

Andrew D. Grotzinger

Department of Psychology and Neuroscience
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POSITIONS AND EDUCATION

2021-Present	Assistant Professor University of Colorado, Boulder Department of Psychology and Neuroscience Institute for Behavioral Genetics
2020-2021	Predoctoral Intern in Clinical Psychology Massachusetts General Hospital Harvard Medical School, Boston, MA
2015-2021	Ph.D. in Clinical Psychology University of Texas at Austin
2009-2013	B.A. <i>Cum Laude</i> in Psychology Trinity University, San Antonio, Texas

RESEARCH INTERESTS

Complex Trait Genomics; Psychiatric Comorbidity; Cognitive Aging & Dementia; Methods Development; Behavioral Genetics

PEER-REVIEWED PUBLICATIONS

1. Schwaba, T., Mallard, T.T., Maihofer, A.X., Rhemtulla, M., Lee, P.H., Smoller, J.W., Davis, L.K., Nivard, M.G., **Grotzinger, A.D.**, Tucker-Drob, E.M. (in press). Comparison of the multivariate genetic architecture of eight major psychiatric disorders across sex. *Nature Genetics*.
2. Horwitz, T.B., Zorina-Lichtenwalter, K., Gustavson, D.E., **Grotzinger, A.D.**, Stallings, M.C. Partitioning the genomic components of behavioral disinhibition and substance use (disorder) using genomic structural equation modeling. (2024). *Behavior Genetics*, 54, 386-397.
3. Malanchini, M., Allegrini, A.G., Nivard, M.G., Biroli, P., Cheesman, R., von Stumm, S., Demange, P.A., van Bergen, E., **Grotzinger, A.D.**, ... Plomin, R. (2024). Genetic contributions of noncognitive skills to academic development. *Nature Human Behaviour*, 8, 2034-2046.
4. Kendler, K., Cai, N., Verhulst, B., Andreassen, O., Buitelaar, J., Edenberg, H., Hetttema, J., Gandal, M., **Grotzinger, A.D.**, ... Smoller, J.W. (2024). Assessment and ascertainment in psychiatric molecular genetics: challenges and opportunities for cross-disorder research. *Molecular Psychiatry*.
5. Breunig, S., Lawrence, J.M., Foote, I.F., Gebhardt, H.J., Wilcutt, E.G., **Grotzinger, A.D.** (2024). Examining differences in the genetic and functional architecture of ADHD diagnosed in childhood and adulthood. *Biological Psychiatry: Global Open Science*, 4, 100307.
6. Schaffer, L.S., Breunig, S., Lawrence, J.M., Foote, I.F., **Grotzinger, A.D.** (2024). Characterizing genetic pathways unique to autism spectrum disorder at multiple levels of biological analysis. *Molecular Autism*, 15, 46-58.
7. Adams, M.J., Thorp, J.G., Jermy, B.S., Kwong, A.S.F., Koiv, K., **Grotzinger, A.D.**, Nivard, M.G., Marshall, S., Milaneschi, Y., ... Derks, E.M. (2024). Genome-wide meta-analysis of ascertainment and symptom

structures of major depression in case-enriched and community cohorts. *Psychological Medicine*, 54, 3459-3468.

8. Gustavson, G., Stern, E.F., Reynolds, C.A., **Grotzinger, A.D.**, Corley, R.P., Wadsworth, S.J., Rhee, S.H., Friedman, N.F. (2024). Evidence for strong genetic correlations among internalizing psychopathology and related self-report measures using both genomic and twin/adoptive approaches. *Journal of Psychopathology and Clinical Science*, 133, 347-357.
9. Clapp Sullivan, M.L., Schwaba, T., Harden, K.P., **Grotzinger, A.D.**, Nivard, M.G., & Tucker-Drob, E.M. (2024). Beyond the factor indeterminacy problem using genome-wide association data. *Nature Human Behaviour*, 8, 205-218.
10. Brasher, M.S., **Grotzinger, A.D.**, Friedman, N.P., Smolker, H.R., Evans, L.M. (2024). Disentangling differing relationships between internalizing disorders and alcohol use. *Neuropsychiatric Genetics*, 195, e32975.
11. Lawrence, J.M., Breunig, S., Foote, I.F., Tallis, C.B., & **Grotzinger, A.D.** (2023). Genomic SEM applied to explore etiological differences in bipolar subtypes. *Psychological Medicine*. 54, 1152-1159.
12. **Grotzinger, A.D.**, Singh, K, Miller-Fleming, T.W., Lam, M., Mallard, T.M., Chen, Y., Liu, Z., Ge, T., Smoller, J.W. (2023). Transcriptome-wide structural equation modeling of 13 major psychiatric disorders for cross-disorder risk and drug repurposing. *JAMA Psychiatry*, 80, 811-821.
13. **Grotzinger, A.D.**, Mallard, T.M., Liu, Z., Seidlitz, J., Ge, T., Smoller, J.W. (2023). Multivariate genomic architecture of cortical thickness and surface area at multiple levels of analysis. *Nature Communications*, 14, 946-959.
14. **Grotzinger, A.D.**, de la Fuente, J., Prive, F., Nivard, M.G., Tucker-Drob, E.M. (2023). Pervasive downward bias in estimates of liability scale heritability in GWAS meta-analysis: A simple solution. *Biological Psychiatry*, 93, 29-36.
15. Mallard, T.M., **Grotzinger, A.D.**, Smoller, J.W. (2023). Examining the shared etiology of psychopathology with genome-wide association studies. *Physiological Reviews*, 103, 1645-1665.
16. Evans, L.M., Arehart, C.H., **Grotzinger, A.D.**, Mize, T., Brasher, M., Stitzel, J., Ehringer, M.A., Hoeffler, C. (2023). Transcriptome-wide gene-gene interaction association study elucidates pathways and functional enrichment of complex traits. *PLOS Genetics*.
17. Warrier, V., Stauffer, E., Huang, Q., Wigdor, E., Slob., E.A.W., Seidlitz, J., Ronan, L., Valk, S., Mallard, T.M., **Grotzinger, A.D.**, ... Bethlehem, R.A. (2023). Genetic insights into human cortical organization and development through genome-wide analyses of 2,347 neuroimaging phenotypes. *Nature Genetics*.
18. Bountress, K.E., Cusack, S., Hawn, S., **Grotzinger, A.D.**, Bustamante, D., Kirkpatrick, R.M., Amstadter, A. (2023). Genetic associations between alcohol phenotypes and life satisfaction: A genomic structural equation modeling approach. *Scientific Reports*, 13433.
19. Zorina-Lichtenwalter, K., Bango, C.I., van Oudenhove, L., Ceko, M., Lindquist, M.A., **Grotzinger, A.D.**, Keller, M.C., Friedman, N.P., Wager, T.D. (2023). Genetic risk sharing across 24 chronic pain conditions: Identification and characterization with genomic structural equation modeling. *PAIN*.
20. Hatoum, A.S., Colbert, S.M.C, Johnson, E.C., Huggett, S.B., Deak, J.D., Pathak, G.A, Mariela Jennings, J., Paul, S.E., Karcher, N.R., Hansen, I., Baranger, D.A.A., Edwards, A., **Grotzinger, A.D.**, ...Agrawal, A. (2023). Multivariate genome-wide association meta-analysis of over 1 million subjects identifies loci underlying

