructor: Tama Hasson**
- 10/2016 **Member, UCLA Depression Grand Challenge Basic Sciences Group**
- 10/2016 — present **Co-Director, UCLA Undergraduate Neuroscience Scholars Program**
- 10/2016 — present **Graduate Thesis Committee Member, UCLA Life Sciences Division**
Daniel Whittaker (MCIP, Laboratory of Chris Colwell; 12/2016-present); Taylor Brown (IMMP, Laboratory of Elissa Hallem; 10/2016-present); Christine Olson (MCIP; 10/2016-present)
- 10/2016 **Panel Speaker, UCLA Women & Philanthropy Business Meeting, Organizer: Dean Victoria Sork**
- 05/2016 **Faculty Evaluator, UCLA IBP Undergraduate Research Poster Session**
- 03/2016 — 01/2017 **Member, UCLA Vice Chancellor for Research and David Geffen School of Medicine Animal Research Advisory Committee**
- 02/2016, 02/2017 **Interviewer, UCLA Biosciences Graduate Program, IMMP, MCIP, and Neuroscience Home Areas**
- 01/2016 **Reviewer, UCLA CURE/CTSI Research Center Program Grants**
- 01/2016 — present **Member, UCLA Integrative Biology & Physiology Graduate Advisory Committee**
- 11/2015 — 06/2016 **Participant, UCLA Big "C" Creativity Study; Principal Investigator: Robert Bilder**
- 10/2015 **Member, UCLA California NanoSystems Institute, Microbiome Applications Committee**
- 10/2015 — present **Member, UCLA Neuroscience Graduate Program Student Advisory Committee**
- 10/2016, 01/2016, 10/2015, 01/2017 **Interviewer, UCLA-Caltech MD/Ph.D. Program**
- 08/2015 — present **Associate Director/Steering Committee Member, UCLA Microbiome Center**
- 08/2015 — present **Member, UCLA Specialized Center of Research (SCOR) Executive Committee**
- 08/2015 **Interviewer, UCLA David Geffen School of Medicine Star/GI Fellows Program**

Teaching Experience and Training

- 04/2017 — 06/2017 **Developer and Instructor, UCLA Physiological Sciences 128: The Microbiome in Health and Disease**
Developing and teaching course on host-microbiome interactions in health and disease, which includes discussion of basic properties for microbial communities, intersections with immunology, metabolism and neurobiology, and applications in medicine and technology

- 04/2017 **Lecturer, UCLA Life Science 7C: Physiology and Human Biology**
Recorded “flipped” course lectures for sections on the human microbiome.
- 03/2017 **Participant, UCLA Enhancing Student Success in Science Workshop**
Training in the best practices for building inclusive classrooms and intergroup dialogue
- 02/2017, 02/2016 **Guest Lecturer, UCLA Microbiology Immunology and Molecular Genetics**
MIMG 185: Molecular Genetics, Instructor: Jeffrey H. Miller
- 10/2016 **Participant, UCLA FacTech**
Promoting new tools and technologies to enhance productivity in science and education
- 09/2016 **Instructor, Neuroscience School of Advanced Studies: Microbiota and the Brain Course; Microbial Modulation of Neurochemical**; Organizer: Pierre-Marie Lledo
- 09/2016, 09/2015 **Participant, Faculty Workshop on Best Practices in Teaching; UCLA Center for Education Innovation & Learning in the Sciences**
- 05/2016, 05/2015, 05/2014 **Guest Lecturer, Caltech Biology & Biological Engineering Division**
Bi1 Principles of Biology; Instructor: Dianne Newman
- 04/2016 **Guest Speaker, UCLA-Program for Excellence in Education and Research in the Sciences (PEERS)**; Instructor: Paul Barber
Promoting success of underrepresented minorities in STEM fields
- 03/2016 **Guest Speaker, UCLA-HHMI Pathways to Success Program**;
Instructor: Tracy Johnson
Promoting scientific research for underrepresented minorities in STEM fields
- 10/2015 **Guest Lecturer, UCLA Biomedical Science**
BR5HA Biomedical Research: Concepts and Strategies, Instructor: Rafael Romero
- 10/2015 **Participant, UCLA Ecology and Evolutionary Biology**
Communicating Science, Instructor: Paul Barber
- 07/2015 — present **Research Mentor, UCLA Integrative Biology & Physiology**
Staff: Jessica Yano (07/2015-07/2016), Julianne McGinn (10/2015-present); *Postdoctoral fellows*: Helen Vuong (11/2015-present; UCLA UPLIFT Postdoctoral Fellowship recipient), Thomas Fung (07/2016-present); *Graduate students*: Christine Olson (MCIP; 01/2016-present; NIH T32 Training Grant in MCIP recipient); Alex Sercel (IMMP; 01/2016-03/2016); John Muroski (Biochemistry; 03/2016-06/2016); Jenna Harrigan (Molecular Toxicology);

