Curriculum Vitae

JONATHAN L. HESS, PH.D.

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PERSONAL PROFILE

Date of birth: May 20, 1990
Residence: Syracuse, NY
Marital Status: Married
Website: https://github.com/hessJ
OCRID: orcid.org/0000-0001-8406-632X

EDUCATION

Degrees

2012 B.S. in Biology, Minor in Psychology (*Magna cum laude*), Le Moyne College, Syracuse, NY
2017 Ph.D. in Neuroscience, SUNY Upstate Medical University (**SUNY UMU**)

Special seminars

2016 Psychiatric Genomics Consortium Analyst Training Summer School, King's College London

POSITIONS

Academic

2012 – 2017 Doctoral candidate, Department of Neuroscience, SUNY UMU
2017 – 2019 Postdoctoral Associate, Department of Psychiatry & Behavioral Sciences, SUNY UMU
2019 – Assistant Professor, Departments of Psychiatry & Behavioral Sciences and Neuroscience & Physiology, SUNY UMU

Volunteer

2012 Volunteer Research Assistant, Department of Psychiatry, SUNY UMU
2014 Peer mentor, College of Graduate Studies, SUNY UMU

Visiting researcher positions

2016 Visiting Researcher, The Stanley Center for Psychiatric Research at Broad Institute, Boston, MA. **Supervisor**: Dr. Benjamin Neale. **Period**: June 2016 – August 2016. **Project**: Analysis of trio-based GWAS and exome-sequencing data to identify risk genes for schizophrenia.

SERVICE

Professional societies

2009 – 2012 Member, Tri Beta National Honor Society
2014 – Member, International Society of Psychiatric Genetics
2020 – Member, American Society of Human Genetics

Ad hoc Reviewer [Number of reviews]: 28 total

American Journal of Medical Genetics: Neuropsychiatric Genetics Part B [4]
Biological Psychiatry [1]
BMC Medical Genomics [3]
Computational Psychiatry [1]
European Neuropsychopharmacology [1]
International Journal of Bipolar Disorders [1]
Journal of Neurochemistry [1]
Journal of Psychiatric Research [1]
Molecular Autism [1]
NPJ Schizophrenia [1]

PLOS One [2]
Psychological Medicine [1]
Psychiatric Genetics [1]
Psychiatry Research [2]
Psychiatry Research: Neuroimaging [1]
Schizophrenia Bulletin [3]
Scientific Reports [1]
Translational Psychiatry [2]

Editorial services
2019 Editorial Member, *Journal of Attention Disorders*

University service
2021 Medical School Admissions Interviewer; College of Medicine; SUNY UMU

INVITED SPEAKER

2019 "Peripheral Biomarkers of Psychiatric Disorders", Le Moyne College
2021 "Moving Beyond the Proxy: Imputation of Brain Transcriptomes from Blood with BrainGENIE", Neurogenomic Cyber Seminar Series, Mount Sinai School of Medicine (Hosted by Breen Lab)

INSTRUCTION

Lectures "Support Vector Machines & Applications to Transcriptomic Data". Nanocourse: Introduction to Machine Learning. College of Graduate Studies, SUNY UMU. July 2020.

Tutoring
2014 Introduction to Neuroscience, SUNY UMU

Workshops
2017 Data Carpentry Workshop on NGS Data Analysis, SUNY UMU

Trainees (rotation students/visiting scholars)

Note: The trainees named below are individuals who were being hosted in the lab of Dr. Glatt. My responsibility was to help oversee the daily activities of these trainees during a defined project period. My general duties included coordinating the on-boarding of incoming trainees into the dry-lab (*e.g.,* introduction to lab resources, instruction on statistical programming), providing technical support, and management of project tasks.

Visiting researchers
2019 Armita Kakavand Hamidi, M.S., Tehran University of Medical Sciences (TUMS)

Medical students
2015 Konrad Stawiski, Exchange Student, International Federation of Medical Students' Associations, Medical University of Lodz, Lodz, Poland

Graduate students
2014 Alexis Zajicek, Graduate Program in Neuroscience, SUNY UMU
2015 Eric Barnett, M.D./Ph.D. Program in Neuroscience, SUNY UMU
2017 Logan Wells, Master's Program in Health Informatics, SUNY Oswego, NY
2018 William Blasland, Master's in Public Health and Preventative Medicine, SUNY UMU
2018 Csaba Papp, Graduate Program in Neuroscience, SUNY UMU
2019 Jiahui Hou, Graduate Program in Neuroscience, SUNY UMU

