Emily A. Aery Jones

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EDUCATION

PhD in Biomedical Sciences   Oct 2019
University of California, San Francisco (UCSF)
Thesis Title: *Sharp-Wave Ripple Alterations Mark Memory Decline and Interneuron Drive*
Thesis Advisor: Dr. Yadong Huang; co-mentor: Dr. Loren Frank
Cumulative GPA: 3.76

BS in Biological Sciences: Physiology and Neurobiology; cum laude   May 2014
BS in Computer Science; cum laude
University of Maryland, College Park
Honor College Citation: University Honors and Gemstone Program
Cumulative GPA: 3.92

RESEARCH EXPERIENCE

Postdoctoral Research Fellow   Nov 2019 – Present
Stanford University; Dr. Lisa Giocomo, mentor
Planned projects:
- Dissecting the role of medial septal HCN in driving theta in entorhinal cortex
- Assessing offline reactivation of MEC ensembles as a substrate for consolidation to support learning over days

Graduate Research Assistant   Aug 2014 – Oct 2019
Gladstone Institutes & University of California, San Francisco; Dr. Yadong Huang, mentor and
Dr. Loren Frank, co-mentor
- Measured hippocampal sharp-wave ripples in Alzheimer's disease models to predict future memory impairment
- Assessed the role of hippocampal interneuron populations in gating signatures of entorhinal and CA3 drive to CA1

Undergraduate Research Assistant   May 2013 – Aug 2014
University of Maryland, Center for Bioinformatics and Computational Biology;
Dr. Sridhar Hannenhalli, mentor
- Developed an algorithm to measure selection for intrinsic disorder in protein structure
- Examined how the location of enhancers relative to the promoter affects the regulation in which that enhancer participates

Gemstone Honors Program: Team RITALIN   Apr 2011 – May 2014
University of Maryland, Department of Psychology; Dr. Matthew Roesch, mentor
- Eleven-person undergraduate research team which studied the effects of fetal nicotine exposure on inhibition of impulsive action by measuring single neuron activity during stop-signal task performance

PUBLICATIONS

Taubes, A.T., Nova, P., Zalocusky, K.A., Kosti, I., Bicak, M., Zilberter, M., Hao, Y., Yoon, S.Y., Oskotsky, T., Pineda, S., Chen, B., **Aery Jones, E.A.**, Choudhary, K., Grone, B., Balestra, M.E., Chaudhry, F., Paranjpe, I., De Frietas, J., Koutsodendris, N., Chen, N., Wang, C., Chang, W., An, A., Glicksberg, B., Sirota, M., Huang, Y. (2021, October) Experimental and real-world evidence supporting the computational repurposing of bumetanide for *APOE4*-related Alzheimer's disease. *Nature Aging* 1, 932-947.

Aery Jones, E. A., Rao, A., Zilberter, M., Djukic, B., Gillespie, A. K., Koutsodendris, N., Nelson, M., Yoon, S. Y., Huang, K., Yuan, H., Gill, T. M., Huang, Y., & Frank, L. M. (2021, January) Dentate Gyrus and CA3 GABAergic Interneurons Bidirectionally Modulate Signatures of Internal and External Drive to CA1. BioRxiv doi: 10.1101/2021.01.04.425303.

Najm, R., Zalocusky, K.A., Zilberter, M., Yoon, S.Y., Hao, Y., Taubes, A., **Jones, E.A.**, Koutsodendris, N., Nelson, M., Rao, A., Huang, Y. (2020, July) *In Vivo* Chimeric Alzheimer's Disease Modeling of Apolipoprotein E4 Toxicity in Human Neurons. Cell Reports 32(4), 107962.

Jones, E. A., Gillespie, A. K., Yoon, S. Y., Frank, L. M., Huang, Y. (2019, November). Early Hippocampal Sharp-Wave Ripple Deficits Predict Later Learning and Memory Impairments in an Alzheimer's Disease Mouse Model. *Cell Reports* 29(8), 2123-2133.e4.

Jones, E.A. (2019, October) Sharp-wave Ripple Alternations Mark Memory Decline and Interneuron Drive (Doctoral Dissertation). Retrieved from Dissertations & Theses at the University of California (Accession No. 27541368).

Najm, R.*, **Jones, E. A.***, Huang, Y. (2019, June). Apolipoprotein E4, Inhibitory Network Dysfunction, and Alzheimer's Disease. *Molecular Neurodegeneration*. 14(1), 24. (*equal contribution)

Gillespie, A. K., **Jones, E. A.** & Huang, Y. (2017, February) Approaching Alzheimer's Disease from a Network Level. *Oncotarget* 8(6), 9003-9004.

Gillespie, A. K., **Jones, E. A.**, Lin, Y.-H., Karlsson, M. P., Kay, K., Yoon, S. Y., Tong, L. M., Nova, P., Carr, J. S., Frank, L. M., Huang, Y. (2016, May). Apolipoprotein E4 causes age-dependent disruption of slow gamma oscillations during hippocampal sharp-wave ripples. *Neuron* 90, 740-751.

