

David A. A. Baranger, Ph.D.

Postdoctoral Scholar

Affective Neuroscience & Developmental Psychopathology (ANDP) Lab; Dr. Erika Forbes
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Education and Work

University of Pittsburgh, Pittsburgh PA (09/2018 – Present)

Postdoctoral Scholar – Erika Forbes, Ph.D.

Topic: Influence of stress on reward circuitry development.

Washington University in St Louis, St Louis MO (08/2012 – 08/2018)

Ph.D., Neuroscience; Advisors: Ryan Bogdan, Ph.D.; Deanna Barch, Ph.D.

Dissertation: Evaluation of neurobiological risk factors for alcohol consumption.

National Institute of Mental Health, Bethesda MD (06/2010 – 06/2012)

Research Assistant – Joseph Callicott, M.D.

Duke University, Durham NC (06/2009 – 05/2010)

Research Intern – Joseph McClernon, Ph.D.

Wesleyan University, Middletown CT (08/2006 – 05/2010)

B.A., Neuroscience and Behavior, Science in Society Program; Student Researcher – Matthew Kurtz, Ph.D.

Research Funding

- 2018 T32 Postdoctoral Fellowship – IMPACT (Innovative Methods in Pathogenesis and Child Treatment) MH018951
- 2014 National Science Foundation Graduate Research Fellowship (GRF) DGE1143954
- 2013 T32 Systems and Molecular Neurobiology GM008151
- 2010 National Institutes of Health Intramural Research Training Award (IRTA) Fellowship
- 2008 Summer Undergraduate Research Fellowship (SURF) – Cincinnati Children's Hospital

Awards

- 2018 Society of Biological Psychiatry Predoctoral Travel Fellowship Award
- 2017 crowdAI Machine Learning OpenSNP Height Prediction Competition 1st Place Award
- 2017 Spring WUSTL Graduate Student Senate Travel Award
- 2015 Fine Science & Merlie Traveling Fellowship
- 2015 Mortimer D. Sackler, M.D., Summer Institute Fellow
- 2015 WUSTL Graduate Research Symposium 2nd Place Poster in Science & Award
- 2015 International Imaging Genetics Conference 2nd Place Poster & Travel Award
- 2014 International Imaging Genetics Conference 2nd Place Poster & Travel Award
- 2013 Fine Science & Merlie Traveling Fellowship

Skills [● = expert; ○ = advanced; • = beginner]

Neuroimaging: fMRI & structural (●); EEG (○); DTI & resting-state (•).

software: FSL & SPM (○), AFNI (•).

Statistics: Mixed-effect models (●); Machine learning & meta-analysis (○); SEM (•).

software: R (●), Matlab (○), Python (•).

Genetics: Polygenic risk scores (●); GWAS, TWAS, heritability, gene enrichment (○).

software: PRSice, plink, FUSION, SOLAR, GCTA, LDSC, MTAG (○).

Manipulations: Trier social stress test (●).

Publications

Baranger DAA, Few LR, Sheinbein D, Agrawal A, Oltmanns TF, Knodt AR, Barch DM, Hariri AR, Bogdan R. Borderline personality disorder traits are not associated with brain structure in two large independent samples. *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging* (Accepted). doi: 10.31234/osf.io/ku8b5.

Baranger DAA, Demers CH, Elsayed NM, Knodt AR, Radtke SR, Desmarais A, Few LR, Agrawal A, Heath AC, Barch DM, Squeglia LM, Williamson DE, Hariri AR, Bogdan R. Convergent evidence for predispositional effects of brain volume on alcohol consumption. *Biological Psychiatry* (In press). doi: 10.1016/j.biopsych.2019.08.029

Baranger DAA, Bogdan R. Editorial: Causal, Predispositional, or Correlate? Group Differences in Cognitive Control-Related Brain Function in Cannabis-Using Youth Raise New Questions. *JAACAP*. (2019) 58(7):665-667
doi: 10.1016/j.jaac.2019.05.018