multiple substance use disorders. *Nature Mental Health*, 1, 210-223.

21. **Grotzinger, A.D.**, Keller, M.C. (2022). Potential bias in genetic correlations. *Science*, 378, 709-710.
22. **Grotzinger, A.D.**, Mallard, T.T., Akingbuwa, W.A., Ip, H.F., Adams, M.J., Lewis, C.M., McIntosh, A.M., Grove, J., ... Tucker-Drob, E.M., Nivard, M.G. (2022). Genetic architecture of 11 major psychiatric disorders at biobehavioral, functional, and molecular genetic levels of analysis. *Nature Genetics*, 54, 548-559.
23. **Grotzinger, A.D.**, de la Fuente, J., Davies, G., Nivard, M.G., Tucker-Drob, E.M. (2022). Transcriptome-wide and stratified genomic structural equation modeling identify neurobiological pathways underlying general and specific cognitive functions. *Nature Communications*, 13, 6280-6234.
24. de la Fuente, J., **Grotzinger, A.D.**, Marioni, R.E., Nivard, M.G., Tucker-Drob, E.M. (2022). Integrated analysis of direct and proxy genome wide association studies highlights polygenicity of Alzheimer's disease outside of the APOE region. *PLOS Genetics*, 18, e1010208.
25. Youn, C., **Grotzinger, A.D.**, Lill, C.M., Bertram, L., Schmiedek, F., Lövdén, M., Lindenberger, U., Nivard, M.G., Harden, K.P., Tucker-Drob, E.M. (2022). Genetic associations with learning over 100 days of practice. *npj Science of Learning*, 7, 7-16.
26. Raffington, L., Malanchini, M., **Grotzinger, A.D.**, Madole, J.W., Engelhardt, L.E., Sabhlok, a., Youn, C., Patterson, M.W., Harden, K.P., Tucker-Drob, E.M. (2022). An in-laboratory stressor reveals unique genetic variation in child cortisol output. *Developmental Psychology*, 58, 1832-1848.
27. Bountress, K., Brick, L., Sheerin, C., **Grotzinger, A.D.**, Bustamante, D., Hawn, S., ... The PGC PTSD Working Group, Amstadter, A. (2022). Alcohol use and alcohol use disorder differ in their genetic relationships with PTSD: A genomic structural equation modelling approach. *Drug and Alcohol Dependence*, 234, 109430.
28. Mallard, T.T., Linnér, R.K., **Grotzinger, A.D.**, Okbay, A., de Vlaming, R., Meddens, S.F.W., ... Harden, K.P. (2022). Multivariate GWAS of psychiatric disorders and their cardinal symptoms reveal two dimensions of cross-cutting genetic liabilities. *Cell Genomics*, 6, 100140.
29. Patterson, M.W., Pivnick, L., Mann, F.D., **Grotzinger, A.D.**, Monahan, K.C., Steinberg, L.D., Tackett, J.L., Tucker-Drob, E.M., Harden, K.P.H. (2022). A mixed-methods approach to refining and measuring the construct of positive risk-taking in adolescence. *Journal of Research on Adolescence*, 4, 1-21.
30. **Grotzinger, A.D.** (2021). Shared genetic architecture across psychiatric disorders. *Psychological Medicine*, 51, 2210-2216.
31. Mallard, T.T., Savage, J.E., Johnson, E.C., Huang, Y., Edwards, A.C., Hottenga, J.J., **Grotzinger, A.D.**, ... Sanchez-Roige, S. (2021). Item-level genome-wide association study of the Alcohol Use Disorders Identification Test in three population-based cohorts. *The American Journal of Psychiatry*, 179, 58-70.
32. Karlson Linner, R., Mallard, TT., Barr, P.B., Sanchez-Roige, S., Madole, J.W., Driver, M.N., Poore, H.E., **Grotzinger, A.D.**, ... Dick, D.M. (2021). Multivariate analysis of 1.5 million people identifies genetic associations with traits related to self-regulation and addiction. *Nature Neuroscience*, 24, 1367-1376.
33. Thorp, J.G., Campos, A.I., **Grotzinger, A.D.**, Gerring, Z., An, J., Ong, J., Wang, W., Shringarpure, S., Byrne, E.M., MacGregor, S., Martin, N.G., Medland, S.E., Middeldorp, C.M., Derks, E.M. (2021). Symptom-level modeling unravels the shared genetic architecture of anxiety and depression. *Nature Human Behaviour*, 5, 1432-1442.
34. Demange, P.A., Malanchini, M., Mallard, T.T., Biroli, P., Cox, S.R., **Grotzinger, A.D.**, ... Nivard, M.G. (2021). Investigating the genetic architecture of non-cognitive skills using GWAS-by-subtraction. *Nature*

Genetics, 53, 35-44.

