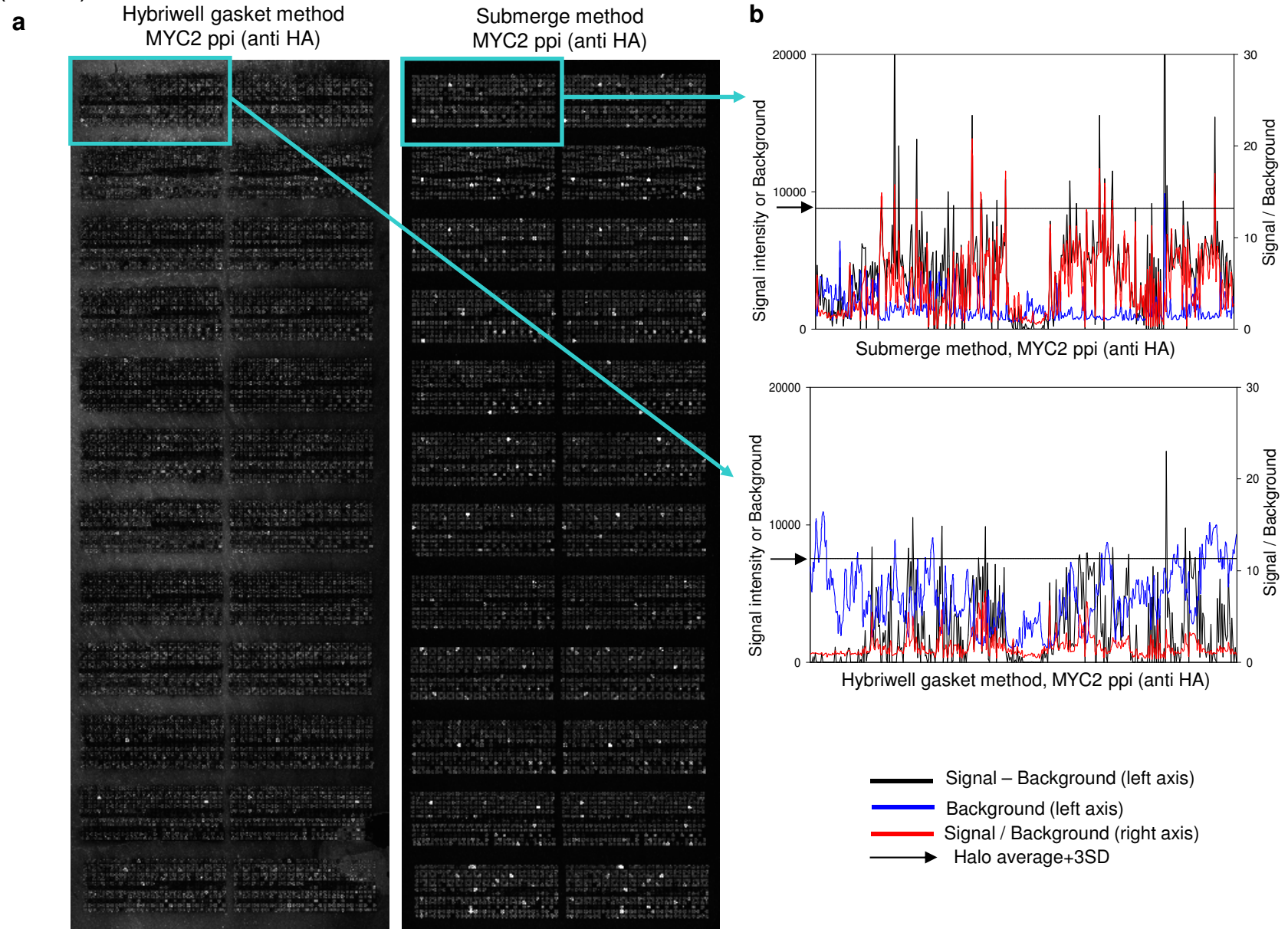
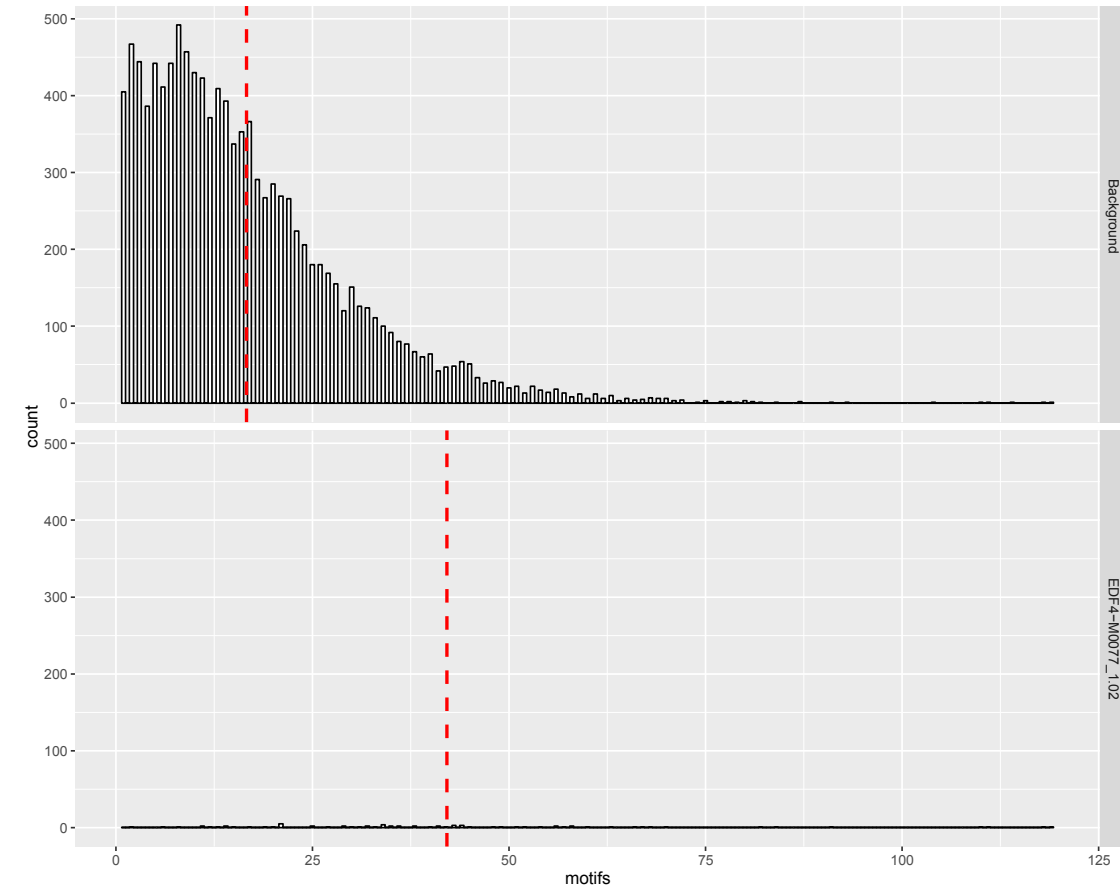
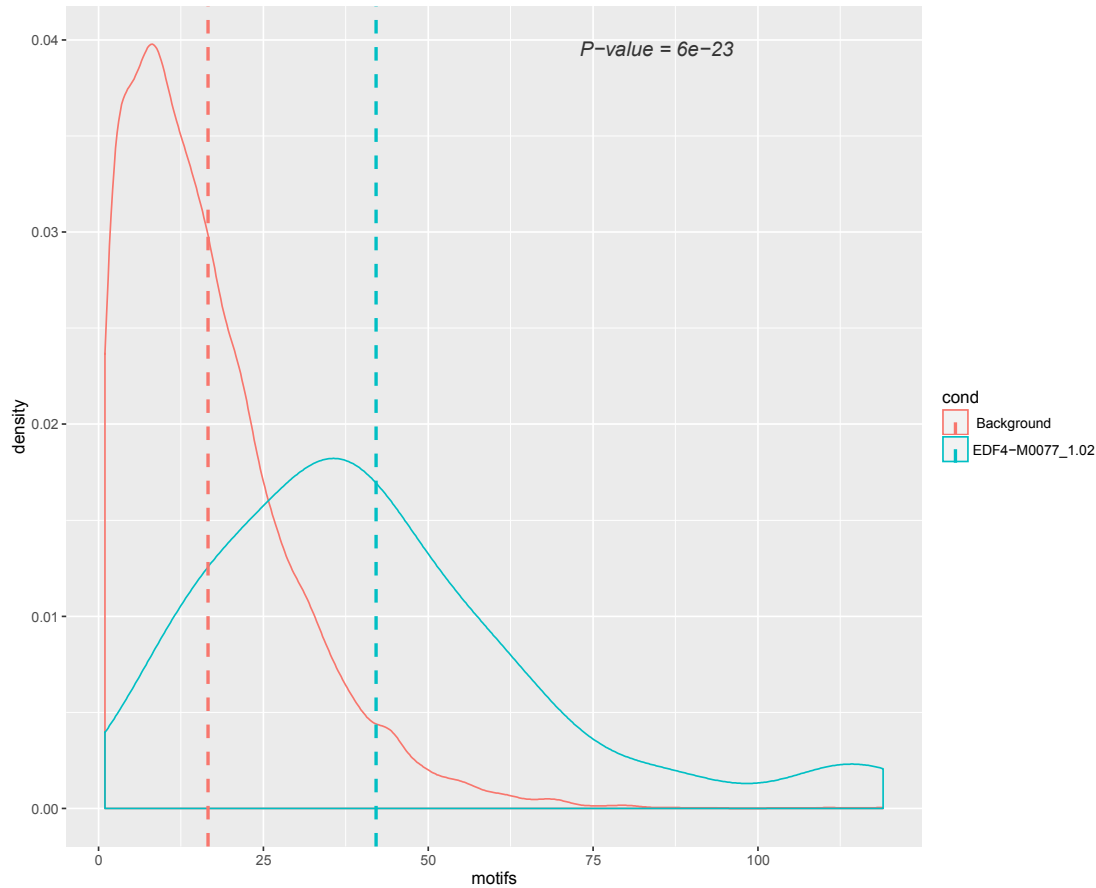


Figure-S1(Ecker)



Supplementary Figure 1: Comparison of the two different expression techniques on HaloTag-NAPPA arrays. **(a)** AtNAPPA03 array showing protein interactors of 3xHA-tagged MYC2 probe with HybriWell gasket method (left) and submerge method (right) with anti-HA antibody. These two techniques differ in the concentration and volume of cell-free expression components and also use different incubation chambers (see supporting text for details). **(b)** Histogram shows that signal minus background (black), background (blue) and ratio of signal / background (red) from candidate interactors are significantly above Halo average signal+3 s.d. cutoff (black arrow).

Figure-S2(Ecker)



Supplementary Figure 2: Plotting the counts of TF binding motifs in all ORFs within the 12k background (red) and those for the NAPPA positives (blue). For each TF, we plotted in two separate graphs the density (left) and the total counts (right); the mean of each distribution is indicated by a dashed line. The indicated P-values in the density graphs (left) are comparing the two distributions using the Wilcoxon rank-sum test.

Figure-S2(Ecker) continued 1

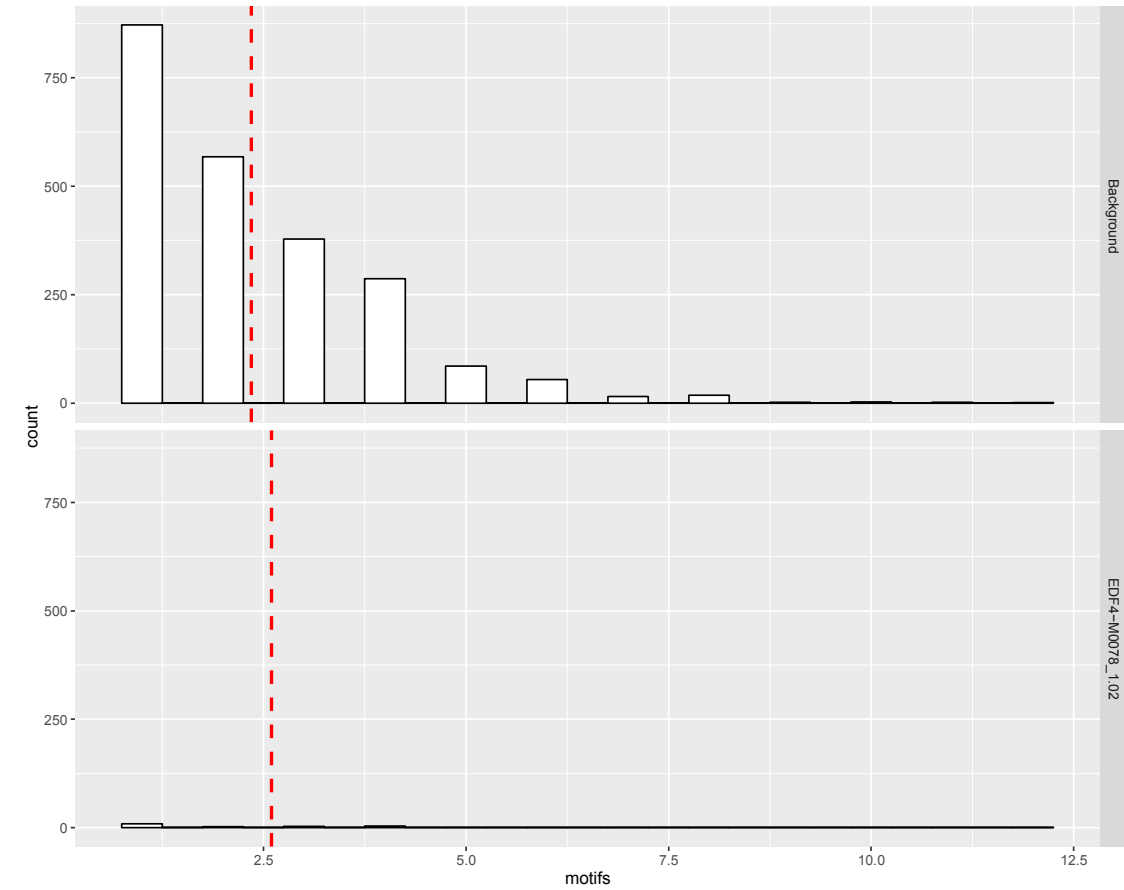
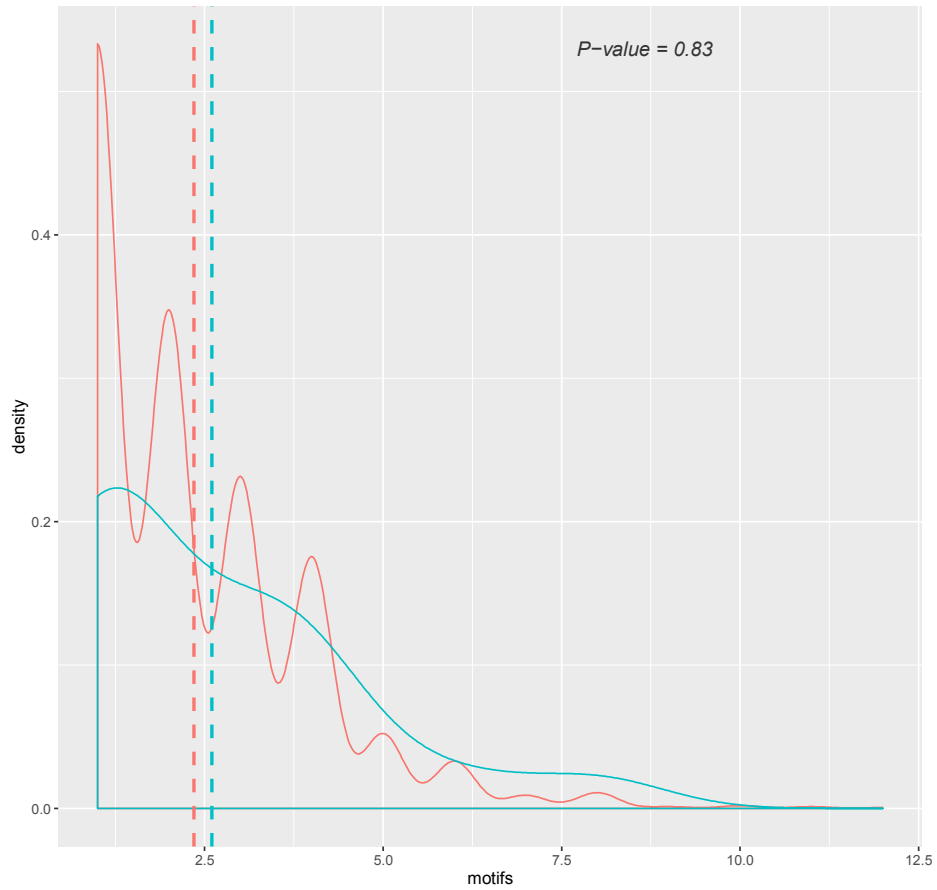


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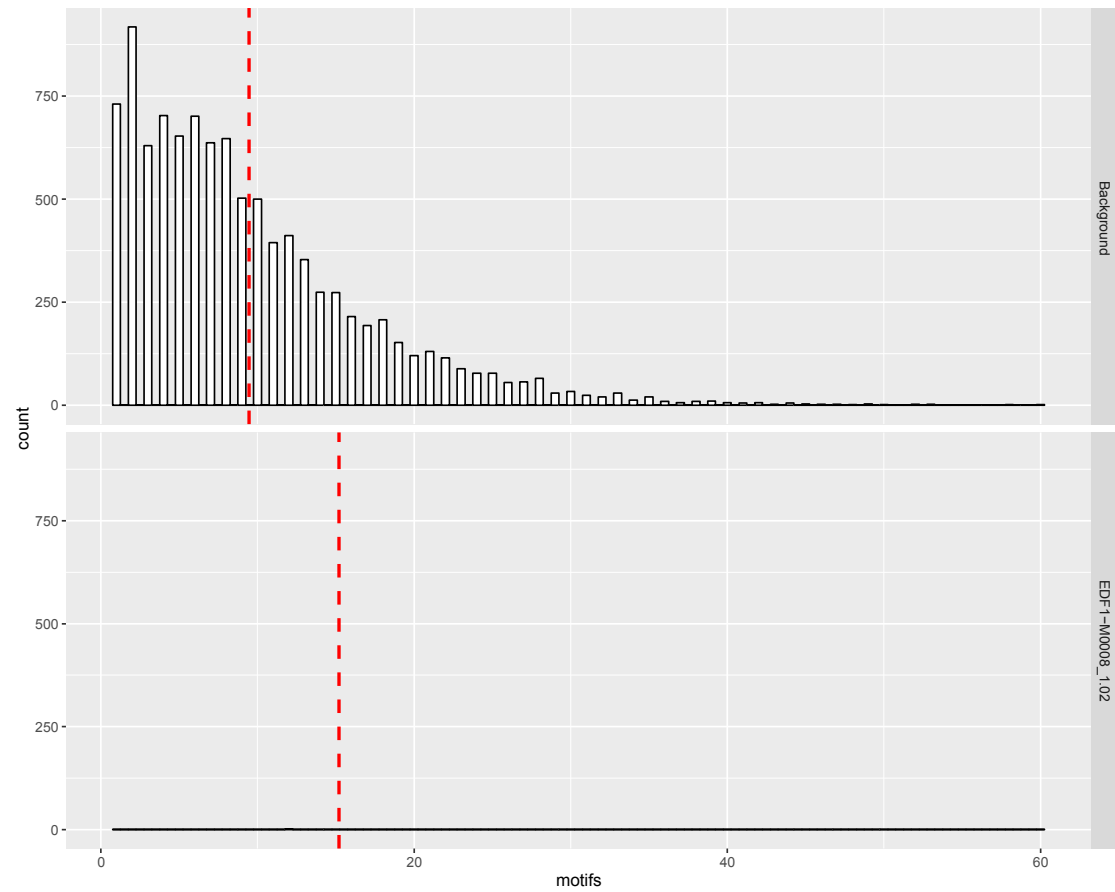
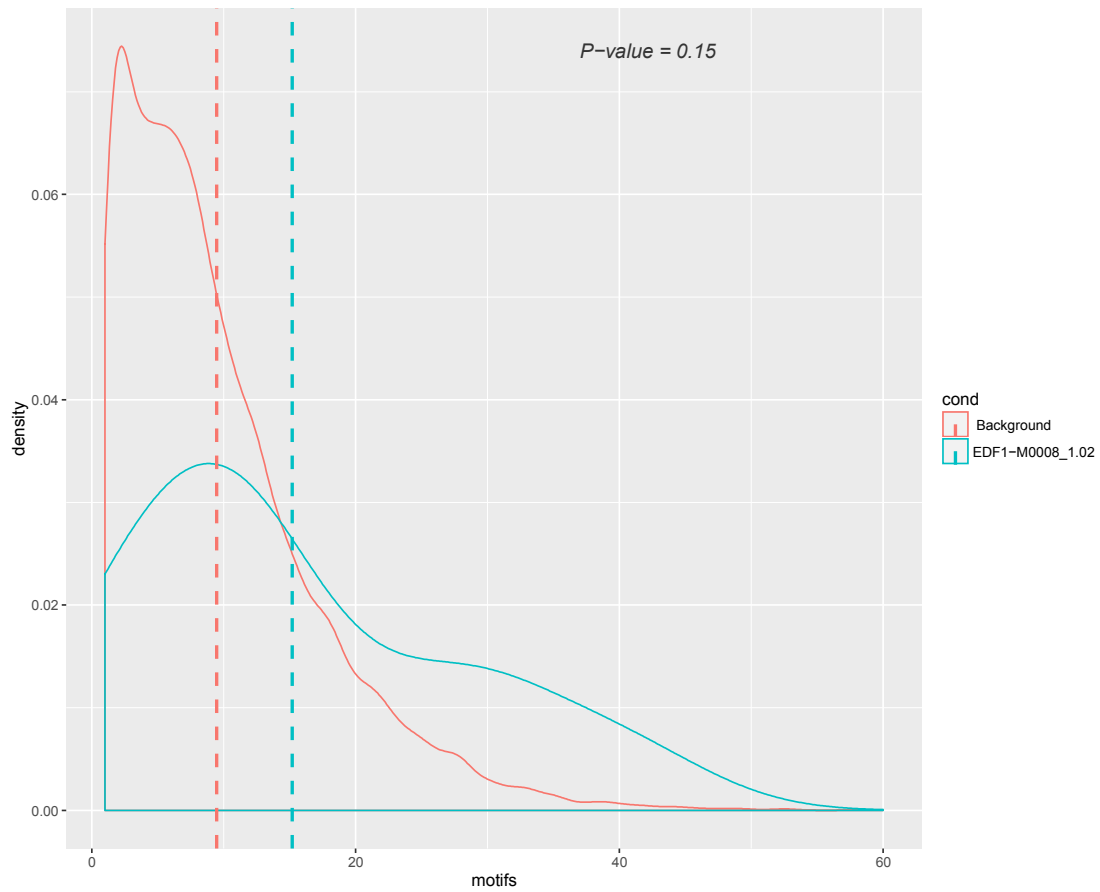


