

| Analysis | Script (in ASD_PPI/scripts) | Input (in ASD_PPI/data, unless indicated otherwise) | Output (in ASD_PPI/output, unless indicated otherwise) | Paper figures/tables |
|--|--|--|--|--|
| RNA-seq data analysis | RNA/ASD_RNA_1_TrimGalore.sh | ASD_PPI/scripts/RNA/ASD_RNA_1_TrimGalore.param | (reformatted: ASD_PPI/data/ASD_RNAseq_geneCounts_noTail.tsv) | |
| | RNA/ASD_RNA_2_Hisat2.sh | ASD_PPI/scripts/RNA/ASD_RNA_2_Hisat2.param (raw FASTQ files deposited to GEO [GSE178896]) (HISAT2 index files [GRCh38 genome with transcripts]) (Homo_sapiens.GRCh38.84.gtf.gz from Ensembl) | | |
| | ASD_plotRnaHeatMap.r | ASD_RNAseq_geneCounts_noTail.tsv Homo_sapiens.GRCh38.84.GeneAnnotations.txt Nehme2018_MarkerGenes.txt | ASD_RNA_geneAvgLcpm.txt ASD_RNA_SatterstromHeatMap.pdf ASD_RNA_MarkerGenesHeatMap.pdf | Fig 1C Fig S1A |
| Generating scRNA-seq t-SNE plots | ASD_seuratPlots_Velmeshev2019.r | (expMatrix.tsv.gz from UCSC Cell Browser) (meta.tsv from UCSC Cell Browser) (ISNE_coords.tsv.gz from UCSC Cell Browser) | ASD_Velmeshev2019_DimPlot.png ASD_Velmeshev2019_BallFeaturePlots.png | Fig S1B Fig S1C |
| Generating IP-MS volcano and scatter plots | ASD_plotVolcanoAndScatter.r | ASD_GenoppiResults.xlsx | ASD_Scatter_InWebVolcanos_13IPs.pdf ASD_ANK2_PTEN_DYRK1A_Volcanos.pdf | Fig 2A,B, S2 Fig 4B, 5A, 6D |
| Comparison of IP-MS data across sites | ASD_plotSiteSummaryStats.r | ASD_IpSummaryStats.txt ASD_IpComparisonStats.txt | ASD_SiteSummaryStats_BoxPlots.pdf ASD_IpPairsBySite_BoxPlots.pdf | Fig S3A Fig S3B |
| Co-expression analysis | ASD_calcCoExp_Stickels2021.py | Homo_sapiens.GRCh38.84.GeneAnnotations.txt HOM_MouseHumanSequence.rpt.txt (Puck_190921_19_digital_expression.txt.gz from Single Cell Portal) | (filtered: ASD_PPI/data/CoExp/Stickels2021_ASD-Baits_CoExpFisherNegLogP.txt.gz) | |
| | ASD_calcCoExp_Maynard2021.py | (counts matrix and metadata from spatialIBD R package) | (filtered: ASD_PPI/data/CoExp/Maynard2021_ASD-Baits_CoExpFisherNegLogP.txt.gz) | |
| | ASD_calcCoExp_Velmeshev2019.r | Homo_sapiens.GRCh38.84.GeneAnnotations.txt (rawMatrix.zip from UCSC Cell Browser) | (filtered: ASD_PPI/data/CoExp/Velmeshev2019_ASD-Baits_CoExpPropRho.txt.gz) | |
| | ASD_calcCoExp_BrainSpan.r | Homo_sapiens.GRCh38.84.GeneAnnotations.txt (“RNA-Seq Genocode v10 summarized to genes” data from BrainSpan) | (filtered: ASD_PPI/data/CoExp/BrainSpan_ASD-Baits_CoExpPropRho.txt.gz) | |