03/2016-06/2016); Maria Kazantsev (Physiological Sciences; 0/9/2016-present); Geoffrey Pronovost (IMMP; 01/2017-present); Anastasia Vavilina (IMMP; 01/2017-04/2017); Kelly Jameson (Neuroscience; 03/2017-present). *Post-Baccalaureate student*: David Nusbaum (01/2016-07/2016); *Undergraduate students*: QingXing Liang (09/2015-present), Austin Qiu (11/2015-present), Gina Young (09/2015-06/2016), Emily Siegler (11/2015-present), Charisse Yeh (10/2015-06/2016); Elaine Cheung (03/2016-06/2016); Cristopher Garduno (06/2016-present; UCLA CARE Program and URSP Fellowship recipient)

09/2013 — 07/2015 **Research Mentor, Caltech Biology & Biological Engineering Division**
Staff: Jessica Yano (01/2014-07/2015); *Graduate student*: Sandy Wong (01/2015-03/2015); *Undergraduate students*: Kristie Yu (06/2014-06/2015), Gauri Shastri (06/2014-06/2015)

09/2007 — 09/2013 **Research Mentor, Caltech Biology & Biological Engineering Division**
Post-baccalaureate students: Mimi Sadoshima, Lindsay Peltz; *Undergraduate students*: Phoebe Ann, Sophia Hsien, Howard Yan, Justine Chia, Moises Ramos

09/2011 **Guest Lecturer, Occidental College**
Animal Behavior, Instructor: Andrew Steele

09/2007 — 09/2010 **Teaching Assistant, Caltech Biology & Biological Engineering Division**
Molecular Basis of Behavior, Instructor: Paul H. Patterson
Neurobiology of Disease, Instructor: Paul H. Patterson
Biochemistry, Instructor: John Richards

01/2007 — 03/2007 **Teaching Assistant, UCLA MCDB Department**
Cell Biology, Instructor: Paul O'Lague

Publications *Primary Research Articles*

Olson CA, Vuong HE, Yano JM, Liang QY, Nusbaum DJ, Hsiao EY (2017) The gut microbiota mediates the anti-seizure effects of the ketogenic diet. *Nature*, in review.

Labus JS, Hollister EB, Jacobs J, Kirbach K, Oezguen N, Gupta A, Acosta J, Luna R, Agaard K, Versalovic J, Savidge T, Hsiao EY, Tillisch K, Mayer EA (2017) Differences in gut microbial composition correlate with regional brain volumes in irritable bowel syndrome. *Microbiome* 10.1186/s40168-017-0260-z.

Wu W, Hsiao EY, Yan Z, Mazmanian SK, Patterson PH (2016) Placental interleukin-6 signaling controls fetal brain development and behavior. *Brain, Behav Immun*.
<http://dx.doi.org/10.1016/j.bbi.2016.11.007>.

Yano JM, Yu K, Donaldson G, Shastri G, Ma L, Ann P, Nagler C, Ismagilov RF, Mazmanian SK, Hsiao EY (2015) Indigenous bacteria from the gut microbiota regulate host serotonin

biosynthesis. *Cell*, 161:264-76.

Highlighted in *Cell* 161:193-4, *Science Signaling* 373:ec101, *Nature Reviews Gastroenterology & Hepatology* 12:311, *ACS Chemical Biology* 10:1157-1159, Faculty 1000

Hsiao EY, McBride SW, Hsien S, Sharon G, Hyde ER, McCue T, Codelli JA, Chow J, Reisman SE, Petrosino JF, Patterson PH*, Mazmanian SK* (2013) The microbiota modulates behavioral and physiological abnormalities associated with neurodevelopmental disorders. *Cell*, 155:1451-1463. ***Authors contributed equally**

Highlighted in *Cell* 155:1446-8, *PNAS* 111:2051-3, *Nature Reviews Neuroscience* 15:65, *Nature Reviews Neurology* 10:60, *Nature Reviews Microbiology* 12:76-7, *Nature Reviews Drug Discovery* 13:104, *CNS & Neurological Disorders Drug Targets* 13:733-5, Faculty 1000, and by Dr. Tom Insel, NIMH, Top 10 Autism Research Achievement of 2013 by Autism Speaks

Garay PA, Hsiao EY, Patterson PH, McAllister AK (2012) Maternal immune activation causes age- and region-specific changes in brain cytokines in offspring throughout development. *Brain Behav Immun*, 31:54-68.

