

**S5 Table. Cell-type-specific CTCF Enrichment analysis for SIPs versus non-SIPs in K562 and**

**GM12878.** With applying fisher exact test, SIPs highly enriched for CTCF. K562 ORs = 2.46,  $p$ -value <

$2.2 \times 10^{-16}$  and GM12878 ORs = 2.92 and  $p$ -value <  $2.2 \times 10^{-16}$

K562	SIP	non-SIP
Overlap with CTCF	540	5071
Non-CTCF	271	6281

GM12878	SIP	non-SIP
Overlap with CTCF	594	4835
Non-CTCF	229	5439