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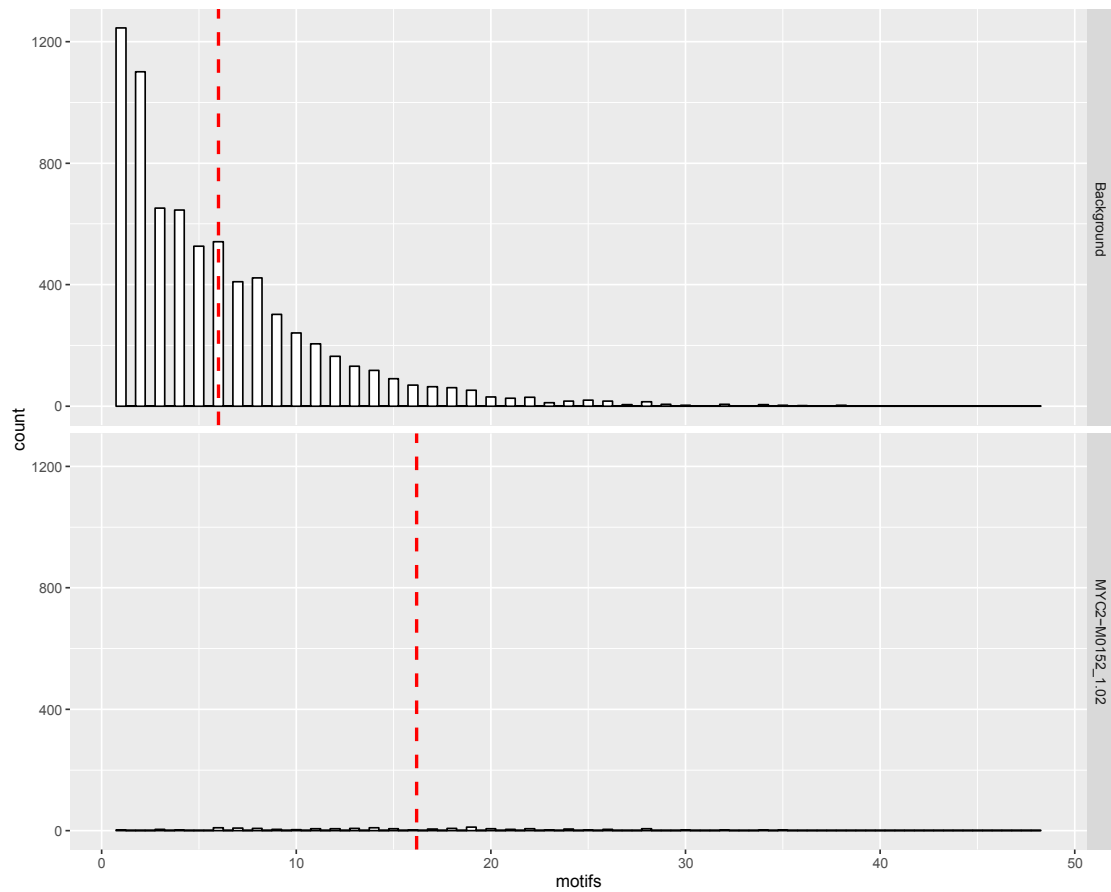
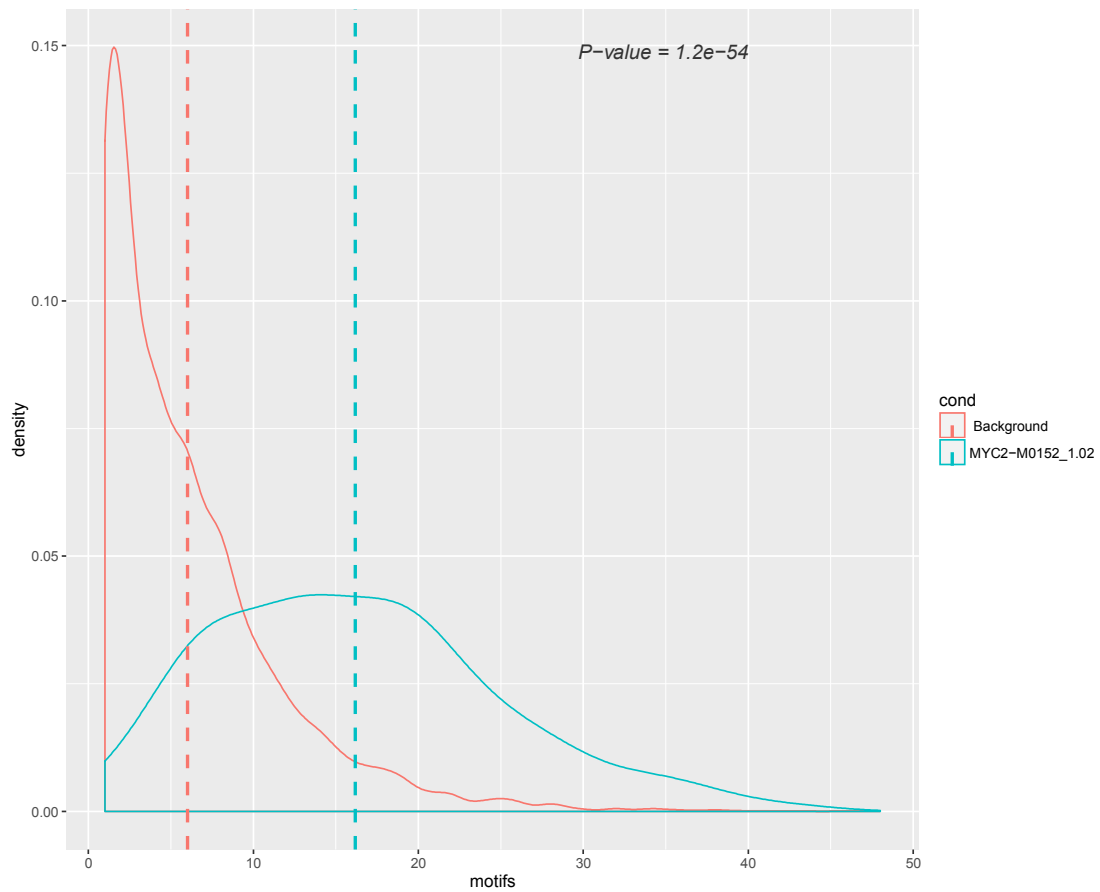


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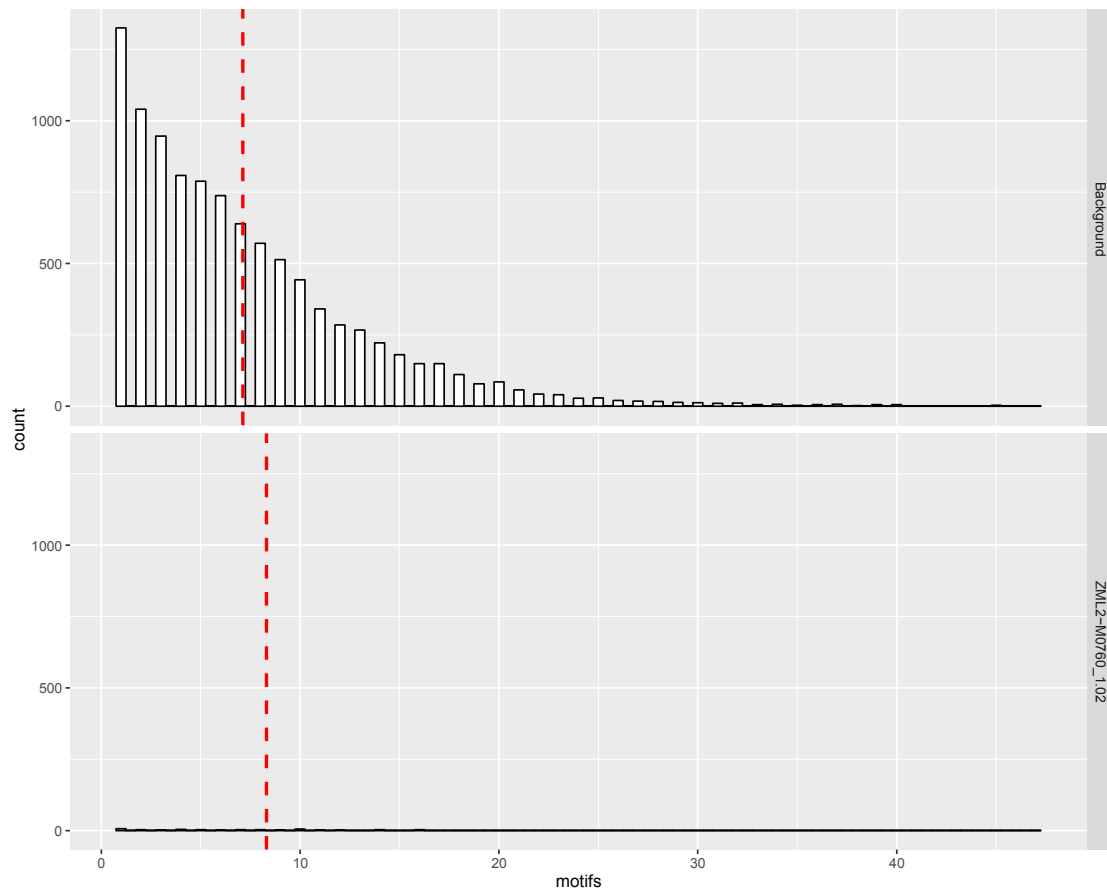
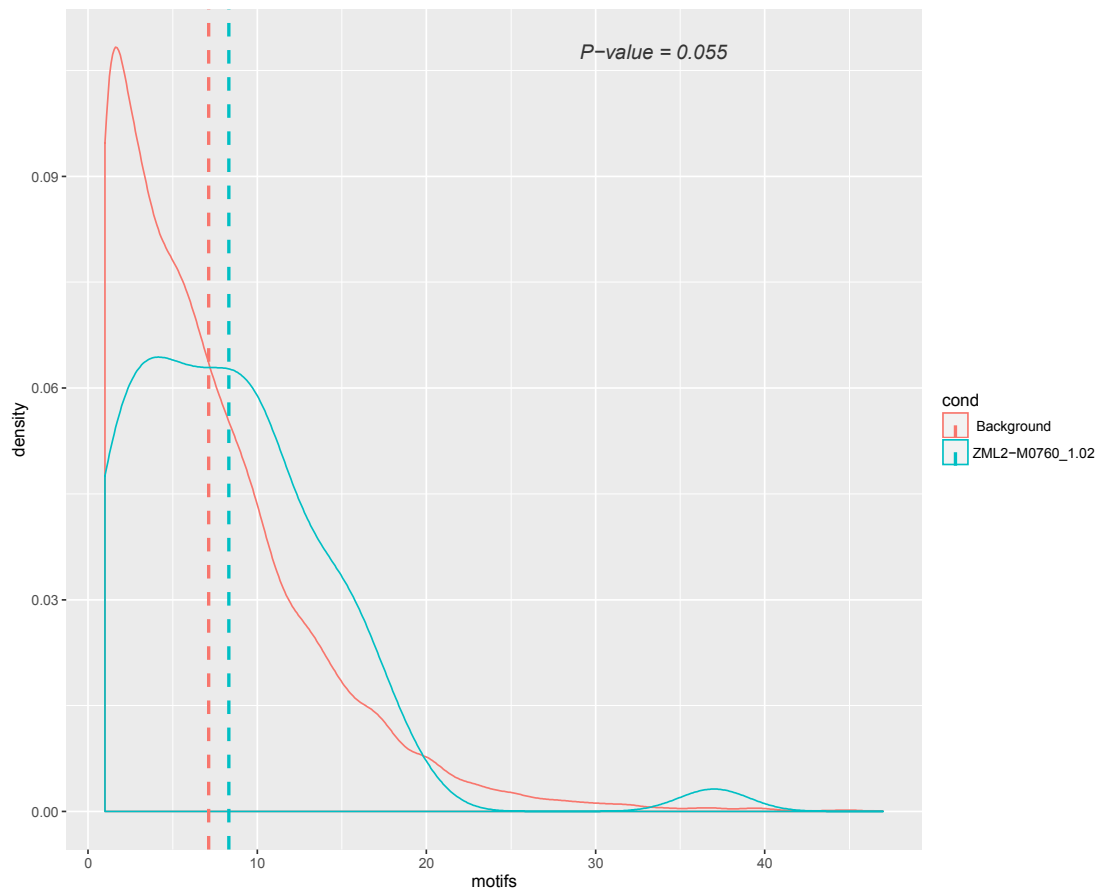


Figure-S2(Ecker) continued 5

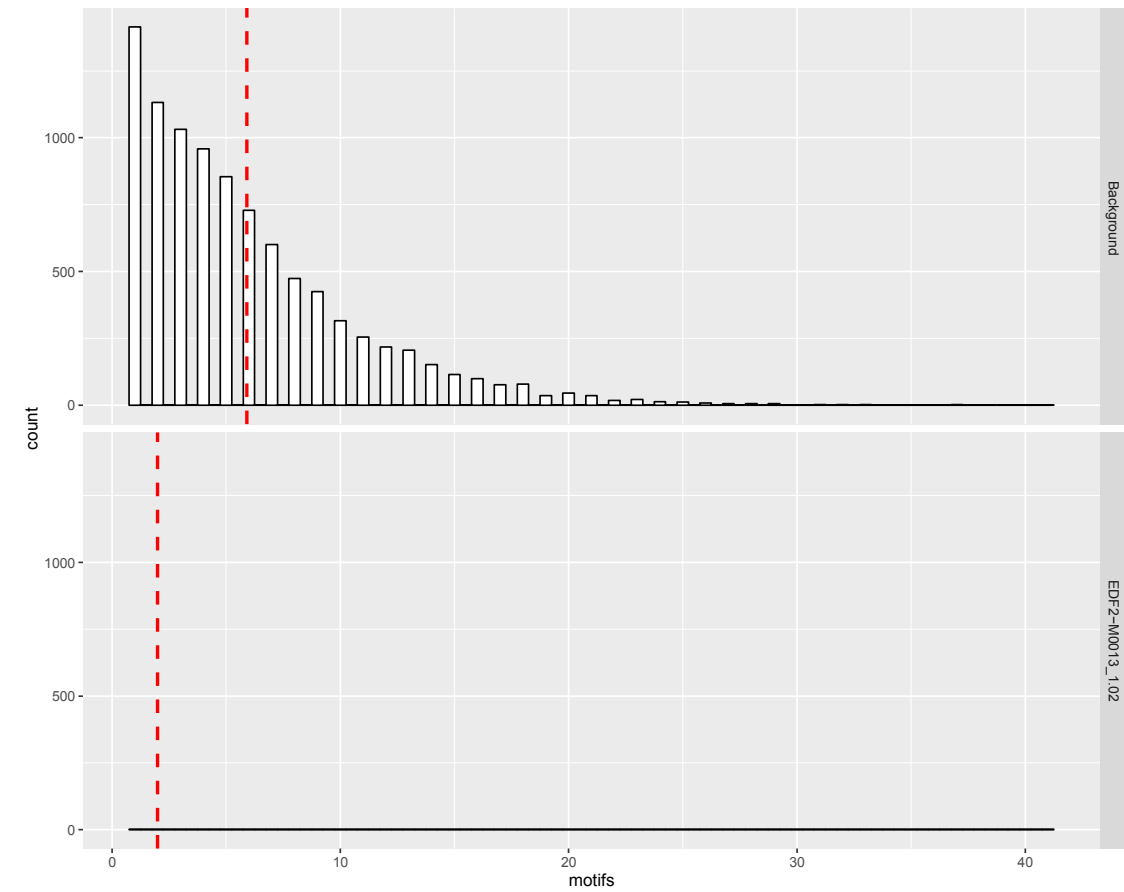
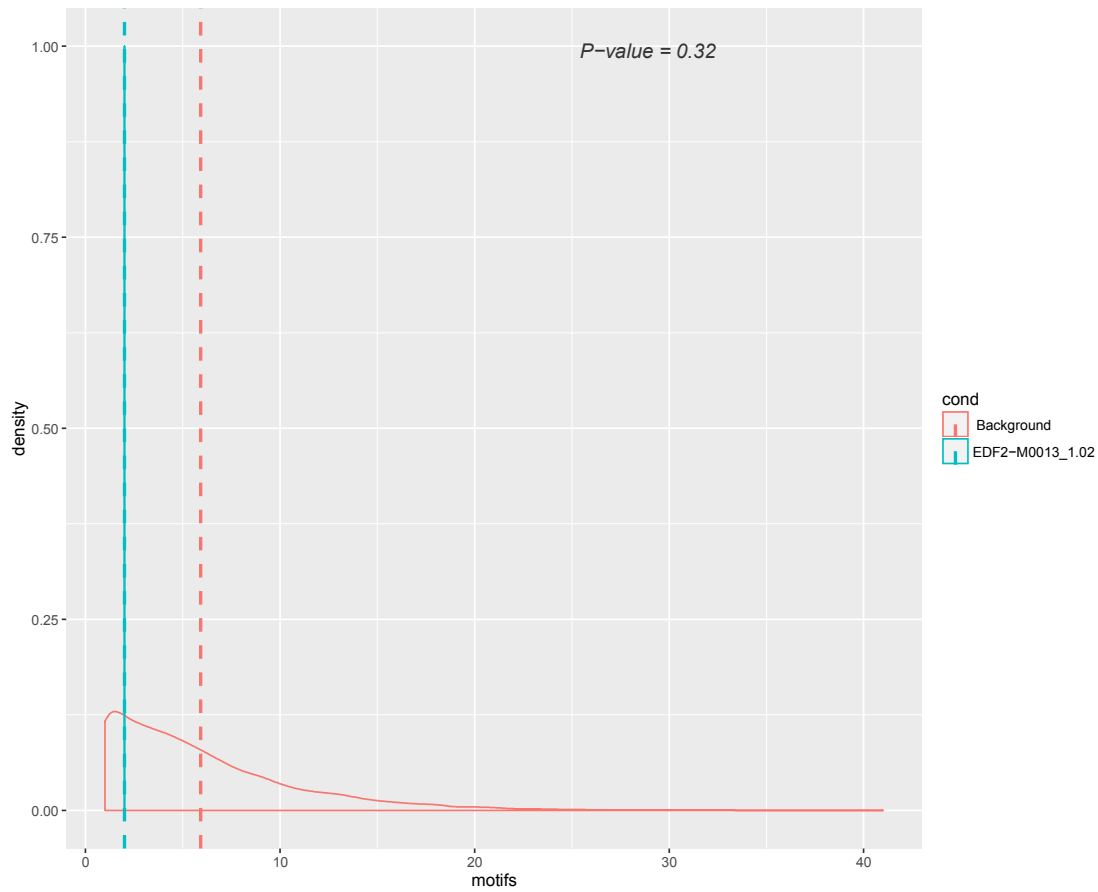


Figure-S2(Ecker) continued 6

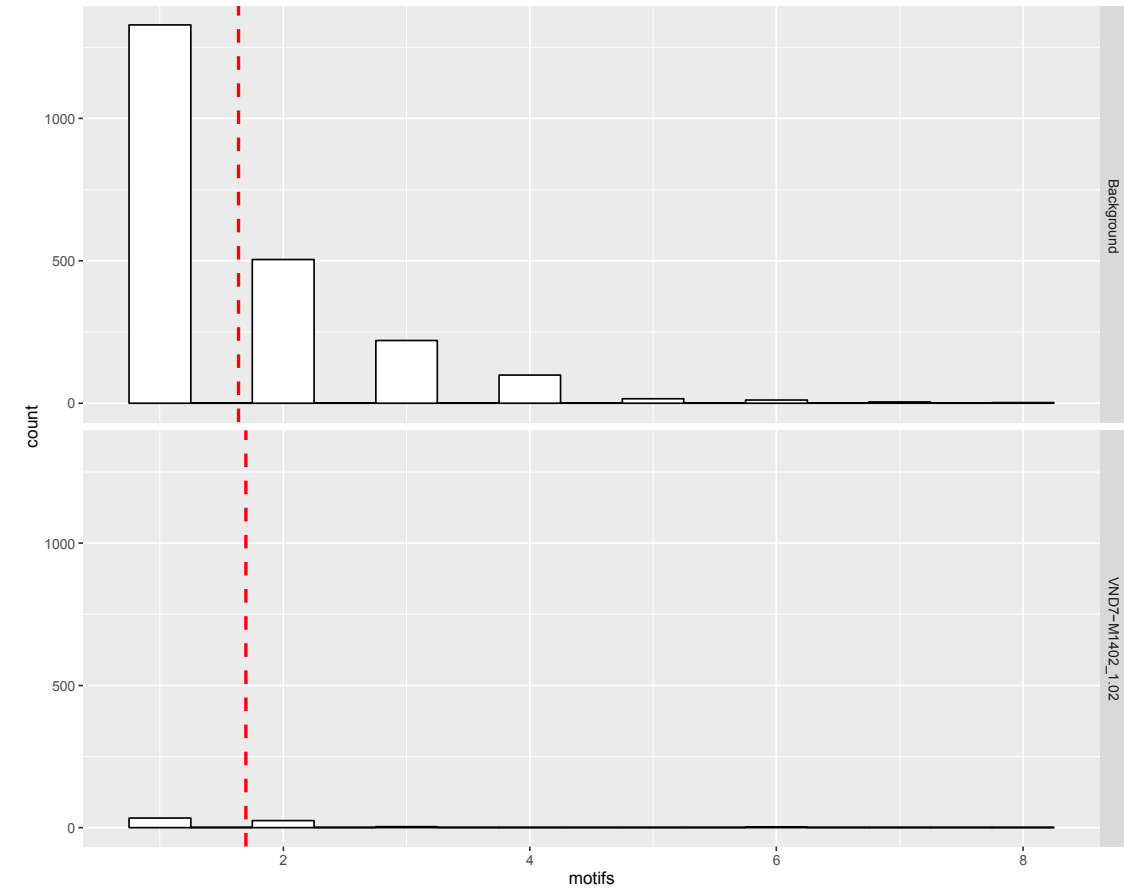
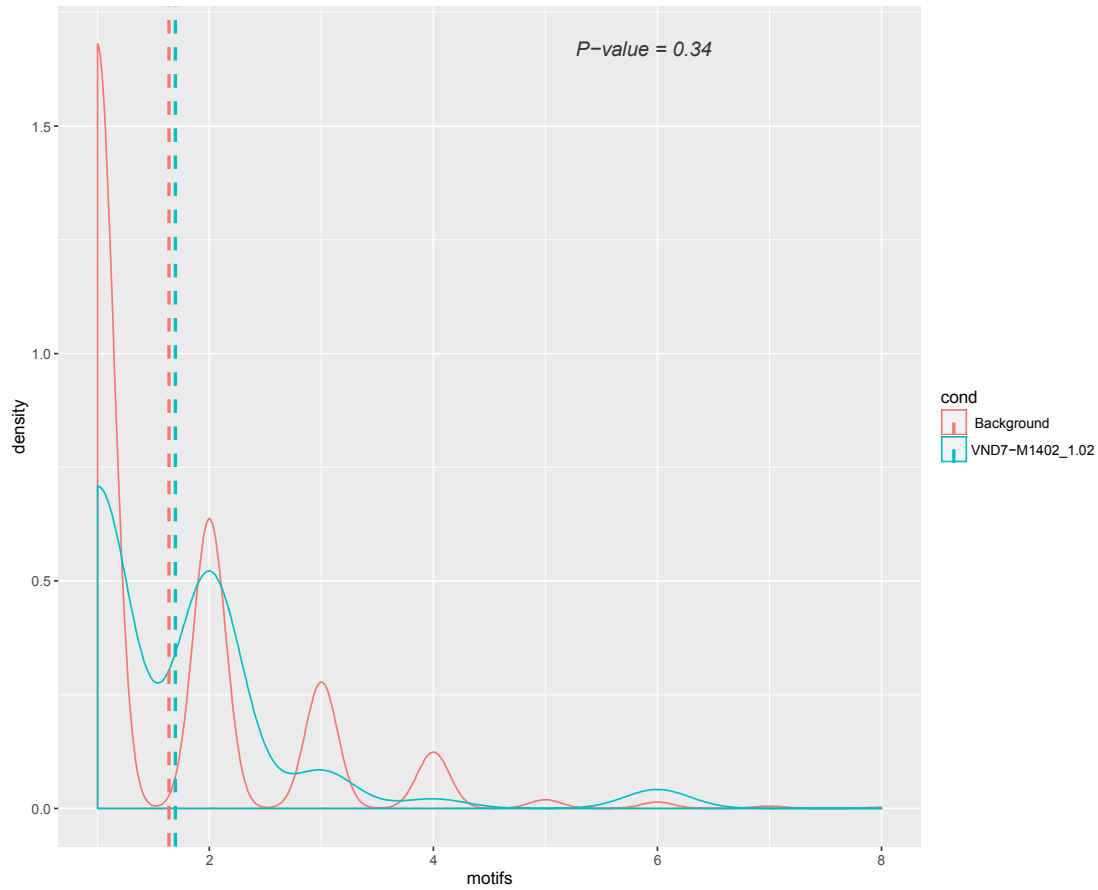


