

**Title:** Supplementary Data 1.

**Description:** A summary of the GWAS tag SNPs and trait associations with disease-associated haplotypes.

**Title:** Supplementary Data 2.

**Description:** Fine-mapping using FINEMAP and SuSiE. Credible sets in the *TNFAIP3* locus for UK Biobank and Biobank Japan immune-related phenotypes

**Title:** Supplementary Data 3.

**Description:** Collective functional data for all TNFAIP3 locus common variants.

Table of variants complete with all functional data annotating each variant.

**Title:** Supplementary Data 4.

**Description:** CRISPRi screen oligos. Oligonucleotides synthesized for CRISPRi screens.

**Title:** Supplementary Data 5.

**Description:** Element-level CRISPRi and CRISPRa scores and statistics. Table of effect sizes, significance z-scores, one-sided MAUDE *P*-values, and FDRs for all replicates and cell types on the element level for CRISPRi and CRISPRa screens.

**Title:** Supplementary Data 6.

**Description:** Guide-level CRISPRi and CRISPRa Z-scores. Table of guide-level Z-scores for all replicates and cell types for CRISPRi and CRISPRa screens.

**Title:** Supplementary Data 7.

**Description:** CRISPRa screen oligos. Oligonucleotides synthesized for CRISPRa screens.

**Title:** Supplementary Data 8.

**Description:** MPRA oligos. Oligonucleotides synthesized for MPRA screens.

**Title:** Supplementary Data 9.

**Description:** MPRA variant scores and statistics. Table of uncorrected two-sided *t*-test *P*-values comparing the barcode expression between the two alleles, allelic skews, and Q values (Benjamini-Hochberg multiple hypothesis testing-corrected FDR) for all replicates, cell types, delivery methods, and stimulation conditions for MPRAAs.

**Title:** Supplementary Data 10.

**Description:** Credible sets from fine-mapping studies. 16 95% credible sets from fine-mapping studies in the *TNFAIP3* locus.

**Title:** Supplementary Data 11.

**Description:** Table of Primers. Primers used throughout manuscript.