

Description of Additional Supplementary Files

File Name: Supplementary Data 1

Description: Single-variants that are included in the *IPMK* PLoF and damaging missense (5/5) AF<0.1% gene burden mask.

File Name: Supplementary Data 2

Description: Annotated list of variants in AU cases that are included in the top gene burden results.

File Name: Supplementary Data 3

Description: Single-variants that are included in the *IDO2* PLoF AF<0.1% gene burden mask.

File Name: Supplementary Data 4

Description: *ERAPI* haplotype associations with B27-positive AU.

File Name: Supplementary Data 5

Description: The combined risk for AU with *HLA-B27* and *ERAPI*-haplotypes.

File Name: Supplementary Data 6

Description: HLA Class-II allele associations for B27-negative cohort.

File Name: Supplementary Data 7

Description: HLA Class-II allele associations for B27-negative cohort, adjusted for top *HLA-DPB1* SNP.

File Name: Supplementary Data 8

Description: Rare gene burden masks significantly associated with B27-negative AU.

File Name: Supplementary Data 9

Description: Cohort breakdown and *HLA-B27* carrier counts.