Resource Summary Report

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Pediatric Imaging Neurocognition and Genetics

RRID:SCR_008953
Type: Tool

Proper Citation

Pediatric Imaging Neurocognition and Genetics (RRID:SCR_008953)

Resource Information

URL: http://pingstudy.ucsd.edu/

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Description: A large multi-site pediatric MRI and genetics data resource to facilitate studies of the genomic landscape of the developing human brain. It includes information about the developing mental and emotional functions of the children to understand the genetic basis of individual differences in brain structure and connectivity, cognition, and personality. Investigators on the project are studying 1400 children between the ages of 3 and 20 years so that links between genetic variation and developing patterns of brain connectivity can be examined. Investigators interested in the effects of a particular gene will be able to search the database for any brain areas or connections between areas that differ as a function of variation in a particular gene, and also to determine if the genes appear to affect the course of brain development at some point during childhood. A data exploration tool has been created for mapping and analyzing MRI data sets collected for PING and related developmental studies. Approved investigators will be able to view raw image sets and derived 3D brain maps of MRI and DTI data, conduct hypothesis testing, and graph brain area measures as they change across the time course of development. PING Cores * Coordinating Core: Functions include project management, screening of participants and maintaining the database * Neuroimaging Core: applying a standardized high-resolution structural MRI protocol involving 3-D T1-weighted scans, a T2-weighted volume, and a set of diffusion-weighted scans with multiple b values and diffusion directions, scans to estimate MRI relaxation rates, and gradient echo EPI scans for resting state fMRI. Importantly, adaptive motion compensation, using ??????PROMO??????, a novel real-time motion correction algorithm will be used. Specific PING protocols for each scanner manufacturer: ** PING MRI Protocol - GE ** PING MRI Protocol - Philips ** PING MRI Protocol - Siemens * Assessment Core: Cognitive assessments for the PING project are conducted using the NIH Toolbox for Cognition. * Genomics Core: functions as a central repository for receipt of saliva samples collected for each study participant. Once received, samples are catalogued,

maintained, and DNA is extracted using state-of-the-field laboratory techniques. Ultimately, genome-wide genotyping is performed on the extracted DNA using the Illumina Human660W-Quad BeadChip. PING involves 10 sites throughout the country including UCSD, University of Hawaii, Scripps Genomics, UCLA, UC Davis, Kennedy Krieger Institute/Johns Hopkins, Sacker Institute/Cornell University, University of Massachusetts, Massachusetts General Hospital/Harvard, and Yale. Families who may want to participate in the study, or others who want to know more about it, may email questions to ping (at) ucsd.edu.

Abbreviations: PING

Synonyms: PING Study, Pediatric Imaging Neurocognition and Genetics (PING)

Resource Type: database, data or information resource

Keywords: pediatric, neuroimaging, genetics, child, early adult human, adolescent, genetic variant, magnetic resonance imaging, brain, gene, brain structure, connectivity, function, brain development, cognition, experimental protocol, saliva, dna, diffusion tensor imaging, image, genotype, dicom, imaging genomics, magnetic resonance, nifti, FASEB list

Funding: NIDA ;
ARRA ;
NICHD

Availability: Data Use Agreement required.

Resource Name: Pediatric Imaging Neurocognition and Genetics

Resource ID: SCR_008953

Alternate IDs: nlx_151904

Alternate URLs: http://www.nitrc.org/projects/ping

Old URLs: http://ping.chd.ucsd.edu/

Record Creation Time: 20220129T080250+0000

Record Last Update: 20250412T055328+0000

Ratings and Alerts

No rating or validation information has been found for Pediatric Imaging Neurocognition and Genetics.

No alerts have been found for Pediatric Imaging Neurocognition and Genetics.

Data and Source Information

Source: SciCrunch Registry

Usage and Citation Metrics

We found 75 mentions in open access literature.

Listed below are recent publications. The full list is available at FDI Lab - SciCrunch.org.

Jirsaraie RJ, et al. (2023) Benchmarking the generalizability of brain age models: Challenges posed by scanner variance and prediction bias. Human brain mapping, 44(3), 1118.

Khundrakpam B, et al. (2023) A critical role of brain network architecture in a continuum model of autism spectrum disorders spanning from healthy individuals with genetic liability to individuals with ASD. Molecular psychiatry, 28(3), 1210.

Morys F, et al. (2023) Neuroanatomical correlates of genetic risk for obesity in children. Translational psychiatry, 13(1), 1.

Gadewar SP, et al. (2023) A Comprehensive Corpus Callosum Segmentation Tool for Detecting Callosal Abnormalities and Genetic Associations from Multi Contrast MRIs. ArXiv.

Modabbernia A, et al. (2022) Systematic evaluation of machine learning algorithms for neuroanatomically-based age prediction in youth. Human brain mapping, 43(17), 5126.

Merz EC, et al. (2022) Educational attainment polygenic scores, socioeconomic factors, and cortical structure in children and adolescents. Human brain mapping, 43(16), 4886.

Norbom LB, et al. (2022) Parental socioeconomic status is linked to cortical microstructure and language abilities in children and adolescents. Developmental cognitive neuroscience, 56, 101132.

Harrison GF, et al. (2022) Allele imputation for the killer cell immunoglobulin-like receptor KIR3DL1/S1. PLoS computational biology, 18(2), e1009059.

Kelly C, et al. (2022) Investigating brain structural maturation in children and adolescents born very preterm using the brain age framework. NeuroImage, 247, 118828.

Vargas LB, et al. (2022) Remarkably Low KIR and HLA Diversity in Amerindians Reveals Signatures of Strong Purifying Selection Shaping the Centromeric KIR Region. Molecular biology and evolution, 39(1).

Hagler DJ, et al. (2022) Do aggregate, multimodal structural neuroimaging measures replicate regional developmental differences observed in highly cited cellular histological studies? Developmental cognitive neuroscience, 54, 101086.

Xu X, et al. (2021) Paradoxical phase response of gamma rhythms facilitates their entrainment in heterogeneous networks. PLoS computational biology, 17(6), e1008575.

Ball G, et al. (2021) Individual variation underlying brain age estimates in typical development. NeuroImage, 235, 118036.

Bryce NV, et al. (2021) Brain parcellation selection: An overlooked decision point with meaningful effects on individual differences in resting-state functional connectivity. NeuroImage, 243, 118487.

Taquet M, et al. (2021) A structural brain network of genetic vulnerability to psychiatric illness. Molecular psychiatry, 26(6), 2089.

Zhao B, et al. (2021) Transcriptome-wide association analysis of brain structures yields insights into pleiotropy with complex neuropsychiatric traits. Nature communications, 12(1), 2878.

Immel A, et al. (2021) Analysis of Genomic DNA from Medieval Plague Victims Suggests Long-Term Effect of Yersinia pestis on Human Immunity Genes. Molecular biology and evolution, 38(10), 4059.

Lewis CM, et al. (2021) Cortical gamma-band resonance preferentially transmits coherent input. Cell reports, 35(5), 109083.

Avants BB, et al. (2021) Similarity-driven multi-view embeddings from high-dimensional biomedical data. Nature computational science, 1(2), 143.

Ilyka D, et al. (2021) Infant social interactions and brain development: A systematic review. Neuroscience and biobehavioral reviews, 130, 448.