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Supplemental Data

Pleiotropic Meta-Analysis of Cognition, Education, and Schizophrenia Differentiates Roles of Early Neurodevelopmental and Adult Synaptic Pathways

Max Lam, W. David Hill, Joey W. Trampush, Jin Yu, Emma Knowles, Gail Davies, Eli Stahl, Laura Huckins, David C. Liewald, Srdjan Djurovic, Ingrid Melle, Kjetil Sundet, Andrea Christoforou, Ivar Reinvang, Pamela DeRosse, Astri J. Lundervold, Vidar M. Steen, Thomas Espeseth, Katri Räikkönen, Elisabeth Widen, Aarno Palotie, Johan G. Eriksson, Ina Giegling, Bettina Konte, Annette M. Hartmann, Panos Roussos, Stella Giakoumaki, Katherine E. Burdick, Antony Payton, William Ollier, Ornit Chiba-Falek, Deborah K. Attix, Anna C. Need, Elizabeth T. Cirulli, Aristotle N. Voineskos, Nikos C. Stefanis, Dimitrios Avramopoulos, Alex Hatzimanolis, Dan E. Arking, Nikolaos Smyrnis, Robert M. Bilder, Nelson A. Freimer, Tyrone D. Cannon, Edythe London, Russell A. Poldrack, Fred W. Sabb, Eliza Congdon, Emily Drabant Conley, Matthew A. Scult, Dwight Dickinson, Richard E. Straub, Gary Donohoe, Derek Morris, Aiden Corvin, Michael Gill, Ahmad R. Hariri, Daniel R. Weinberger, Neil Pendleton, Panos Bitsios, Dan Rujescu, Jari Lahti, Stephanie Le Hellard, Matthew C. Keller, Ole A. Andreassen, Ian J. Deary, David C. Glahn, Anil K. Malhotra, and Todd Lencz

