



Jennifer L. Bruno

Senior Research Scholar, Psychiatry and Behavioral Sciences - Interdisciplinary Brain Sciences

Bio

BIO

Dr Bruno is a translational researcher at the interface of developmental cognitive neuropsychology and neurobiology. Her research aims to understand the basis of typical and atypical brain development. An overarching goal of her work is to understand when, how and why individuals with neurodevelopmental and neuropsychiatric disorders fall off the trajectory of typical brain development. She works in close collaboration with computational researchers and clinicians, serving as a bridge to translate cutting edge science to solve problems of great clinical need such as improving early diagnosis and identifying meaningful subtypes to facilitate personalized interventions. To address these aims, her work combines information from genetics, brain imaging and deep behavioral phenotyping using computational methods to understand complex, multidimensional phenotypes.

ACADEMIC APPOINTMENTS

- Member, Maternal & Child Health Research Institute (MCHRI)

ADMINISTRATIVE APPOINTMENTS

- Affiliate, Wu Tsai Neurosciences Institute, (2018- present)
- Review Editor, Frontiers in Neuroscience, Brain Imaging Methods, (2021- present)
- Review Editor, Frontiers in Psychiatry, Social Cognition, (2021- present)

HONORS AND AWARDS

- Young Investigator Award, National Fragile X Foundation (2018)
- CNI Seed-grant Award, Stanford Center for Cognitive and Neurobiological Imaging (2016)
- National Institute of Mental Health T32 postdoctoral training funding, Stanford University (2012)
- Helena Anna Henzl Gabor Young Women in Science Fellowship, Stanford University (2009)
- Morkovin Graduate School Fellowship, University of Southern California (2007-2008)
- Dissertation Award, University of Southern California (2007)
- Fellowship for advanced graduate study, Developmental Area, Psychology Department, University of Southern California (2006-2007)

PROFESSIONAL EDUCATION

- Postdoctoral Fellowship, Stanford University , Cognitive Neuroscience (2014)
- Doctor of Philosophy, University of Southern California , Developmental Psychology (2008)
- M.A., University of Southern California , Developmental Psychology (2005)
- B.A., Temple University , Psychology (minor Biology) (2002)

LINKS

- BRIDGE Lab: <https://web.stanford.edu/group/bridgelab/people/>
- Brain Dynamics Lab: <https://braindynamicslab.github.io/>
- "Brain scans in kids with fragile X syndrome" Scope article: <http://scopeblog.stanford.edu/2017/09/21/brain-scans-may-predict-future-abilities-of-kids-with-fragile-x-syndrome/>
- "Brain scans reveal subtypes of fragile X syndrome in boys" Spectrum article: <https://spectrumnews.org/news/brain-scans-reveal-subtypes-fragile-x-syndrome-boys/>
- "Hardwiring the Brain" SPIE News: <https://spie.org/news/spie-professional-magazine/2019-january/hardwiring-the-brain?SSO=1>
- "Pesticide exposure linked to brain activity differences in adolescents" SCOPE article: <https://scopeblog.stanford.edu/2019/08/27/pesticide-exposure-linked-to-brain-activity-differences-in-adolescents-study-finds/>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Dr Bruno is a translational researcher at the interface of developmental cognitive neuropsychology and neurobiology. Her research aims to understand the basis of typical and atypical brain development. An overarching goal of her work is to understand when, how and why individuals with neurodevelopmental and neuropsychiatric disorders fall off the trajectory of typical brain development. She works in close collaboration with computational researchers and clinicians, serving as a bridge to translate cutting edge science to solve problems of great clinical need such as improving early diagnosis and identifying meaningful subtypes to facilitate personalized interventions. To address these aims, her work combines information from genetics, brain imaging and deep behavioral phenotyping using computational methods to understand complex, multidimensional phenotypes.

