**Supplementary Information**

***JMJD3* exerts oncorepressor activity in acute promyelocytic leukemia by promoting *PU.1* expression**

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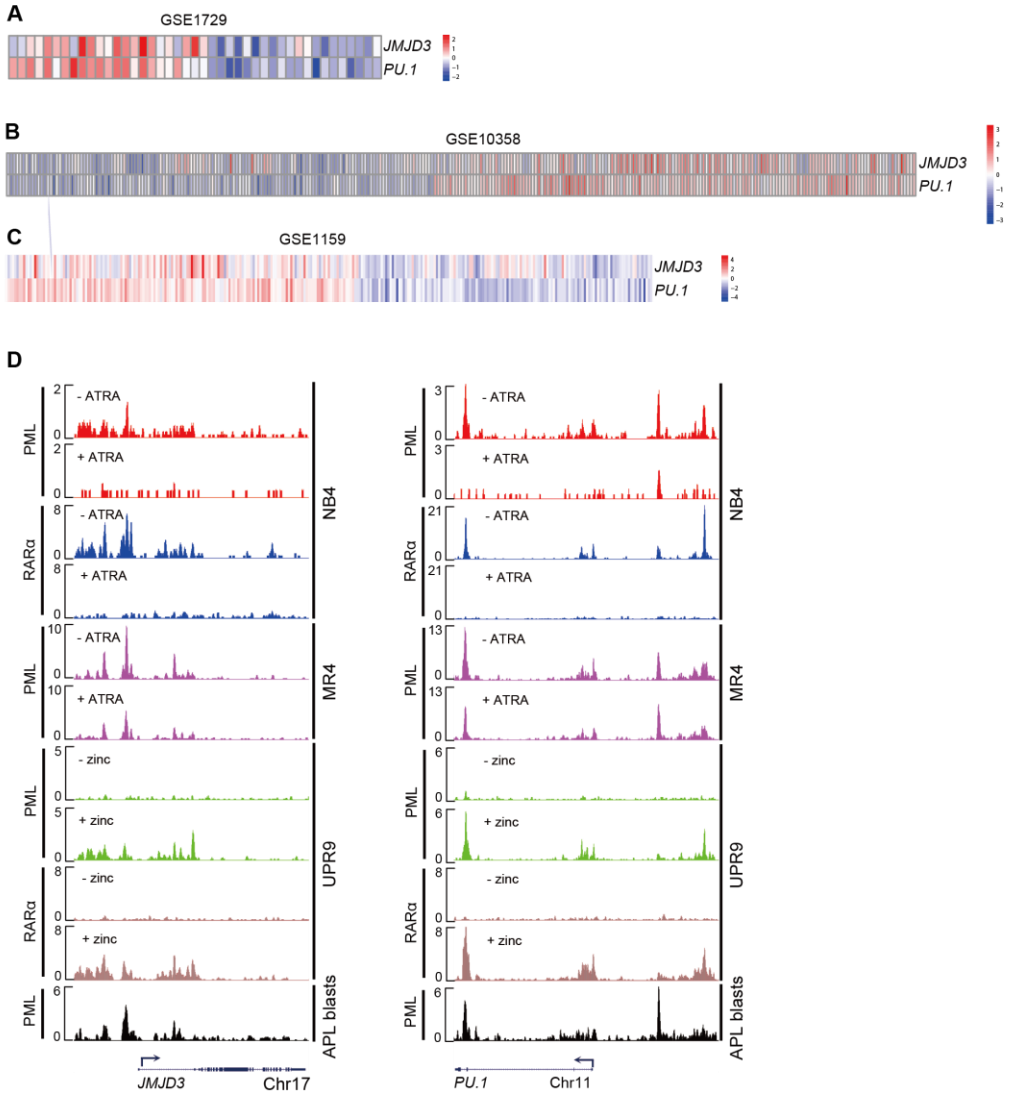


**Figure S1. Correlation between *JMJD3* and *PU.1* in APL.** (A-C) Heatmap of the expression of *JMJD3* and *PU.1* in the BM mononuclear cells of AML patients from GSE1729 (A), GSE10358 (B), and GSE1159 (C). (D) The analyses of published ChIP-seq data revealed that both *JMJD3* and *PU.1*

belong to the target genes of PML and RARα.

