

Supplementary Materials for

**Unveiling development-specific gene signatures in the
developing human prefrontal cortex with ICGS**

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Figures

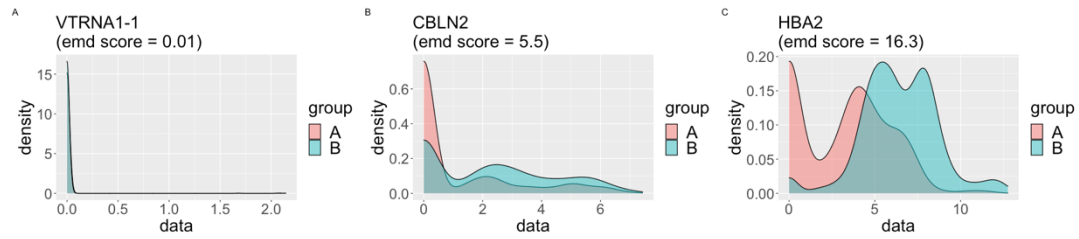


Figure S1. The density plot of different genes using the EMDomics tool between adjacent development stages (P6 and P7). (A) The density plot with VTRNA1-1 (gene). (B) The density plot with CBLN2 (gene). (C) The density plot with HBA2 (gene). Group A represents the set of human PFC cells in P6. Group B represents the set of human PFC cells in P7.

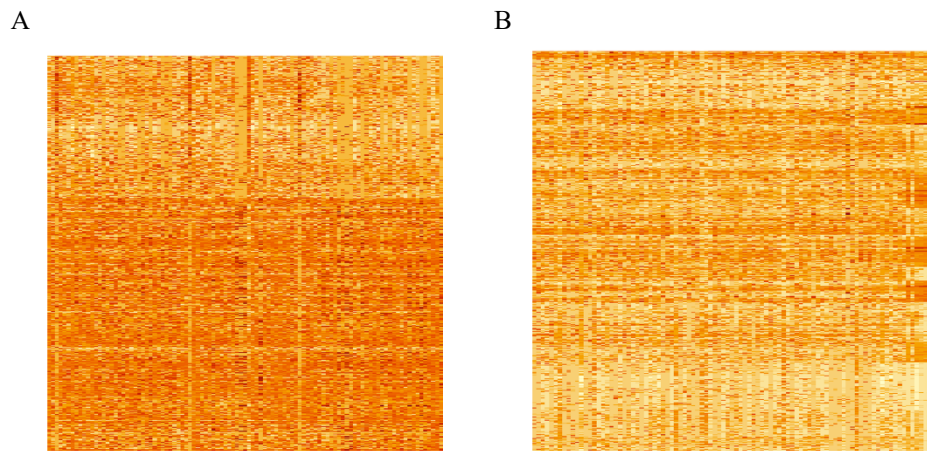


Figure S2. The heatmap plot of identified DEGs using the EMDomics tool between adjacent development stages (P5 and P6, P6 and P7). (A) P5 and P6. (B) P6 and P7. Row represents cells and column represents DEGs.

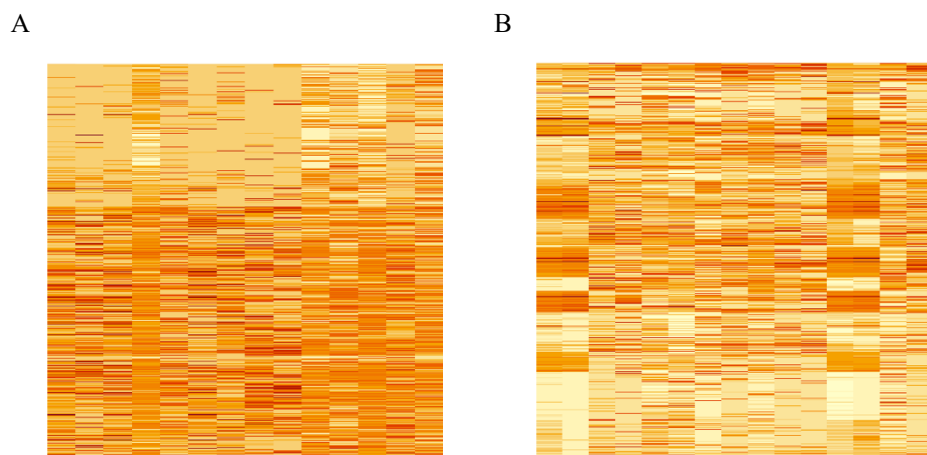


Figure S3. The heatmap plot of identified gene signatures using the proposed ICGS between adjacent development stages (P5 and P6, P6 and P7). (A) P5 and P6. (B) P6 and P7. Row represents cells and column represents gene signatures.