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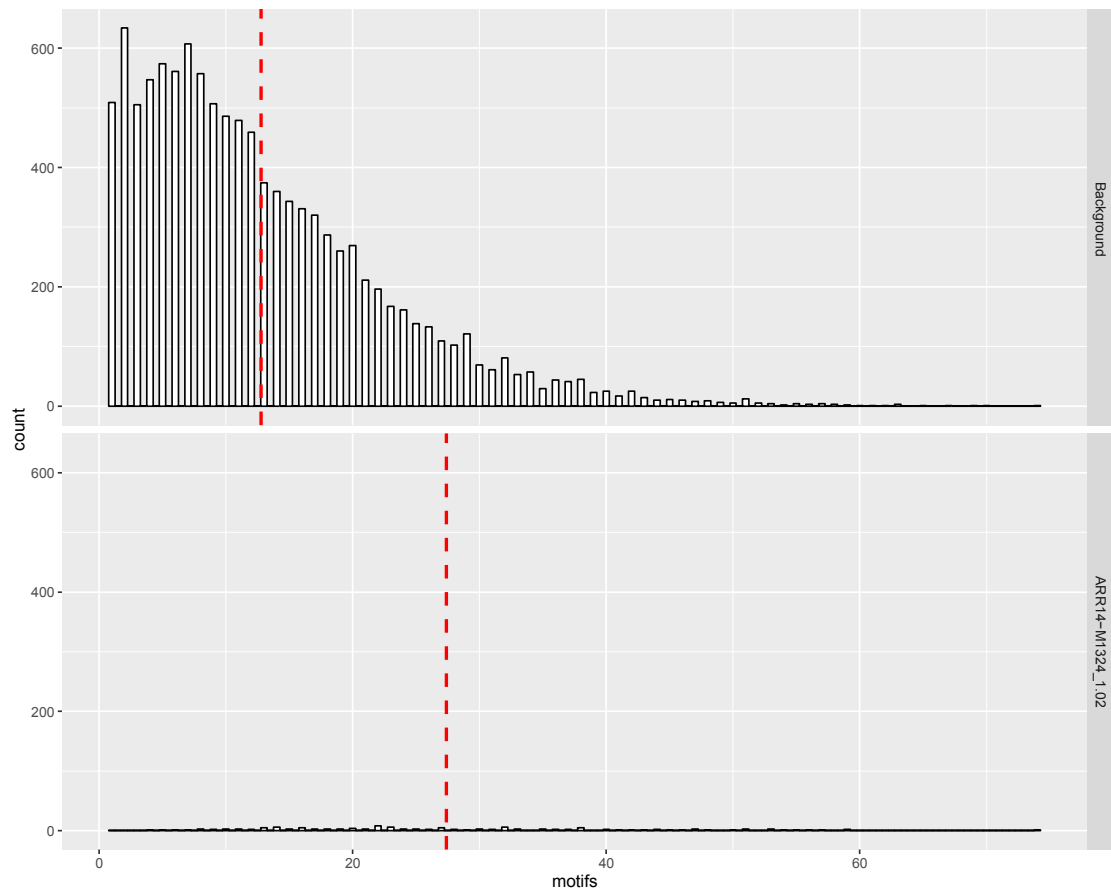
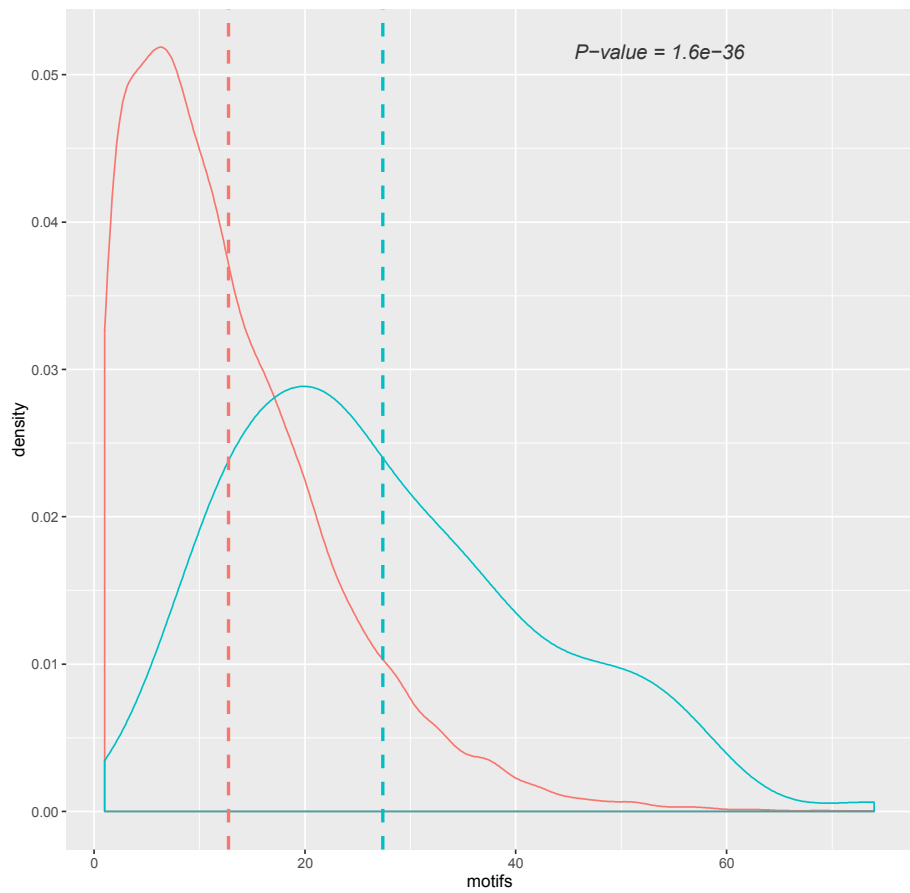


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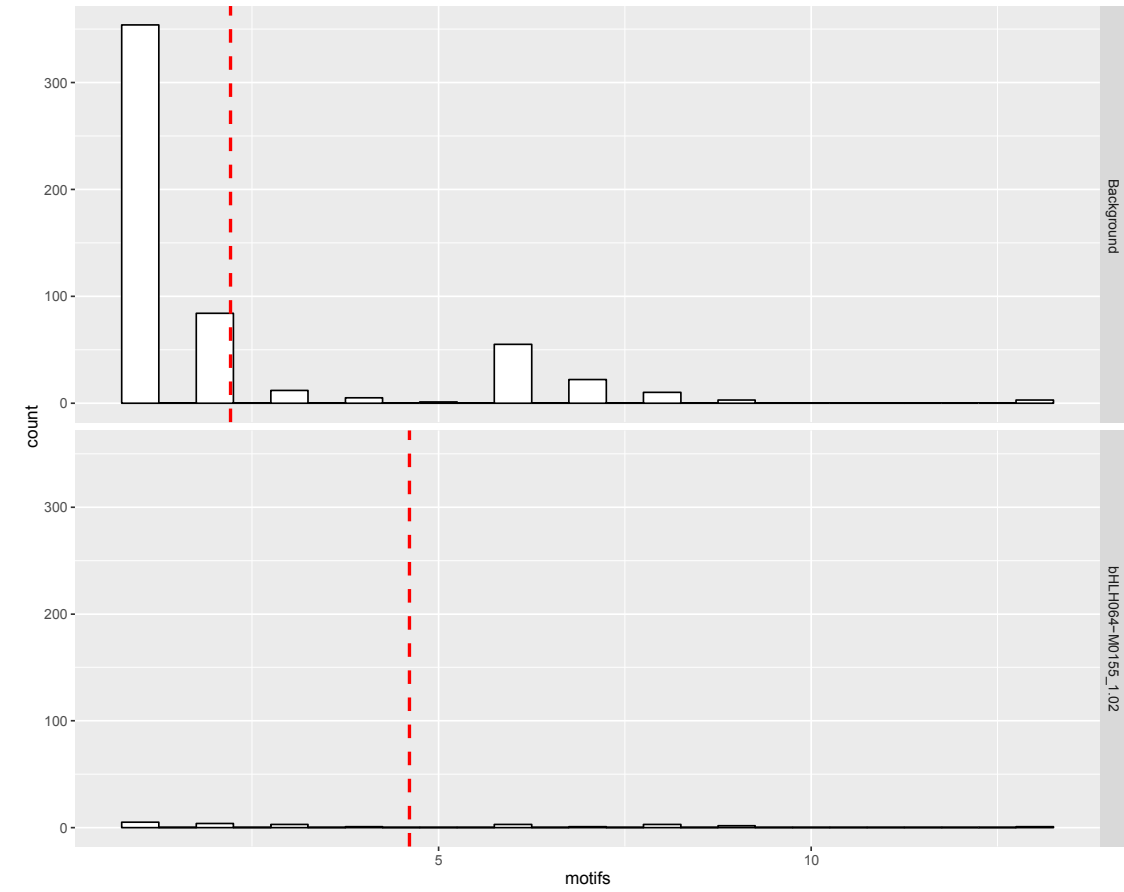
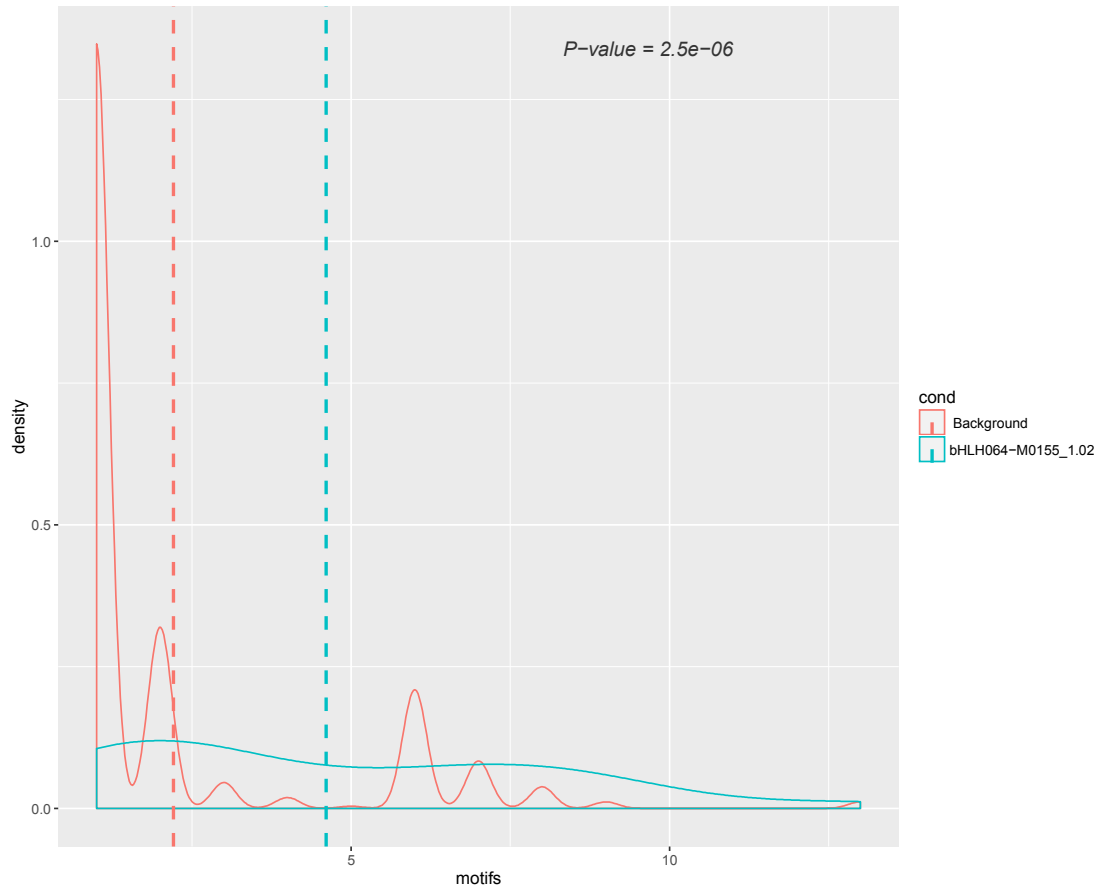
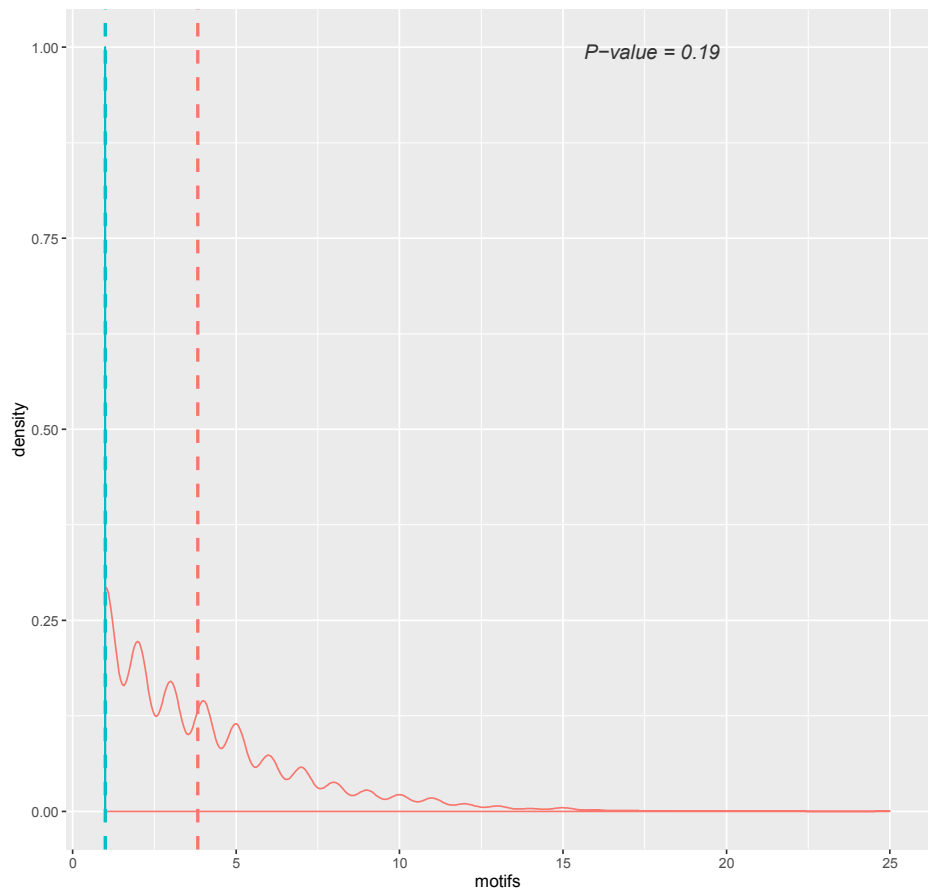


Figure-S2(Ecker) continued 9



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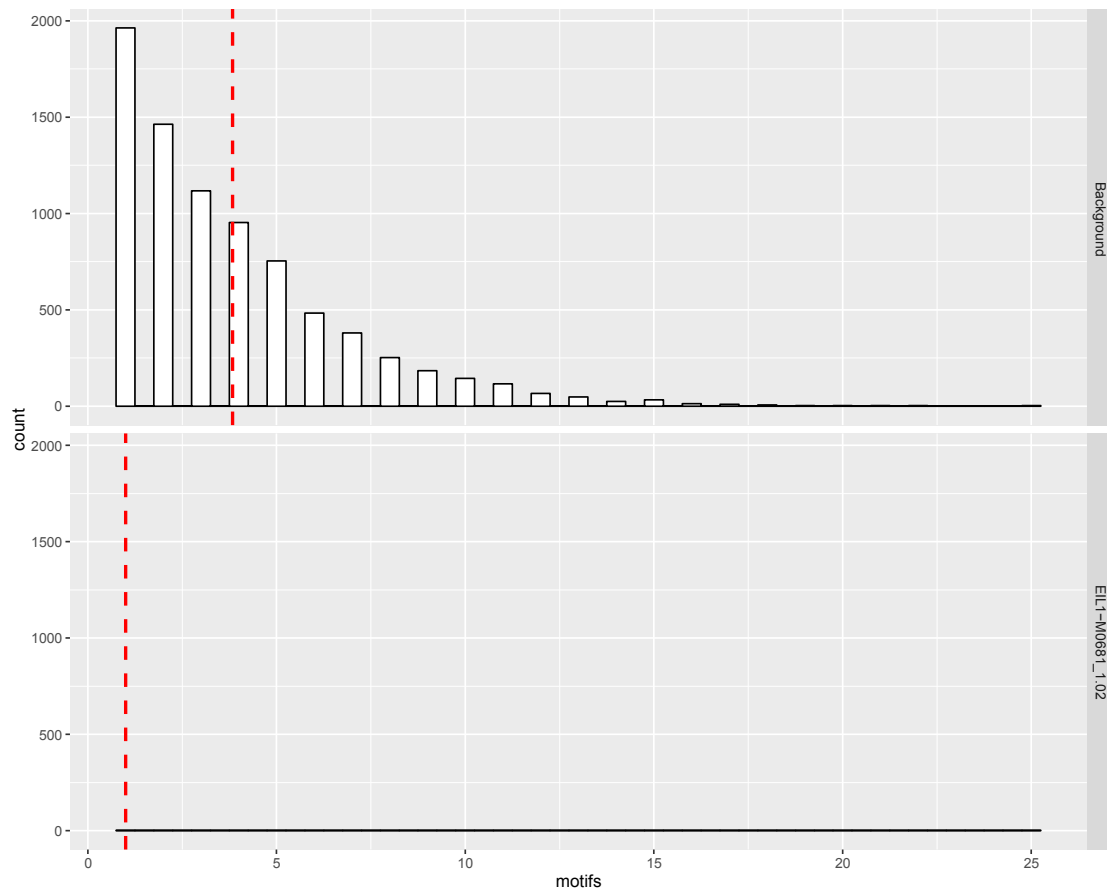
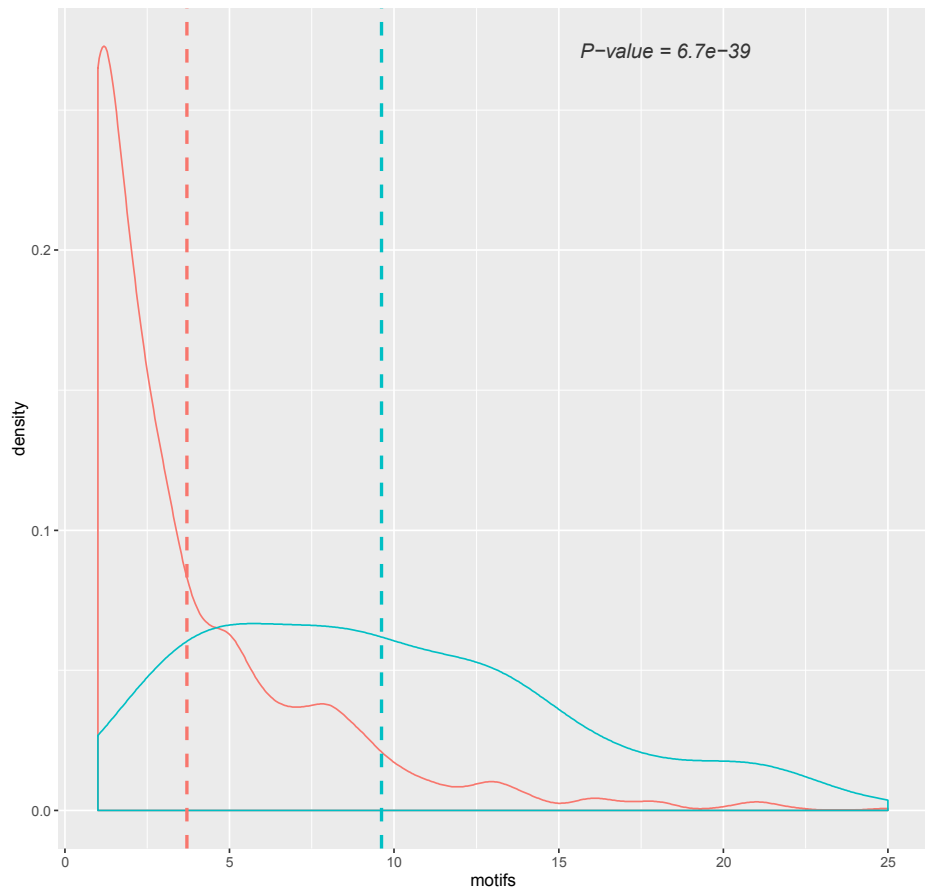