Hsiao EY, McBride SW, Chow J, Mazmanian SK, Patterson PH (2012) Modeling an autism risk factor in mice leads to permanent immune dysregulation. *PNAS* 109:12776-81

Top 10 Autism Research Achievement of 2012 by Autism Speaks
Notable Paper of 2012 by Simons Foundation
"Summer Scientific Breakthrough," Dr. Tom Insel, NIMH

Garbett, KA*, Hsiao EY*, Kalman S, Patterson PH, Mirnics K (2012) Effects of maternal immune activation on gene expression patterns in the fetal brain. *Transl Psychiatry* 2:e98.

***Authors contributed equally**

Malkova NV, Yu CZ, Hsiao EY, Patterson PH (2012) Maternal immune activation yields offspring displaying the three core symptoms of autism. *Brain Behav Immun* 26:607-16.

Hsiao EY, Patterson PH (2011) Activation of the maternal immune system induces endocrine changes in the placenta via IL-6. *Brain Behav Immun* 25:604-15.

Highlighted in *Brain Behav Immun* 25:602-3

Ito HT, Smith SE, Hsiao E, Patterson PH (2010) Maternal immune activation alters nonspatial information processing in the hippocampus of the adult offspring. *Brain Behav Immun* 24:930-41.

Publications

Invited Review Articles

Vuong HE, Yano JM, Fung TC, Hsiao EY (2017) The microbiome and host behavior. *Annual Review of Neuroscience*. doi: 10.1146/annurev-neuro-072116-031347.

Fung TC, Olson CA, Hsiao EY (2017) Interactions between the microbiota, immune and nervous systems in health and disease. *Nature Neuroscience*. 20:145-55.

Olson CA, Vuong HE, Hsiao EY (2016) Microbial Modulators of Host Behavior in ‘The Microbial Olympics 2016’. *Nature Microbiology*. 1:16122.

Vuong HE, Hsiao EY (2016) Emerging roles for the gut microbiome in autism spectrum disorder. *Biological Psychiatry*. 81: 411-23.

Hsiao EY (2014) Gastrointestinal issues in autism spectrum disorder. *Harv Rev Psychiatry* 22:104-111.

Hsiao EY (2013) Immune dysregulation in autism spectrum disorder. In Konopka G, Harris A, Jenner P (Eds). *Neurobiology of Autism, Int Rev Neurobiol* 113:269-302.

Hsiao EY, Patterson PH (2012) Placental regulation of maternal-fetal interactions and brain development. *Dev Neurobiol* 72:1317-26.

Hsiao EY, Patterson PH (2012) Immune involvement in autism. *Autism*, S1.

Publications

Invited Book Chapters

Yano J, Hsiao EY (2016) A role for the microbiota in neurodevelopmental disorders. In Hyland N, Stanton C (Eds.). *The Gut-Brain Axis: Dietary, Prebiotic and Probiotic Interventions on the Microbiota*. Academic Press. pp. 305-18.

Malkova N, Hsiao EY (2016) Non-genetic causes of autism spectrum disorders: the role of the immune system. In Sala C, Verpelli C (Eds). *Neuronal and Synaptic Dysfunction in Autism Spectrum Disorder and Intellectual Disability*. Academic Press, pp. 65-76.

Malkova N, Wu W, Hsiao EY (2015) Modeling the maternal immune activation risk factor for schizophrenia. In Pletnikov M, Waddington J (Eds). *Modeling the Psychopathological Dimensions of Schizophrenia and Related Psychoses*. Academic Press, pp. 175-193.

Hsiao EY, Bregere C, Malkova N, Patterson PH (2011) Modeling features of autism in rodents. In Amaral DG, Dawson G, Geschwind DH (Eds.), *Autism Spectrum Disorders*. New York: Oxford University Press, pp. 935-62.

Smith SE, Hsiao E, Patterson PH (2010) Activation of the maternal immune system as a risk factor for neuropsychiatric disorders. In Zimmerman, AW; Connors, SL (Eds.), *Maternal Influences on Fetal Neurodevelopment*. New York: Humana Press, pp. 289-307.

