

News, Literature, and Events in Braingenethics

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In the Literature

[Prenatal Genetic Counselling for Psychiatric Disorders.](#)

Angela Inglis et al.

The complexity of psychiatric disorders like schizophrenia and bipolar disorder present challenges for genetic counselors. The authors draw on accumulated clinical experience to outline the process by which they approach prenatal genetic counselling for psychiatric disorders to assist other clinicians in providing thoughtful, comprehensive support.

[Utilization of Genetic Testing Among Children With Developmental Disabilities in the United States.](#)

Bridget Kiely et al.

This study used a nationally

In the Media

[How Well Does Brain Structure Predict Behavior?](#)

Neuroskeptic

To what extent does brain structure correlate with different psychological traits? Mert R. Sabuncu and colleagues use a new method to examine what they call the "morphometricity" of various behaviors and mental disorders. Morphometricity examines the proportion of phenotypic variation (behaviors) that can be attributed to large-scale brain morphology, and is thus analogous to heritability's role in genetics.

[In Living Color: New Technique](#)

representative survey to attempt to determine the rate at which genetic testing is performed in children with developmental disabilities, and found that the majority of children sampled did not undergo recommended genetic testing. Further study is needed to understand why.

[Law and the Sciences of the Brain/Mind](#)

Stephen Morse

Are the new sciences of the brain/mind, especially neuroscience and behavioral genetics, likely to transform the law's traditional concepts of the person, agency, and responsibility?

Genomics and Health Disparities

[Five Misconceptions About the Role of Genomics in Public Health](#)

Muin J Khoury

Collectively, these misconceptions impede progress in the integration of emerging genomic sciences into public health programs

[Distributive Justice, Diversity, and Inclusion in Precision Medicine: What Will Success Look Like?](#)

Elizabeth G. Cohn PhD et al.

Without the development of scientific and practical guidance on diversity and inclusion, precision medicine discoveries may improve health for some, but not all. Those already disadvantaged are the least likely to benefit.

[Using Genetic Technologies To Reduce, Rather Than Widen, Health Disparities](#)

Caren E. Smith et al.

Addressing equality of access to

[Sees Gene Activity in Human Brains](#)

Sharon Begley

A novel PET-based neuroimaging technique detects “gene off-switch” enzymes to create brain maps of genes turned off in a living human brain. Researchers hope this technique will shed light on gene expression patterns and their impact on psychiatric illnesses.

[The Genes Underlying Autism are Coming Into Focus](#)

Megan Scudellari

Researchers at the University of Washington have identified mutations in six genes that may be responsible for some cases of autism. The researchers focused on a specific mutation in chromodomain helicase DNA binding protein 8 (CHD8) which, in addition to occurring in children with autism spectrum disorders, results in distinctive physical features and gastrointestinal problems.

[Bold Claim of Multiple Sclerosis Gene Discovery Comes Under Withering Attack](#)

Sharon Begley

A recent study, which claimed to identify a rare genetic mutation that sharply raised the risk of multiple sclerosis, is under fire from scientists who cite calculation errors and the inability to replicate findings. The criticism includes questions about how the study was published in *Neuron*, a top journal, and has spurred a larger conversation about how critiques against studies are discussed and disseminated.

[Pioneering Alzheimer's Prevention](#)

genetic technologies will require integrated strategies, including expanding genetic research, improving genetic literacy, and enhancing access to genetic technologies among minority populations in a way that avoids harms such as stigmatization.

[Genome-wide Association Study of Cognitive Functions and Educational Attainment in UK Biobank \(N =112151\)](#)

Gail Davies et al.

People's differences in cognitive functions are partly heritable and are associated with important life outcomes. This study found that up to 5% of the variance in cognitive test scores in a given cohort can be predicted based on findings from the UK Biobank.

[Genetically Mediated Associations Between Measures of Childhood Character and Academic Achievement](#)

Elliot M. Tucker-Drob et al.

Little is known about the genetic influences of certain character traits that contribute to academic achievement. This study investigated the genetic and environmental influences of seven character traits and their impact on intelligence, verbal knowledge, and academic achievement, concluding that character measures used in education may be best understood as contributing to facets of personality relevant to academic achievement.