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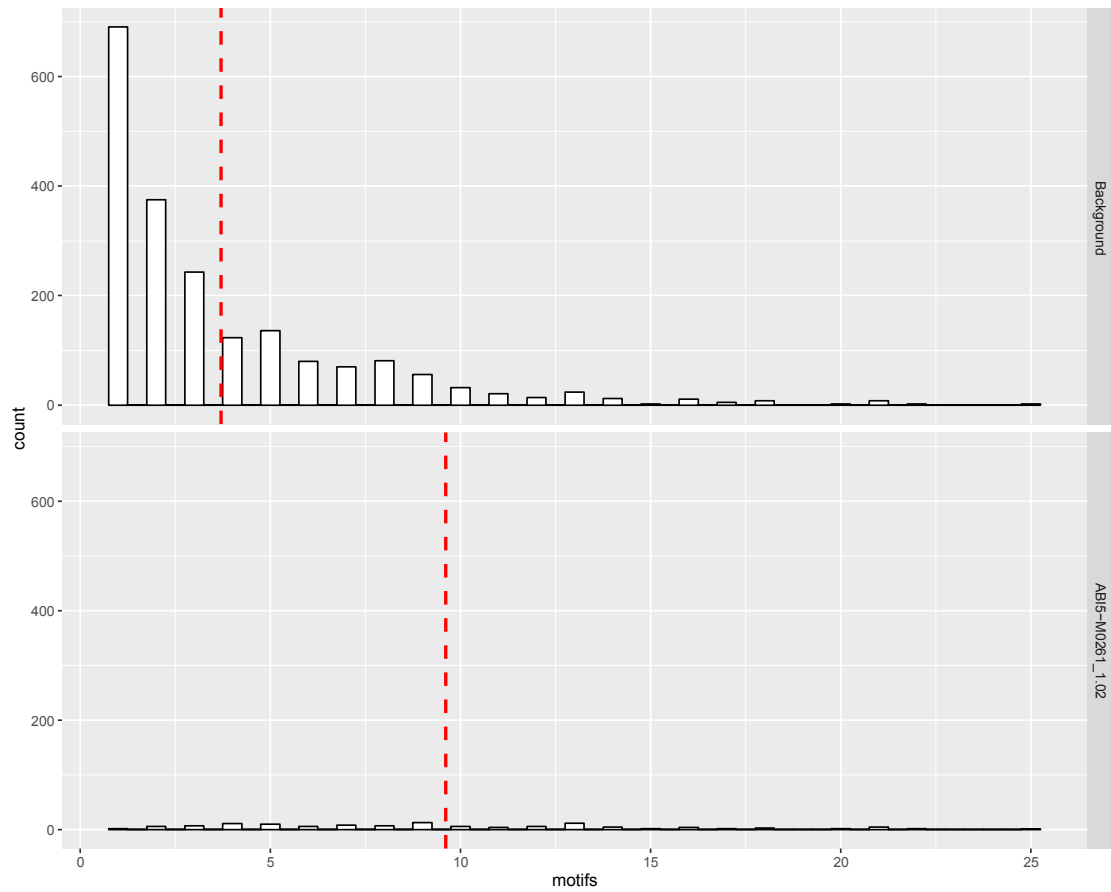


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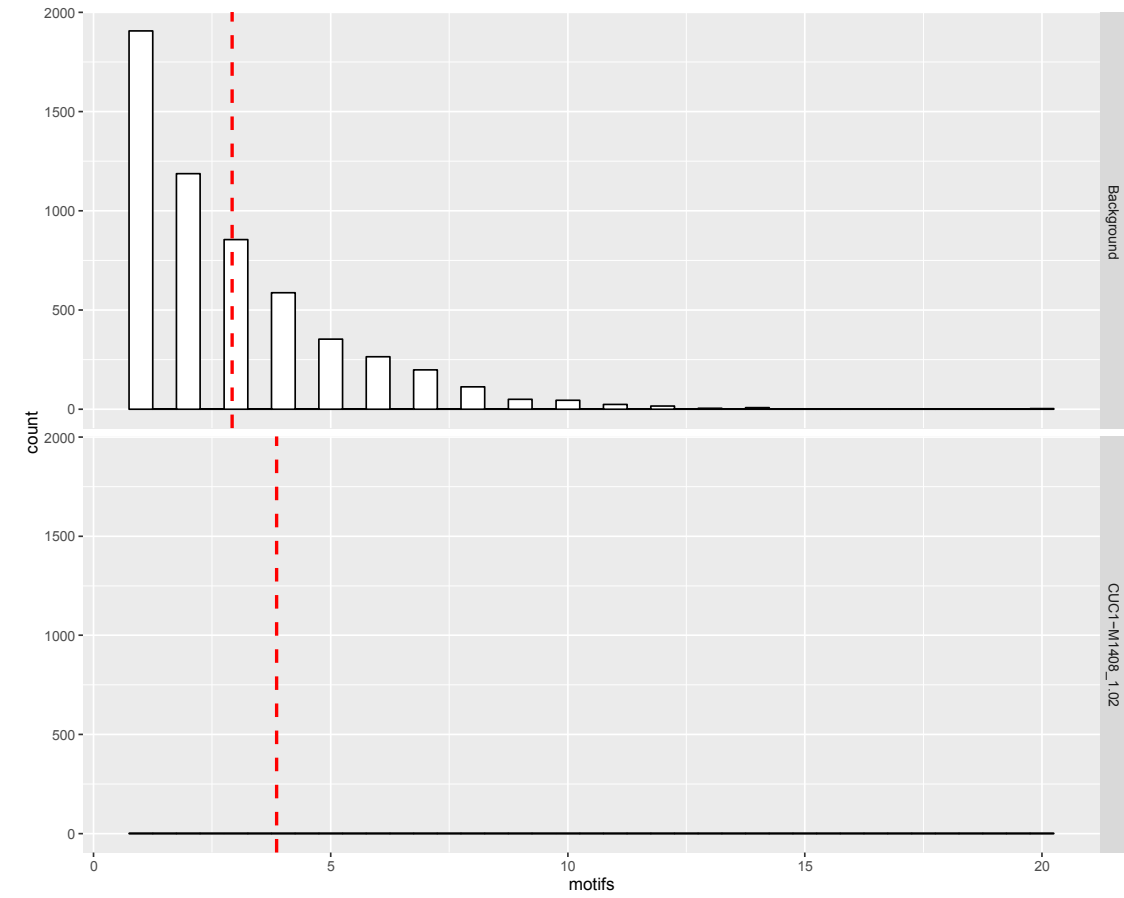
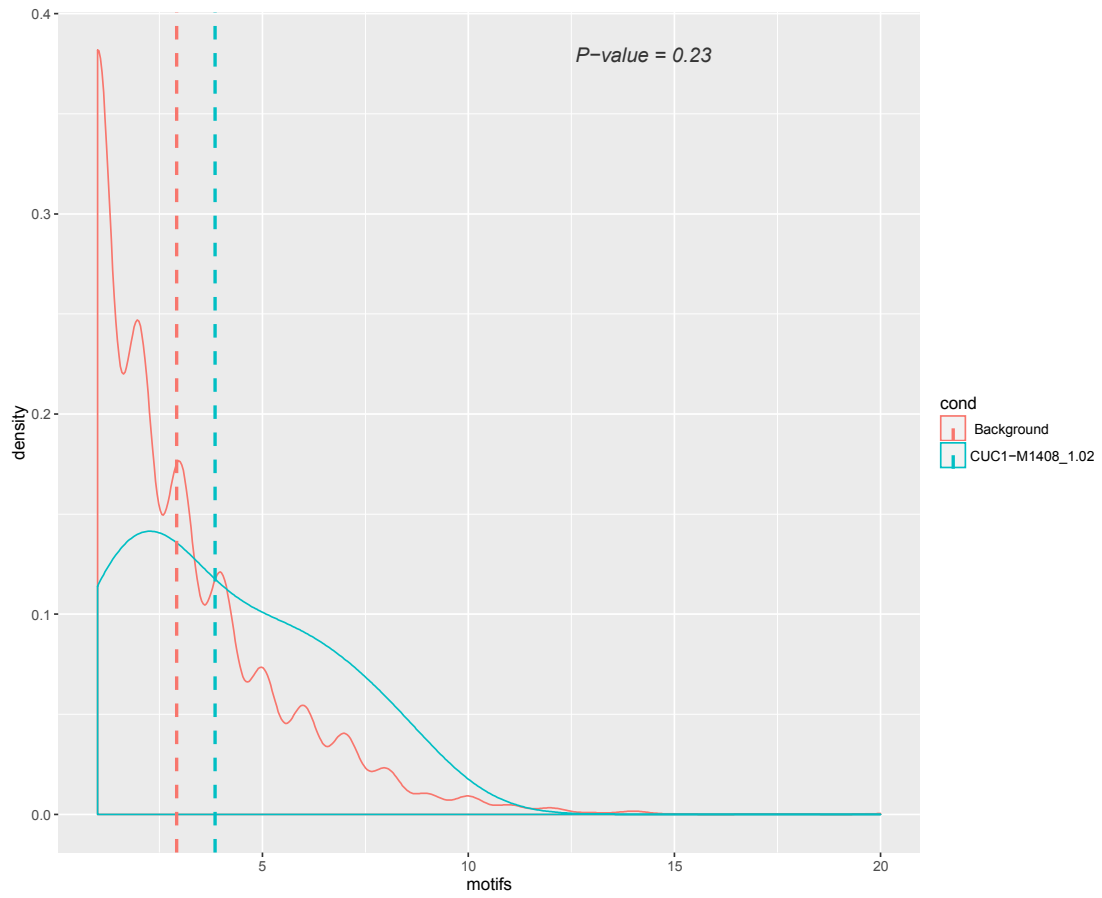


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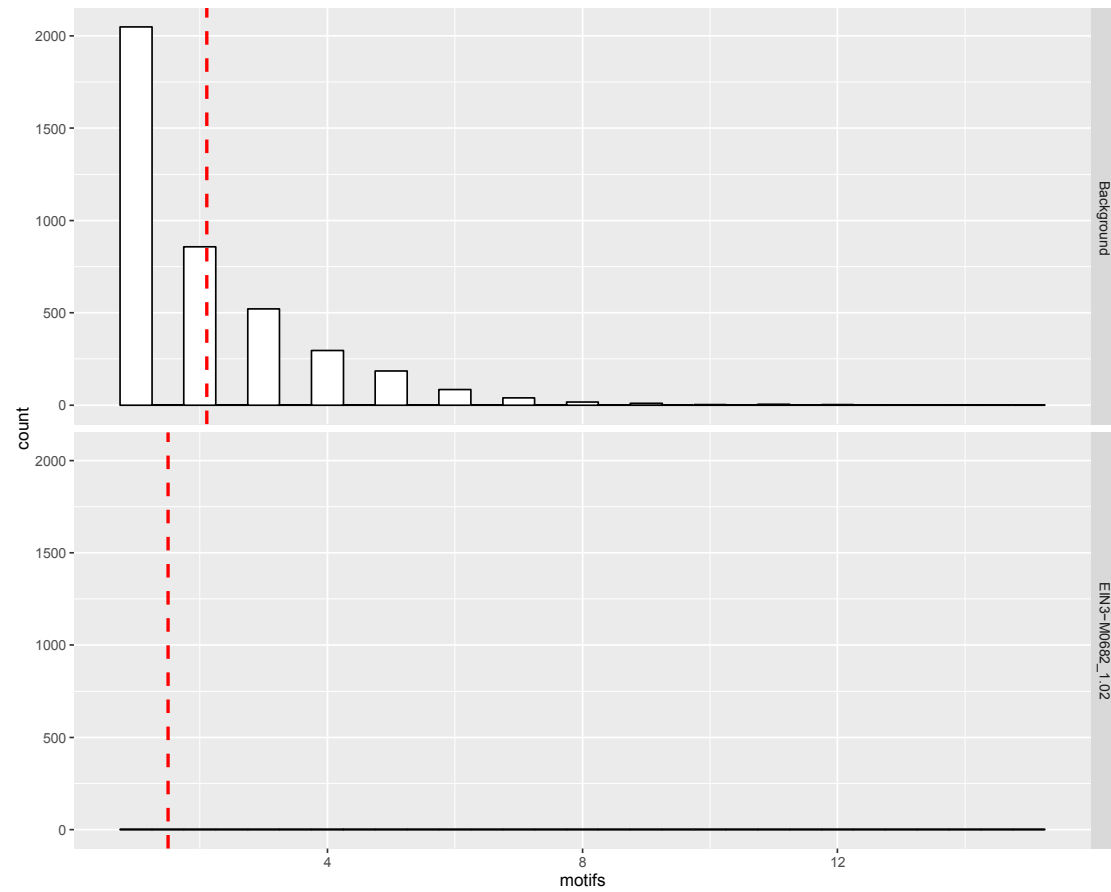
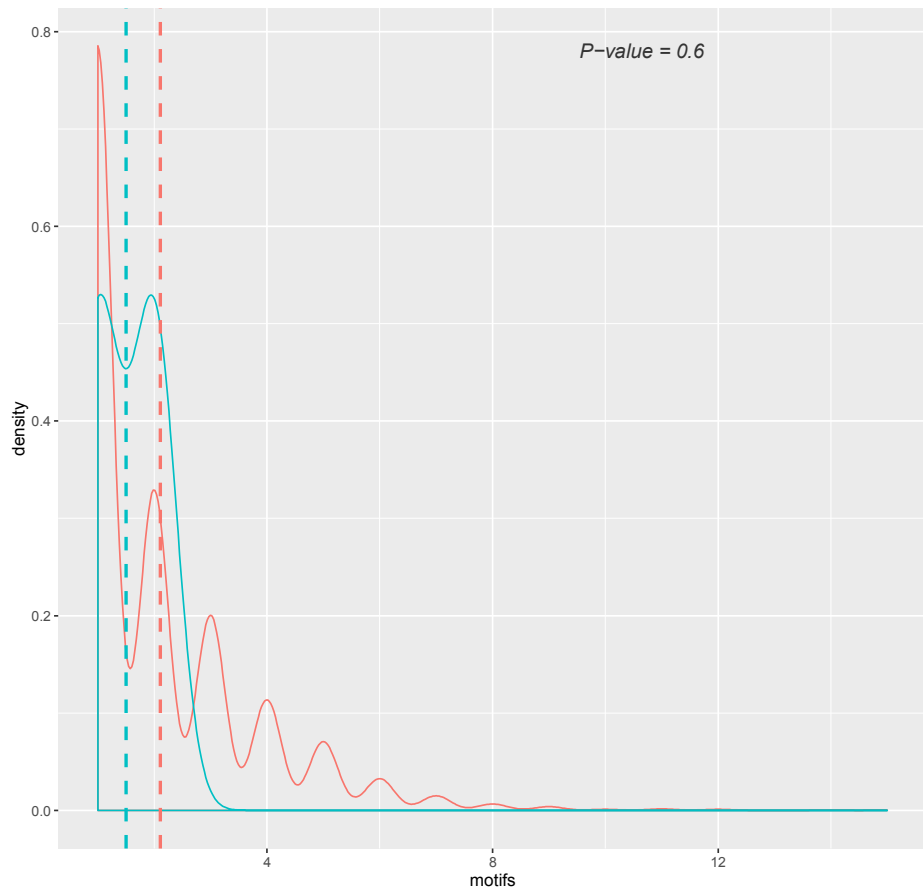


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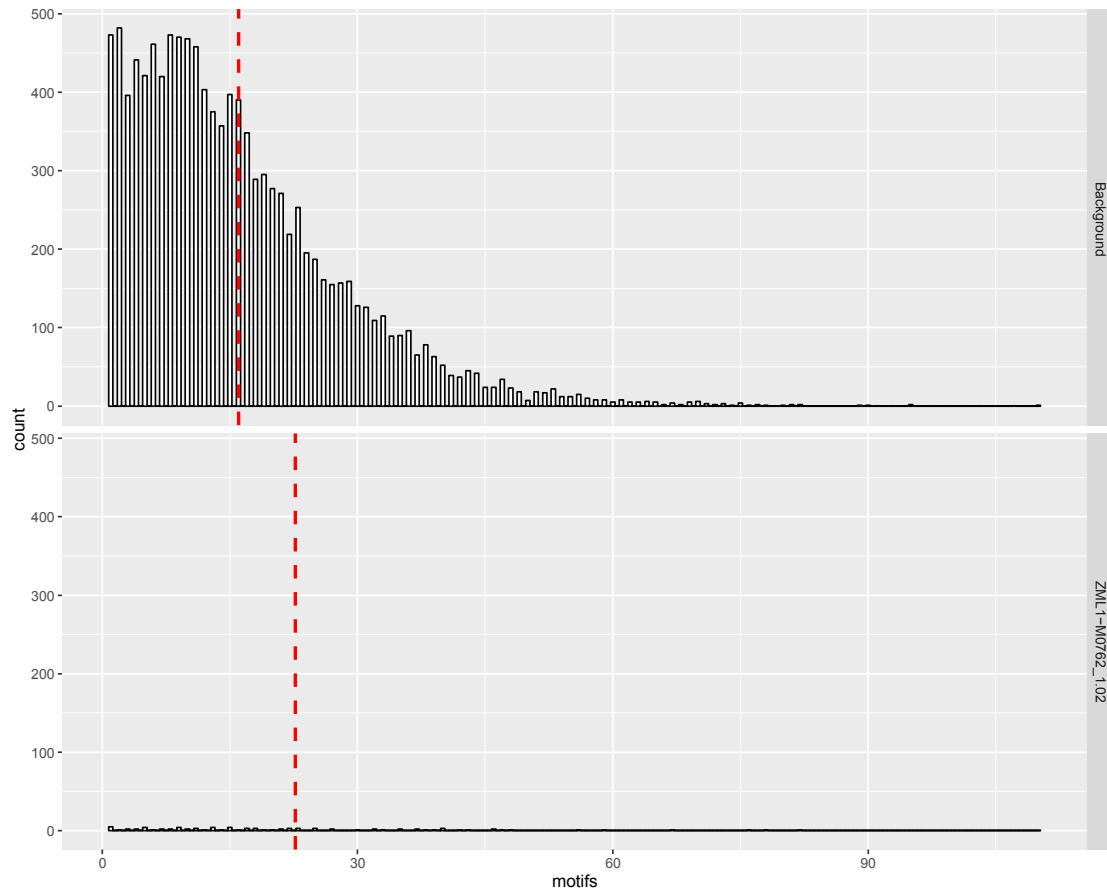
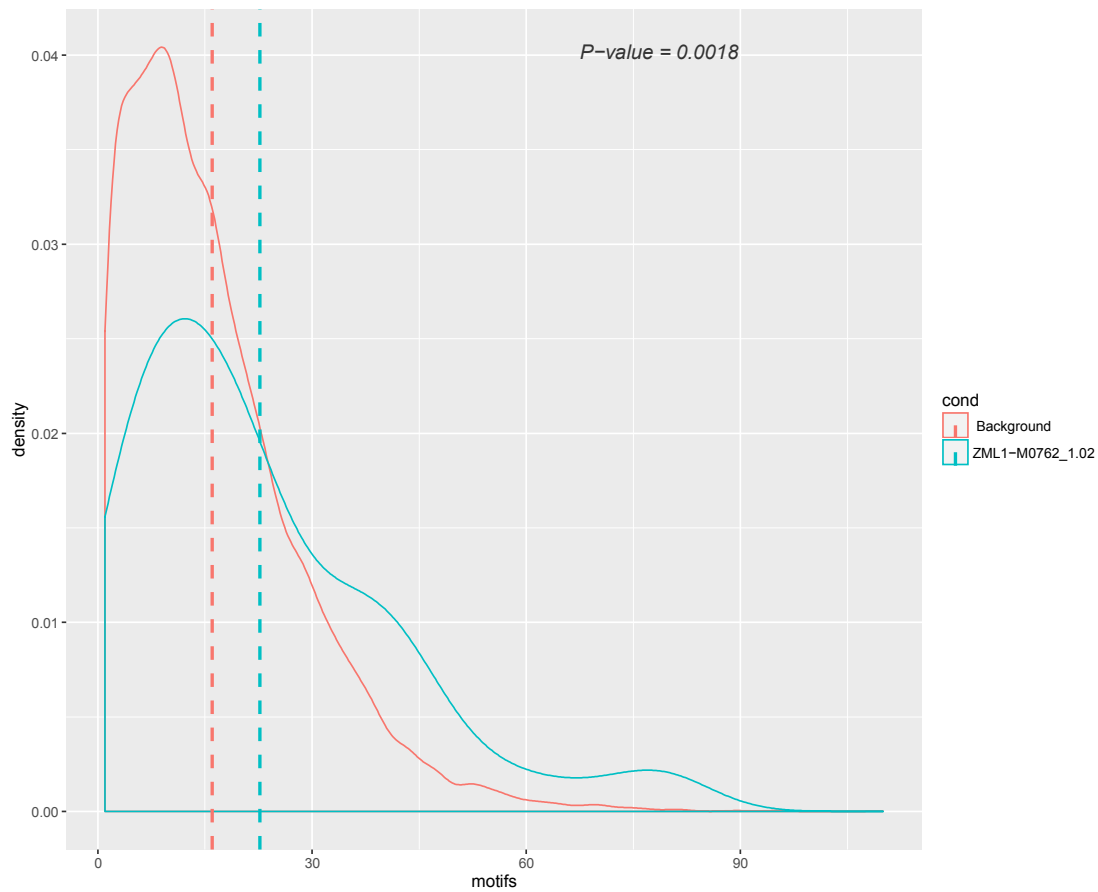