Bryden, D. W., Burton, A. C., Barnett, B. R., Cohen, V. J., Hearn, T. N., **Jones, E. A.**, Kariyil, R. J., Kunin, A., Kwak, S. I., Lee, J., Lubinski, B. L., Rao, G. K., Zhan, A., Roesch, M. R. (2016, February). Prenatal Nicotine Exposure Impairs Executive Control Signals in Medial Prefrontal Cortex. *Neuropsychopharmacology* 41, 716–725.

Barnett, B. R., Cohen, V. J., Hearn, T. N., **Jones, E. A.**, Kariyil, R. J., Kunin, A., Kwak, S. I., Lee, J., Lubinski, B. L., Rao, G. K., Zhan, A. (2014, May). The Impact of Prenatal Nicotine Exposure on Impulsivity and Neural Firing in the Medial Prefrontal Cortex (Honors thesis). Retrieved from Digital Repository at the University of Maryland. (Accession No. 1903/15539)

INVITED TALKS

Jones, E.A., Rao, A.T., Zilberter, M., Djukic, B., Gillespie, A.K., Koutsodendris, N., Nelson, M.R., Yoon, S.Y., Huang, K.Z.Y., Yuan, H., Gill, T.M., Huang, Y., Frank, L.M. (2019, July). Hippocampal GABAergic Interneurons Bidirectionally Modulate Sharp-Wave Ripples. Invited talk at the Inhibition in the CNS Gordon Research Seminar in Newry, MA.

Jones, E.A., Gillespie, A.K., Yoon, S.Y., Frank, L.M., Huang, Y. (2019, April). Ripple Deficits Predict Memory Impairments in an Alzheimer's Disease Mouse Model. Invited talk at the Discovery Fellows Michael Page Research Symposium in San Francisco, CA.

Jones, E.A., Frank, L.M., Kreitzer, A.K., Huang, Y. (2018, August). Optogenetic Study of ApoE4-Related Alzheimer's Disease. Invited talk at the NIA Optogenetics RFA Annual Investigators Meeting in Bethesda, MD.

Jones, E.A., Gillespie, A.K., Lin, Y.H., Yoon, S.Y., Frank, L.M., Huang, Y. (2017, September). Apolipoprotein E4-induced Hippocampal Network Activity Deficits Reflect Cell-Type-Specific Gains of Toxic Function. Invited talk at the Alzheimer's Researcher Symposium in San Francisco, CA.

Jones, E.A., Frank, L.M., Kreitzer, A.K., Huang, Y. (2017, August). Optogenetic Study of ApoE4-Related Alzheimer's Disease. Invited talk at the NIA Optogenetics RFA Annual Investigators Meeting in Bethesda, MD.

Jones, E.A., Gillespie, A.K., Lin, Y.H., Yoon, S.Y., Frank, L.M., Huang, Y. (2017, June). Apolipoprotein E4-induced Hippocampal Network Activity Deficits Reflect Cell-Type-Specific Gains of Toxic Function. Invited talk presented at the Gladstone Institutes Scientific Retreat, Asilomar, CA.

POSTER PRESENTATIONS

Jones, E.A., Rao, A.T., Zilberter, M., Djukic, B., Gillespie, A.K., Koutsodendris, N., Nelson, M.R., Yoon, S.Y., Huang, K.Z.Y., Yuan, H., Gill, T.M., Huang, Y., Frank, L.M. (2019, July). Hippocampal GABAergic Interneurons Bidirectionally Modulate Sharp-Wave Ripples. Poster session at the Inhibition in the CNS Gordon Research Seminar in Newry, MA.

Jones, E.A., Gillespie, A.K., Yoon, S.Y., Frank, L.M., Huang, Y. (2018, November). Apolipoprotein E4-induced Hippocampal Network Activity Deficits Correlate with Learning and Memory Impairments. Poster session at the Society for Neuroscience Annual Meeting in San Diego, CA.

Jones, E.A., Gillespie, A.K., Yoon, S.Y., Frank, L.M., Huang, Y. (2018, June). Apolipoprotein E4-induced Hippocampal Network Activity Deficits Correlate with Learning and Memory Impairments. Poster session at the Advances in Neurodegenerative Research and Therapies Keystone Symposium in Keystone, CO.

Jones, E.A., Gillespie, A.K., Lin, Y.H., Yoon, S.Y., Frank, L.M., Huang, Y. (2017, November). Apolipoprotein E4-induced Hippocampal Network Activity Deficits Reflect Cell-Type-Specific Gains of Toxic Function. Poster session at the Society for Neuroscience Annual Meeting in Washington, DC.

Jones, E.A., Gillespie, A.K., Lin, Y.H., Yoon, S.Y., Frank, L.M., Huang, Y. (2017, June). Apolipoprotein E4-induced Hippocampal Network Activity Deficits Reflect Cell-Type-Specific Gains of Toxic Function. Poster session presented at the Inhibition in the CNS Gordon Research Conference, Les Diablerets, Switzerland.