35. Malanchini, M., Engelhardt, L.E., Sabhlok, A., Raffington, L., **Grotzinger, A.D.**, Briley, D., Madole, J.W., ... Tucker-Drob, E.M. (2021). Weak and uneven associations of home, neighborhood, and school environments with stress hormone output across multiple timescales. *Molecular Psychiatry*, 26, 4823-4838.
36. van den Akker, A., Briley, D.A., **Grotzinger, A.D.**, Tackett, J.L., Tucker-Drob, E.M., Harden, K.P. (2021). Adolescent big five personality and pubertal development: Pubertal hormone concentrations and self-reported pubertal status. *Developmental Psychology*, 57, 60-72.
37. De la Fuente, J., Davies, G., **Grotzinger, A.D.**, Tucker-Drob, E.M., Deay, I.J. (2020). A general dimension of genetic sharing across diverse cognitive traits inferred from molecular data. *Nature Human Behaviour*, 5, 49-58.
38. Brumpton, B., Sanderson, E., Hartwig, F., Harrison, S., Vie, G.A., Cho, Y., Howe, L.D., Hughes, A., Boomsma, D., Havdahl, A., Hopper, J., Neale, M., Nivard, M.G., Pedersen, N.L., Reynolds, C., Tucker-Drob, E.M., **Grotzinger, A.D.**, ... Davies, N. (2020). Avoiding dynastic, assortative mating, and population stratification biases in Mendelian randomization through within-family analyses. *Nature Communications*, 11, 3519-3532.
39. Harden, K.P., Engelhardt, L.E., Mann, F.D., Patterson, M.W., **Grotzinger, A.D.**, Savicki, S.L., ... Tucker-Drob, E.M. (2020). Genetic associations between executive functions and a general factor of psychopathology. *Journal of the American Academy of Child and Adolescent Psychiatry*, 59, 749-758.
40. Lee, P.H., Anttila, V., Won, H., Feng, Y.A., Rosenthal, J., Zhu, Z., Tucker-Drob, E.M., Nivard, M.G., **Grotzinger, A.D.**, ... Smoller, J.W. (2019). Genomic relationships, novel loci, and pleiotropic mechanisms across eight psychiatric disorders. *Cell*, 7, 1469-1482.
41. Frazier-Wood, A., Vanik, U., Engelhardt, L.E., Briley, D.A., **Grotzinger, A.D.**, Church, J.A., ... Tucker-Drob, E.M. (2019). Genetic overlap between executive functions and BMI in childhood. *The American Journal of Clinical Nutrition*, 110, 814-822.
42. Malanchini, M., Engelhardt, L.E., **Grotzinger, A.D.**, Harden, K.P., Tucker-Drob, E.M. (2019). 'Same but different': Associations between multiple aspects of self-regulation, cognition, and academic abilities. *Journal of Personality and Social Psychology: Personality Processes and Individual Differences*, 117, 1164-1182.
43. **Grotzinger, A.D.**, Rhemtulla, M., de Vlaming, R., Ritchie, S.J., Mallard, T.M., Hill, W.D., ... Tucker-Drob, E.M. (2019). Genomic structural equation modeling provides insights into the multivariate genetic architecture of complex traits. *Nature Human Behaviour*, 3, 513-525.
44. **Grotzinger, A.D.**, Cheung, A.K., Patterson, M.W., Harden, K.P., Tucker-Drob, E.M. (2019). Genetic and environmental links between general factors of psychopathology and cognitive ability in early childhood. *Clinical Psychological Science*, 7, 430-444.
45. Madole, J.W., Rhemtulla, M., **Grotzinger, A.D.**, Tucker-Drob, E.M., Harden, K.P. (2019). Testing cold and hot cognitive control as moderators of a network of comorbid psychopathology symptoms in adolescence. *Clinical Psychological Science*, 7, 701-718.
46. Patterson, M.W., Mann, F.D., **Grotzinger, A.D.**, Tackett, J.L., Tucker-Drob, E.M., Harden, K.P. (2018). Genetic and environmental influences on internalizing psychopathology across age and pubertal development. *Developmental Psychology*, 54, 1928-1939.
47. Ayoub, M., Briley, D.A., **Grotzinger, A.D.**, Patterson, M.W., Engelhardt, L.E., Tackett, J.L., ... Tucker-Drob, E.M. (2018). Genetic and environmental associations between child personality and parenting. *Social Psychological and Personality Science*, 1-11.

48. **Grotzinger, A.D.**, Mann, F.D., Patterson, M.W., Tackett, J.L., Tucker-Drob, E.M., Harden, K.P. (2018). Genetic and environmental influences on pubertal hormones in human hair across development. *Psychoneuroendocrinology*, 90, 76-84.
49. Harden, K.P., Mann, F.D., **Grotzinger, A.D.**, Patterson, M.W., Steinberg, L., Tackett, J.L., Tucker-Drob, E.M. (2018). Developmental differences in reward sensitivity and sensation seeking in adolescence: Testing sex-specific associations with gonadal hormones and pubertal development. *Journal of Personality and Social Psychology: Personality Processes and Individual Differences*, 115, 161-178.
50. **Grotzinger, A.D.**, Mann, F.D., Patterson, M.W., Tackett, J.L., Tucker-Drob, E.M., Harden, K.P. (2018). Hair and salivary testosterone, hair cortisol, and externalizing behaviors in adolescents. *Psychological Science*, 29, 688-699.
51. **Grotzinger, A.D.**, Mann, F.D., Patterson, M.W., Herzhoff, K., Tackett, J.L., Tucker-Drob, E.M., Harden, K.P. (2018). Twin models of environmental and genetic influences on pubertal development, salivary testosterone, and estradiol in adolescence. *Clinical Endocrinology*, 88, 243-250.
52. Tucker-Drob, E.M., **Grotzinger, A.D.**, Briley, D.A., Engelhardt, L.E., Mann, F.D., Patterson, M.W., ... Harden, K.P. (2017). Genetic influences on hormonal markers of chronic HPA function in human hair. *Psychological Medicine*, 47, 1389-1401.
53. Mann, F.D., Engelhardt, L.E., Briley, D.A., **Grotzinger, A.D.**, Patterson, M.W., Strathan, D.B., ...Martin, N.G. (2017). Sensation seeking and impulsive traits as personality endophenotypes: Evidence from two independent samples. *Personality and Individual Differences*, 105, 30-39.
54. Harden, K.P., Wrzus, C., Luong, G., **Grotzinger, A.D.**, Bajbouj, M., Raders, A. (2016). Diurnal coupling between testosterone and cortisol from adolescence to older adulthood. *Psychoneuroendocrinology*, 73, 79-90.
55. Mann, F.D., Patterson, M.W., **Grotzinger, A.D.**, Kretsch, N., Tackett, J.L., Tucker-Drob, E.M., Harden, K.P. (2016). Sensation seeking, peer deviance, and genetic influences on adolescent delinquency: Evidence for person-environment correlation and interaction. *Journal of Psychopathology and Clinical Science*, 125, 679-691.
56. Hildebrandt, T., **Grotzinger, A.D.**, Schulz, K. (2016). Anorexia nervosa, emotional go/no-go, and the distinct effect of testosterone. *International Journal of Eating Disorders*, 49, 69-76.
57. Wallace, H., Scheiner, B., **Grotzinger, A.D.** (2016). Grandiose narcissism predicts willingness to behave badly, without proportional tolerance for others' bad behavior. *Current Psychology*, 35, 234-243.
58. **Grotzinger, A.D.**, Hildebrandt, T., Yu, J. (2015). The benefits of using semi-continuous and continuous models to analyze binge eating data: A monte carlo investigation. *International Journal of Eating Disorders*, 48, 746-758.
59. Hildebrandt, T., **Grotzinger, A.D.**, Reddan, M., Greif, R., Levy, I., Goodman, W., Schiller, D. (2015). Testing the disgust conditioning theory of food-avoidance in adolescents with recent onset anorexia nervosa. *Behaviour Research and Therapy*, 71, 131-138.
60. Wallace, H., **Grotzinger, A.D.**, Howard, T.J., Parkhill, N. (2015). When people evaluate others, the level of others' narcissism matters less to evaluators who are narcissistic. *Social Psychology and Personality Science*, 6, 805-813.