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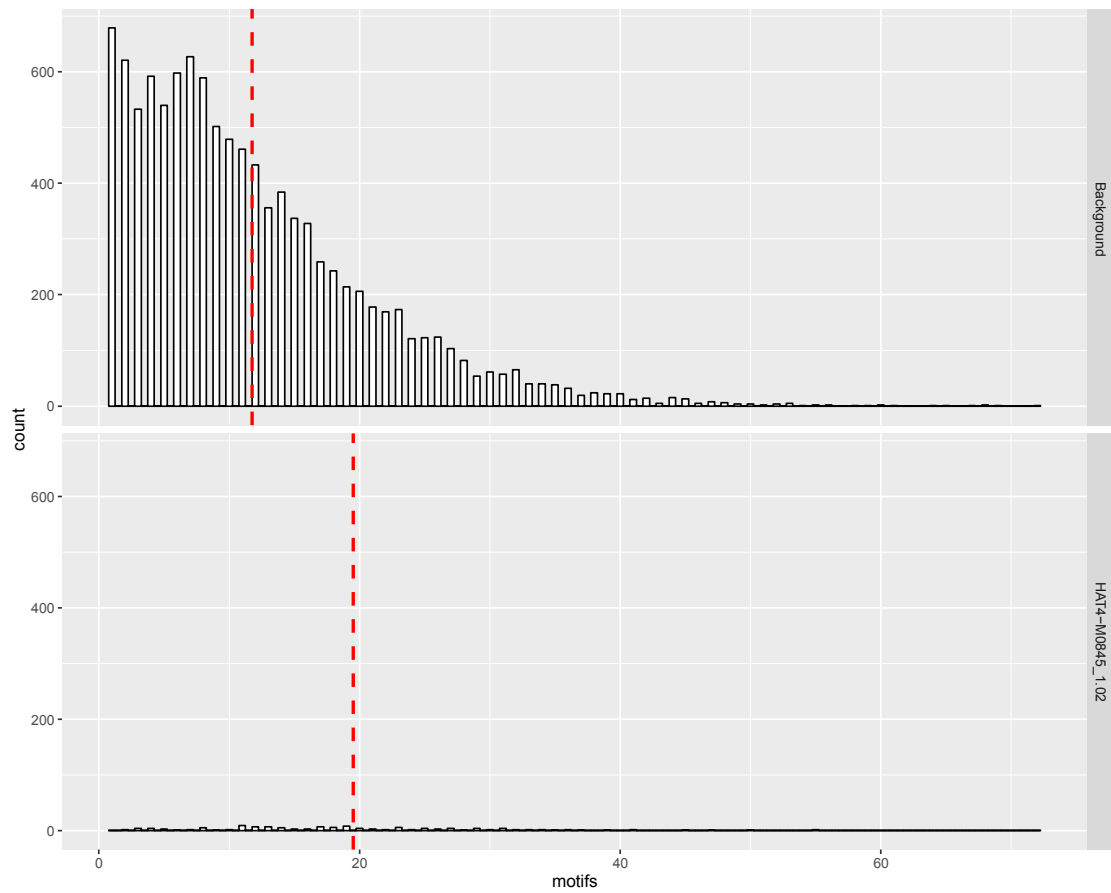
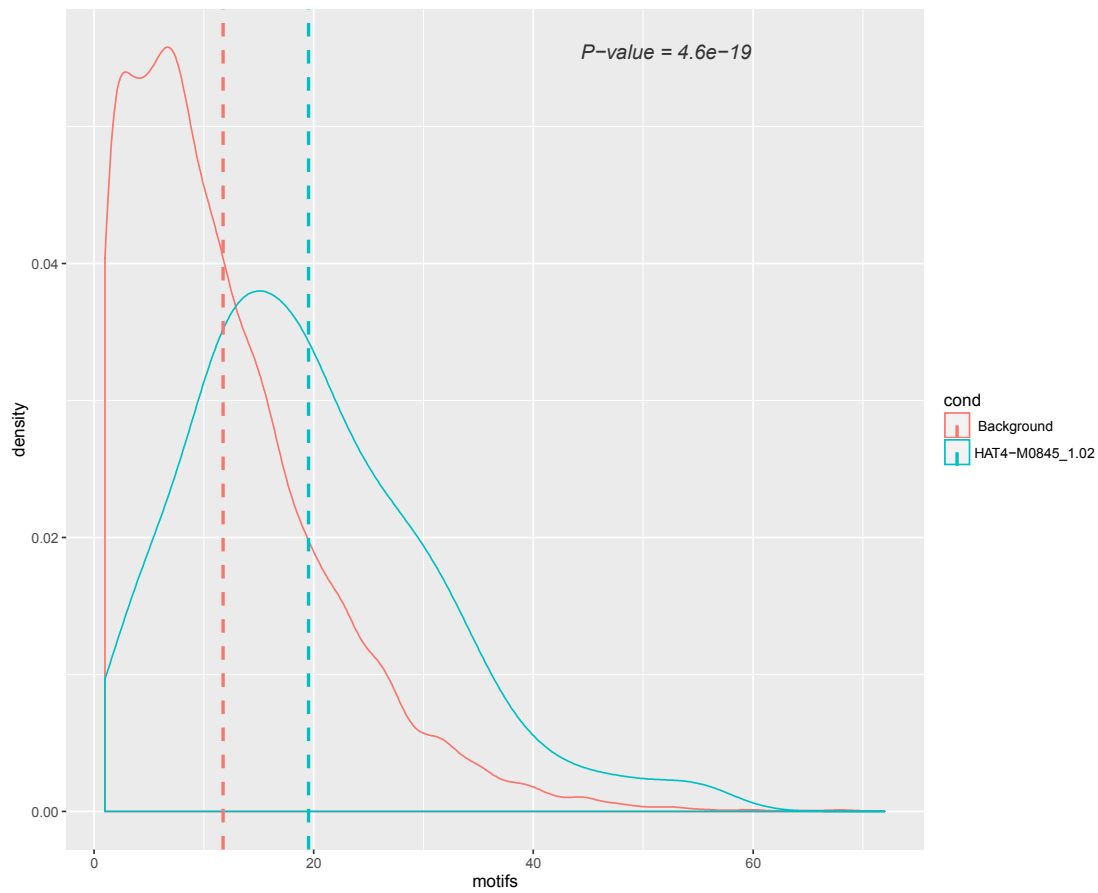
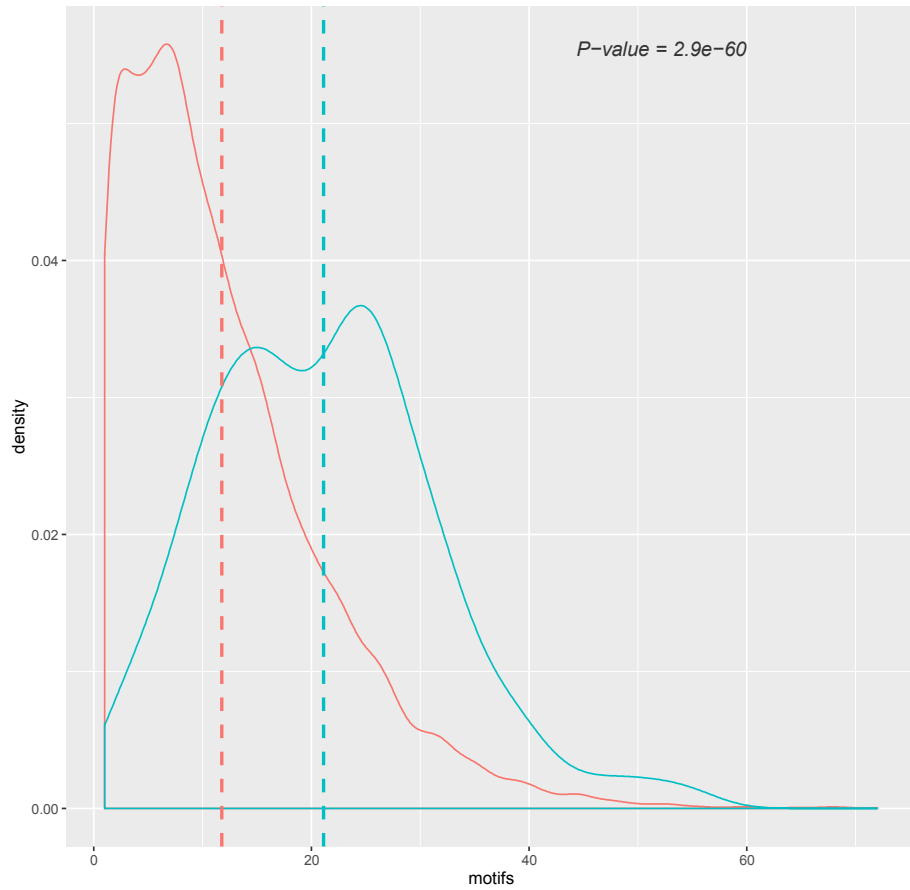


Figure-S2(Ecker) continued 15



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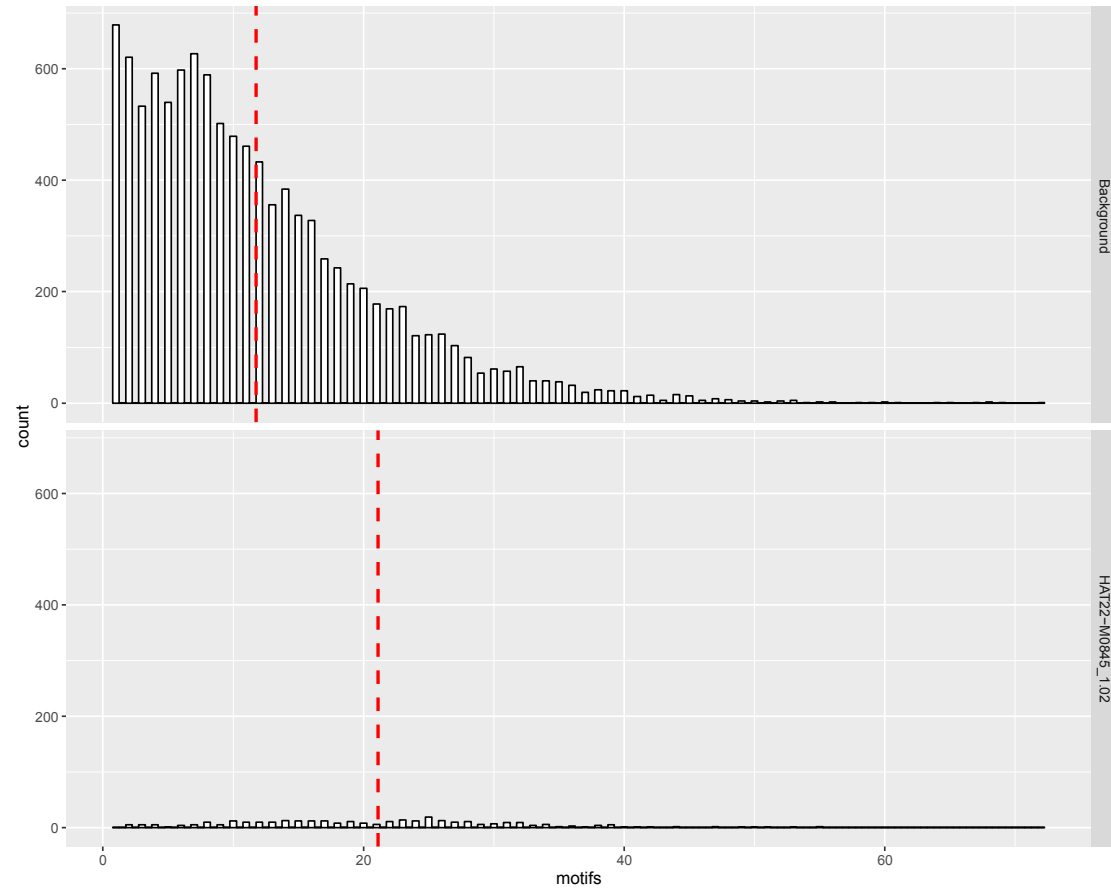


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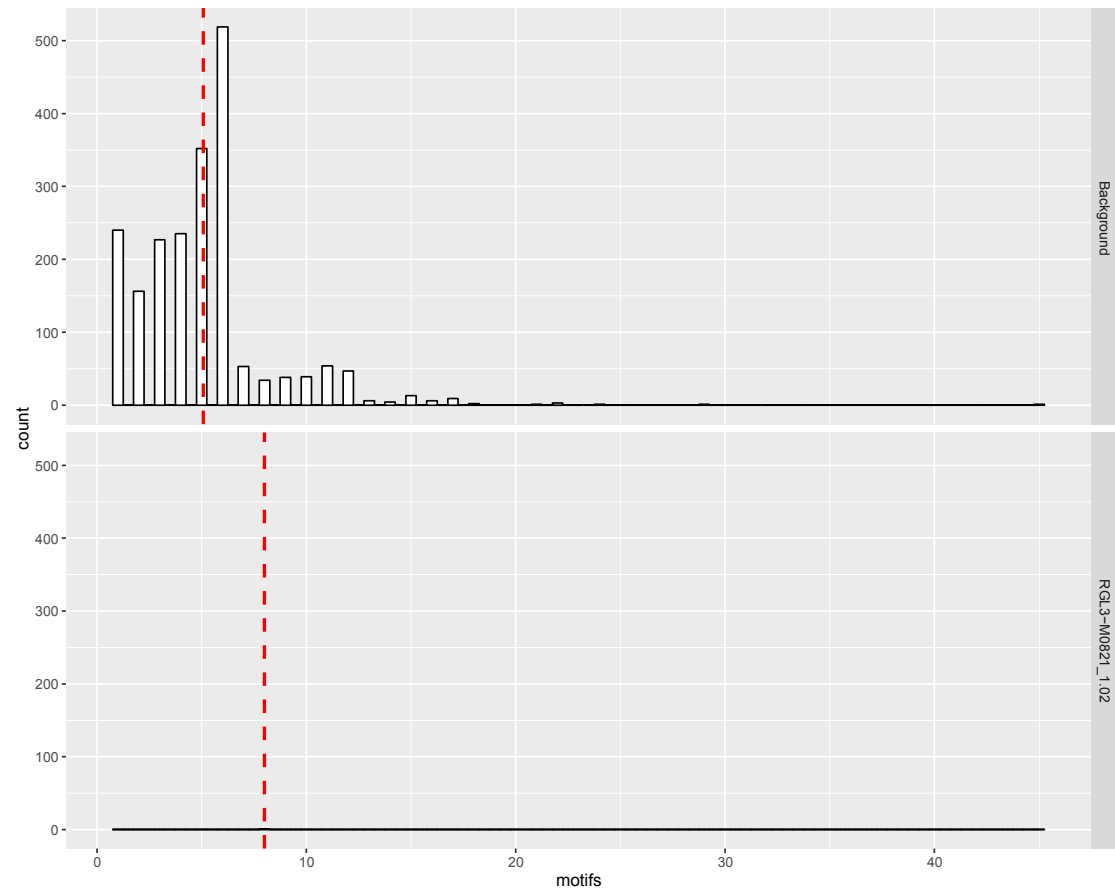
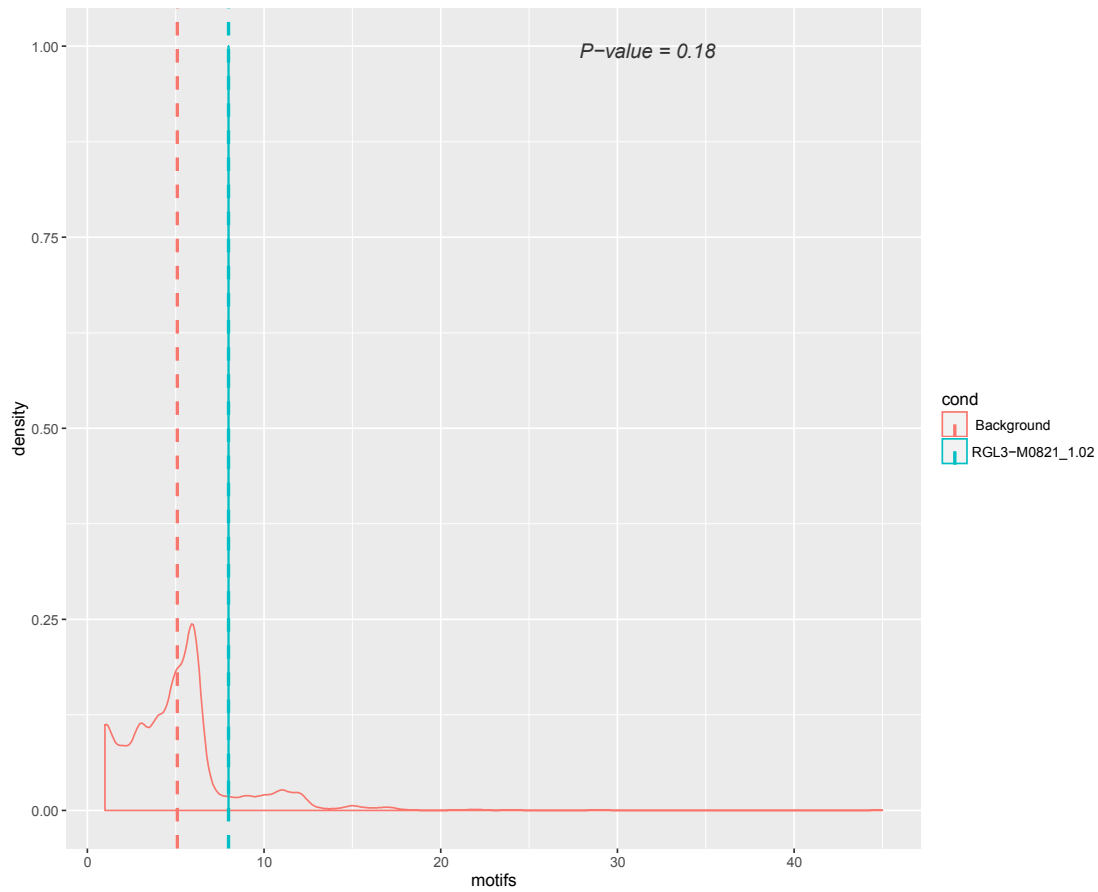


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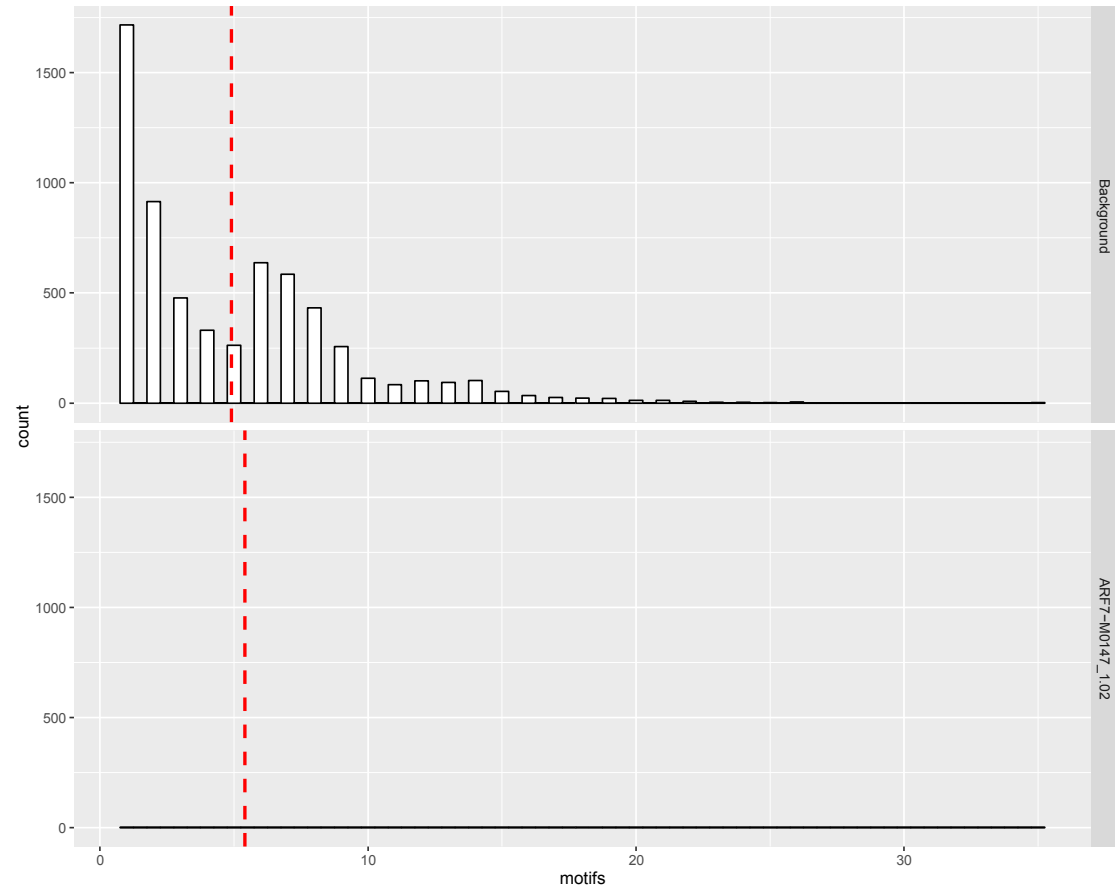
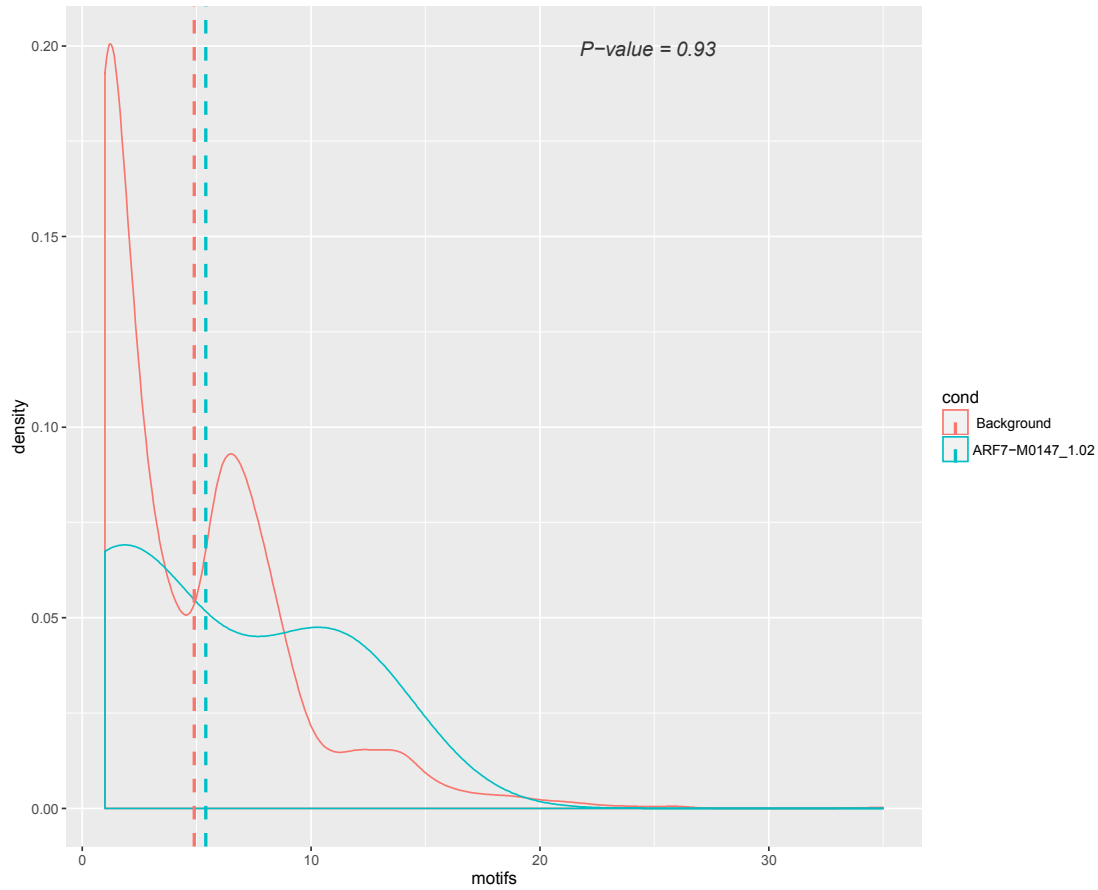


