



**Supplemental Figure S6. Enrichment analysis of BEELD genes.** (A-C) Bar plot representation of overlaps between BEELD or non-BEELD control genes and CCS ASD risk genes (A), developmental disorder (DD) associated genes, intellectual disability (ID) risk genes, attention deficit hyperactivity disorder (ADHD) risk genes (B), or highly constrained genes (C). SSC ASD risk genes (n=889), genes containing loss of function mutations or damaging missense mutations in ASD cases in SSC studies reported by *Werling et al.*; DD-associated genes (n=93), reported by Deciphering Developmental Disorders Study (Nature, 2017); ID risk genes (n=707), reported by *Lelieveld et al.*; ADHD risk genes (n=359), reported by *Zhang et al.*; highly constrained genes, *Samocha et al.* reported genes (n=1003), *Lek et al.* reported genes (n=1803) using pLi > 0.99 as cutoff, are indicated, respectively. *P*, *P* value, one-tailed Fisher's exact test. (D) Bar plot representation of overlaps between BEELD and non-BEELD control genes and GWAS reported genes. The GWAS reported genes associated with schizophrenia, diabetes, and height were downloaded from the GWAS Catalog data base. *P*, *P* value, one-tailed Fisher's exact test.