1. **Grotzinger, A. D.**, Werme, J., Peyrout, W. J., Frei, O., de Leeuw, C., Bicks, L. K., [Cross-Disorder Group of the Psychiatric Genomics Consortium] ... Kendler, K. S., & Smoller, J. W. (2025). The landscape of shared and divergent genetic influences across psychiatric disorders. *medRxiv*.
2. Thorp, J.G., Gerring, Z.F., Reay, W.R., Derks, E.M., **Grotzinger, A.D.** (2024). Genomic network analysis characterizes genetic architectures and identifies trait-specific biology. *medRxiv*.
3. Foote, I.F., Flint, J.P., Fürtjes, A.E., Mullin, D.S., Fisk, J.D., Karakach, T.K., Rutenberg, A., ... **Grotzinger, A.D.** (2024). Uncovering the multivariate genetic architecture of frailty with genomic structural equation modeling. *medRxiv*.
4. Lawrence, J.M., Foote, I.F., Breunig, S., Schaffer, L.S., Tallis, C.B., Mallard, T.T., **Grotzinger, A.D.** (2024). Shared genetic liability across clusters of psychiatric and physical illness. *medRxiv*.
5. Breunig, S., Lee, H.L., Karlson, E.W., Krishnan, A., Lawrence, J.M., Schaffer, L., **Grotzinger, A.D.** (2024). Examining the genetic links between clusters of immune-mediated diseases and psychiatric disorders. *medRxiv*.
6. Smeland, O.B., Kutrolli, G., Bahrami, S., Fominykh, V., Parker, N., Hindley, G., Rodevand, L., Jaholkowski, P., Markos, T., Parekh, P., Elvsaashagen, T., **Grotzinger, A.D.**, ... Andreassen, O. (2023). Genome-wide analyses reveal widespread genetic overlap between neurological and psychiatric disorders and a convergence of biological associations related to the brain. *medRxiv*.

BOOK CHAPTERS

1. Klimek, P., **Grotzinger, A.D.**, & Hildebrandt, T. (2016). Using acceptance to improve body image among individuals with eating disorders. In A. F. Haynos, J. Lillis, E. M. Forman, & M. L. Butryn (Eds.), *Mindfulness and Acceptance Approaches to Treatment of Eating Disorders and Weight Concerns*. Oakland, CA: New Harbinger Press.

ONGOING AND RECENTLY COMPLETED EXTRAMURAL RESEARCH SUPPORT

Longitudinal Multi-omic Biomarkers for Neurocognitive Decline Prior to Dementia Onset

Role: Subcontract PI
Grant Number: U01AG083829
Total Boulder Costs: \$623,359
Boulder Subcontract Direct Costs: \$398,313
Agency: National Institute of Aging (NIA)
Dates: 09/30/2024 - 06/30/29

Large-scale Genomic Analysis of Aging-related Cognitive Change Prior to Dementia Onset

Role: Subcontract PI
Grant Number: R01AG073593
Total Direct Costs: \$1,692,021
Boulder Subcontract Direct Costs: \$568,634
Agency: National Institute of Aging (NIA)
Dates: 08/15/2021-07/31/2026

Dissecting the Multivariate Genetic Architecture of Psychiatric Diseases

Role: Subcontract PI
Grant Number: R01MH120219
Total Direct Costs \$2,550,605
Boulder Subcontract Direct Costs: \$354,307

Agency: National Institute of Mental Health (NIMH)
Dates: 07/17/2020-04/30/2025

Mapping Genomics to Brain Structure, Psychiatric Disorders, and Therapeutic Targets

Role: Subcontract PI
Total Direct Costs: \$210,935
Boulder Subcontract Direct Costs: \$23,119
Foundation: Tommy Fuss Foundation
Dates: 01/01/2022-12/31/2023

Computational Resources for Examining the Genetic Underpinnings of Cognitive Change

Role: PI
Reward Value: \$199,422
Foundation: Extreme Science and Engineering Discovery Environment (XSEDE)
Dates: 01/01/2022-12/31/2024

Linking Genomics, Brain Structure, and the Development of Psychiatric Disorders

Role: Subcontract PI
Total Direct Costs: \$200,900
Boulder Subcontract Direct Costs: \$28,902
Foundation: Tommy Fuss Foundation
Dates: 01/01/2021-12/31/2021

HONORS AND AWARDS

Fuller and Scott Early Career Researcher Award, Behavior Genetics Association 2023
Emerson Award for Best Clinical Psychology Publication 2021, Massachusetts General Hospital/Harvard Medical School
Continuing Fellowship, University of Texas: Full Year of Support for 2018-2019 Academic Year
Lee Willerman Award for Best Clinical Psychology Publication of 2017-2018, University of Texas
Honorable Mention, National Science Foundation Graduate Research Fellowship: 2016