Publications

PUBLICATIONS

- **Brief intensive social gaze training reorganizes functional brain connectivity in boys with fragile X syndrome.** *Cerebral cortex (New York, N.Y. : 1991)*
Saggar, M., Bruno, J. L., Hall, S. S.
2022
- **Neural resources shift under Methylphenidate: a computational approach to examine anxiety-cognition interplay.** *NeuroImage*
Saggar, M., Bruno, J., Gaillard, C., Claudino, L., Ernst, M.
2022: 119686
- **Can Translational Social Neuroscience Research offer Insights to Mitigate Structural Racism in America?** *Biological psychiatry. Cognitive neuroscience and neuroimaging*
Singh, M. K., Nimarko, A., Bruno, J., Anand, K. J., Singh, S. P.
2022
- **Aberrant brain network and eye gaze patterns during natural social interaction predict multi-domain social-cognitive behaviors in girls with fragile X syndrome.** *Molecular psychiatry*
Li, R., Bruno, J. L., Lee, C. H., Bartholomay, K. L., Sundstrom, J., Piccirilli, A., Jordan, T., Miller, J. G., Lightbody, A. A., Reiss, A. L.
2022
- **Exposure to DDT and DDE and functional neuroimaging in adolescents from the CHAMACOS cohort.** *Environmental research*
Binter, A., Mora, A. M., Baker, J. M., Bruno, J. L., Kogut, K., Rauch, S., Reiss, A. L., Eskenazi, B., Sagiv, S. K.
2022: 113461
- **Brief, Intense Social Gaze Training Normalizes Functional Brain Connectivity in Boys With Fragile X Syndrome**
Bruno, J., Saggar, M., Hall, S.
ELSEVIER SCIENCE INC.2022: S152
- **Altered canonical and striatal-frontal resting state functional connectivity in children with pathogenic variants in the Ras/mitogen-activated protein kinase pathway.** *Molecular psychiatry*
Bruno, J. L., Shrestha, S. B., Reiss, A. L., Saggar, M., Green, T.

2022

- **Parent Cognition and Behavior Predict Variable Outcomes in Children With Ras/mitogen-Activated Protein Kinase (RMK) Pathway Pathogenic Mutations**
Bruno, J., Green, T.
SPRINGERNATURE.2021: 123-124
- **Thalamic Structure and Function in Youth With and At Familial Risk for Bipolar Disorder**
Singh, M., Gorelik, A., Carta, K., Gorelik, M., Chang, K., Bruno, J., Nimarko, A.
SPRINGERNATURE.2021: 285-286
- **Neuroanatomical Profile of Young Females with Fragile X Syndrome: A Voxel-Based Morphometry Analysis.** *Cerebral cortex (New York, N.Y. : 1991)*
Lee, C. H., Bartholomay, K. L., Marzelli, M. J., Miller, J. G., Bruno, J. L., Lightbody, A. A., Reiss, A. L.
2021
- **Neurite Imaging Reveals Widespread Alterations in Gray and White Matter Neurite Morphology in Healthy Aging and Amnesic Mild Cognitive Impairment.** *Cerebral cortex (New York, N.Y. : 1991)*
Gozdas, E., Fingerhut, H., Dacorro, L., Bruno, J. L., Hosseini, S. M.
2021
- **Empathy and Anxiety in Young Girls with Fragile X Syndrome.** *Journal of autism and developmental disorders*
Miller, J. G., Bartholomay, K. L., Lee, C. H., Bruno, J. L., Lightbody, A. A., Reiss, A. L.
2021
- **Empathic Accuracy in Adolescent Girls with Turner Syndrome** *JOURNAL OF AUTISM AND DEVELOPMENTAL DISORDERS*
Klabunde, M., Piccirilli, A., Bruno, J., Gendron, M., Reiss, A. L.
2021
- **Quantitative Measurement of Macromolecular Tissue Properties in White and Gray Matter in Healthy Aging and Amnesic MCI.** *NeuroImage*
Gozdas, E., Fingerhut, H., Wu, H., Bruno, J. L., Dacorro, L., Jo, B., O'Hara, R., Reiss, A. L., Hosseini, S. M.
2021: 118161
- **Evaluation of smartphone interactions on drivers' brain function and vehicle control in an immersive simulated environment.** *Scientific reports*
Baker, J. M., Bruno, J. L., Piccirilli, A., Gundran, A., Harbott, L. K., Sirkin, D. M., Marzelli, M., Hosseini, S. M., Reiss, A. L.
2021; 11 (1): 1998
- **Aberrant Neural Response During Face Processing in Girls with Fragile X Syndrome: Defining Potential Brain Biomarkers for Treatment Studies.** *Biological psychiatry. Cognitive neuroscience and neuroimaging*
Li, R., Bruno, J. L., Jordan, T., Miller, J. G., Lee, C. H., Bartholomay, K. L., Marzelli, M. J., Piccirilli, A., Lightbody, A. A., Reiss, A. L.
2021
- **Examining the Neurocognitive Basis of Applied Creativity in Entrepreneurs and Managers** *Design Thinking Research. Understanding Innovation.*
Auernhammer, J., Sonalkar, N., Xie, H., Monlux, K., Bruno, J., Saggari, M.
Springer, Cham.2021
- **Activation Mutation in the Ras/MAPK Pathway Alters the Functional Resting-State Architecture Underlying Executive Function and Attention**
Bruno, J., Shrestha, S., Reiss, A., Saggari, M., Green, T.
SPRINGERNATURE.2020: 177-78
- **Glucocorticoid regulation and neuroanatomy in fragile x syndrome** *Journal of Psychiatric Research*
Bruno, J. L., Hong, D. S., Lightbody, A. A., Hosseini, S., Hallmayer, J., Reiss, A. L.
2020
- **Functional neuroanatomy of interoceptive processing in children and adolescents: a pilot study.** *Scientific reports*
Klabunde, M., Juszczak, H., Jordan, T., Baker, J. M., Bruno, J., Carrion, V., Reiss, A. L.
2019; 9 (1): 16184
- **Prenatal exposure to organophosphate pesticides and functional neuroimaging in adolescents living in proximity to pesticide application.** *Proceedings of the National Academy of Sciences of the United States of America*
Sagiv, S. K., Bruno, J. L., Baker, J. M., Palzes, V., Kogut, K., Rauch, S., Gunier, R., Mora, A. M., Reiss, A. L., Eskenazi, B.
2019