| | ASD_plotCoExp_IntSubsets.r | ASD_IntSubsetTable.txt CoExp/Stickels2021_ASD-Baits_CoExpFisherNegLogP.txt.gz CoExp/Maynard2021_ASD-Baits_CoExpFisherNegLogP.txt.gz CoExp/Velmeshev2019_ASD-Baits_CoExpPropRho.txt.gz CoExp/BrainSpan_ASD-Baits_CoExpPropRho.txt.gz | ASD_CoExp_IntSubsets_ViolinPlots.pdf ASD_CoExp_IntSubsets-Sites_ViolinPlots.pdf | Fig S3D,E Fig S3C |
| | ASD_plotCoExp_IntsVsOthers.r | ASD_MasterIntegratorTable.txt CoExp/Stickels2021_ASD-Baits_CoExpFisherNegLogP.txt.gz CoExp/Maynard2021_ASD-Baits_CoExpFisherNegLogP.txt.gz CoExp/Velmeshev2019_ASD-Baits_CoExpPropRho.txt.gz CoExp/BrainSpan_ASD-Baits_CoExpPropRho.txt.gz | ASD_CoExp_ViolinPlots.pdf ASD_CoExp-Maynard2021_ViolinPlot.pdf | Fig S8C Fig 2H |
| | | | | |
| Generating network plot and pie charts | ASD_plotNetwork.r | ASD_MasterIntegratorTable.txt | ASD_NetworkPlot.pdf ASD_NetworkPieCharts.pdf | Fig 2C Fig 2D,E |
| Comparison of IN vs. brain IP-MS data | ASD_InvsBrainComparison.r | ASD_MasterIntegratorTable.txt ASD_IntSubsetTable.txt ASD_GenoppiResults.xlsx BrainIPs_Filtered/SCN2A.pep1.balt2.FilteredNonInts.txt BrainIPs_Filtered/SHANK3.pep1.balt2.FilteredNonInts.txt BrainIPs_Filtered/SYNGAP1.pep1.balt2.FilteredNonInts.txt | ASD_BrainVolcanos_InOverlay.pdf ASD_InvsBrain_OverlapEnrichment.txt | Fig S7B Fig 2G, S7C, Data S2 |
| BrainSpan analysis | ASD_BrainSpanAnalysis.r | BrainSpan/array_expression_matrix.processed.csv BrainSpan/rows_metadata.filtered.csv BrainSpan/columns_metadata.csv BrainSpan/age_mapping.csv Satterstrom2020_TableS2_Autosomal.txt ASD_MasterIntegratorTable.txt BrainSpan/ASD_IN_brain_BrainSpanValues.tsv | ASD_SatterstromOverlap_BrainSpanPlot.pdf ASD_BrainSpanPlots.pdf | Fig S11D Fig S8A,B |
| Tissue enrichment analysis | ASD_GtexEnrichmentAnalysis.r | ASD_MasterIntegratorTable_withinWeb.txt Homo_sapiens.GRCh38.84.GeneAnnotations.txt GTEx/GTEx_tstat.tsv GTEx/GTEx_tissue_names.tsv GTEx/GTEx_brain_tstat.tsv GTEx/GTEx_brain.tissue.names.tsv | ASD_GtexEnrichment.txt ASD_GtexEnrichment_BarPlots.pdf | Table S6 Fig 3A,B, S8D |
| Cell type enrichment analysis | ASD_calcPercExp_Velmeshev2019.py | (expMatrix.tsv.gz from UCSC Cell Browser) (meta.tsv from UCSC Cell Browser) | ASD_PPI/data/Velmeshev2019_PercExpMatrix.txt.gz | |
| | ASD_CellTypeEnrichmentAnalysis.py | Velmeshev2019_genes.tsv ASD_MasterIntegratorTable.txt Velmeshev2019_PercExpMatrix.txt.gz Velmeshev2019_DataS4.xls | ASD_scExpEnrichment.txt ASD_scDegEnrichment.txt | Table S6 Table S6 |
| | ASD_plotCellTypeEnrichment.r | ASD_PPI/output/ASD_scExpEnrichment.txt ASD_PPI/output/ASD_scDegEnrichment.txt | ASD_CellTypeEnrichment_FacetBarPlots.pdf ASD_CellTypeEnrichment_SingleBarPlots.pdf | Fig S9 Fig 3C,D |