Funding

- 08/2017 — 08/2019 **Brain Research Foundation Frank Fay Seed Grant**
- 07/2017 — 07/2020 **Klingenstein-Simons Fellowship Award in Neuroscience**
- 07/2017 — 07/2022 **Office of Naval Research, Army Research Office, Multidisciplinary University Research Initiative (MURI) Topic: Nutritional and Environmental Effects on the Gut Microbiome and Cognition**
PI: Hsiao EY, Dissecting microbiome-gut-brain circuits for microbial modulation of host cognition in response to diet and stress
- 03/2017 **UCLA CURE Digestive Diseases Research Center Pilot and Feasibility Grant**
PI: Hsiao EY, Molecular and cellular mechanisms for communication across the microbiota-gut-brain axis
- 02/2017 **UCLA Office of Instructional Development, Instructional Improvement Grant**
PI: Hsiao EY, Integrating host-microbiome research into undergraduate education
- 08/2016 — 08/2017 **NIH/NIDDK P50 Center Grant (1P50 DK64539)**
PI: Mayer E (UCLA), Co-I: Hsiao EY; Center for Neurovisceral Sciences and Women's Health
- 07/2016 — 07/2017 **UCLA Clinical and Translational Science Institute Core Award**
- 02/2016 — 02/2018 **Alfred P. Sloan Neuroscience Fellowship**
- 07/2015 — 07/2020 **UCLA De Logi Chair in Biological Sciences**
- 09/2013 — 09/2018 **NIH Director's Early Independence Award (DP5)**
PI: Hsiao EY, Uncovering microbial modulators of neuroactive molecules as novel therapeutics
- 06/2015 — 06/2016 **National Geographic Emerging Explorer Award**
- 09/2014 — 09/2015 **Caltech Environmental Microbial Interactions Career Award**

Invited Lectures

- 2017 (accepted) Gut Microbes and Serotonin Biology
- Gordon Research Conference on Neuroimmunology. Ventura, CA.
 - NIH NHLBI Cell Biology & Physiology Center Seminar Series. Bethesda, MD.
 -

- UCLA Molecular Biology Institute Seminar Series. Los Angeles, CA
- UCLA Synapse to Circuits Seminar Series. Los Angeles, CA.
- Stanford Immunology Graduate Student Seminar Series. Palo Alto, CA.
- Tufts Neuroscience Symposium. Boston, MA.
- Karolinska Institutet Nobel Conference on the Microbiome. Stockholm, Sweden.
- Keystone Symposia Frontiers of Serotonin Beyond the Brain. Park City, UT.
- Society for Neuroscience Annual Meeting, Symposium on Neuroimmune Interactions. Washington DC.
- Neuron/Cell Satellite Symposium on Big Questions in Neuroscience. Washington DC.

- 2016
- Microbiome interactions with the nervous system
 - UCSD Changing Microbiomes for Health Symposium, San Diego, CA.
 - UCLA Arrowhead Microbial Genomics Meeting. Arrowhead, CA.
 - American Society of Microbiology Annual Meeting. Boston, MA. *Session Chair.*
 - Harvard Symposium on Probiotics. Cambridge, MA.
 - Karolinska Institutet Nobel Forum Gut-Brain Axis Symposium. Stockholm, Sweden. *Keynote Speaker.*
 - Experimental Biology (EB) Annual Meeting. San Diego, CA. *Session Keynote Speaker.*
 - MIT-Harvard Symposium on Health & Ventures in the Microbiome. Cambridge, MA. *Keynote Speaker.*
 - Neurobiology of Stress Workshop. Newport Beach, CA.
 - American Association for the Advancement of Science (AAAS) Annual Meeting. Chicago, IL
 - UCLA Molecular, Cellular, Integrative Physiology Annual Retreat. *Plenary Speaker.*
 - UCLA Center for Neurobiology of Stress Annual Symposium. *Keynote Speaker.*
 - International Nanobiotechnology Annual Symposium. Los Angeles, CA.
 - UCLA Cousins Center for Psychoneuroimmunology Seminar Series. Los Angeles, CA
 - UCLA Microbiome Center Seminar Series. Los Angeles, CA.

- 2015
- Neurochemicals and the microbiome
 - Harvard Neuroscience Graduate Program Spring Symposium. Cambridge, MA.
 - Canadian College of Neuropsychopharmacology Annual Meeting. Ottawa.
 - Columbia University/New York Psychiatric Institute Grand Rounds. New York City.
 - European College of Neuropsychopharmacology Annual Meeting. Amsterdam.
 - National Academy of Sciences/Kavli Foundation Frontiers in Science Meeting; Newport Beach, CA. *Session Chair.*
 - World Psychiatric Association International Conference. Taipei, Taiwan.
 - UCLA Broad Stem Cell Center Research Center. Los Angeles, CA.
 - UCLA Medical Fellows Seminar Series. Los Angeles, CA.
 - UCLA California NanoSystems Institute Microbiome Seminar Series. Los Angeles, CA.
 - UCLA Synapse to Circuits Seminar Series. Los Angeles, CA.
 - UCLA Microbiome Center Seminar Series. Los Angeles, CA.

