Selection Signal Strength: Evidence for Strong Purifying Selection
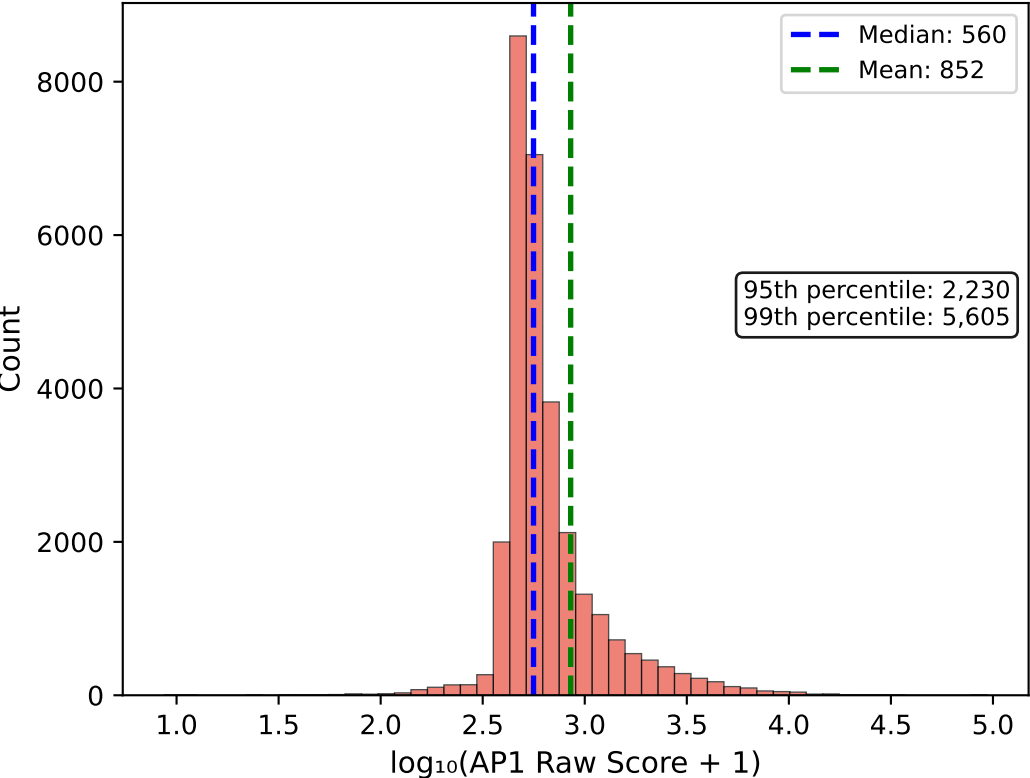

A. Proportion with Extreme AP1 Scores

3.7% of forbidden variants exceed 99.9th percentile of all variants

- >0.9: 91.8% (n=27,502)
- >0.95: 75.8% (n=22,702)
- >0.99: 25.3% (n=7,578)
- >0.999: 3.7% (n=1,106)
- >0.9999: 0.5% (n=156)
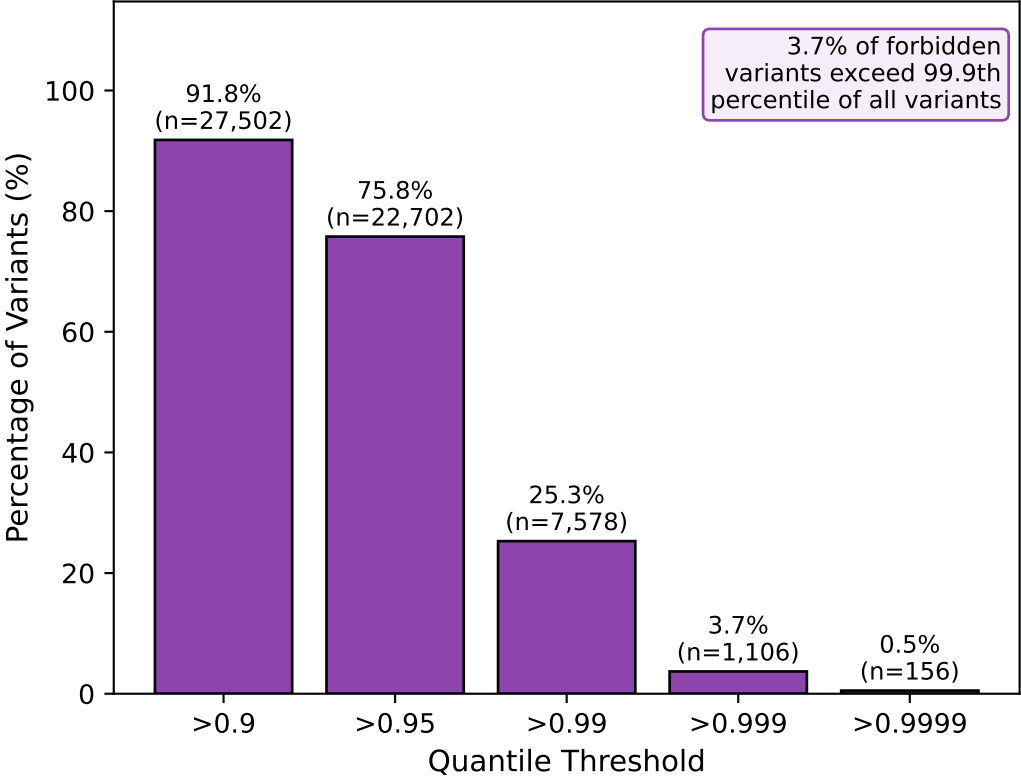
B. Sequencing Coverage Quality