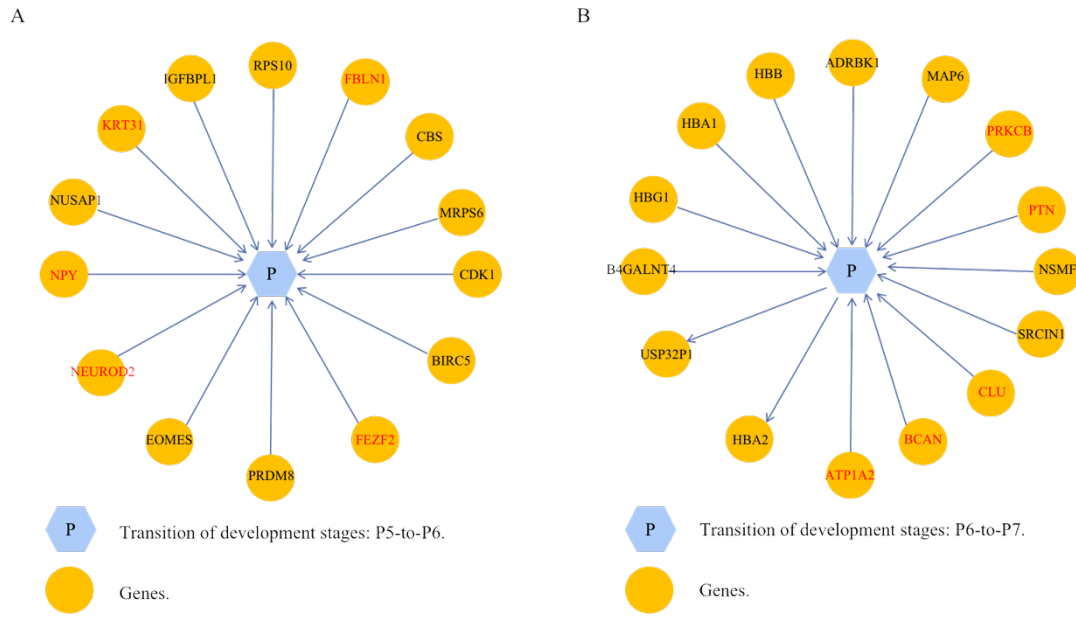


Figure S4. The identified ASD-related genes marked in red from the bayesian network structure of identified gene signatures using the proposed ICGS between adjacent development stages (P5 and P6, P6 and P7). (A) P5 and P6. (B) P6 and P7.