- 2014 — 2015
- Microbial modulators of neuroactive molecules
 - Keystone Symposium: Understanding Biochemical Transformations in the

Human Microbiome. Big Sky, MT. *Session Chair*

- International Human Microbiome Consortium Annual Meeting. Luxembourg.
- NIH High Risk High Reward Symposium. Bethesda, MD

2014

Microbiota-mediated modulation of brain and behavior

- American Society for Neurochemistry Annual Meeting. Long Beach, CA.
- Harvard Symposium on Probiotics. Cambridge, MA.
- Rockefeller University Gut-Microbiome Brain Interactions Symposium. New York, NY.
- Practical Applications of Metabolomics Workshop. Irvine, CA.

2013 — 2014

Microbiome-gut-brain interactions in autism spectrum disorder

- American Association for the Advancement of Science (AAAS) Annual Meeting. Chicago, IL.
- International Human Microbiome Consortium Annual Meeting. Hangzhou, China.
- NIH's Human Microbiome Science: Vision for the Future. Bethesda, MD.
- Keystone Symposium: the Gut Microbiome, Taos, NM.

2012

Mouse models for autism spectrum disorder

- Massachusetts General Hospital and McLean Hospital, Boston, MA.

2011

Maternal immune activation: effects on the placenta

- International Society for Autism Research Annual Meeting, San Diego, CA.
- American College of Neuropsychopharmacology Annual Meeting, Waikoloa, HI.

Public Outreach

02/2017

Panel Speaker, Natural History Museum First Fridays: The Human Body and Food

01/2017

Keynote Speaker, Los Angeles/Irvine Brain Bee

Discussed recent advances in neurobiology research for program that stimulates high school students to learn neuroscience

05/2016

Panel Speaker, UCLA Science & Food Public Lecture Series on Microbes: From Your Food to Your Brain

03/2016

Collaborator, Jorge Cham, Ph.D. and the Kavli Foundation

Co-created an animated video for Ph.D. Comics on "Microbiomes Explained"

- 11/2015 **Speaker, National Taiwan University Autism Outreach**
Discussed recent advances in autism research with ~30 autism families, with follow-up question and answer panel
- 10/2015 **Speaker, TEDYouth New York City**
Presented microbiome research to ~300 middle-high school students with interactive session
- 10/2015 **Discussant, San Francisco State University Neurological Diseases Course**
Presented research and participated in panel discussion with Master's students
- 09/2015 **Contributor, National Geographic Learning/Cengage Learning**
Directed a team to create an animation and lesson plan to introduce the microbiome to K-12 and adult learners
- 09/2015 **Speaker, UCLA Department of Digestive Diseases Wisdom from Within Fundraiser**
Presented research to select donors at event hosted by Drs. Eric Esrailian and Gary Gitnick
- 09/2015 **Discussant, UCLA Bruin Daily Radio Show**
Discussed microbiome research for UCLA radio program run by undergraduates
- 10/2014, 10/2013 **Judge, Caltech Summer Undergraduate Research Symposium**

Patents

Needham B, Hsiao EY, Fishbach M, Patterson PH, Mazmanian SK. (2017) Manipulation of 4EP(S) Levels for Treatment of Anxiety and Disease. Caltech. Provisional Application Number: CIT-7706-P

Olson CA, Vuong HE, Yano JM, Hsiao EY (2016) Compositions and Methods for Inhibiting Seizures. UCLA. Provisional Application Number: 62/436,711, 62/447,992.

Hsiao EY, Yano JM (2015) Microbe-based Regulation of Serotonin, Colonic Motility and Hemostasis. Caltech. Publication Number: 20160058808.

Hsiao EY, Wu W, Mazmanian SK, Patterson PH (2015) Compositions and Methods Comprising Bacteria for Improving Behavior in Neurodevelopmental Disorders. Caltech. Publication Number: 20160120916, 20160120920.

Hsiao EY, McBride S, Patterson PH, Mazmanian SK (2013) Diagnosis and Treatment of Autism Spectrum Disorder. Caltech. Publication Number: 20140065132.

Hsiao EY, McBride S, Chow J, Patterson PH, Mazmanian SK (2011) Probiotic Therapies for Autism. Caltech. Issued Patent Number: US 9452189.