

TF	Bound	FN (Both Models)	FN (Mouse Only)	Unbound	FP (Both Models)	FP (Mouse Only)
DNA						
CTCF	10.1%	11.4%	7.3%	11.4%	8.9%	9.0%
CEBPA	12.3%	10.4%	8.3%	11.3%	13.0%	9.2%
HNF4A	10.7%	12.0%	11.3%	11.4%	9.5%	9.0%
RXRA	10.1%	11.7%	8.8%	11.4%	10.0%	9.4%
LINE						
CTCF	18.3%	22.5%	21.3%	37.6%	17.8%	31.6%
CEBPA	25.6%	26.3%	25.0%	37.6%	29.0%	32.3%
HNF4A	21.0%	25.3%	26.3%	37.6%	21.5%	30.5%
RXRA	21.0%	27.9%	22.1%	37.8%	22.1%	33.2%
Low Complexity						
CTCF	2.5%	1.0%	2.6%	1.9%	4.0%	1.5%
CEBPA	1.5%	1.4%	0.0%	1.9%	1.6%	1.4%
HNF4A	2.0%	1.1%	1.5%	1.9%	2.4%	1.3%
RXRA	2.1%	1.3%	2.0%	1.9%	2.2%	1.5%
LTR						
CTCF	8.6%	12.6%	8.2%	17.6%	16.4%	15.5%
CEBPA	12.8%	12.5%	41.7%	17.6%	19.4%	14.0%
HNF4A	13.3%	15.0%	16.0%	17.6%	19.4%	12.6%
RXRA	12.2%	14.8%	9.8%	17.6%	18.2%	11.5%
Simple Repeat						
CTCF	13.4%	10.1%	10.9%	11.5%	15.8%	12.0%
CEBPA	9.4%	8.6%	25.0%	11.6%	9.8%	11.9%
HNF4A	12.3%	11.4%	9.1%	11.5%	11.6%	12.8%
RXRA	11.5%	9.4%	13.3%	11.5%	11.1%	13.4%
SINE						
CTCF	23.9%	23.2%	20.6%	31.2%	18.4%	81.1%
CEBPA	30.9%	22.6%	41.7%	31.2%	35.2%	86.9%
HNF4A	27.1%	23.6%	22.6%	31.2%	28.9%	95.5%
RXRA	27.1%	25.3%	18.9%	31.3%	32.2%	97.6%
Unknown						
CTCF	0.2%	0.1%	0.0%	0.2%	0.1%	0.0%
CEBPA	0.3%	0.5%	0.0%	0.1%	0.2%	0.0%
HNF4A	0.2%	0.1%	0.0%	0.2%	0.2%	0.0%
RXRA	0.2%	0.3%	0.0%	0.1%	0.2%	0.0%

Table S1: Percent of windows overlapping various RepeatMasker-defined repeat elements, for different categories of genomic windows from the held-out test set. Only RepeatMasker repeat classes with at least 500 distinct annotations within the testset are shown. FPs: false positives. FNs: false negatives. Mouse Only: specific to mouse-trained models. See Methods for more details on site categorization.