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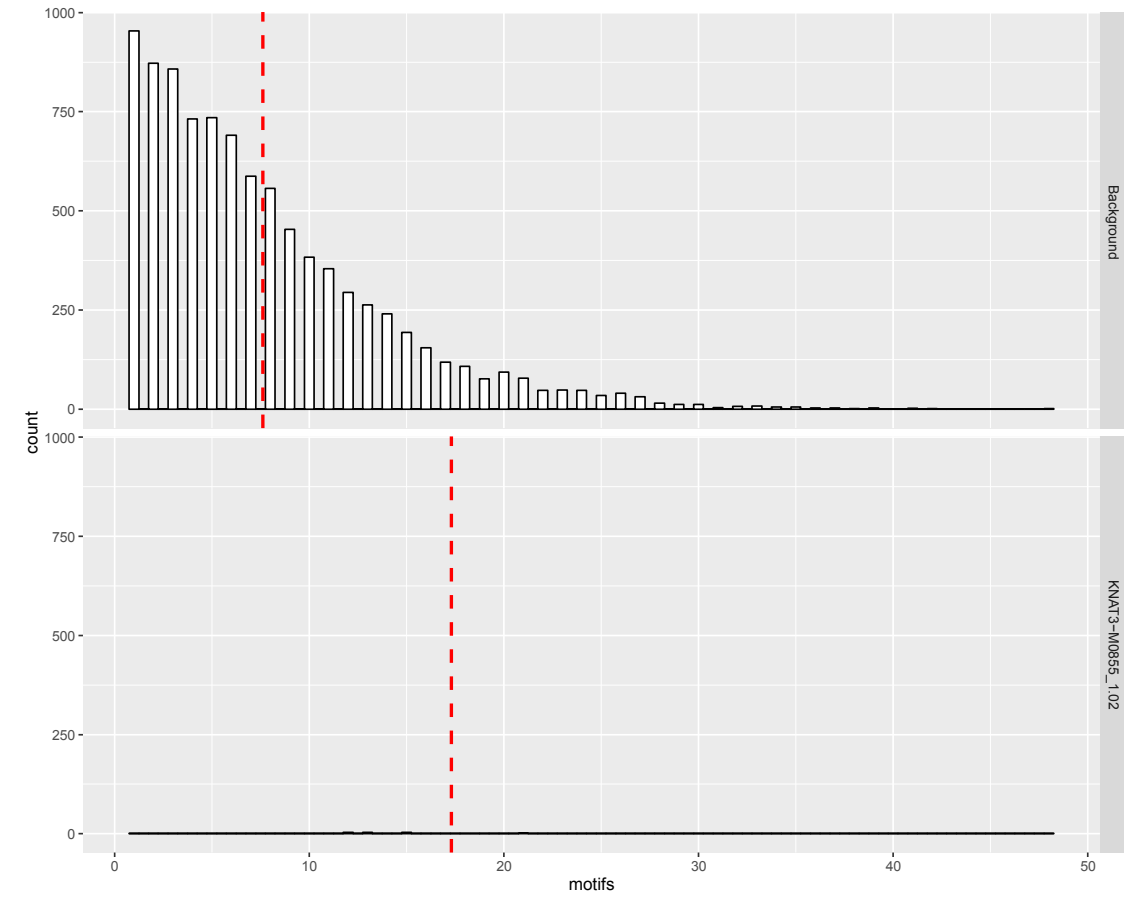
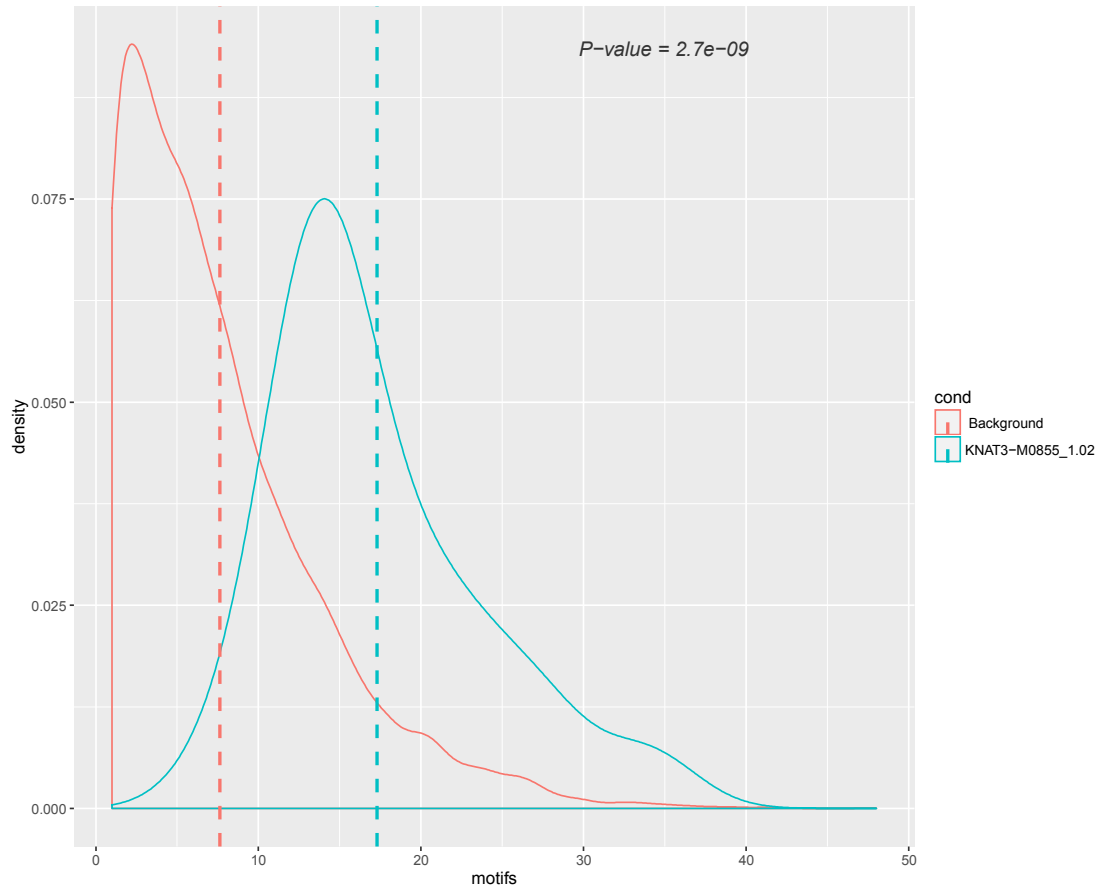


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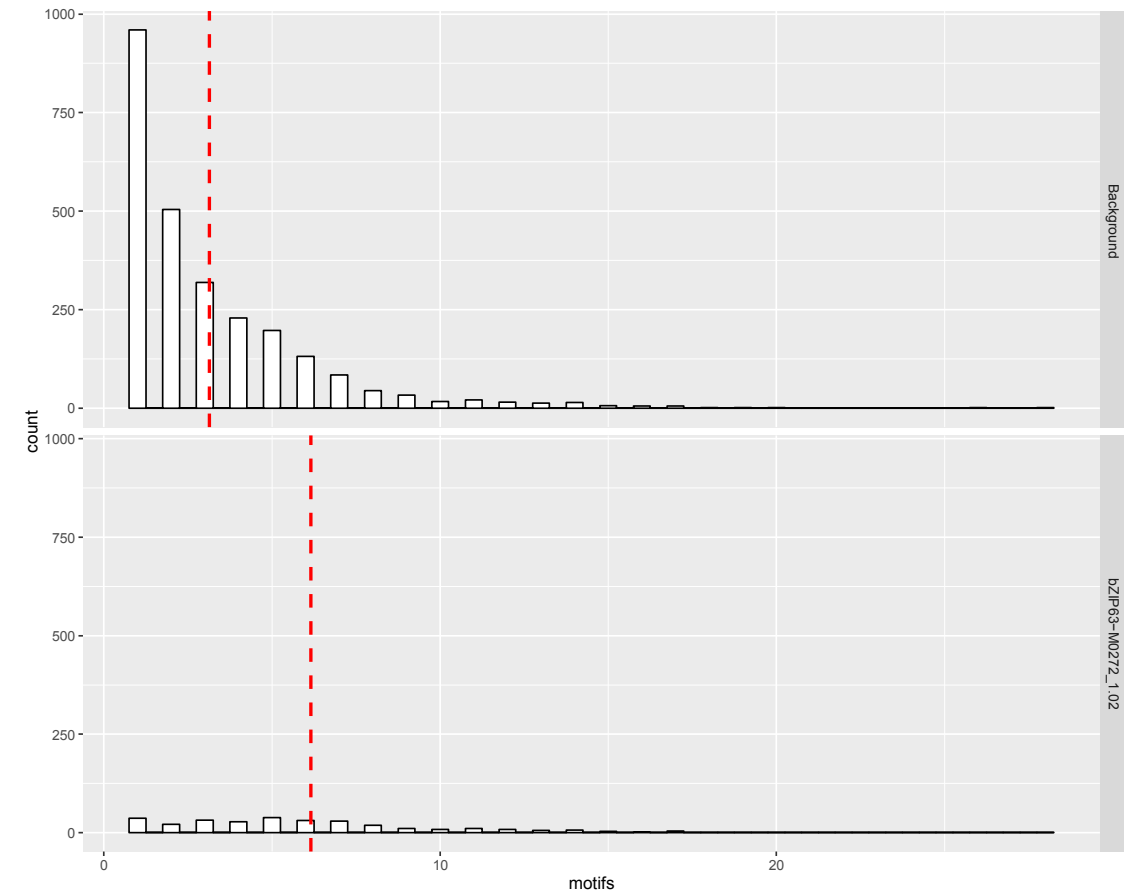
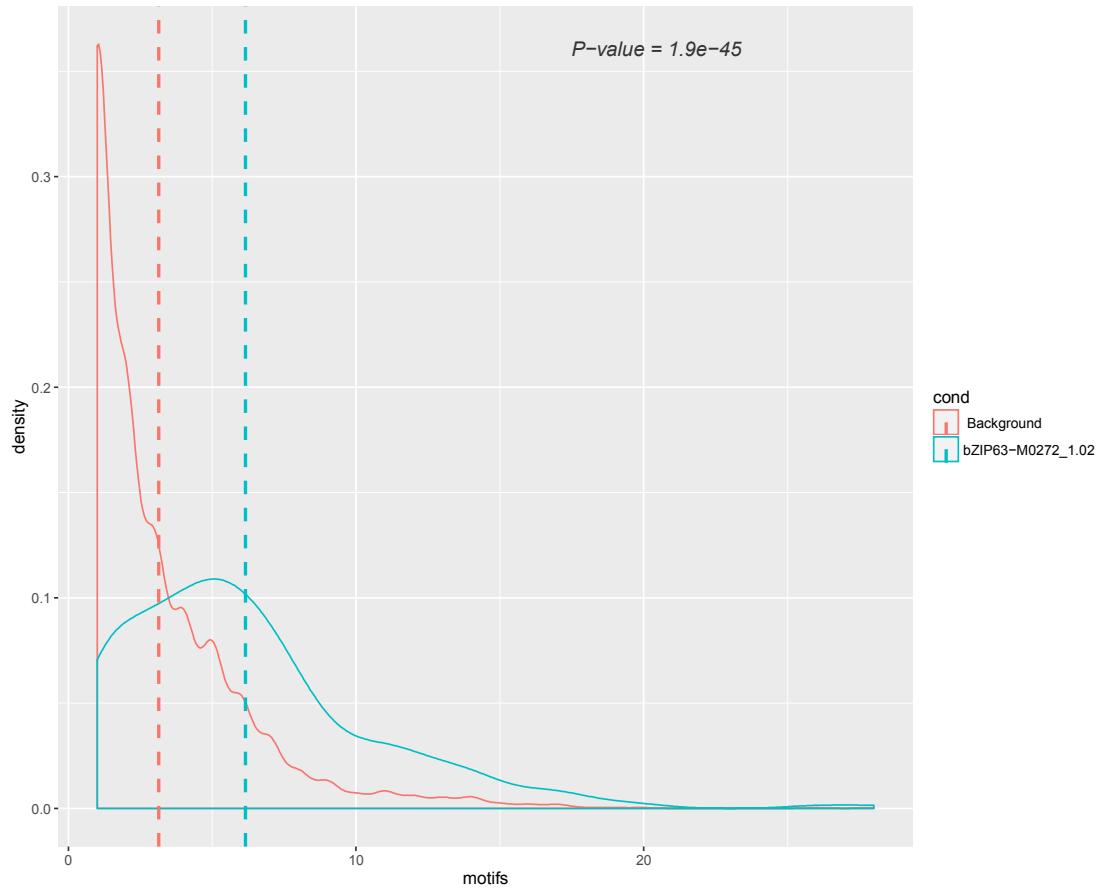
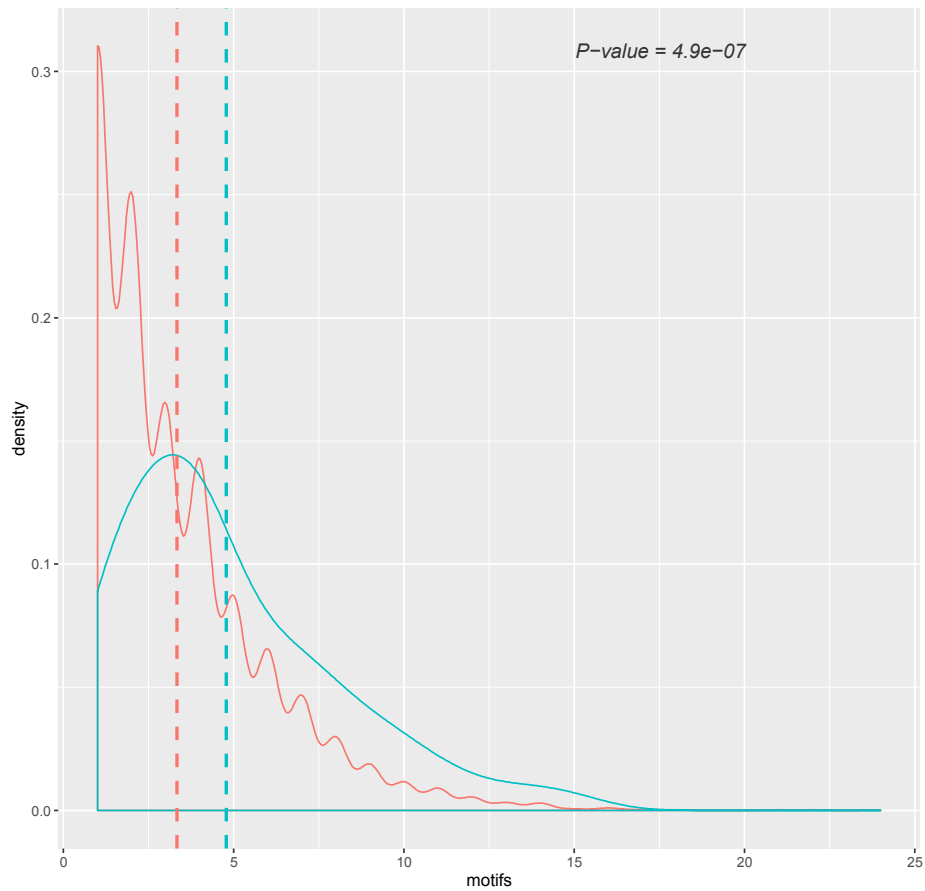


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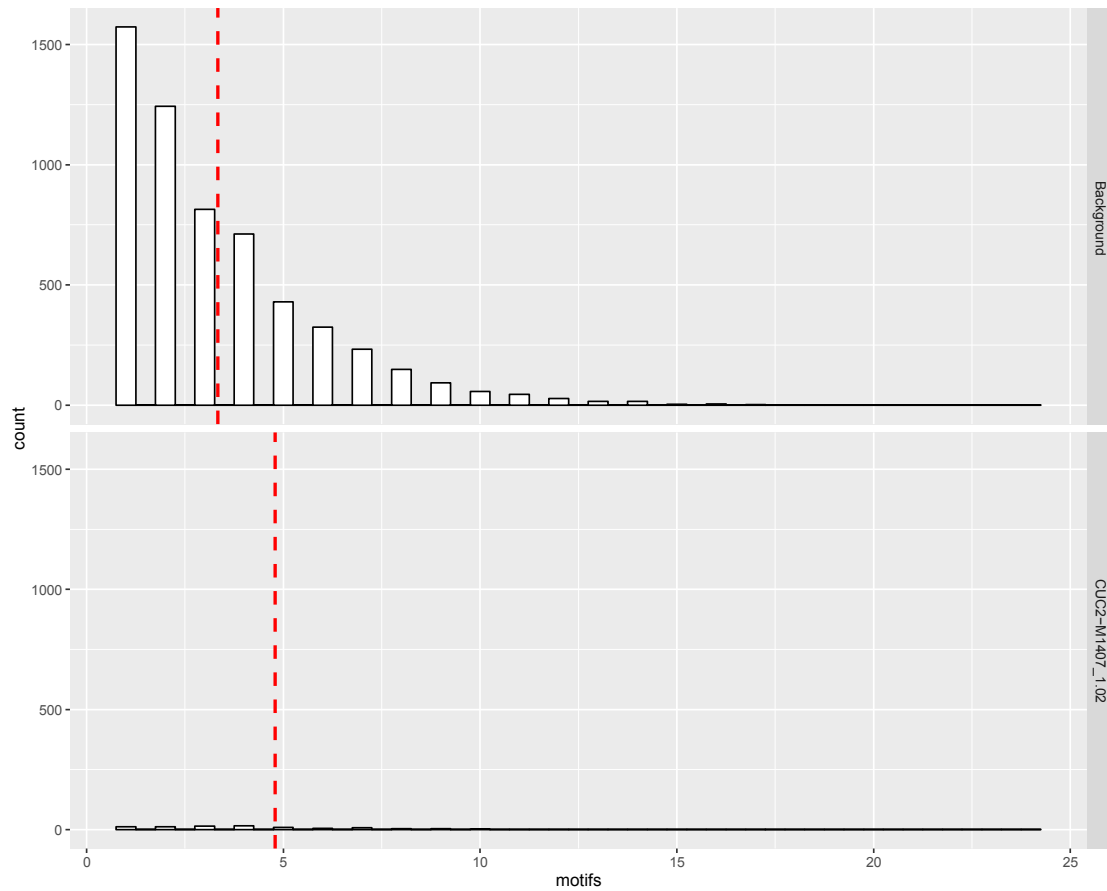


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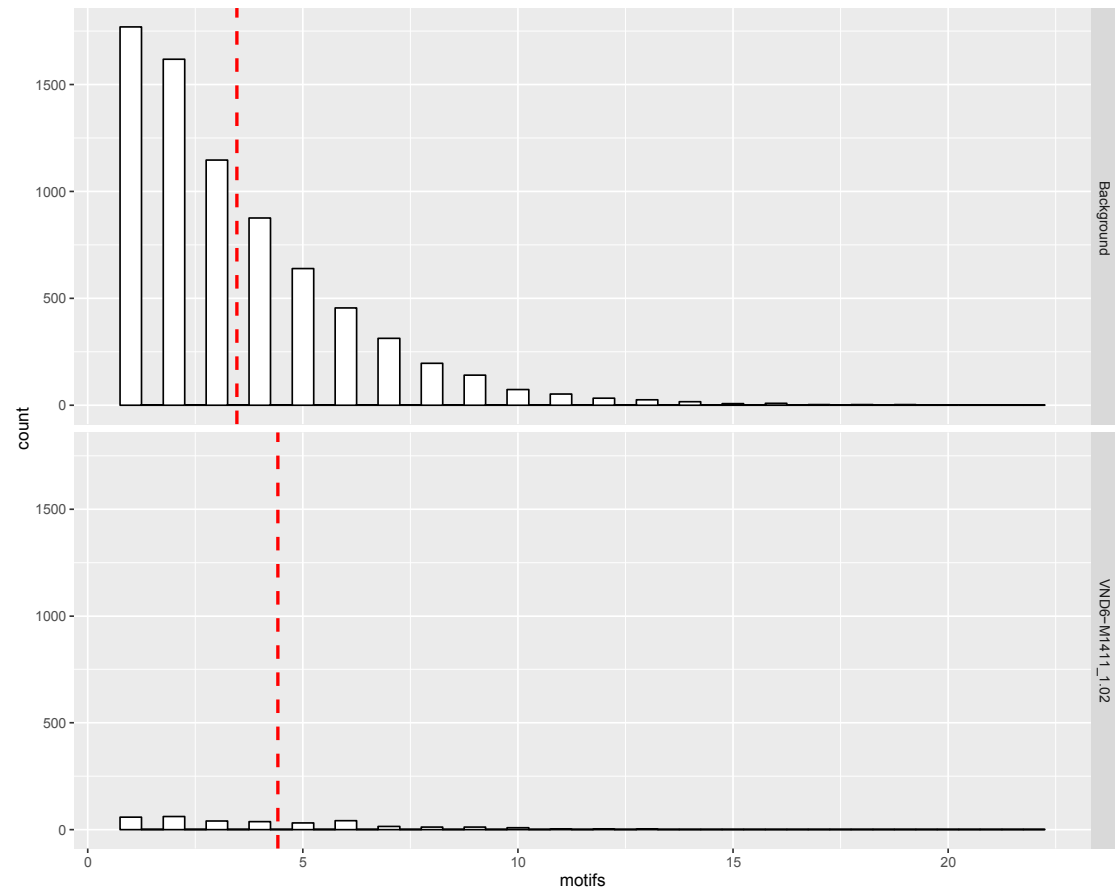
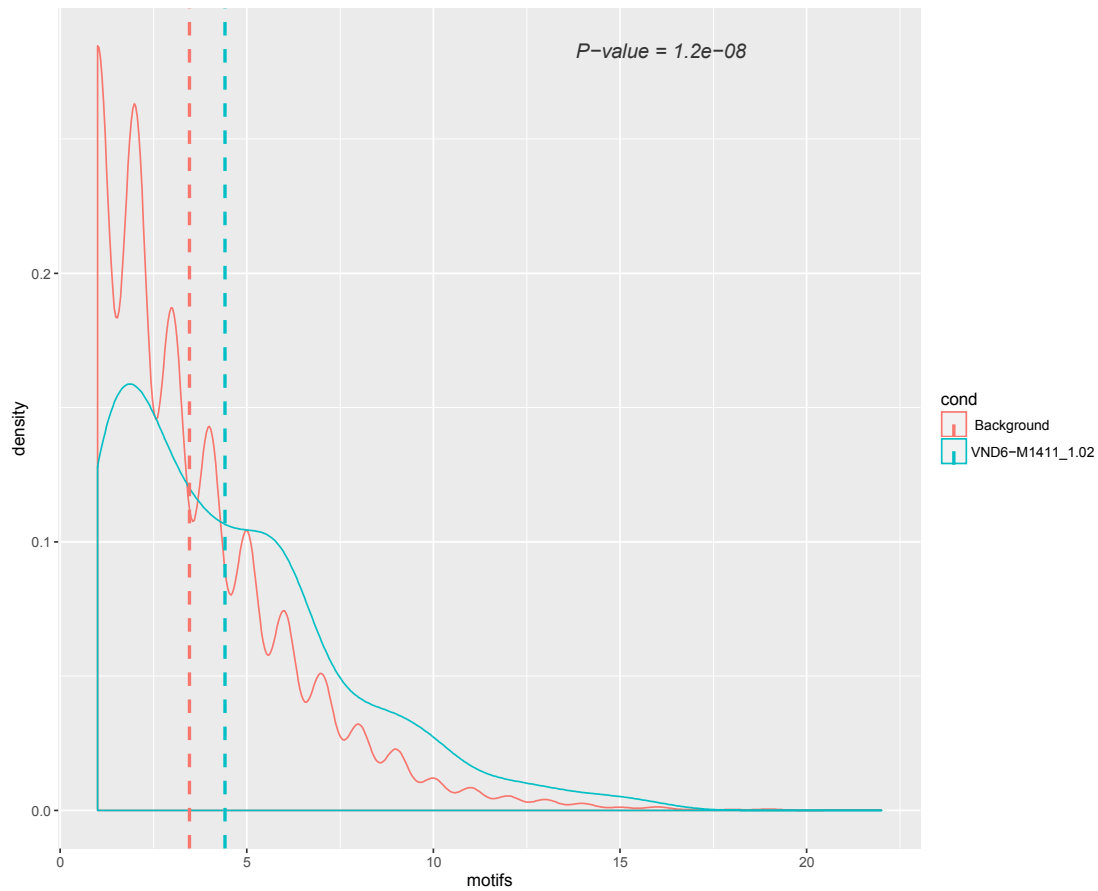