- **Closing the Gender Gap in Fragile X Syndrome: Review on Females with FXS and Preliminary Research Findings.** *Brain sciences*
Bartholomay, K. L., Lee, C. H., Bruno, J. L., Lightbody, A. A., Reiss, A. L.
2019; 9 (1)
- **Brain circuitry, behavior, and cognition: A randomized placebo-controlled trial of donepezil in fragile X syndrome.** *Journal of psychopharmacology (Oxford, England)*
Bruno, J. L., Hosseini, S. H., Lightbody, A. A., Manchanda, M. K., Reiss, A. L.
2019: 269881119858304
- **Brain circuitry, behavior, and cognition: A randomized placebo-controlled trial of donepezil in fragile X syndrome** *JOURNAL OF PSYCHOPHARMACOLOGY*
Bruno, J. L., Hosseini, S., Lightbody, A. A., Manchanda, M. K., Reiss, A. L.
2019; 33 (8): 975-85
- **Mind over motor mapping: Driver response to changing vehicle dynamics.** *Human brain mapping*
Bruno, J. L., Baker, J. M., Gundran, A. n., Harbott, L. K., Stuart, Z. n., Piccirilli, A. M., Hosseini, S. M., Gerdes, J. C., Reiss, A. L.
2018
- **fNIRS measurement of cortical activation and functional connectivity during a visuospatial working memory task.** *PLoS one*
Baker, J. M., Bruno, J. L., Gundran, A., Hosseini, S. M., Reiss, A. L.
2018; 13 (8): e0201486
- **Neural, physiological, and behavioral correlates of visuomotor cognitive load.** *Scientific reports*
Hosseini, S. M., Bruno, J. L., Baker, J. M., Gundran, A., Harbott, L. K., Gerdes, J. C., Reiss, A. L.
2017; 7 (1): 8866
- **Multivariate Investigation of Brain and Behavioral Outcomes in Individuals with FMR1 Full Mutation**
Bruno, J., Hosseini, H., Reiss, A.
ELSEVIER SCIENCE INC.2017: S299–S300
- **Altered Brain Network Segregation in Fragile X Syndrome Revealed by Structural Connectomics** *CEREBRAL CORTEX*
Bruno, J. L., Hosseini, S. M., Sagggar, M., Quintin, E., Raman, M. M., Reiss, A. L.
2017; 27 (3): 2249-2259
- **Longitudinal identification of clinically distinct neurophenotypes in young children with fragile X syndrome.** *Proceedings of the National Academy of Sciences of the United States of America*
Bruno, J. L., Romano, D. n., Mazaika, P. n., Lightbody, A. A., Hazlett, H. C., Piven, J. n., Reiss, A. L.
2017
- **Neural, physiological, and behavioral correlates of visuomotor cognitive load** *Scientific Reports*
Hosseini, S., Bruno, J. L., Baker, J. M., Gundran, A., Harbott, L. K., Gerdes, J., Reiss, A. L.
2017: 8866
- **The cognitive developmental profile associated with fragile X syndrome: A longitudinal investigation of cognitive strengths and weaknesses through childhood and adolescence.** *Development and psychopathology*
Quintin, E., Jo, B., Hall, S. S., Bruno, J. L., Chromik, L. C., Raman, M. M., Lightbody, A. A., Martin, A., Reiss, A. L.
2016; 28 (4): 1457-1469
- **Altered Brain Network Segregation in Fragile X Syndrome Revealed by Structural Connectomics** *Cerebral Cortex*
Bruno, J. L., Hosseini, S., Sagggar, M., Quintin, E., Raman, M., Reiss, A. L.
2016
- **Estimating individual contribution from group-based structural correlation networks.** *NeuroImage*
Sagggar, M., Hosseini, S. M., Bruno, J. L., Quintin, E., Raman, M. M., Kesler, S. R., Reiss, A. L.
2015; 120: 274-284
- **Specific effect of the fragile-X mental retardation-1 gene (FMR1) on white matter microstructure** *BRITISH JOURNAL OF PSYCHIATRY*
Green, T., Barnea-Goraly, N., Raman, M., Hall, S. S., Lightbody, A. A., Bruno, J. L., Quintin, E., Reiss, A. L.
2015; 207 (2): 143-148