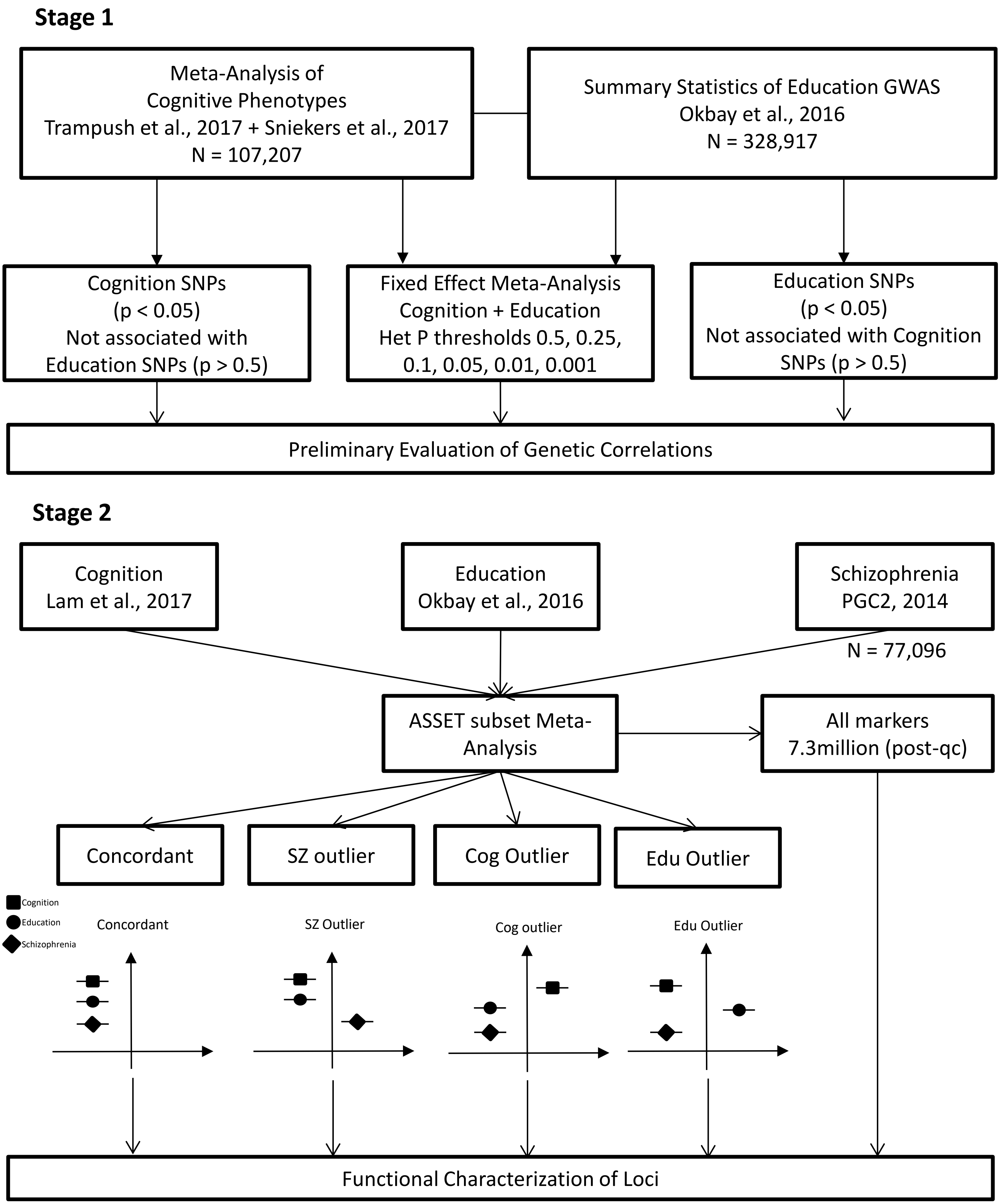

Figure S1: Preliminary Analysis and ASSET Meta Analysis Workflow

Note: Summary statistics data was first consolidated in Stage 1 of the analysis, followed by performing preliminary genetic correlations to evaluate global genetic correlations across the traits of interests, i.e. cognition, education and schizophrenia. ASSET meta-analysis was carried during Stage 2 of the analysis followed by functional characterization of loci, genes and pathways obtained from the ASSET results.

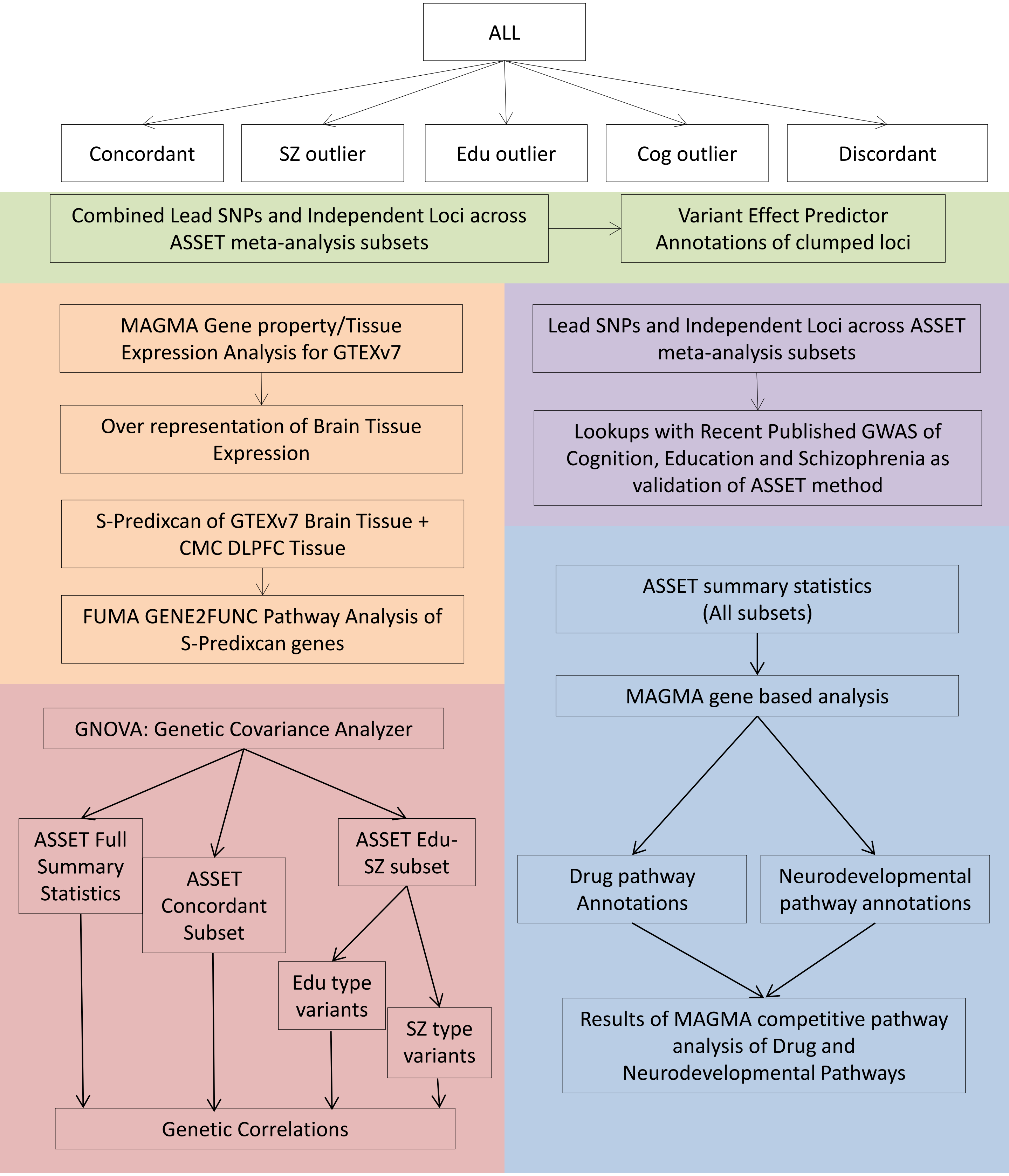

Figure S2: GWAS Loci Functional Characterization Workflow

Note: Functional characterization involved using tools such as MAGMA for gene-based and competitive pathway analysis, S-Predixcan was carried out to identify eQTL profiles in the brain, driven by ASSET meta-analysis, and GNOVA was utilized to examine localized genetic correlations of subsets identified by ASSET. A myriad of annotation databases were used including, GTEX7, CommonMind Consortium, DLPFC expression, and Drug pathway annotations. The FUMA annotation pipeline was also used to identify significant independent genomic loci from the ASSET meta-analysis, which also enabled loci lookups with more recent GWASs.