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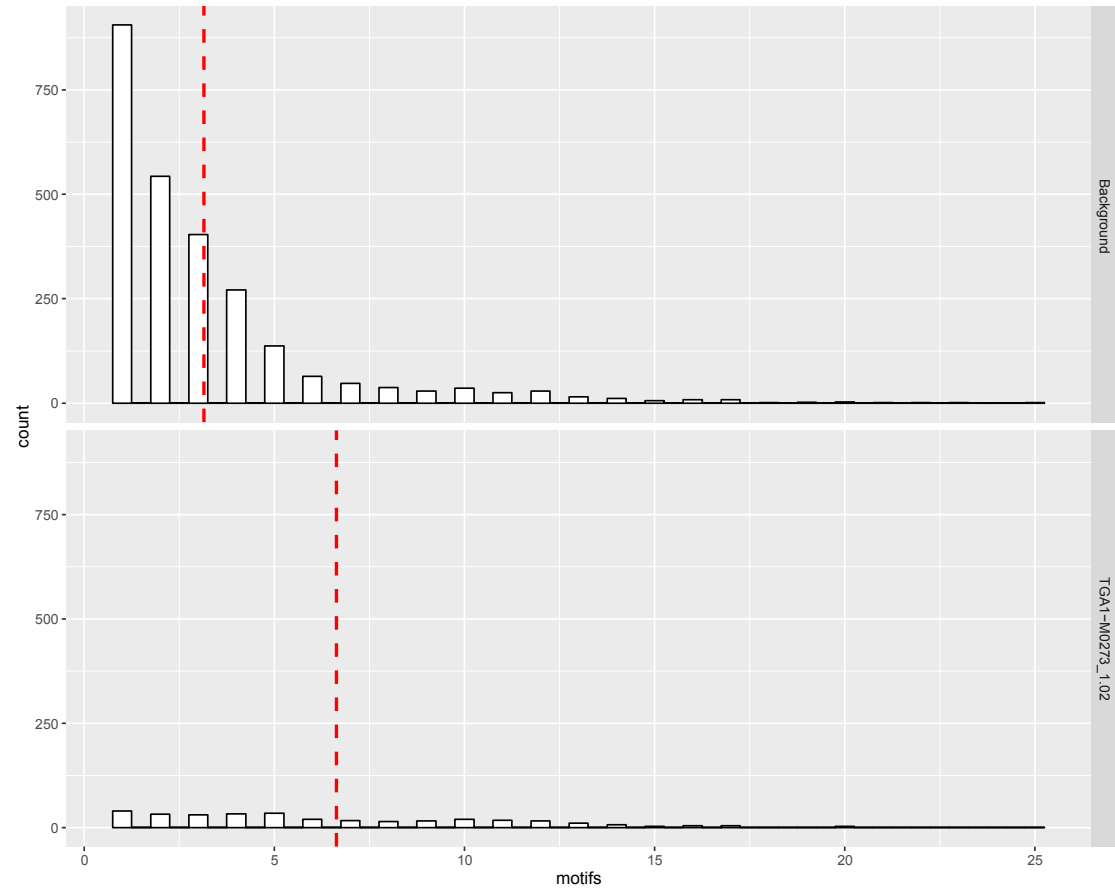
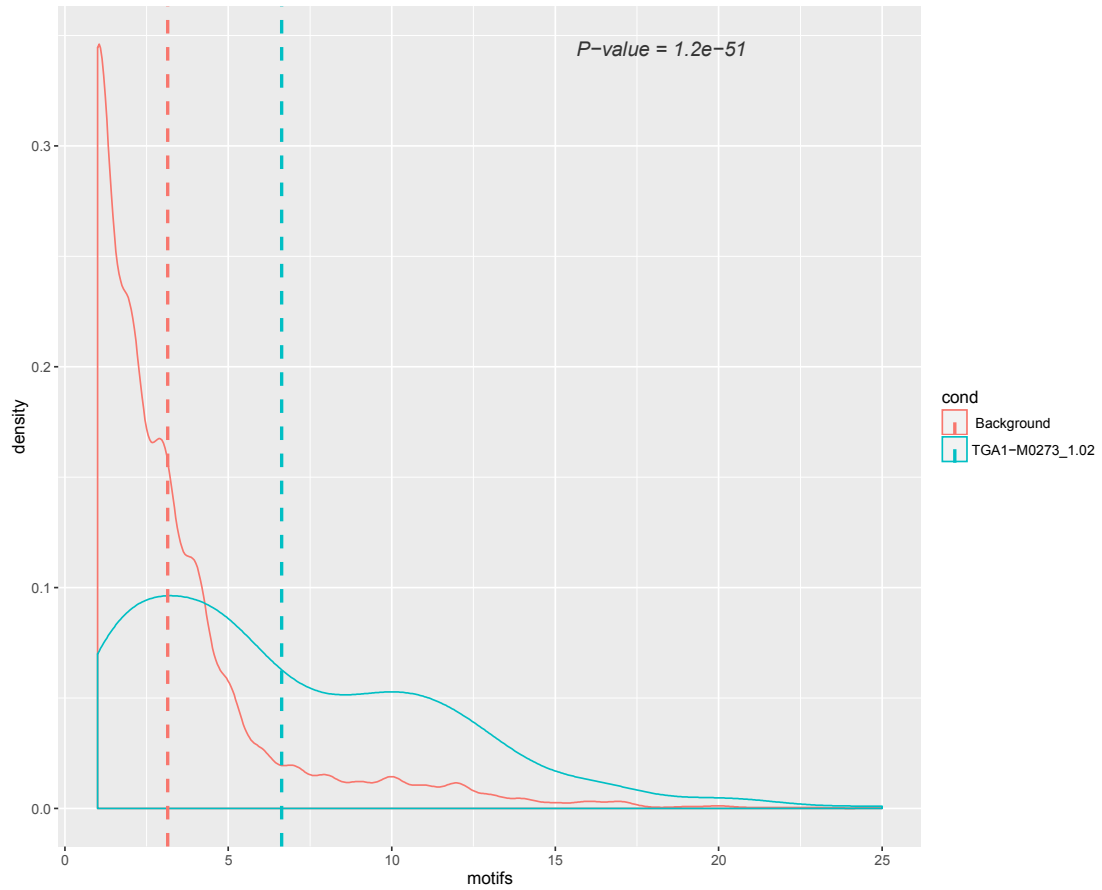
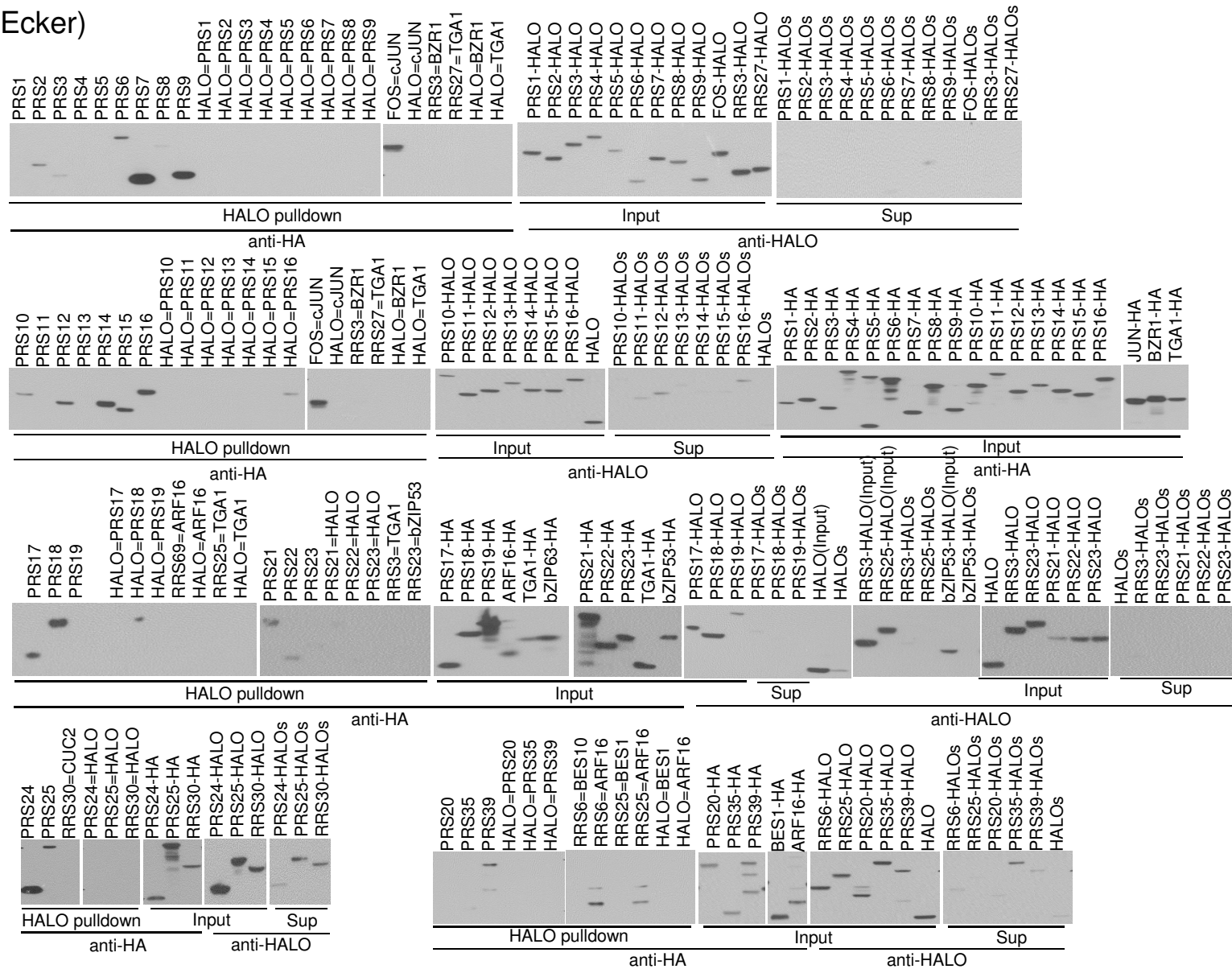


Figure-S3a(Ecker)



Supplementary Figure 3: Majority of TF-NAPPA protein-protein interactions can be replicated by pull-down assay. Representative results of the *in vitro* pull-down experiments between Halo alone, Halo tagged- and the 3xHA tagged proteins are presented. Co-purified Halo tagged and 3xHA tagged proteins were detected using an anti-HA antibody (labelled as Halo pull-down); 5% of input (labelled Input) and 5% of supernatant after binding to HaloLink magnetic beads (labelled Sup) were tested to show the relative amounts of Halo tagged and HA-tagged proteins and the binding efficiency to HaloLink magnetic beads in these experiments (a) PRS representative results of the *in vitro* pull-down experiments for known network, (b) RRS representative results of the *in vitro* pull-down experiments, (c) 10% positive (listed in **Supplementary Table 6**).

Figure-S3a(Ecker) continued 1

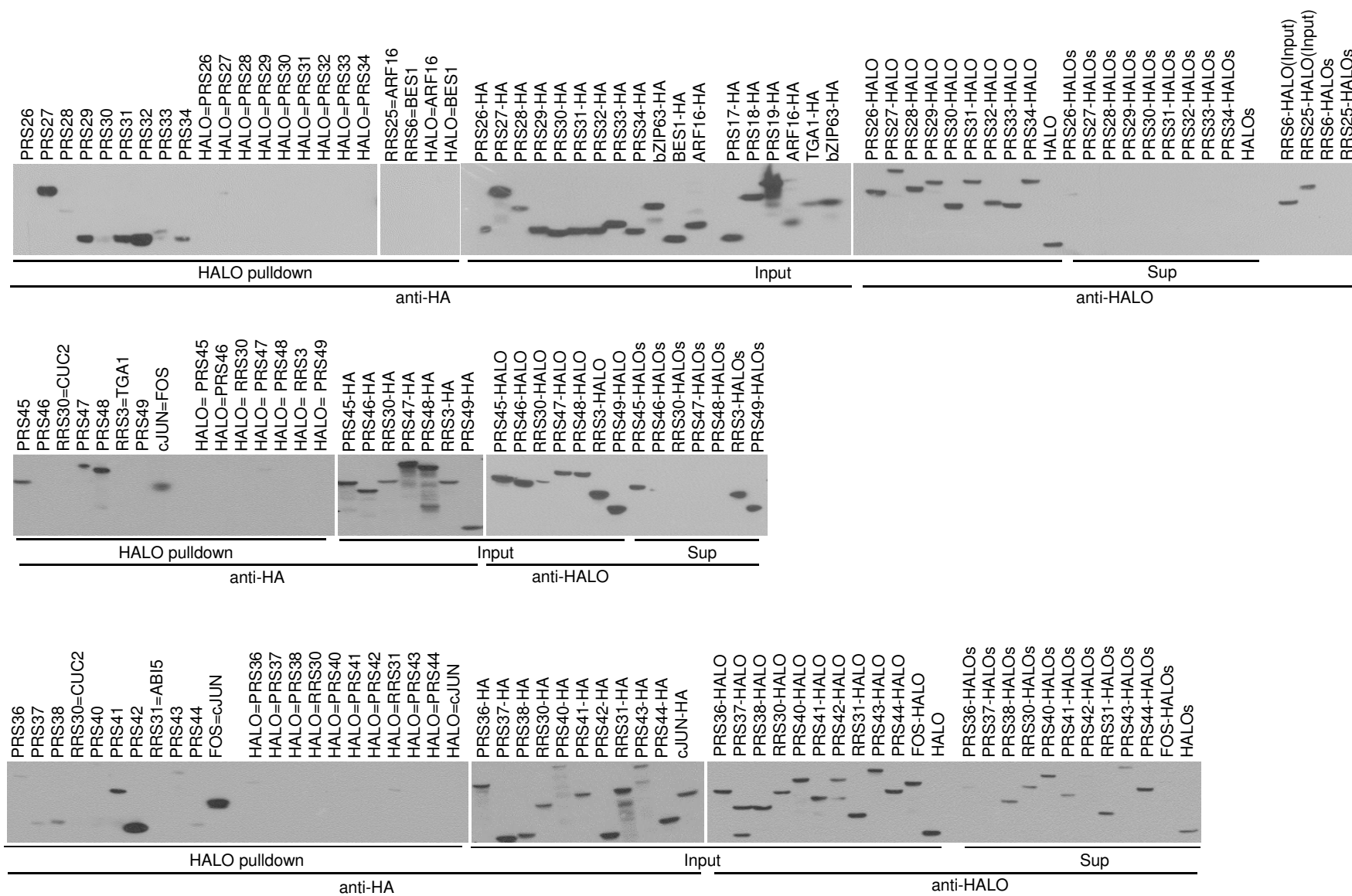


Figure-S3b(Ecker)

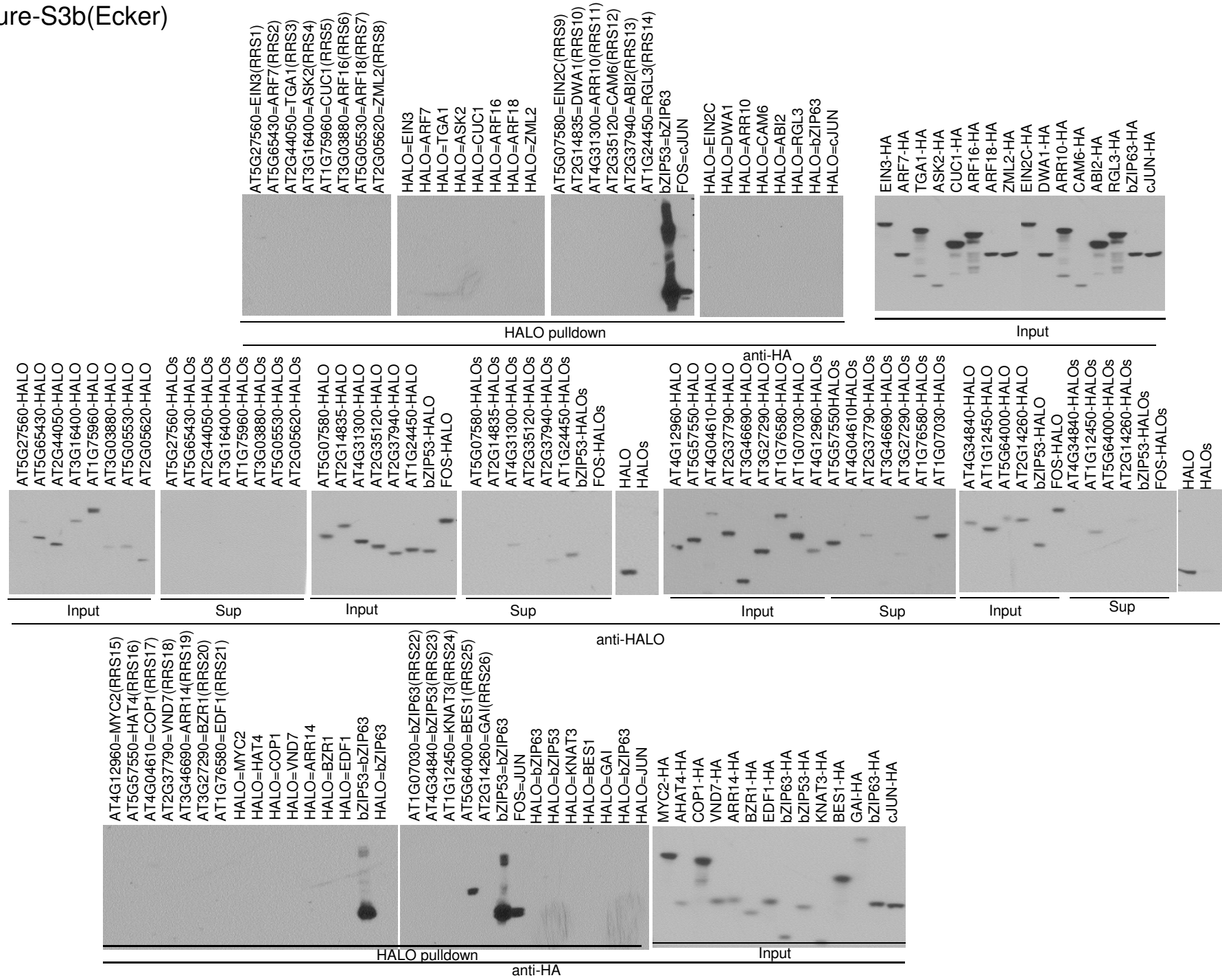


Figure-S3b(Ecker) continued

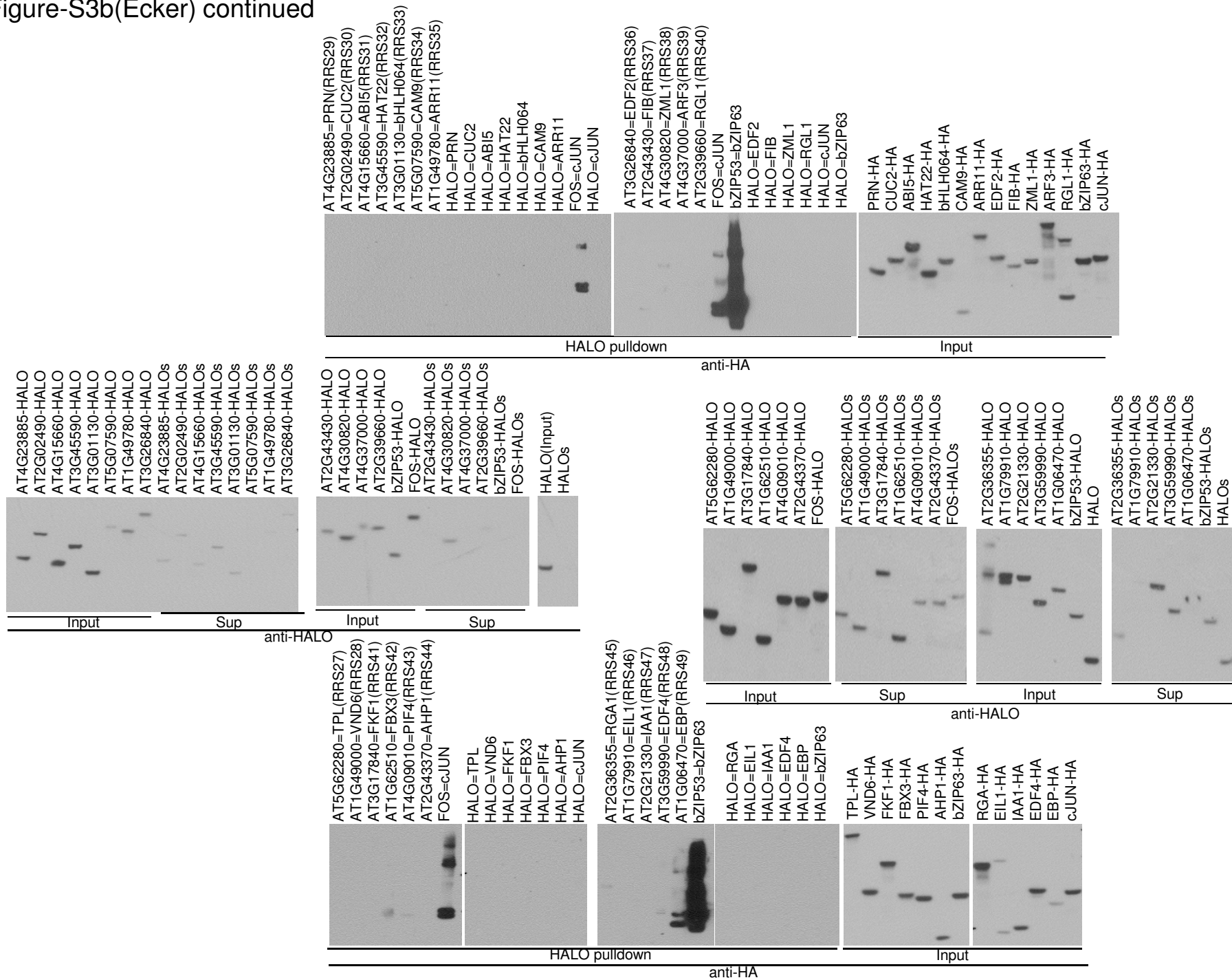


Figure-S3c(Ecker)