Jones, E. A., Alemu, E., Hannenhalli, S. (2013, November). Natural Selection of Intrinsic Disorder Characteristic of Proteins. Poster session presented at the University of Maryland Bioscience Research Day, College Park, MD.

Barnett, B. R., Cohen, V. J., Hearn, T. N., **Jones, E. A.**, Kariyil, R. J., Kunin, A., Kwak, S. I., Lee, J., Lubinski, B. L., Rao, G. K., Zhan, A., Bryden, D. W., Burton, A. C., Roesch, M. R. (2013, November). Impact of Prenatal Nicotine Exposure on Impulsivity and Neural Acitivity in Medial Prefrontal Cortex. Poster session presented at the Society for Neuroscience Annual Meeting, San Diego, CA.
Barnett, B. R., Cohen, V. J., Hearn, T. N., **Jones, E. A.**, Kariyil, R. J., Kunin, A., Kwak, S. I., Lee, J., Lubinski, B. L., Rao, G. K., Zhan, A., Bryden, D. W., Burton, A. C., Roesch, M. R. (2013, May). Validating an Animal Model of Attention Deficit Hyperactivity Disorder: Neural and Behavioral Correlates of Impulsivity in Rats Prenatally Exposed to Nicotine. Poster session presented at the University of Maryland Undergraduate Research Day, College Park, MD.

Barnett, B. R., Cohen, V. J., Hearn, T. N., **Jones, E. A.**, Kariyil, R. J., Kunin, A., Kwak, S. I., Lee, J., Lubinski, B. L., Rao, G. K., Zhan, A., Bryden, D. W., Burton, A. C., Roesch, M. R. (2013, March). Validating an Animal Model of Attention Deficit Hyperactivity Disorder: Neural and Behavioral Correlates of Impulsivity in Rats Prenatally Exposed to Nicotine. Poster session presented at the Howard Hughes Medical Institute (HHMI) Undergraduate Research Symposium, College Park, MD.

FELLOWSHIPS

School of Medicine Dean's Postdoctoral Fellowship	July 2021 – June 2022
National Institute of Aging F31 Predoctoral Fellowship	Sept 2017 – Oct 2019
Genentech Foundation Fellowship	Sept 2017 – Aug 2018
Mortiz-Heyman Discovery Fellowship	Sept 2016 – Oct 2019
National Science Foundation Graduate Research Fellowship	Sept 2014 – Aug 2017

AWARDS

UCSF Career Development Award	Apr 2019
Gladstone Institutes Career Advancement Award	Jan 2019
UCSF Graduate Division Travel Award	Oct 2018
Alzheimer's Association Young Scientist Award	Sept 2017
Gladstone Institute of Neurological Disease Student of the Year	May 2017
University of Maryland CS Dept Teaching Excellence Award	May 2013
HHMI Gemstone Undergraduate Research Award	Sept 2012 – May 2014
Dr. Michael Vacarro Research Award	Sept 2010 – May 2011
National Merit Scholarship	Sept 2010 – May 2014
Maryland Distinguished Scholarship	Sept 2010 – May 2014
Banneker-Key Scholarship	Sept 2010 – May 2014
Washington Academy of Sciences Isaac Newton Award	Apr 2010

TEACHING EXPERIENCE

BMS255: Basic Genetics & Genomics	Jan 2016 – Mar 2016
BSCI440: Mammalian Physiology	Jan 2014 – May 2014
CMSC423: Bioinformatic Algorithms, Databases, & Tools	Sept 2013 – Dec 2013
CMSC351: Algorithms	Aug 2012 – Dec 2012

ACADEMIC SERVICE

Inhibition in the CNS Gordon Research Seminar Co-Chair	July 2019 – July 2023
Graduate Organization Co-Chair	Oct 2018 – Sept 2019
Education and Outreach Committee Chair	July 2016 – Oct 2018
Promoting Underrepresented Minority Advancement in Science Mentor	Summer 2016
High School Intern Mentor	Summer 2015, 2016, 2020
Biomedical Sciences Incoming Student Bootcamp Instructor	June 2015 – Sept 2018
Undergraduate Research Journal Editor-in-chief	Sept 2012 – Sept 2013
Unite for Sight Global Impact Corps Volunteer	Summer 2012
Association for Women in Computing Webmaster	June 2011 – Sept 2014
University Honors Program Organic Chemistry Tutor	Jan 2011 – May 2012
Undergraduate Research Journal Web Design and Graphics Co-Chair	Sept 2010 – Sept 2013

ACADEMIC MEMBERSHIPS

Society for Neuroscience
International Society to Advance Alzheimer's Research and Treatment
Omicron Delta Kappa, National Leadership Honors Society
Upsilon Pi Epsilon, International Honor Society for the Computing and Information Disciplines