AD-HOC JOURNAL REVIEWS

Science; Nature; Nature Genetics; Nature Neuroscience; Nature Communications; Nature Mental Health; JAMA Psychiatry; Molecular Psychiatry; Biological Psychiatry; Psychological Science; Behavior Genetics; Journal of Psychopathology and Clinical Science; Psychoneuroendocrinology; Bioinformatics

INVITED WORKSHOPS AND TALKS

1. **Grotzinger, A.D.** *Application of Multivariate Methods to Parse Shared and Unique Genetic Signal across Human Complex Traits.* (March 2024). Invited talk given at the University of Colorado Anschutz Medical Campus, Denver, CO.
2. **Grotzinger, A.D.** *Using the LD-Score Regression Package.* (March 2023). Workshop given at the International Statistical Genetics Workshop, University of Colorado, Boulder, CO.
3. **Grotzinger, A.D., & Nivard, M.G.** *Coding with the Genomic SEM R Package.* (July 2021). Workshop given at the International Statistical Genetics Workshop, University of Colorado, Boulder, CO.
4. **Grotzinger, A.D.** *Genomic SEM: Insights into the Multivariate Architecture of Complex Traits.* (April 2021). Invited talk given for NIMH Workshop: Integrating Genomics with Dimensional and Transdiagnostic Approaches to Advance Mental Health Research.
5. **Grotzinger, A.D.** *Understanding the shared genetic architecture of psychiatric disorders.* (November 2020). Invited talk given to Social Genomics group at University of Wisconsin Madison.

6. **Grotzinger, A.D.** *Coding with the Genomic SEM R Package*. (March 2020). Workshop given at the International Statistical Genetics Workshop, University of Colorado, Boulder, CO.
7. **Grotzinger, A.D.** *Coding with the Genomic SEM R Package*. (June 2019). Workshop given at the Genomic for Social Scientists Workshop, University of Michigan, Ann Arbor, MI.
8. **Grotzinger, A.D.** *Coding with the Genomic SEM R Package*. (May 2019). Workshop given at, Social, Genetic & Developmental Psychiatry Centre, King's College, London.
9. **Grotzinger, A.D.** *Coding with the Genomic SEM R Package*. (January 2019). Workshop given at Duke University Population Research Institute, Durham, NC.
10. Tucker-Drob, E.M., & **Grotzinger, A.D.** *Using Genomic SEM to model joint genetic architecture of complex traits*. (October 2018). Workshop given jointly with Elliot Tucker-Drob at Integrating Genetics and the Social Sciences, University of Colorado, Boulder, CO.

CONFERENCE PRESENTATIONS

1. Foote, I.F., Flint, J.P., Fisk, J.D., Karakach, T.K., Rutenberg, A., Martin, N.G., Lupton, M.K., Cox, S.R., Luciano, M., Rockwood, K., **Grotzinger, A.D.** (July 2024). *Multivariate genomic analyses of frailty reveal the unique importance of cognitive and multimorbidity pathways for aging-related health outcomes*. Poster presented at the Alzheimer's Association International Conference.
2. Breunig, S., Lee, Y.A., **Grotzinger, A.D.** (June 2024). *Examining the genetic links between clusters of immune-mediated diseases and psychiatric disorders*. Paper presented at Behavior Genetics Association annual meeting.
3. Schaffer, L.S.*, Breunig, S., Foote, I.F., **Grotzinger, A.D.** (June 2024). *Genetic pathways for autism spectrum disorder unique of ADHD at multiple levels of biological analysis*. Paper presented at Behavior Genetics Association annual meeting.*Winner of best oral presentation at conference.
4. Foote, I.F., Flint, J.P., Fisk, J.D., Karakach, T.K., Rutenberg, A., Martin, N.G., Lupton, M.K., Cox, S.R., Luciano, M., Rockwood, K., **Grotzinger, A.D.** (June 2024). *Moving beyond the frailty index as a single aggregate measure: genomic analyses reveal clinically relevant subclusters across frailty indicators*. Paper presented at Behavior Genetics Association annual meeting.
5. Lawrence, J.M., Foote, I.F., Breunig, S., Schaffer, L., **Grotzinger, A.D.** (June 2024). *Shared genetic liability across clusters of psychiatric and non-psychiatric medical illness*. Poster presented at Behavior Genetics Association annual meeting.
6. Patterson, M.W., Friedman, N.P., Keller, M.C., **Grotzinger, A.D.** (June 2024). *Genetic architecture of pubertal traits and sex-steroids: cross-sex factor associations*. Poster presented at Behavior Genetics Association annual meeting.
7. Ehinmowo, M., Gustavson, D.E., Friedman, N.P., **Grotzinger, A.D.** (June 2024). *Executive function mediates the genetic associations between ADHD and comorbid psychiatric conditions*. Poster presented at Behavior Genetics Association annual meeting.
8. Mallard, T.M., Tubbs, J.D., Jennings, M., Zhang, Y., Gustavson, D.E., **Grotzinger, A.D.**, ...Sanchez-Roige, S. (June 2024). *Characterizing the genetic architecture of impulsivity and its overlap with psychopathology*. Paper

presented at Behavior Genetics Association annual meeting.