[Meta-Analysis of 2,104 Trios Provides Support for 10 New Genes for Intellectual Disability](#)

Stefan H. Lelieveld et al.

Meta-analysis of 2,104 patient-parent trio exomes identified 10 new candidate

[Study Starts Enrolling High-Risk Older Adults](#)

Alzheimer's Prevention Initiative

The five-year Alzheimer's Prevention Initiative (API) Generation Study will involve more than 1,300 cognitively healthy older adults, ages 60 to 75, who are at high genetic risk of developing symptoms of Alzheimer's.

[Believing in Free Will Makes You Feel More Like Your True Self](#)

Elizabeth Seto

Elizabeth Seto, a Ph.D. candidate in Social and Personality Psychology at Texas A&M University writes about her most recent studies on the perception of free will, in which she concluded that people who hold a high belief in free will feel more "in touch" with their true selves and more authentic than those with a low belief in free will.

[Myriad Genetics Completes Acquisition of PGx Firm Assurex Health](#)

GenomeWeb Staff Reporter

Myriad Genetics, the molecular diagnostic company known most for their Hereditary Breast Cancer tests, has acquired Assurex Health, a mental health-focused pharmacogenetics firm. Assurex's GeneSight Psychotropic test will provide the genomic company entry into the neuroscience market.

[Your Best Diet Might Depend on Your Genetics](#)

Genetics Society of America

The impact and success of diets might depend on individual genotypes, say researchers from North Carolina State University and

Intellectual Disability (ID) genes, and found that mutations in these genes are associated with specific clinical ID phenotypes.

[Analysis of Intellectual Disability Copy Number Variants for Association with Schizophrenia](#)

Elliott Rees et al.

At least 11 rare copy number variants (CNVs) have been shown to be major risk factors for schizophrenia (SZ). This study finds that a large proportion of CNV loci implicated in intellectual disability are risk factors for SZ, but the available sample size precludes statistical confirmation for additional individual loci.

[Gender Differences in CNV Burden do not Confound Schizophrenia CNV Associations](#)

Jun Han et al.

Compared with the general population, an excess of rare copy number variants (CNVs) has been identified in people with schizophrenia. Females with neurodevelopmental disorders and in the general population have been reported to carry more large, rare CNVs than males. These findings suggest that the female excess of large CNVs in both control and schizophrenia-associated loci may be associated with a female protective mechanism for deleterious CNVs.

See more: [Women Have More Gene Copy Number Variations than Men, but this Doesn't Increase Schizophrenia Risk as Expected](#)

[An Integrated Genetic-Epigenetic Analysis of Schizophrenia: Evidence for Co-Localization of Genetic Associations and Differential DNA Methylation](#)

Eilis Hannon et al.

This study represents the first systematic integrated analysis of genetic and

Texas A&M university. The mouse study and its findings, which will be presented at The Allied Genetics Conference, suggested that different people could have different optimal diets, and could require changes to dietary recommendations, such as those issued by the FDA.



In the Literature, cont.

[A Path Toward Understanding Neurodegeneration](#)

Kenneth S. Kosik et al.

Researchers should approach finding cures for neurodegenerative disease via a genetic approach and a complementary, robust cell biological perspective, focusing on the cellular cascade of events that lead to neuronal cell death.

[Identification of 15 Genetic Loci Associated with Risk of Major Depression in Individuals of European Descent](#)

Craig L Hyde et al.

A meta-analysis of data from 23andMe and traditional genetic data collection methods provides evidence for large-scale consumer genomic data as a powerful and efficient complement to data collected from traditional means of ascertainment

epigenetic variation in schizophrenia, introducing a methodological approach that can be used to inform epigenome-wide association study analyses of other complex traits and diseases.

[Insights Into Neuroepigenetics through Human Histone Deacetylase PET Imaging](#)

Hsiao-Ying Wey et al.

Epigenetic dysfunction is associated with many neurological and psychiatric diseases, including Alzheimer's disease and schizophrenia, but while histone deacetylases (HDACs) are pursued as therapeutic targets, little is known about their expression in healthy individuals. This study quantifies HDAC expression in the living human brain and provides the foundation for gaining unprecedented in vivo epigenetic information about health and disease.