Undergraduate students
2014 Karl Miller, Binghamton University, Binghamton, NY
2018 Jesse Suben, SUNY Cortland, Cortland, NY

High school students
2015 – 2017 Marisa Peryer, Christian Brothers Academy, Syracuse, NY (currently Undergraduate Student, Yale University, New Haven, CT)
2018 Madelyn Walters, Union Springs High School, Union Springs, NY

Advisory Committee

2020 – Nicholas Nguyen, M.D./Ph.D. Program in Neuroscience, SUNY UMU

Qualifying Exam Committee

2021 Rujia Dai, Ph.D. Program in Neuroscience, SUNY UMU

AWARDS

Honors

2021 Selected as UMU nominee for Warren Alpert Scholars Award (submission in progress)
2008 Dean's Scholarship, Le Moyne College
2008 – 2012 Dean's List, Department of Biological Sciences, Le Moyne College

Travel awards

2019 American Professional Society of ADHD and Related Disorders (APSARD) 2019 Annual Meeting, Washington D.C., USA, Travel Award
2019 7th World Congress on ADHD, Lisbon, Portugal, Young Scientist Travel Award

PUBLICATIONS

Select peer-reviewed publications (Link to full list of peer-review publications: My Bibliography)

Total peer-review papers published: 23

Metrics: Total citations = 560; Most cited first-author article = 65 (since 2016); *h*-index = 13

† Authors contributed equally

1 **Hess JL**, Kawaguchi DM, Wagner KE, Faraone S V, Glatt SJ. The influence of genes on positive valence systems constructs: A systematic review. *Am J Med Genet B Neuropsychiatr Genet* 2016; **171B**: 92–110.

2 Cohen OS, Weickert TW, **Hess JL**, Paish LM, McCoy SY, Rothmond DA *et al.* A splicing-regulatory polymorphism in DRD2 disrupts ZRANB2 binding, impairs cognitive functioning and increases risk for schizophrenia in six Han Chinese samples. *Mol Psychiatry* 2015; : 1–8.

3 Zhang-James Y, Fernàndez-Castillo N, **Hess JL,** Malki K, Glatt SJ, Cormand B *et al.* An integrated analysis of genes and functional pathways for aggression in human and rodent models. Mol. Psychiatry. 2018. doi:10.1038/s41380-018-0068-7.

4 Tylee DS, Espinoza AJ, **Hess JL**, Tahir MA, Mccoy SY, Rim JK *et al.* RNA sequencing of transformed lymphoblastoid cells from siblings discordant for autism spectrum disorders reveals transcriptomic and functional alterations: Evidence for sex-specific effects. Autism Res. 2016. doi:10.1002/aur.1679.

5 Tylee DS, Sun J, **Hess JL**, Tahir MA, Sharma E, Malik R *et al.* Genetic correlations among psychiatric and immune-related phenotypes based on genome-wide association data. *Am J Med Genet Part B Neuropsychiatr Genet* 2018. doi:10.1002/ajmg.b.32652.

6 van de Leemput J†, **Hess JL**†, Glatt SJ, Tsuang MT. Genetics of Schizophrenia: Historical Insights and Prevailing Evidence. *Adv Genet* 2016; **96**: 99–141.

7 **Hess JL**, Quinn TP, Akbarian S, Glatt SJ. Bioinformatic analyses and conceptual synthesis of evidence linking ZNF804A to risk for schizophrenia and bipolar disorder. *Am J Med Genet B Neuropsychiatr Genet* 2015; **168**: 14–35.

8 **Hess JL**, Glatt SJ. How might ZNF804A variants influence risk for schizophrenia and bipolar disorder? A literature review, synthesis, and bioinformatic analysis. *Am J Med Genet B Neuropsychiatr Genet* 2014; **165**: 28–40.

9 Patak J, **Hess JL**, Zhang-James Y, Glatt SJ, Faraone S V. *SLC9A9* Co-expression modules in autism-associated brain regions. *Autism Res* 2017; **10**: 414–429.

10 Tylee DS, **Hess JL**, Quinn TP, Barve R, Huang H, Zhang-James Y *et al.* Blood transcriptomic comparison of individuals with and without autism spectrum disorder: A combined-samples mega-analysis. *Am J Med Genet Part B Neuropsychiatr Genet* 2017; **174**: 181–201.

11 **Hess JL**, Akutagava-Martins G, Patak J, Glatt SJ, Faraone S V. Why is there selective subcortical vulnerability in ADHD? Clues from postmortem brain gene expression data. *Mol Psychiatry* 2017. doi:10.1038/mp.2017.242.