9. Rader, L., Zorina-Lichtenwalter, K., **Grotzinger, A.D.**, Wager, T.D., Friedman, N.F. (October 2023). *Genetic overlap between chronic pain, substance use disorders, and nucleus accumbens volume*. Poster presented at the World Congress of Psychiatric Genetics.
10. Foote, I.F., Fisk, J.D., Karakach, T.K., Rutenberg, A., Rockwood, K., **Grotzinger, A.D.** (October 2023). *Uncovering the multivariate genetic architecture of frailty using genomic structural equation modelling*. Paper presented at the Integrating Genetics and the Social Sciences Conference.
11. Foote, I.F., Bandres-Ciga, S., Kim, J.J., Alvarado, C., Leonard, H., Bothongo, P., **Grotzinger, A.D.**, Jacobs, B., Waters, S., Dobson, R., Noyce, A., Bhui, K., Korszun, A., Marshall, C. (July 2023). *A multivariate genome-wide association study of the shared genetic architecture among modifiable risk factors for dementia*. Poster presented at the Alzheimer's Association International Conference.
12. Breunig, S., Gebhardt, H., Lawrence, J., Foote, I.F., **Grotzinger, A.D.** (June 2023). *Examining differences in the genetic and functional architecture of ADHD diagnosed in childhood or adulthood*. Paper presented at the Behavior Genetics Association.
13. Lawrence, J., Tallis, C., Breunig, S., Foote, I.F., **Grotzinger, A.D.** (June 2023). *Genomic SEM applied to explore etiological divergences in bipolar subtypes*. Paper presented at the Behavior Genetics Association.
14. Foote, I.F., Fisk, J.D., Karakach, T.K., Rutenberg, A., Rockwood, K., **Grotzinger, A.D.** (June 2023). *Elucidating the multivariate genetic architecture of frailty using genomic structural equation modelling*. Paper presented at the Behavior Genetics Association.
15. de la Fuente, J., **Grotzinger, A.D.**, Davies, G., Marioni, R., Deary, I., Russ, T., Corley, J., Taylor, A., Page, D., Redmond, P., Cox, S., Tucker-Drob, E.M. (June 2023). *Joint growth survival models of genetic risk for cognitive aging and dementia*. Paper presented at the Behavior Genetics Association.
16. **Grotzinger, A.D.**, Smoller, J.W., Frei, O., Werme, J., de Leeuw, C., Peyrot, W., PGC MDD Working Group, PGC OCD Working Group, PGC ANX Working Group, deCODE, iPSYCH, PGC ADHD Working Group, PGS PTSD Working Group, PGC CDG Working Group. (September 2022). *A Multi-method approach to psychiatric genomics consortium cross-disorder analyses*. Symposium chaired and talk given at the World Congress of Psychiatric Genetics.
17. Malanchini, M., Allegrini, A., Rimfeld, K., Cheesman, R., von Stumm, S., Demange, P., Nivard, M.G., **Grotzinger, A.D.**, Raffington, L., de la Fuente, J., Harden, K.P., Tucker-Drob, E.M., Plomin, R. (June 2021). *Triangulating genetics methods to uncover the contribution of cognitive and noncognitive skills to academic achievement throughout the school years*. Paper presented at the Behavior Genetics Association.
18. Malanchini, M., Allegrini, A., Rimfeld, K., Cheesman, R., von Stumm, S., Demange, P., Nivard, M.G., **Grotzinger, A.D.**, Raffington, L., de la Fuente, J., Harden, K.P., Tucker-Drob, E.M., Plomin, R. (April 2021). *Genetic approaches to investigating the contribution of noncognitive skills to academic achievement over development*. Paper presented at the Society for Research in Child Development.
19. **Grotzinger, A.D.** (October 2020). *Shared genetic architecture across psychiatric disorders*. Paper presented at the World Congress of Psychiatric Genetics.
20. Thorp, J.G., Campos, A.I., **Grotzinger, A.D.**, Gerring, Z., An, J., Ong, J., Wang, W., Shringarpure, S., Byrne, E.M., MacGregor, S., Martin, N.G., Medland, S.E., Middeldorp, C.M., & Derks, E.M. (October 2020). *Leveraging genetic overlap with neuroticism to identify genomic risk loci for symptoms of anxiety and depression*. Paper presented at the World Congress of Psychiatric Genetics.

21. Ter Kuile, A., **Grotzinger, A.D.**, Cheesman, R., Hubel, C., Peel, A., Purves, K.L., Levey, D., Stein, M., Gelernter, J., Rayner, C., Eley, T., & Breen, G.B. (October 2020). *Deconstructing the heritability of self-reported trauma with Genomic Structural Equation Modeling*. Paper presented at the World Congress of Psychiatric Genetics.
22. Thorp, J.G., Campos, A.I., **Grotzinger, A.D.**, Gerring, Z., An, J., Ong, J., Wang, W., Shringarpure, S., Byrne, E.M., MacGregor, S., Martin, N.G., Medland, S.E., Middeldorp, C.M., & Derks, E.M. (June 2020). *Symptom-level genetic modelling identifies novel risk loci and unravels the shared genetic architecture of anxiety and depression*. Paper presented at the Behavior Genetics Association.
23. **Grotzinger, A.D.**, Mallard, T.M., Purves, K.L., Breen, G.B., Smoller, J.W., Lee, P.H., Nivard, M.G., Tucker-Drob, E.M. (May 2020). *Genetic architecture of 11 major psychiatric disorders at biobehavioral and functional genomic levels*. Paper presented at the Psychiatric Genomics Consortium Pathways to Therapeutics Conference.
24. **Grotzinger, A.D.**, Mallard, T.M., Purves, K.L., Breen, G.B., Smoller, J.W., Lee, P.H., Nivard, M.G., Tucker-Drob, E.M. (October 2019). *Using partitioned Genomic Structural Equation Modeling to identify relationships between psychopathology and resiliency factors within biological categories*. Paper presented at the World Congress of Psychiatric Genetics, Anaheim, California.
25. **Grotzinger, A.D.**, Smoller, J.W., Lee, P.H., Nivard, M.G., Tucker-Drob, E.M. (June 2019). *Modeling genomic heterogeneity in cross-disorder risk for psychopathology using partitioned genomic structural equation modeling*. Paper presented at the Behavior Genetics Association, Stockholm, Sweden.
26. Youn, C., **Grotzinger, A.D.**, Tucker-Drob, E.M. (June 2019). *Polygenic underpinnings of learning over 100 days*. Paper presented at the Behavior Genetics Association, Stockholm, Sweden.
27. Demange, P., Malanchini, M., Mallard, T.W., **Grotzinger, A.D.**, Ip, H., Wertz, J., ... Nivard, M.G. (June 2019). *GWAS of non-cognitive skills using Genomic SEM– Part 1*. Paper presented at the Behavior Genetics Association, Stockholm, Sweden.
28. Malanchini, M., Demange, P., Mallard, T.W., **Grotzinger, A.D.**, Ip, H., Wertz, J., ... Harden, K.P. (June 2019). *GWAS of non-cognitive skills using Genomic SEM– Part 2*. Paper presented at the Behavior Genetics Association, Stockholm, Sweden.
29. Linner, R.K., Mallard, T.W., Barr, P., Roige-Sanchez, S., **Grotzinger, A.D.**, de Vlaming, R., ... Dick, D. (June 2019). *The externalizing consortium – Part 1*. Paper presented at the Behavior Genetics Association, Stockholm, Sweden.
30. Mallard, T.W., Linner, R.K., Barr, P., Roige-Sanchez, S., **Grotzinger, A.D.**, de Vlaming, R., ... Dick, D. (June 2019). *The externalizing consortium – Part 2*. Paper presented at the Behavior Genetics Association, Stockholm, Sweden.
31. Patterson, M.W., **Grotzinger, A.D.**, Madole, J.W., Tucker-Drob, E.M., Harden, K.P. (March 2019). *Pubertal maturation inside the skin: Sex-specific changes in gonadal hormones in saliva and hair*. Paper presented at the Society for Research in Child Development, Baltimore, MD.
32. Mallard, T.M., Linner, R.K., de Vlaming, R., **Grotzinger, A.D.**, Barr, P., Sanchez-Roige, S., ... Dick, D.M. (January 2018). *Insights into the multivariate genetic architecture of externalizing spectrum behaviors and disorders: Preliminary results from the externalizing consortium*. Poster presented at the NIDA genetics consortium meeting, Rockville, MD.
33. Dick, D.M., Koellinger, P., Harden, K.P., Linner, R.K., Mallard, T., de Vlaming, R., **Grotzinger, A.D.**, ... Palmer, A. *The externalizing consortium: new effort to identify genes involved in a spectrum of psychiatric and*