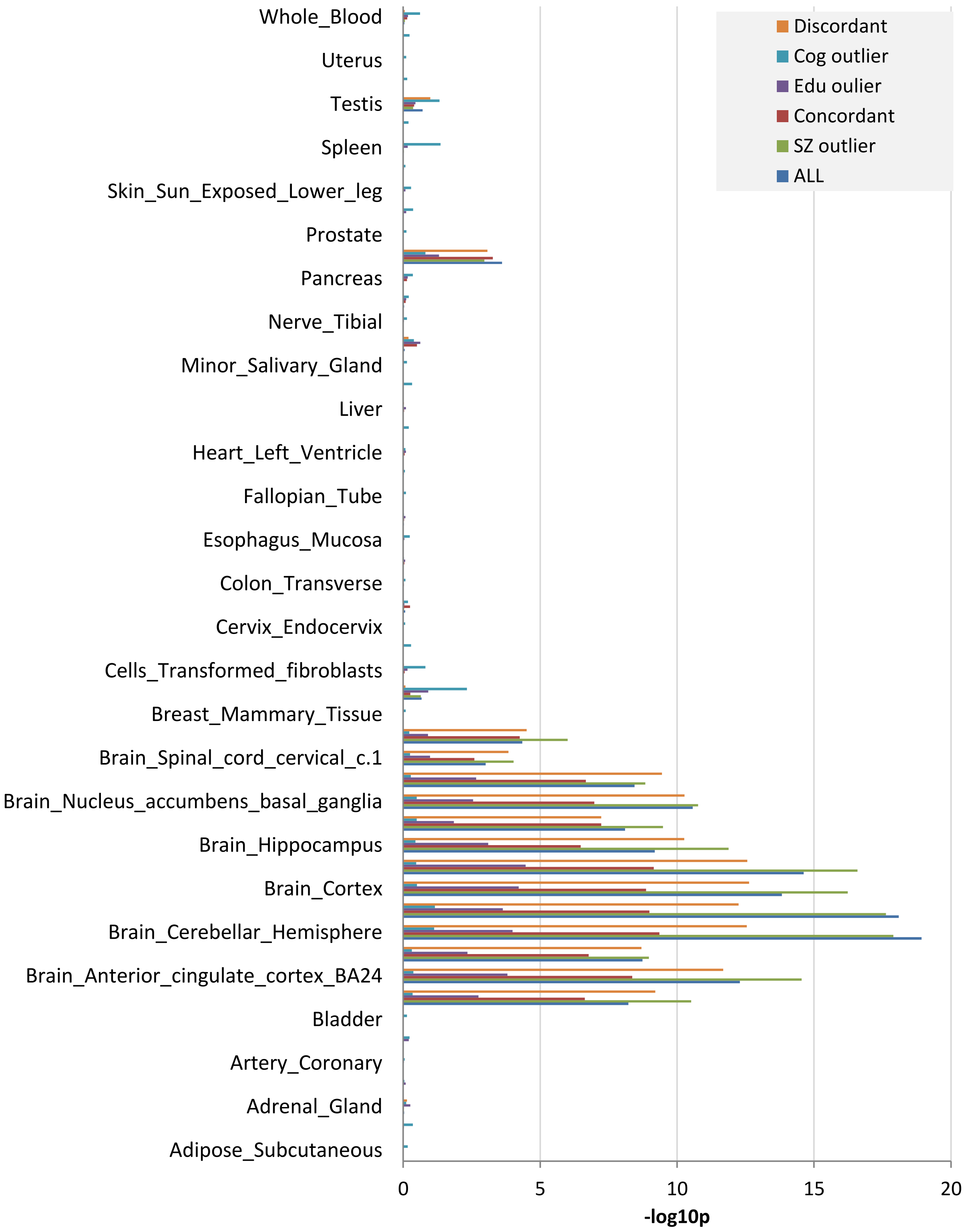

Figure S3: MAGMA Gene property tissue expression results for ASSET Subsets
Note: Colored bars indicate –log10P values for MAGMA gene property analysis. Both concordant and discordant ASSET subsets include genes highly expressed across brain tissue.

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Framingham Heart Study (FHS): phs000007.v23.p8 and phs000342.v11.p8

Multi-Site Collaborative Study for Genotype-Phenotype Associations in Alzheimer's Disease (GENADA): phs000219.v1.p1

Long Life Family Study (LLFS): phs000397.v1.p1

Genetics of Late Onset Alzheimer’s Disease Study (LOAD): phs000168.v1.p1

Minnesota Center for Twin and Family Research (MCTFR): phs000620.v1.p1

Philadelphia Neurodevelopmental Cohort (PNC): phs000607.v1.p1

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