12 **Hess JL**†, Tylee DS†, Barve R, de Jong S, Ophoff RA, Kumarasinghe N *et al.* Transcriptome-wide mega-analyses reveal joint dysregulation of immunologic genes and transcription regulators in brain and blood in schizophrenia. *Schizophr Res* 2016; **176**: 114–124.

13 Faraone SV, **Hess JL**, and Wilkens T. Prevalence and Consequences of Nonmedical Use of Amphetamine among Persons Calling Poison Control Centers. *J Atten Disord*. 2019

14 **Hess JL**, Tylee DS, Mattheisen M, the Schizophrenia Working Group of the Psychiatric Genomics Consortium, the Lundbeck Foundation Inititative for Integrative Psychiatric Research (*i*PSYCH), Børglum A *et al.* A Polygenic Resilience Score Moderates the Genetic Risk for Schizophrenia. *Mol Psych*. 2021; **26**: 800-815. doi: 10.1038/s41380-019-0463-8

15 **Hess JL**, Tylee DS, Barve R, de Jong S, Ophoff RA, Kumarasinghe N *et al*. Transcriptomic abnormalities in peripheral blood in bipolar disorder, and discrimination of the major psychoses. *Schizophr Res.* 2019

16 **Hess JL**, Nguyen NH, Suben J, Meath RM, Albert AB, Van Orman S *et al.* Gene co-expression networks in peripheral blood capture dimensional measures of emotional and behavioral problems from the Child Behavior Checklist (CBCL). *Translational Psychiatry*. 2020

17 Zaso MJ, Maisto SA, Glatt SJ, **Hess, JL**, and Park A. Effects of polygenic risk scores and perceived friend drinking and disruptive behavior on development of alcohol use across adolescence. *Journal of Studies on Alcohol and Drugs.* 2020.

18 **Hess JL**, Chen S, Quinn TP, Kong SW, Cairns M, Tsuang M, *et al*. *BrainGENIE*: The Brain Gene Expression and Network Imputation Engine. *bioRxiv.* 2020 [pre-print]

19 Radonjić NV, **Hess JL**, Rovira P, Andreassen O, Buitelaar JK, Ching CRK, et al. Structural Brain Imaging Studies Offer Clues about the Effects of Shared Genetic Etiology among Neuropsychiatric Disorders. *Mol Psych*. 2020 [in-press]

20 **Hess JL**, Radonjić NV, Patak J, Glatt SJ, Faraone SV. Autophagy, apoptosis, and neurodevelopmental genes might underlie selective brain region vulnerability in attention-deficit/hyperactivity disorder. *Mol Psych*. 2020. https://doi.org/10.1038/s41380-020-00974-2

Oral Presentations

1. *Genome-wide Associated Variants of Schizophrenia and Bipolar Disorder Linked with Splicing Motifs and Gene Expression*. (2015) 23rd World Congress of Psychiatric Genetics in Toronto, Canada.
2. *Genes and Brain Cell Types Linked with Selective Brain Region Vulnerability in ADHD*. (2019) 7th World Congress on ADHD in Lisbon, Portugal.
3. *Derivation of a Novel Polygenic Resilience Score that Modulates Risk for Schizophrenia* (2019) 27th World Congress of Psychiatric Genetics in Anaheim, California, USA.
4. *BrainGENIE: A Computational Model for Imputing the Living Human Brain Transcriptome from Blood* (2021). World Congress of Psychiatric Genetics, Virtual Conference.

Poster Presentations

1. **Hess JL**, Paish L, McCoy SY, Cohen OS, and Glatt SJ. *Polymorphisms linked to schizophrenia in DRD2 lead to changes in expression of alternatively spliced variants*. (2012) SUNY Upstate College of Graduate Studies 12th Annual Retreat
2. **Hess JL** and Glatt SJ. *How might the non-coding ZNF804A variant rs1344706 increase risk for schizophrenia and bipolar disorder?* (2014) 22nd World Congress of Psychiatric Genetics, International Society of Psychiatric Genetics.
3. **Hess JL**, Kawaguchi DM, Faraone SV, Glatt, SJ. *The Influence of Genes on "Positive Valence Systems" Constructs: A Systematic Review*. (2014) 22nd World Congress of Psychiatric Genetics, International Society of Psychiatric Genetics.
4. **Hess JL**, Tylee DS, Barve R, de Jong S, Ophoff R, … and Glatt SJ. *Transcriptome-Wide Mega-Analyses Reveal Joint Dysregulation of Immunologic Genes and Transcription Regulators in Brain and Blood in Schizophrenia*. (2015) 23rd World Congress of Psychiatric Genetics, International Society of Psychiatric Genetics.
5. Tylee DS, **Hess JL**, Faraone, SV, Glatt, SJ. *Identification of Genetic Variants Associated with Resilience to Psychiatric Disorders among Individuals at High Genetic Risk*. (2015) 23rd World Congress of Psychiatric Genetics, International Society of Psychiatric Genetics.