substance use disorders characterized by behavioral undercontrol. (October 2018). Poster presented at the World Congress of Psychiatric Genetics, Glasgow, Scotland.

34. **Grotzinger, A.D.**, Rhemtulla, M., de Vlaming, R., Ritchie, S., Mallard, T., Hill, D.W., ... Tucker-Drob, E.M. (June 2018). *Using Genomic SEM for multivariate GWAS discovery.* Paper presented at the Behavior Genetics Association, Boston, MA.
35. Nivard, M.G., **Grotzinger, A.D.**, Ip, H., Tucker-Drob, E.M., Boomsma, D.I. (June 2018). *Genetic path modeling using Genomic SEM.* Paper presented at the Behavior Genetics Association, Boston, MA.
36. Tucker-Drob, E.M., **Grotzinger, A.D.**, Nivard, M.G. (June 2018). *Fitting structural equation models to GWAS-derived genetic covariance matrices.* Paper presented at the Behavior Genetics Association, Boston, MA.
37. Harden, K.P., **Grotzinger, A.D.**, Nivard, M.G., Tucker-Drob, E.M. (June 2018). *Structure equation modeling: What is it for and why is it useful for genetics?* Paper presented at the Behavior Genetics Association, Boston, MA.
38. Malanchini, M., Engelhardt, L., **Grotzinger, A.D.**, Harden, K.P., Tucker-Drob, E.M. (June 2018). *Same but different: Phenotypic and genetic associations between executive functions, impulse control, and character.* Paper presented at the Behavior Genetics Association, Boston, MA.
39. Mallard, T., Linner, R.K., Okbay, A., de Vlaming, R., **Grotzinger, A.D.**, Medden, F.W., ... Harden, K.P. (June 2018). *Genome-wide association study of mania and psychosis reveals complex relationships between psychiatric disorders and their cardinal symptoms.* Paper presented at the Behavior Genetics Association, Boston, MA.
40. Dick, D., Koellinger, P., Harden, K.P., Tucker-Drob, E.M., Waldman, I., Linner, R.K., ... **A.D.**, Barr, P. (June 2018). *Using the genetic architecture of externalizing disorders to aid in gene identification.* Paper presented at the Behavior Genetics Association, Boston, MA.
41. **Grotzinger, A.D.**, Harden, K.P., Nivard, M.G., Tucker-Drob, E.M. (June 2018). *Using Genomic SEM for GWAS of latent phenotypes.* Paper presented at the Behavior Genetics Association, Boston, MA.
42. **Grotzinger, A.D.**, Briley, D.A., Engelhardt, L.E., Mann, F.D., Patterson, M.W., Tackett, J.L., Tucker-Drob, E.M. (April 2018). *Genetic and environment associations between hair hormones and self-reported pubertal development.* Paper presented and symposium chaired at the Society for Research on Adolescence, Minneapolis, MN.
43. Harden, K.P., Engelhardt, L.E., Mann, F.D., Patterson, M.W., **Grotzinger, A.D.**, Savicki, S.L., ... Tucker-Drob, E.M. (June 2017). *Overlapping genetic influences on executive functions, intelligence, and a general factor of psychopathology.* Paper presented at the Behavior Genetics Association, Oslo, Sweden.
44. Tucker-Drob, E.M., Harden, K.P., Cheung, A.K., **Grotzinger, A.D.**, Patterson, M.W. (June 2017). *Genetic and environmental links between general factors of psychopathology and cognitive ability in early childhood.* Paper presented at the Behavior Genetics Association, Oslo, Sweden.
45. Frazier-Wood, A., Vanik, U., Engelhardt, L.E., Briley, D.A., **Grotzinger, A.D.**, Church, J.A., ... Tucker-Drob, E.M. (June 2017). *Genetic overlap between executive functions and body mass index in childhood.* Paper presented at the Behavior Genetics Association, Oslo, Sweden.
46. **Grotzinger, A.D.**, Mann, F., Patterson, M., Engelhardt, L., Tackett, J.L., Tucker-Drob, E., & Harden, K.P. (May 2017). *Developmental trends in the heritability of pubertal hormones in human hair.* Paper presented at Individual & Population Variation Institute, Austin, TX.