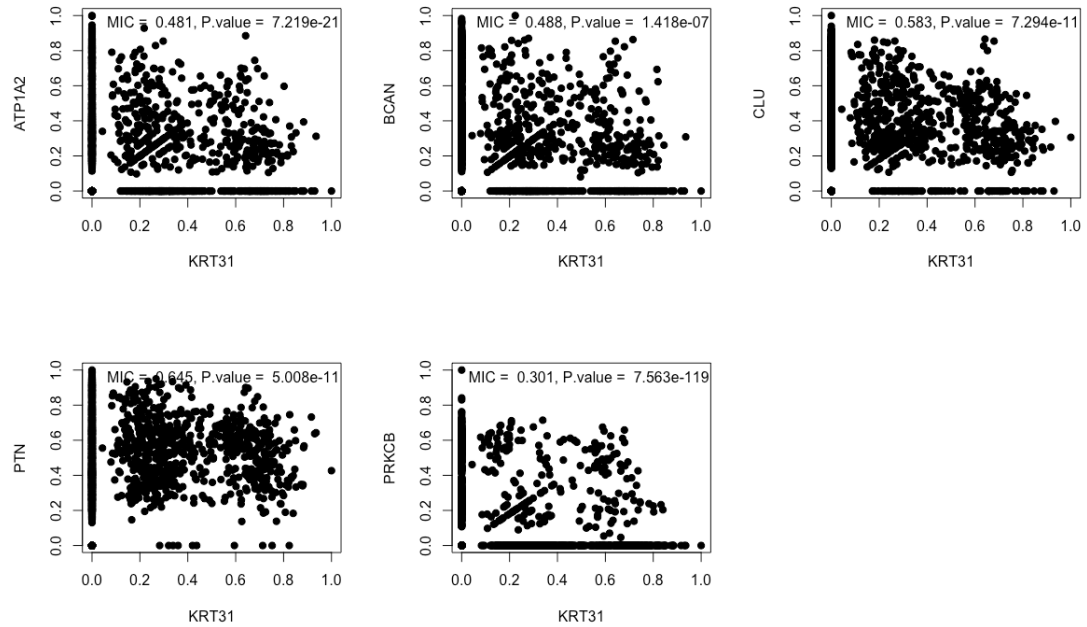


Figure S5. Scatter plots of the expression levels between ASD-related gene pair (*KRT31-ATP1A2*, *KRT31-BCAN*, *KRT31-CLU*, *KRT31-PTN* and *KRT31-PRKCB*) from different transition of development stages (P5-to-P6, P6-to-P7). On the top, the corresponding maximal information coefficient (MIC) and p value are shown for gene expression values. The two-sided Wilcoxon rank-sum test is used for p values. Each dot represents a cell.

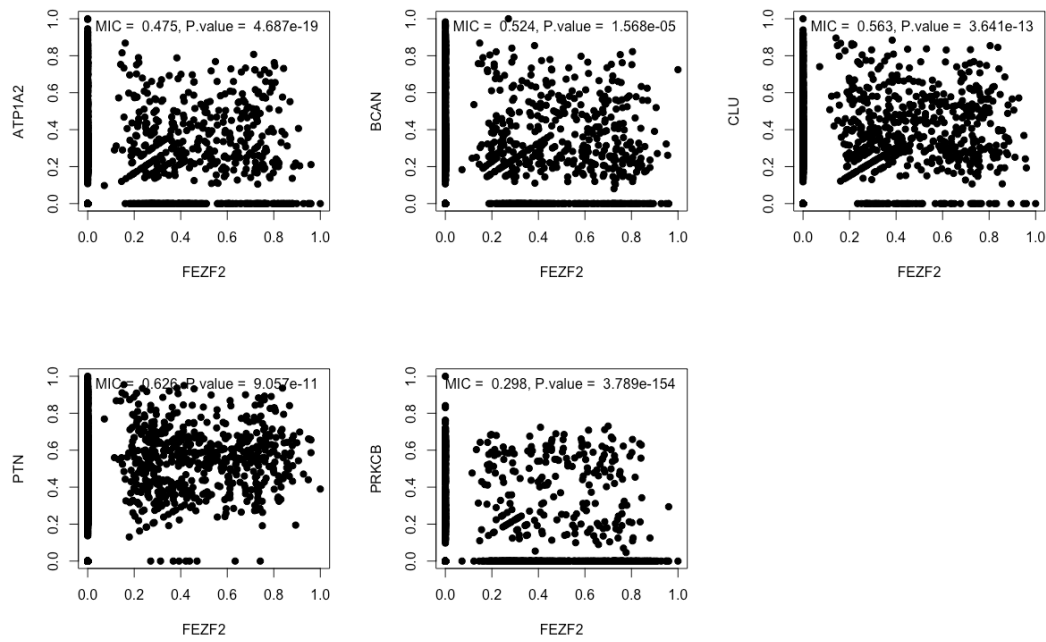


Figure S6. Scatter plots of the expression levels between ASD-related gene pair (*FEZF2-ATP1A2*, *FEZF2-BCAN*, *FEZF2-CLU*, *FEZF2-PTN* and *FEZF2-PRKCB*) from different transition of development stages (P5-to-P6, P6-to-P7). On the top, the corresponding maximal information coefficient (MIC) and p value are shown for gene expression values. The two-sided Wilcoxon rank-sum test is used for p values. Each dot represents a cell.