- Karcher NR, Barch DM, Demers CH, **Baranger DAA**, Heath AC, Lynskey MT, Agrawal A. Genetic Predisposition vs Individual-Specific Processes in the Association Between Psychotic-like Experiences and Cannabis Use. *JAMA Psychiatry*, (2019) 76(1):87-94. doi:10.1001/jamapsychiatry.2018.2546
- Bogdan R, **Baranger DAA**, Agrawal A. Polygenic risk scores in clinical psychology: Bridging genomic risk to individual differences. *Annual Review of Clinical Psychology*, (2018) 14. doi:10.1146/annurev-clinpsy-050817-084847.
- Sheahan T, Valtcheva M, McIlvried L, Pullen M, **Baranger DAA**, Gereau IV R. Metabotropic glutamate receptor 2/3 (mGluR2/3) activation suppresses TRPV1 sensitization in mouse, but not human sensory neurons. *eNeuro* (2018) 0412-17.2018; doi: 10.1523/ENEURO.0412-17.2018
- Agrawal A, Chou Y, Carey C, **Baranger DAA**, Zhang B, Sherva R, Wetherill L, Lynskey MT, Bierut L, Degenhardt L, Farrer L, Gelernter J, Hariri AR, Heath A, Kranzler H, Madden PAF, Martin NG, Montgomery G, Porjesz B, Wang T, Edenberg HJ, Foroud T, Goate AM, Bogdan R, Nelson E. Genomewide association study identifies novel locus for cannabis dependence. *Molecular Psychiatry*, (2017) 23, 1293–1302 doi:10.1038/mp.2017.200
- Michalski LJ, Demers CH, **Baranger DAA**, Barch DM, Harms MP, Burgess G, Bogdan R. Perceived stress is associated with increased rostral middle frontal gyrus cortical thickness: A family-based and discordant sibling investigation. *Genes, Brain, and Behavior*, (2017) 16(8):781-789. doi:10.1111/gbb.12404
- Baranger DAA**, Margolis S, Hariri AR, Bogdan R. Evidence for Diurnal Variation of Threat-related Amygdala Reactivity. *Social, Cognitive, and Affective Neuroscience*, (2017) 12(8), 1272-1283. doi:10.1093/scan/nsx057
- Baranger DAA**, Ifrah C, Prather AA, Carey CE, Corral- Frías NS, Conley ED, Hariri AR, Bogdan R. PER1 rs3027172 Genotype Interacts with Early Life Stress to Predict Problematic Alcohol Use, but Not Reward-Related Ventral Striatum Activity. *Frontiers in Psychology*, (2016) 7(3), 1–10. doi:10.3389/fpsyg.2016.00464
- Bogdan R, Pagliaccio D, **Baranger DAA**, Hariri AR. Genetic moderation of stress effects on the corticolimbic circuit. *Neuropsychopharmacology* (2015) 41(7), 275–296. doi:10.1038/npp.2015.216
- Arnedo J, Mamah D, **Baranger DAA**, Harms MP, Barch DM, Svrakic D, de Erausquin GA, Cloninger CR. Decomposition of brain diffusion imaging data uncovers latent schizophrenias with distinct patterns of white matter anisotropy. *Neuroimage* (2015) 120, 43-54. doi:10.1016/j.neuroimage.2015.06.083
- Corral-Frías NS, Nikolova YS, Michalski L, **Baranger DAA**, Hariri AR, Bogdan R. Stress-related anhedonia is associated with reward-related ventral striatum reactivity and transdiagnostic psychiatric symptomatology. *Psychological Medicine* (2015) 45(12), 2605–17. doi:10.1017/S0033291715000525
- Callicott JH, Feighery EL, Mattay VS, White MG, Chen Q, **Baranger DAA**, Berman KF, Lu B, Hongjun S, Ming G, Weinberger DR. DISC1 and SLC12A2 interaction affects human hippocampal function and connectivity. *Journal of Clinical Investigation* (2013) 123(7), 2961-2964. doi:10.1172/JCI67510
- Addicott MA, **Baranger DAA**, Kozink RV, Smoski MJ, Dichter GS, McClernon JF. Smoking withdrawal is associated with increases in brain activation during decision making and reward anticipation. *Psychopharmacology* (2012) 219(2), 563–573. doi:10.1007/s00213-011-2404-3

Publications in submission and preparation

- Baranger DAA**, Nance M, Lindenmuth M, Hipwell AE, Guyer A, Shaw DS, Forbes EE. A systematic exploration of the long-term stability of monetary gain and loss fMRI activation. (In preparation)
- Baranger DAA**, Lindenmuth M, Hipwell AE, Guyer A, Forbes EE. Early life stress is associated with adaptive accelerated maturation of reward processing in late adolescence. (In preparation)
- Baranger DAA**, Desmarais A, Sputo K, Chang K, Pan W, Jones M, Kennedy M, Winstone J, Corral- Frías NS, Bogdan R. No effect of acute or early-life stress in a reward learning and processing paradigm. (In preparation).
- Naret O, **Baranger DAA**, Mohanty SP, Tzovaras BG, Salathé M, Fellay J, with the openSNP and crowdAI community. Phenotype prediction from genome-wide genotyping data: a crowdsourcing experiment. (Submitted)

Invited Talks

- Baranger DAA**. Evaluating Neural and Behavioral Markers of Psychiatric Risk. Developmental Affective Science Collective, University of Pittsburgh, May 2017.
- Baranger DAA**, Desmarais A, Carey C, Hariri AR, Bogdan R. Orexin/hypocretin system polygenic risk scores predict amygdala reactivity in two samples. Presented at the 2016 Society of Biological Psychiatry conference, Atlanta, GA, May 2016.

Baranger DAA, Few L, Sheinbein D, Agrawal A, Latzman RD, Barch D, Hariri AR, Bogdan R. Borderline personality disorder traits are not associated with gray matter volume in two large independent samples. Presented at the 2016 Society of Biological Psychiatry conference, Atlanta, GA, May 2016.