- **Aberrant Face and Gaze Habituation in Fragile X Syndrome** *AMERICAN JOURNAL OF PSYCHIATRY*
Bruno, J. L., Garrett, A. S., Quintin, E., Mazaika, P. K., Reiss, A. L.
2014; 171 (10): 1099-1106
- **Aberrant basal ganglia metabolism in fragile X syndrome: a magnetic resonance spectroscopy study** *JOURNAL OF NEURODEVELOPMENTAL DISORDERS*
Bruno, J. L., Shelly, E. W., Quintin, E., Rostami, M., Patnaik, S., Spielman, D., Mayer, D., Gu, M., Lightbody, A. A., Reiss, A. L.
2013; 5
- **Phonological processing is uniquely associated with neuro-metabolic concentration** *NEUROIMAGE*
Bruno, J. L., Lu, Z., Manis, F. R.
2013; 67: 175-181
- **Cognitive outcomes in pediatric heart transplant recipients bridged to transplantation with ventricular assist devices** *JOURNAL OF HEART AND LUNG TRANSPLANTATION*
Stein, M. L., Bruno, J. L., Konopacki, K. L., Kesler, S., Reinhartz, O., Rosenthal, D.
2013; 32 (2): 212-220
- **Altered resting state functional brain network topology in chemotherapy-treated breast cancer survivors** *NEUROBIOLOGY OF DISEASE*
Bruno, J., Hosseini, S. M., Kesler, S.
2012; 48 (3): 329-338
- **Neuroimaging in Genetic Disorders** *Handbook of Neurodevelopmental and Genetic Disorders in Children*
Kesler, S., Wilde, E., Bruno, J., Bigler, E.
Gilford Press.2010; 2
- **Sensitivity to orthographic familiarity in the occipito-temporal region** *NEUROIMAGE*
Bruno, J. L., Zumberge, A., Manis, F. R., Lu, Z., Goldman, J. G.
2008; 39 (4): 1988-2001
- **Auditory word identification in dyslexic and normally achieving readers** *JOURNAL OF EXPERIMENTAL CHILD PSYCHOLOGY*
Bruno, J. L., Manis, F. R., Keating, P., Sperling, A. J., Nakamoto, J., Seidenberg, M. S.
2007; 97 (3): 183-204