

**Title: Supplementary Data 1:**

Description: Discovery cohort and replication cohort study summary.

**Title: Supplementary Data 2:**

Description: DESeq2 results for all variants in MPRA experiment.

**Title: Supplementary Data 3:**

Description: Differential gene expression between WT group and KO group.

**Title: Supplementary Data 4:**

Description: Proteins binding with random and DNA sequence harboring rs2431697 identified by MS study.

**Title: Supplementary Data 5:**

Description: 4C-seq identified the interaction TSS regions with rs2431697 locus.

**Title: Supplementary Data 6:**

Description: miR-146a targets predicted by TargetScan, mirTarBase and miRDB.