Conference Abstracts

Baranger DAA, Nance M, Lindenmuth M, Hipwell AE, Guyer A, Shaw DS, Forbes EE. A systematic exploration of the long-term reliability of monetary gain and loss fMRI activation. Presented at the 2019 Society of Biological Psychiatry conference, Chicago, IL, May 2019.

Baranger DAA, Demers CH, Elsayed NM, Knodt AR, Radtke SR, Desmarais A, Few LR, Agrawal A, Heath AC, Barch DM, Squeglia LM, Williamson DE, Hariri AR, Bogdan R. Convergent evidence for predispositional effects of brain volume on alcohol consumption. Presented at the 2018 Society of Biological Psychiatry conference, New York, NY, May 2018.

Baranger DAA, Margolis S, Hariri AR, Bogdan R. Evidence for diurnal variation of threat-related amygdala reactivity. Presented at the 2016 International Imaging Genetics Conference, January 2016, Irvine, CA.

Baranger DAA, Desmarais A, Carey C, Drabant EMD, Hariri AR, Bogdan R. Orexin/hypocretin system polygenic risk scores predict amygdala reactivity. Presented at the 2015 World Congress of Psychiatric Genetics, October 2015, Toronto, CA.

Baranger DAA, Carey CE, Margolis S, Conley EMD, Hariri AR, Bogdan R. A random forest circadian gene-set analysis component interacts with childhood stress to predict bilateral amygdala reactivity to faces. Presented at the 2015 International Imaging Genetics Conference, January 2015, Irvine, CA.

Baranger DAA, Drabant EMD, Bogdan R, and Hariri AR. PER2 circadian gene functional polymorphism rs11894491 moderates amygdala reactivity in the context of early life stress. Presented at the 2014 Society for Research in Psychopathology meeting, September 2014, Evanston, Illinois.

Baranger DAA, Ifrah C, Prather AA, Carey CE, Corral- Frias NS, Conley EMD, Hariri AR, Bogdan R, PERIOD1 rs3027172 is associated with increased risk for problematic drinking in the context of early life stress. Presented at the 2014 International Imaging Genetics Conference, January 2015, Irvine, CA.

Baranger DAA, Yates WD, White M, Chgen Q, Rasetti R, Mattay VS, Weinberger DR, Callicott JH; DISC1 Leu607Phe and Ser704Cys interact to reduce prefrontal-hippocampal coupling during a working memory task. Presented at the 2012 Society of Biological Psychiatry conference, Philadelphia, PA, May 2012.

Baranger DAA, Feighery EL, Dickinson DD, Rasetti R, Sust S, Zoltick B, Chen Q, Rypma B, Mattay VS, Weinberger DR, Callicott JH; COMT Val158Met polymorphism modulates prefrontal cortical efficiency in a processing speed task. Presented at the 2011 Society for Neuroscience conference, Washington, DC, November 2011.

Ad-Hoc Reviewer

Biological Psychiatry, Cognitive Affective and Behavioral Neuroscience, Journal of Addictive Diseases, Neuropsychologia, Personality and Individual Differences, PLOS One, Social Cognitive and Affective Neuroscience.

Teaching

- Workshop Instructor, Interface of Psychology, Neuroscience, and Genetics 2017
3-day workshop on applying modern genetics techniques in mental-health research
- Lecturer, Molecular Biology at the Cutting-Edge 2016, 2017
"Neuroimaging and Genetics"
- Community Member, Washington University Center for the Integration of Research, Teaching, and Learning (WU-CIRTL) 2014 – 2017
- Peer Mentor, BP-ENDURE St. Louis Neuroscience Pipeline 2016
- Bench Mentor, BP-ENDURE St. Louis Neuroscience Pipeline 2015
- Teaching Assistant, Systems Neuroscience (course instructor: Dr. Lawrence Snyder) 2014
- Science Tutor, Young Scientist Program: Summer Focus 2013

Professional Service

- Representative, Center for the Neural Basis of Cognition (CNBC) Postdoctoral Committee 2019 – Present
- Postdoc representative, CNBC Retreat Committee 2019 - Present
- Co-organizer, 1st Washington University BrainHack Hackathon 2017
- Student representative, Cognitive, Computational, and Systems Neuroscience Mini-Retreat Committee 2014 – 2017

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- Student representative, Neuroscience Program Retreat Committee 2013 – 2017

Outreach

- Neuroscience Team Leader, Young Scientist Program 2012 – 2017
Organized volunteers and equipment for demonstrations at Washington University, St. Louis area schools, and public events, for students (K-12) and community members, reaching over 3,000 people.
- Volunteer, Youth Exploring Science 2012 – 2013
Weekend neuroscience experience for disadvantaged and minority high school students

Mentored undergraduate students

Chloé Ifrah*, Orma Ravindranath, Seth Margolis*, Daniel Sheinbein*, Patrick England, Samantha Kahn, Aline Desmarais*, Sid Dalal*, Kendall Sputo, William Pan, and Corey Meehan. * = co-author on at least one manuscript