47. **Grotzinger, A.D.**, Mann, F., Patterson, M., Engelhardt, L., Tackett, J.L., Tucker-Drob, E., & Harden, K.P. (April 2017). *Hair testosterone interacts with hair cortisol to predict adolescent aggression*. Paper presented at Departmental Talk, Austin, TX.
48. **Grotzinger, A.D.**, Mann, F., Patterson, M., Engelhardt, L., Tackett, J.L., Tucker-Drob, E., & Harden, K.P. (April 2017). *Hair testosterone and externalizing behaviors: evidence for main effects and gene \times testosterone interactions*. Paper presented at the Society for Research in Child Development, Austin, TX.
49. Patterson, M., Mann, F., **Grotzinger, A.D.**, Tackett, J.L., Tucker-Drob, E., Harden, K.P. (April 2017). *Sex-specific pathways between sensation seeking, delinquency, and positive risk-taking in adolescence*. Paper presented at the Society for Research in Child Development, Austin, TX.
50. Mann, F., **Grotzinger, A.D.**, Patterson, M., Tackett, J.L., Tucker-Drob, E., & Harden, K.P. (April 2017). *Callous-unemotional traits moderate genetic and environmental variance in aggression: evidence for gene \times trait interactions*. Paper presented at the Society for Research in Child Development, Austin, TX.
51. **Grotzinger, A.D.**, Mann, F., Patterson, M., Engelhardt, L., Tackett, J.L., Tucker-Drob, E., & Harden, K.P. (January 2017). *Associations between salivary and hair testosterone and adolescent externalizing behaviors*. Paper presented at the Society for Personality and Social Psychology, San Antonio, TX.
52. **Grotzinger, A.D.**, Mann, F., Patterson, M., Tucker-Drob, E., & Harden, K.P. (April 2016). *Genetic and environmental influences on the covariation between estradiol and testosterone in adolescent twins*. Paper presented at the Society for Research in Adolescence, Baltimore, MD.
53. Patterson, M., Mann, F., **Grotzinger, A.D.**, Tucker-Drob, E., & Harden, K.P. (April 2016). *Developmental changes in anxiety and depression: moderation of genetic and environmental influences by age and puberty*. Paper presented at the Society for Research in Adolescence, Baltimore, MD.
54. Briley, D.A., Bell, E., Engelhardt, L.E., Mann, F.D., Patterson, M.W., **Grotzinger, A.D.**, ... Tucker-Drob, E.M. (April 2016). *Chronic cortisol is minimally associated with personality*. Paper presented at the World Conference on Personality, Rio de Janeiro, Brazil.
55. **Grotzinger, A.D.**, Ojserkis, R., & Hildebrandt, T. (April 2015). *Psychophysiological measures of disgust diverge from self-reported disgust in adolescent anorexia nervosa*. Poster presented at the International Conference for Eating Disorders, Boston, MA.
56. **Grotzinger, A.D.**, Hildebrandt, T., & Stern, N. (April 2015). *Gonadal hormones affect reversal learning in adolescent anorexia nervosa*. Poster presented at the International Conference for Eating Disorders, Boston, MA.
57. Hildebrandt, T., **Grotzinger, A.D.**, & Schiller, D. (April 2015). *Preliminary investigation on the neural correlates of reversal learning in adolescents with anorexia nervosa*. Poster presented at the International Conference for Eating Disorders, Boston, MA.
58. Mashal, R., **Grotzinger, A.D.**, & Hildebrandt, T. (April 2015). *Behavioral intolerance of uncertainty and eating disordered behaviors in a non-clinical sample*. Poster presented at the International Conference for Eating Disorders, Boston, MA.
59. **Grotzinger, A.D.**, Greif, R., Schiller, D., & Hildebrandt, T. (November 2014). *Anorexia nervosa subtypes moderate the effect of progesterone on cognitive flexibility*. Poster presented at the Association for Behavioral and Cognitive Therapies annual conference, Philadelphia, PA.

60. **Grotzinger, A.D.**, Hildebrandt, T., Schulz, K., & Bacow, T. L. (November 2014). *Anorexia nervosa, disgust sensitivity, and the distinct effects of testosterone*. Poster presented at the Association for Behavioral and Cognitive Therapies annual conference, Philadelphia, PA.
61. **Grotzinger, A.D.**, & Hildebrandt, T. (November 2014). *Semi-continuous models and binge eating data: A monte carlo investigation*. Poster presented at the Association for Behavioral and Cognitive Therapies annual conference, Philadelphia, PA.
62. **Grotzinger, A.D.**, Klimek, P., Hildebrandt, T., Nesmith, K., Petakov, A., & Mackinnon, D. (November 2014). *Specific forms of adherence predict weight loss outcome for smartphone application*. Poster presented at the Association for Behavioral and Cognitive Therapies annual conference, Philadelphia, PA.
63. Klimek, P., Shope, S., **Grotzinger, A.D.**, Hildebrandt, T., Nesmith, K., Mackinnon, D., & Petakov, A. (November 2014). *Effects of group support on weight loss: Evaluating a smartphone intervention for the reduction of obesity*. Poster presented at the Association for Behavioral and Cognitive Therapies annual conference, Philadelphia, PA.
64. **Grotzinger, A.D.**, & Hildebrandt, T. (March 2014). *On the complex relationship between body checking behavior and affect regulation*. Poster presented at the International Conference for Eating Disorders, New York, NY.
65. Hildebrandt, T., **Grotzinger, A.D.**, & Greif, R. (March 2014). *Hormonal predictors of reversal learning in anorexia nervosa: Results from a preliminary trial*. Poster presented at the International Conference for Eating Disorders, New York, NY.
66. Gallegos, J.M., **Grotzinger, A.D.**, & McIntyre, K.P. (January 2014). *Does vertical location affect perception of happy and sad facial expressions?* Poster presented at the Society for Personality and Social Psychology annual conference, Austin, TX.
67. **Grotzinger, A.D.**, Parkhill, N., & Wallace, H. (January 2014). *On the interaction between perceiver and target narcissism*. Poster presented at the Society for Personality and Social Psychology annual conference, Austin, TX.
68. **Grotzinger, A.D.**, Phillippa, S., & Wallace, H. (January 2013). *Narcissists' views of narcissists*. Poster presented at the Society for Personality and Social Psychology annual conference, New Orleans, LA.
69. McIntyre, K., & **Grotzinger, A.D.** (January 2013). *In high spirits: On the physical basis of emotion perception*. Poster presented at the Society for Personality and Social Psychology annual conference, New Orleans, LA.

TEACHING EXPERIENCE

Professional Issues in Clinical Psychology, Fall 2024 CU Boulder
Multivariate Genomic Methods, Spring 2023 CU Boulder
Personality Assessment, Fall 2022, Fall 2023 CU Boulder
Introduction to Behavioral Genetics, Spring 2022, Spring 2023, Spring 2024, Fall 2024 CU Boulder
Individual Differences teaching assistant, Fall 2016 UT Austin
Fundamentals of Cognition teaching assistant, Fall 2015 UT Austin
Statistics and Methods II teaching assistant, Spring 2013 Trinity University