6. **Hess JL,** Tylee DS, Barve R, de Jong S, Ophoff R, … and Glatt SJ. *Transcriptomic abnormalities in bipolar disorder and discrimination of the major psychoses.* (2017) 25th World Congress of Psychiatric Genetics, International Society of Psychiatric Genetics.
7. **Hess JL**, Faraone SV, and Glatt SJ. *Association of Genetic Risk Scores for Schizophrenia with Lymphoblast and Cortical Gene Expression Networks*. (2017) 25th World Congress of Psychiatric Genetics, International Society of Psychiatric Genetics.
8. **Hess JL** and Glatt SJ. *Functional LD-Interval Enrichment Test (FLEET) Detects Enrichment of Risk Loci for Schizophrenia and Bipolar Disorder in Regulatory Elements and Pathways*. (2017) 25th World Congress of Psychiatric Genetics, International Society of Psychiatric Genetics.
9. **Hess JL**, Faraone SV, and Glatt SJ. *Predicting Psychopathology with Polytranscript Risk Scores*. (2018) 26th World Congress of Psychiatric Genetics, International Society of Psychiatric Genetics.
10. **Hess JL**, Patak J, Glatt SJ, and Faraone SV. *Genes and Brain Cell Types Linked with Selective Neuronal Vulnerability in ADHD*. (2018) 26th World Congress of Psychiatric Genetics, International Society of Psychiatric Genetics.
11. **Hess JL**, Patak J, Glatt SJ, Faraone SV. *Genes and Brain Cell Types Linked with Selective Neuronal Vulnerability in ADHD*. (2019) The American Professional Society of ADHD and Related Disorders (APSARD) Meeting.
12. **Hess JL,** Tylee DS, Liu C, De Jong S, Ophoff RA, Gardiner E, *et al*. *Discrimination of major neuropsychiatric disorders using blood-based transcriptomic signatures*. (2019) 27th World Congress of Psychiatric Genetics.
13. **Hess JL**, Nguyen N, Suben J, Meath RM, Albert AB, Van Orman S, Anders K, *et al*. (2019) *Brain Region-Specific Transcriptomic Dysregulation Underlying Behavioral and Emotional Problems in Living Children: Application of Brain Gene Expression and Network Imputation Engine (BrainGENIE)*. 27th World Congress of Psychiatric Genetics.

RESEARCH SUPPORT

Years	Funding Source	Cumulative costs ($USD)	Role, effort (calendar months)	Grant title	Project Description
2019 – 2024	NIH/NIA, R01AG064955	$2,112,871	Co-Investigator, 2.7 (PIs: Stephen Glatt, William Kremen, Ming Tsuang)	Genetic Predictors, Transcriptomic Biomarkers, & Neurobiological Signatures of Resilience to Alzheimer's Disease	This project aims to identify genes, molecules, and brain structures that protect some people from their otherwise-elevated risk for Alzheimer's disease.
2021 – 2023	Brain & Behavior Research Foundation Young Investigator Award	$70,000	Principal Investigator, 4.5	Resilience Genes Moderating Risk for Schizophrenia, Bipolar Disorder, and Major Depression	This project aims to identify genes that protect people at elevated risk for major mental illnesses, and understand the role of

					resilience genes on cognition and brain structure.
2021 – 2023	NIMH, R21MH126494	$445,500	Multi-Principal Investigator, 4.8 (Multi-PI: Stephen Glatt, contact)	Profiling the Functional Genetics of Health and Disease using *BrainGENIE*: The Brain Gene Expression and Network Imputation Engine	This project seeks to identify novel biomarkers for brain disorders using a new brain-transcriptome imputation technology.
2021 - 2023	Upstate and MMRI Intramural Pilot Research Grant	$30,000	Multi-Principal Investigator (Multi-PI: Nathan Tucker)	Circulating transcriptional biomarkers of preclinical cardiac dysfunction: The *HeartGENIE* Project	This project aims to identify clinically relevant biomarkers of cardiovascular disease using a new heart-transcriptome imputation technology.