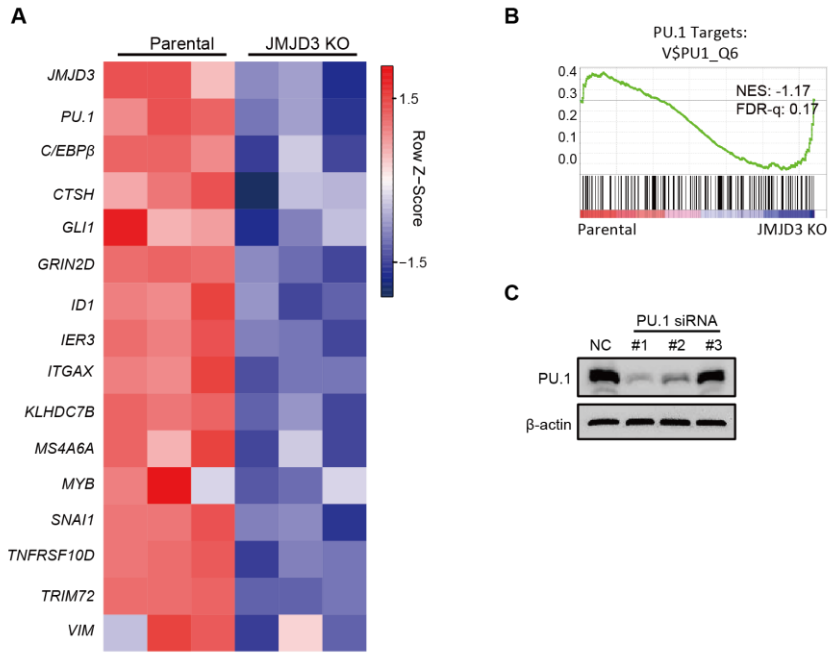


**Figure S2. *PU.1* represents the key target of *JMJD3* in APL.** Differentially expressed genes (DEGs) are classified as those with fold change >2 or <0.5 ($p$ <0.05). (A) Heatmap of DEGs in parental and JMJD3 KO HL-60. (B) GSEA of parental and JMJD3 KO HL-60. The gene set of *PU.1* targets was used. (C) Verification of the effects of PU.1 siRNAs in HL-60. Western blot was conducted to determine the effect of knockdown.

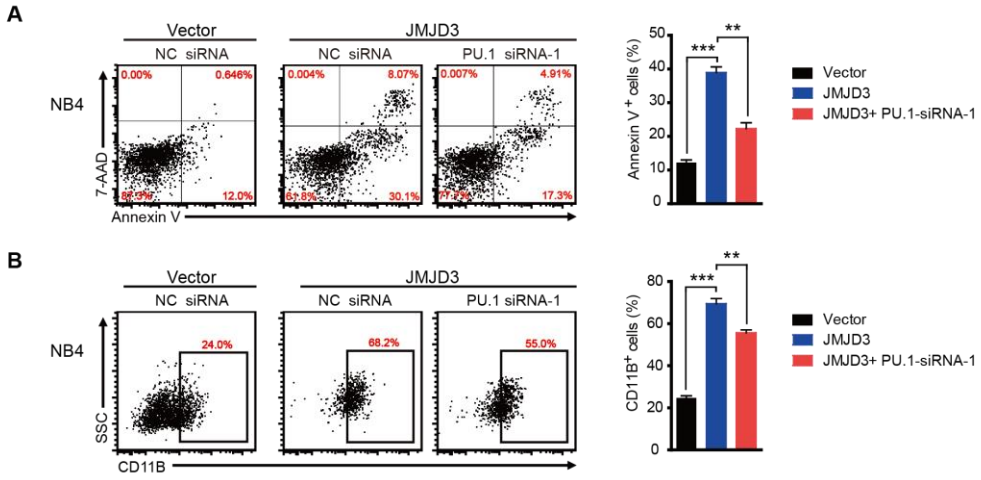


**Figure S3. JMJD3 exhibited anti-human AML activity in a PU.1-dependent manner.** (A) Flow cytometric analyses of Annexin V (A), and CD11B (B) in NB4 transduced with empty vector, JMJD3-expressing vector, or JMJD3-expressing vector plus PU.1 siRNA-1.