Median: 152,254
Max: 152,430
93.3% have AN > 140,000 (high coverage)
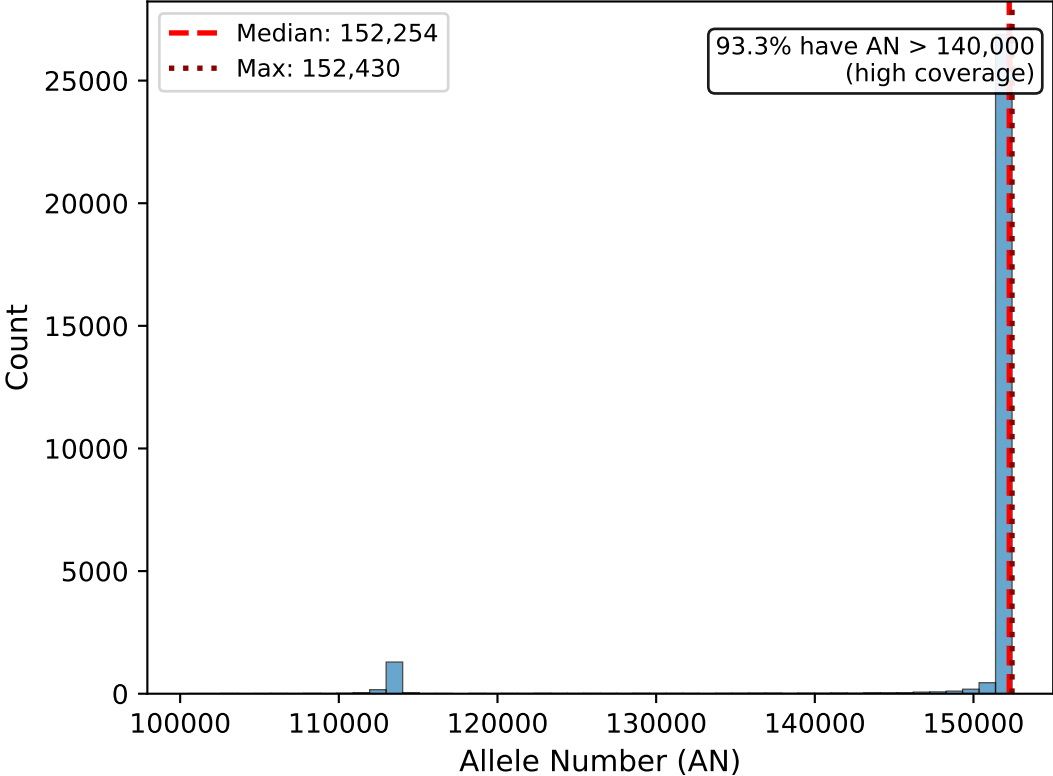
C. AP1 Score Distribution (log scale)

Median: 560
Mean: 852
95th percentile: 2,230
99th percentile: 5,605

D. Top 10 Highest-Impact Forbidden Variants

Variant	AP1 Score	Best TF	Best Tissue	AN
chr19:43596274...	93,952	NRF1	K562	152,370
chr8:13746013...	34,144	MAFK	IMR-90	152,168
chr2:43293974...	27,536	FOSL2	HepG2	152,310
chrX:10140798...	27,104	CREB1	MCF-7	113,751
chr17:19378019...	26,356	NRF1	K562	152,212
chr3:5197917...	25,240	ATF4	K562	152,290
chr6:7975381...	24,992	FOSL2	HepG2	152,276
chr8:66113495...	21,840	NRF1	K562	152,296
chr13:11378679...	20,702	CREB1	MCF-7	152,318
chr2:23744105...	20,428	BATF	GM12878	152,346