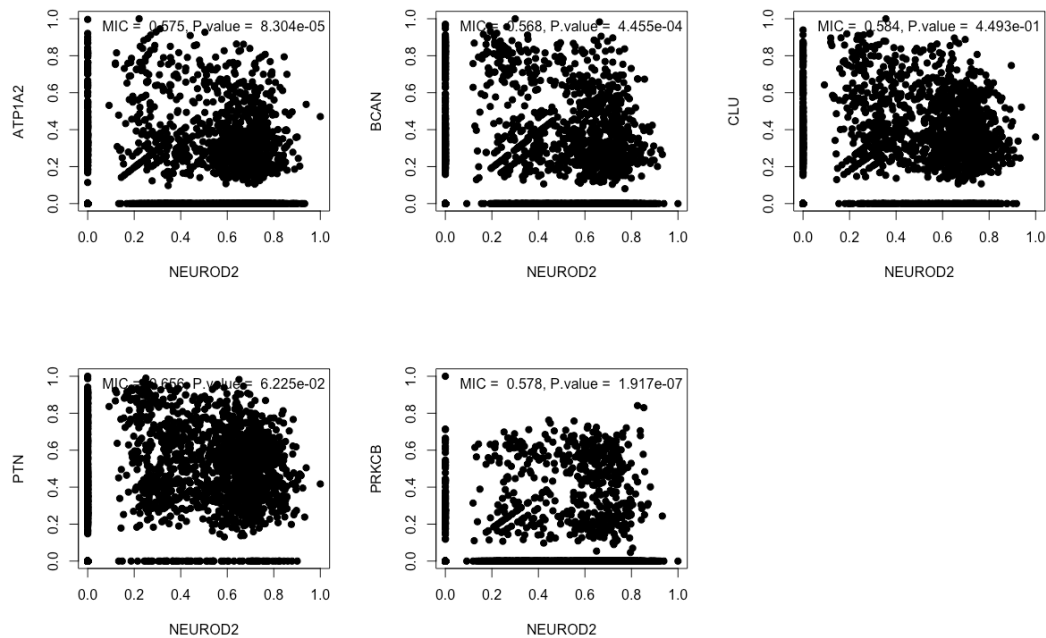


Figure S7. Scatter plots of the expression levels between ASD-related gene pair (*NEUROD2-ATP1A2*, *NEUROD2-BCAN*, *NEUROD2-CLU*, *NEUROD2-PTN* and *NEUROD2-PRKCB*) from different transition of development stages (P5-to-P6, P6-to-P7). On the top, the corresponding maximal information coefficient (MIC) and p value are shown for gene expression values. The two-sided Wilcoxon rank-sum test is used for p values. Each dot represents a cell.

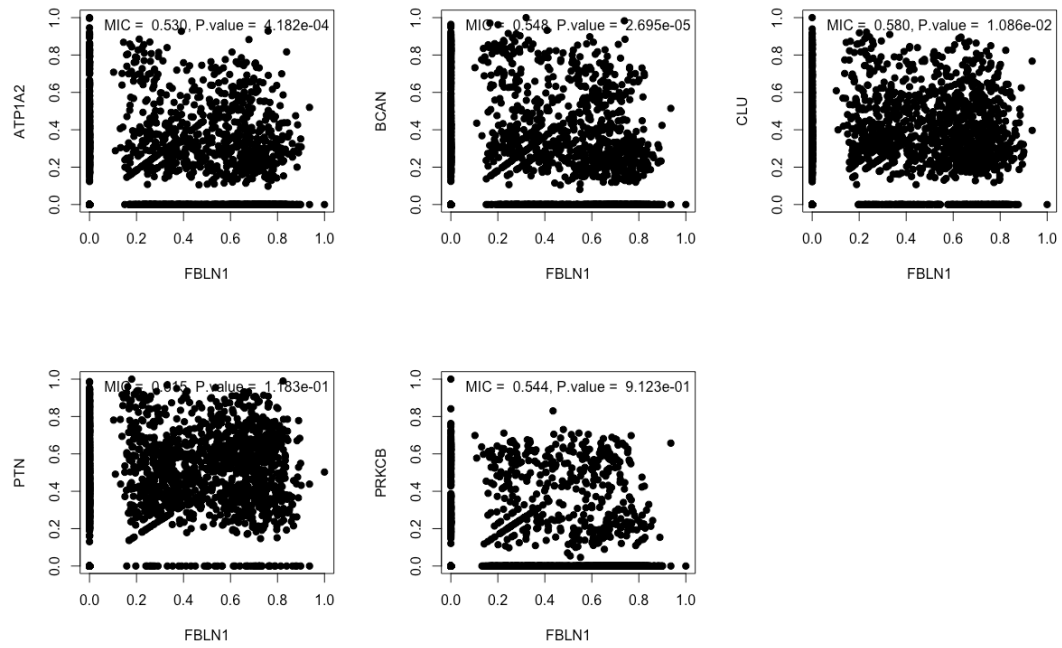


Figure S8. Scatter plots of the expression levels between ASD-related gene pair (FBLN1-*ATP1A2*, FBLN1-*BCAN*, FBLN1-*CLU*, FBLN1-*PTN* and FBLN1-*PRKCB*) from different transition of development stages (P5-to-P6, P6-to-P7). On the top, the corresponding maximal information coefficient (MIC) and p value are shown for gene expression values. The two-sided Wilcoxon rank-sum test is used for p values. Each dot represents a cell.