| Comparison of ANK2 WT vs. KO IP-MS data | ASD_ANK2_WTvsKO_Analysis.r | ANK2_WTvsMUT/ANK2-WT.pep1.balt2.MinImp_GenoppiStats.txt ANK2_WTvsMUT/ANK2-MUT.pep1.balt2.MinImp_GenoppiStats.txt ANK2_WTvsMUT/ANK2-WTvsMUT.pep1.balt2.MinImp_GenoppiStats.txt | ASD_ANK2_WTvsKO_Photos.pdf ASD_ANK2_WTvsKO_CellularComponentEnrichment.txt | Fig S10B Table S7 |
| Analysis of IGF2BP1-3 targets | MAGMA/ASD_IGF2BP_MAGMA_1_GeneAnnot.sh | scripts/MAGMA/ASD_IGF2BP_MAGMA_1_GeneAnnot.param | (merged/reformatted: ASD_PPI/data/ASD_IGF2BPtargets_MagmaResults.txt) | Table S8 |
| | MAGMA/ASD_IGF2BP_MAGMA_2_GeneAndSetAnalysis.sh | scripts/MAGMA/ASD_IGF2BP_MAGMA_2_GeneAndSetAnalysis.param Huang2018_IGF2BP1-3_RNAtargets.txt Ensembl_BioMart_GRCh37_gene.loc (MAGMA EUR reference data) (PGC GWAS summary statistics) (GIANT height GWAS summary statistics) | | |
| | ASD_IGF2BP1-3_Analysis.r | Satterstrom2020_TableS2_Autosomal.txt ASD_MasterIntegratorTable.txt Huang2018_IGF2BP1-3_RNAtargets.txt ASD_IGF2BPtargets_MagmaResults.txt | ASD_IGF2BPtargets-ASDgenes_OverlapEnrichment.txt ASD_IGF2BPtargets-ASDgenes_OverlapEnrichmentPlot.pdf ASD_IGF2BPtargets-Networks_OverlapEnrichment.txt ASD_IGF2BPtargets-Networks_OverlapEnrichmentPlot.pdf | Table S8 Fig 6A,B Table S8 Fig 6C |
| Rare variant and pLI score enrichment analysis | ASD_RareVariantAnalysis.r | Satterstrom2020_TableS2_Autosomal.txt Kaplanis2020_TableS2.txt Singh2022_SCHEMA_SupTable5.csv ASD_MasterIntegratorTable_withinWeb.txt ASD_RareVariantAnalysis.networks | ASD_RareVariantEnrichment.txt ASD_RareVariantEnrichment_HeatMaps.pdf ASD_RareVariantEnrichment_BarPlots.pdf | Table S9 Fig S11A,B Fig 7A |
| Common variant enrichment analysis | MAGMA/ASD_MAGMA_Conditional.sh | ASD_PPI/scripts/MAGMA/ASD_MAGMA_Conditional.param | (merged/reformatted: ASD_PPI/data/ASD_MagmaResults.txt) | Table S9 |
| | MAGMA/ASD_MAGMA_Global_1_GeneAnnot.sh | ASD_PPI/scripts/MAGMA/ASD_MAGMA_Global_2_GeneAndSetAnalysis.param | | |
| | MAGMA/ASD_MAGMA_Global_2_GeneAndSetAnalysis.sh | ASD_MasterIntegratorTable_withinWeb.txt Ensembl_BioMart_GRCh37_gene.loc (MAGMA EUR reference data) (PGC GWAS summary statistics) (GIANT height GWAS summary statistics) | | |
| | ASD_plotMagmaResults.r | ASD_MasterIntegratorTable.txt ASD_MagmaResults.txt | ASD_MagmaResults_FacetHeatMap.pdf | Fig S11C |
| Generating social Manhattan plot | ASD_plotSocialManhattan.r | Satterstrom2020_TableS2_Autosomal.txt ASD_MasterIntegratorTable.txt ASD_ValidationSummary.txt | ASD_SocialManhattanPlot.pdf | Fig 7B |