[Targeted Epigenetic Modulation of Gene Expression in the Brain](#)

Evan J. Kyzar and Ritabrata Banerjee

The authors respond to an earlier paper that describes zinc finger protein's (ZFP) ability to epigenetically modulate expression of a particular gene product involved in stress- and drug-induced behavior. The authors suggest ways to use either epigenetic modifications of *Cdk5* mRNA expression in animals who underwent cocaine administration and/ or behavioral tests.

[Risk of Psychiatric Illness from Advanced Paternal Age is not Predominantly from de Novo Mutations](#)

Jacob Gratten et al.

The offspring of older fathers have higher risk of psychiatric disorders, such as schizophrenia and autism. These findings suggest that genetic risk factors shared by older fathers and their offspring are a

for neuropsychiatric disease genomics. See more here: [Tapping crowd-sourced data unearths a trove of depression genes](#)

[Balanced Translocation Linked to Psychiatric Disorder, Glutamate, and Cortical Structure/Function](#)

Pippa A Thomson et al.

Rare genetic variants of large effect can help elucidate the pathophysiology of brain disorders. This study confirms that the t(1;11) translocation is associated with a significantly increased risk of major psychiatric disorder.

[Opportunities and Challenges in Modeling Human Brain Disorders in Transgenic Primates](#)

Charles G Jennings et al.

With the development of new genome engineering technologies such as CRISPR, molecular genetic tools may be able to impact neuroscience via research in larger nonhuman primates, rather than the few models, most notably mouse, zebrafish, *Drosophila melanogaster*, and *Caenorhabditis elegans*, that they are currently most commonly applied to.

[Genes and the Intergenerational Transmission of BMI and Obesity](#)

Timothy J. Classen and Owen Thompson

This paper compares the strength of intergenerational transmission of body mass index (BMI) and obesity in a sample of adoptees relative to a matched sample of biological children with similar observable characteristic. It finds that that BMI and obesity are strongly correlated among biological parent-child pairs, but that there are no significant intergenerational associations in these health traits among adoptive parent-child pairs.

credible alternative explanation to *de novo* mutations.

See more here: [Doubt is Cast on the Contribution of Older Fathers' Gene Mutations to Increased Mental Illness Risk in Their Children](#)

[Genome-Wide Prediction and Functional Characterization of the Genetic Basis of Autism Spectrum Disorder](#)

Arjun Krishnan et al.

Autism spectrum disorder (ASD) is a complex neurodevelopmental disorder with a strong genetic basis. This study demonstrates that ASD genes concentrate on a number of key pathways in the brain, and identifies several likely pathogenic genes and pathways that may mediate ASD across multiple copy-number variants.

[Protein-Induced Pluripotent Stem Cells Ameliorate Cognitive Dysfunction and Reduce A \$\beta\$ Deposition in a Mouse Model of Alzheimer's Disease](#)

Moon-Yong Cha et al.

Transplantation of stem cells into the brain attenuates functional deficits in the central nervous system via cell replacement, the release of specific neurotransmitters, and the production of neurotrophic factors. These data indicate that protein-induced pluripotent stem cells (iPSCs) might be a promising therapeutic approach for Alzheimer's disease.

[Optogenetically-Induced Tonic Dopamine Release from VTA-Nucleus Accumbens Projections Inhibits Reward Consummatory Behaviors.](#)

Maria A. Mikhailova et al.

Stimulation of dopamine transmission in the rat ventral tegmental area (VTA) resulted in a reduction of reward-seeking behavior, suggestion that a phasic pattern of dopamine release in the VTA activity is essential to reward-based behaviors.

[Distress During Pregnancy: Epigenetic Regulation of Placenta Glucocorticoid-Related Genes and Fetal Neurobehavior](#)

Catherine Monk et al.

This is the first study to link the effects of pregnant women's distress on the fetus and epigenetic changes in placental genes. The study examines maternal distress and salivary cortisol in relation to fetal movement and heart rate ("coupling"), and DNA methylation of three glucocorticoid pathway genes—*HSD11B2*, *NR3C1*, and *FKBP5*—in term placentas.



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