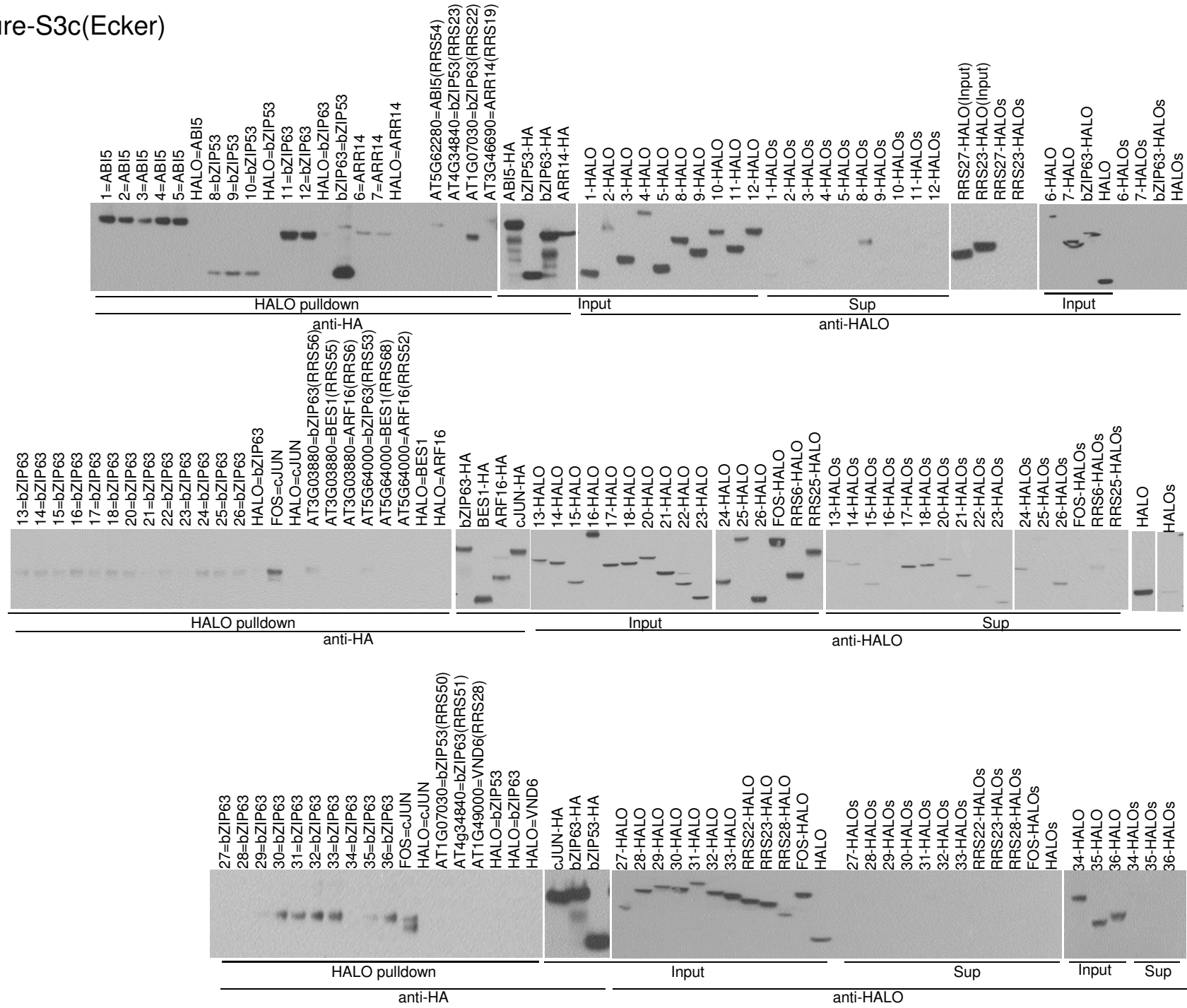


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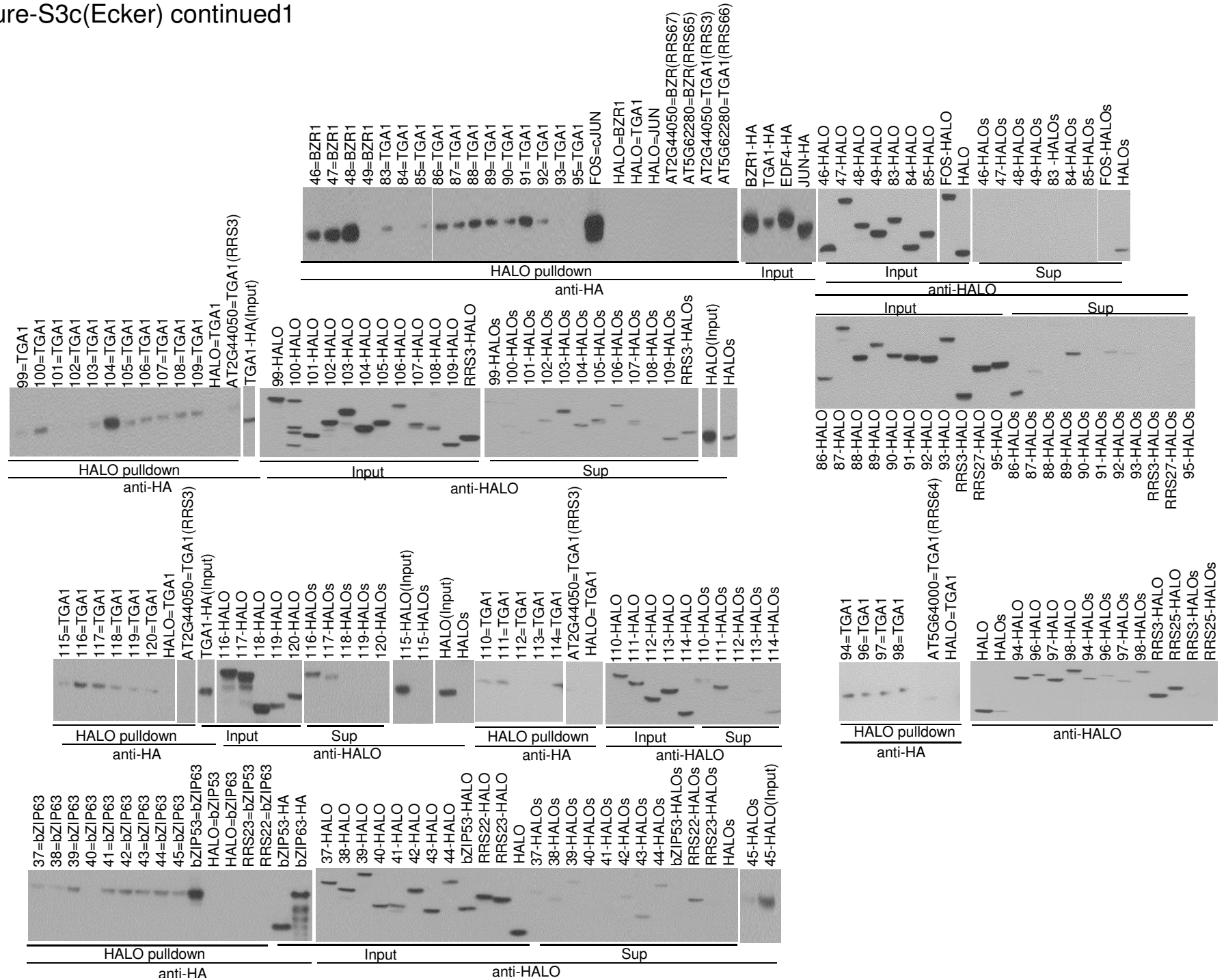


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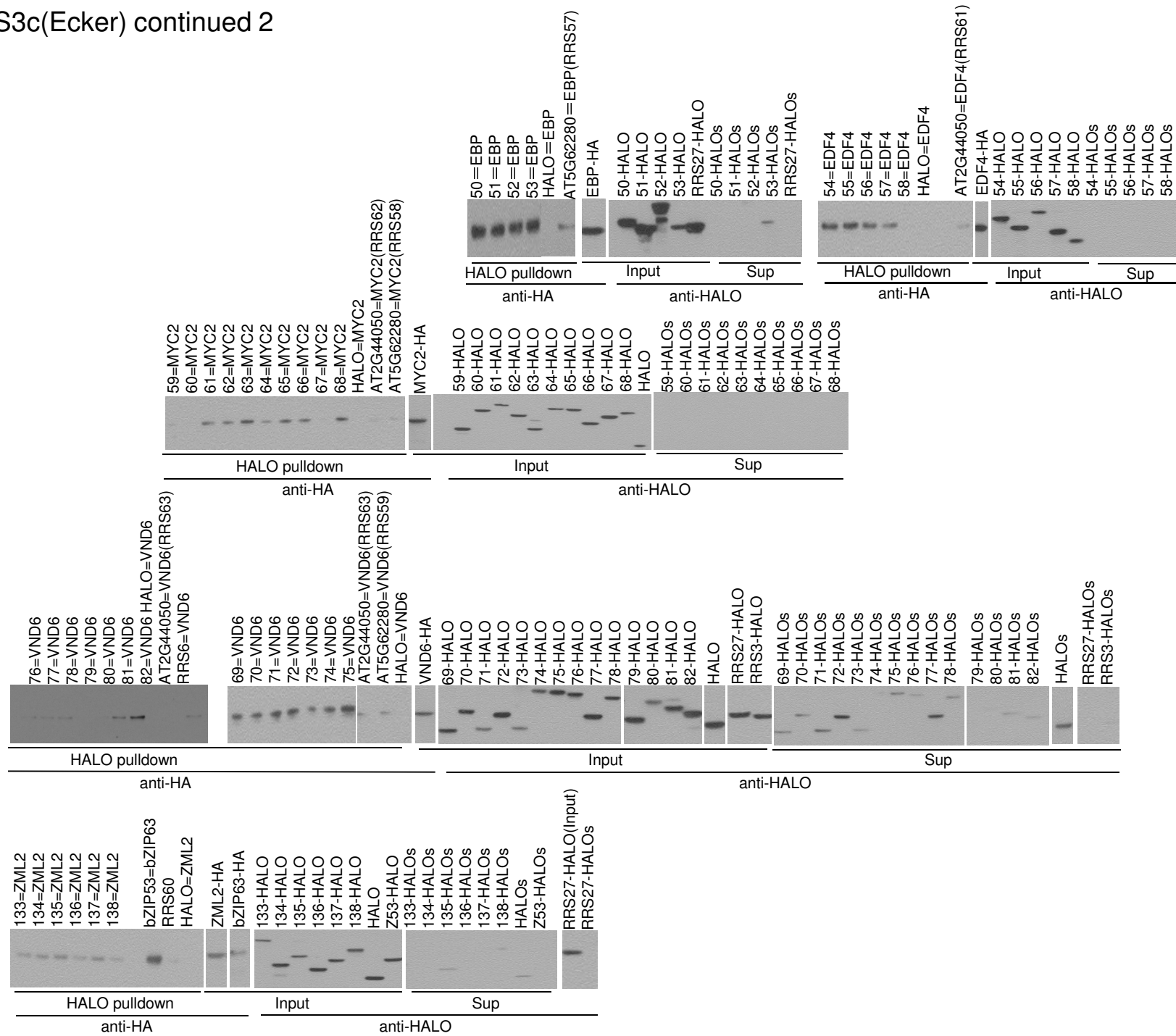
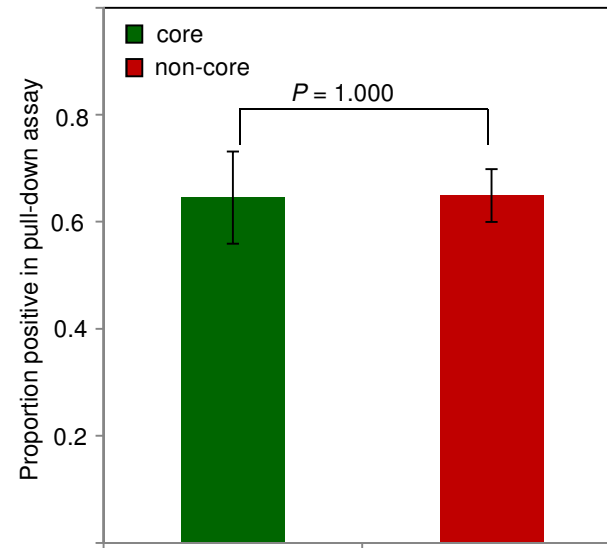
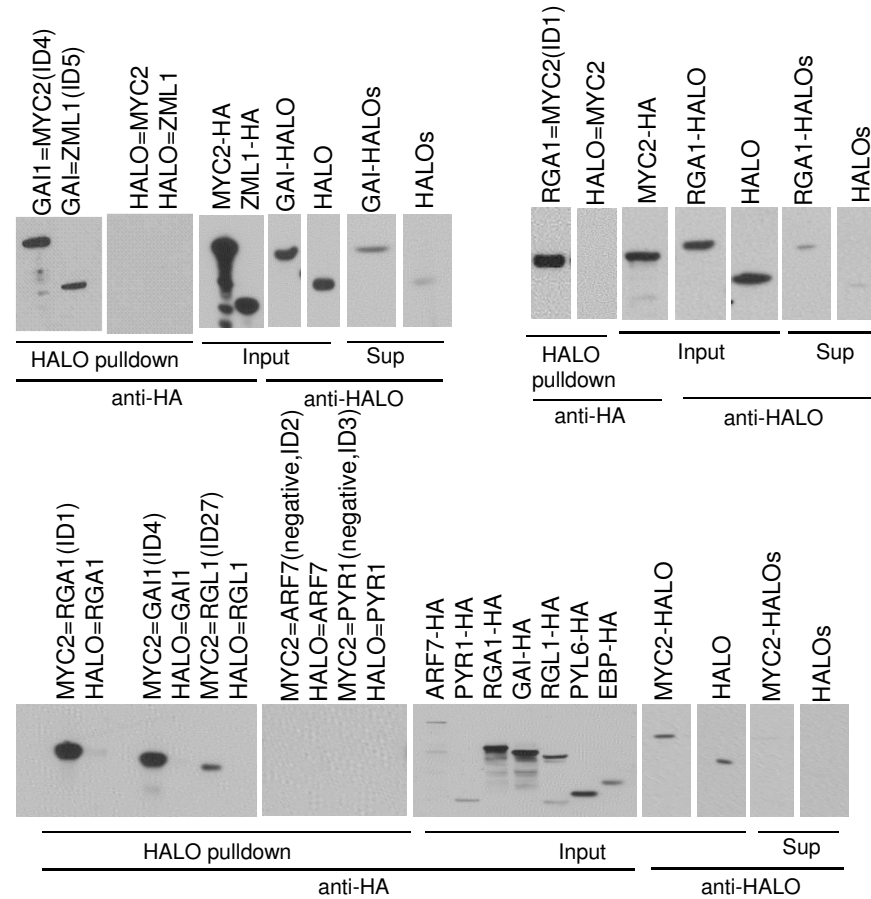


Figure-S4(Ecker)



Supplementary Figure 4: TF-NAPPA protein-protein interactions among the core and non-core subsets replicated by pull-down assay. Histogram shows proportion of positive scoring pairs from the core and non-core set of sample pairs positive in NAPPA (125 pairs in Fig 3, Supplementary Table 6). The dataset from core is indistinguishable from non-core ($P = 1.0000$, Fisher's exact test).

Figure-S5a(Ecker)



Supplementary Figure 5: Many protein-protein interactions classified as potential mediators of TF-related hormone crosstalk were replicated in pull-down assays. Representative results of the *in vitro* pull-down experiments between Halo alone, Halo tagged- and the 3xHA tagged proteins are presented. Co-purified Halo tagged and 3xHA tagged proteins were detected using an anti-HA antibody (labelled as Halo pull-down); 5% of input (labelled Input) and 5% of supernatant after binding to HaloLink magnetic beads (labelled Sup) were run to show the protein amounts of Halo tagged, HA-tagged and binding efficiency to HaloLink magnet beads in these experiments. **(a)** Representative results of the *in vitro* pull-down experiments for subnetwork of Figure 4A, gibberellin and jasmonate. **(b)** Representative results of the *in vitro* pull-down experiments for subnetwork of Figure 4B, ABA and nitrogen. **(c)** Representative results of the *in vitro* pull-down experiments for subnetwork of Figure 4C, ethylene, gibberellin and light. **(d)** Representative results of the *in vitro* pull-down experiments for subnetwork of TF-NAPPA and NAPPA negatives (listed in **Supplementary Table 7**).

Figure-S5b(Ecker)

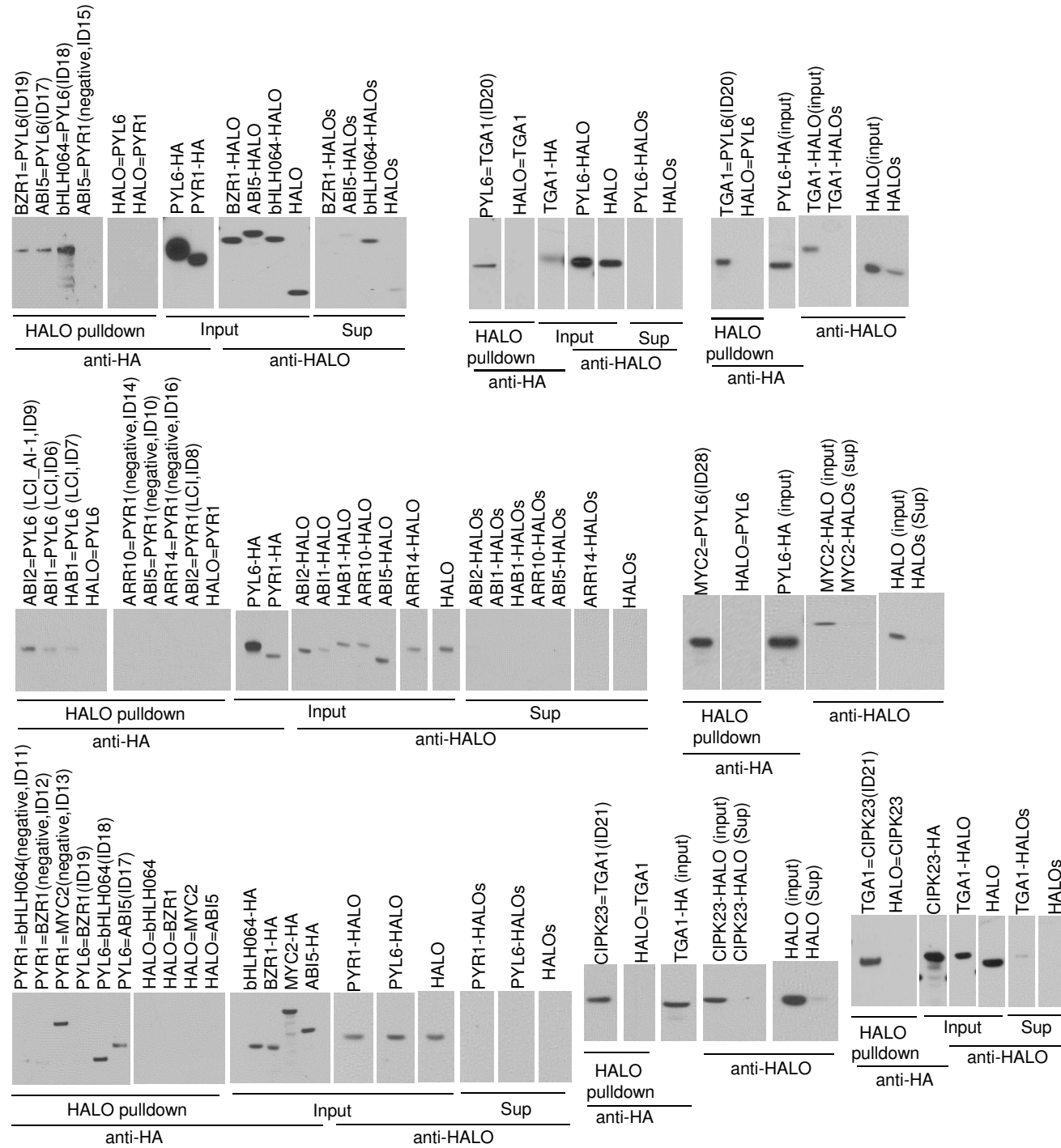


Figure-S5c(Ecker)

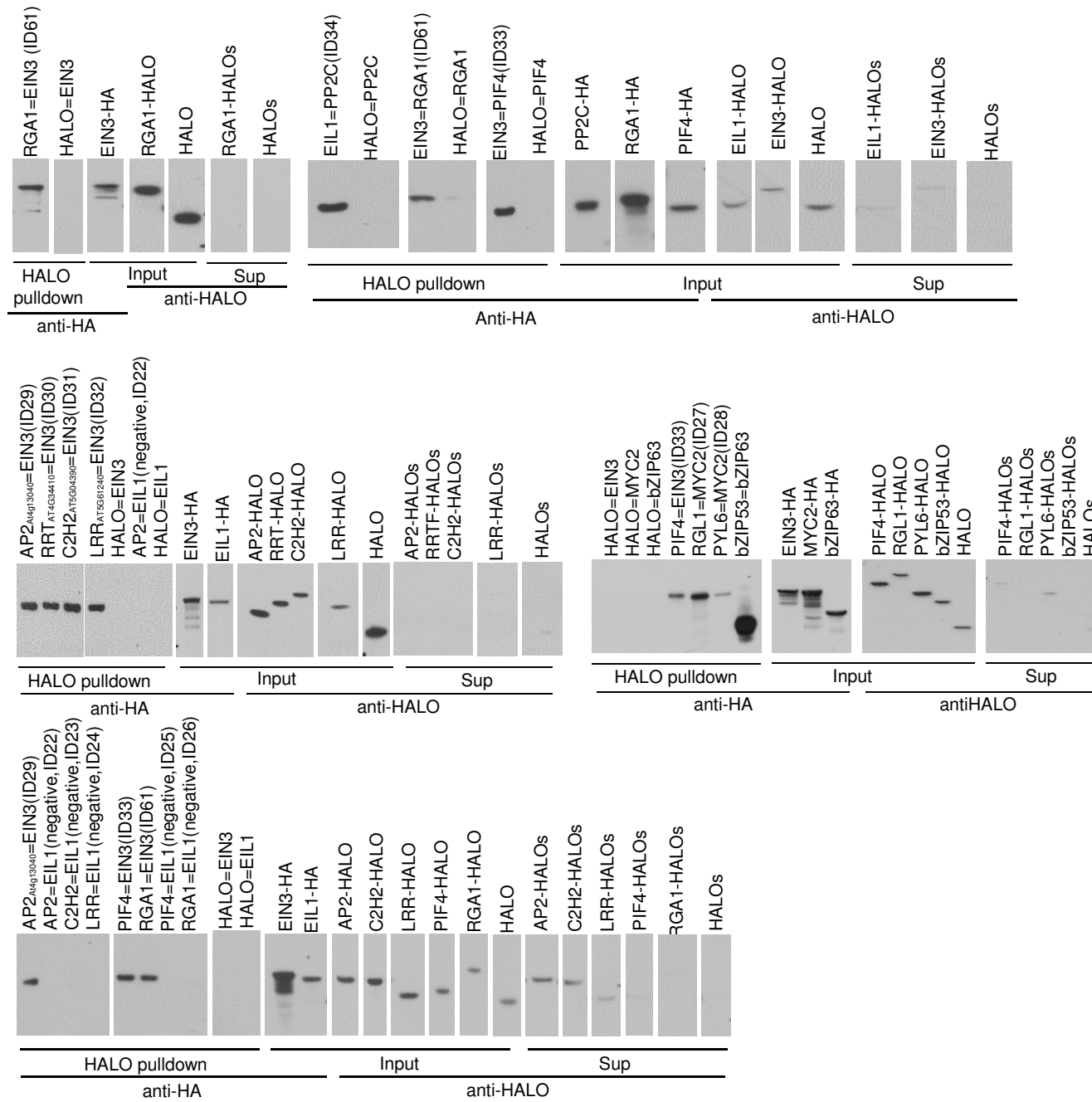


Figure-S5d(Ecker)

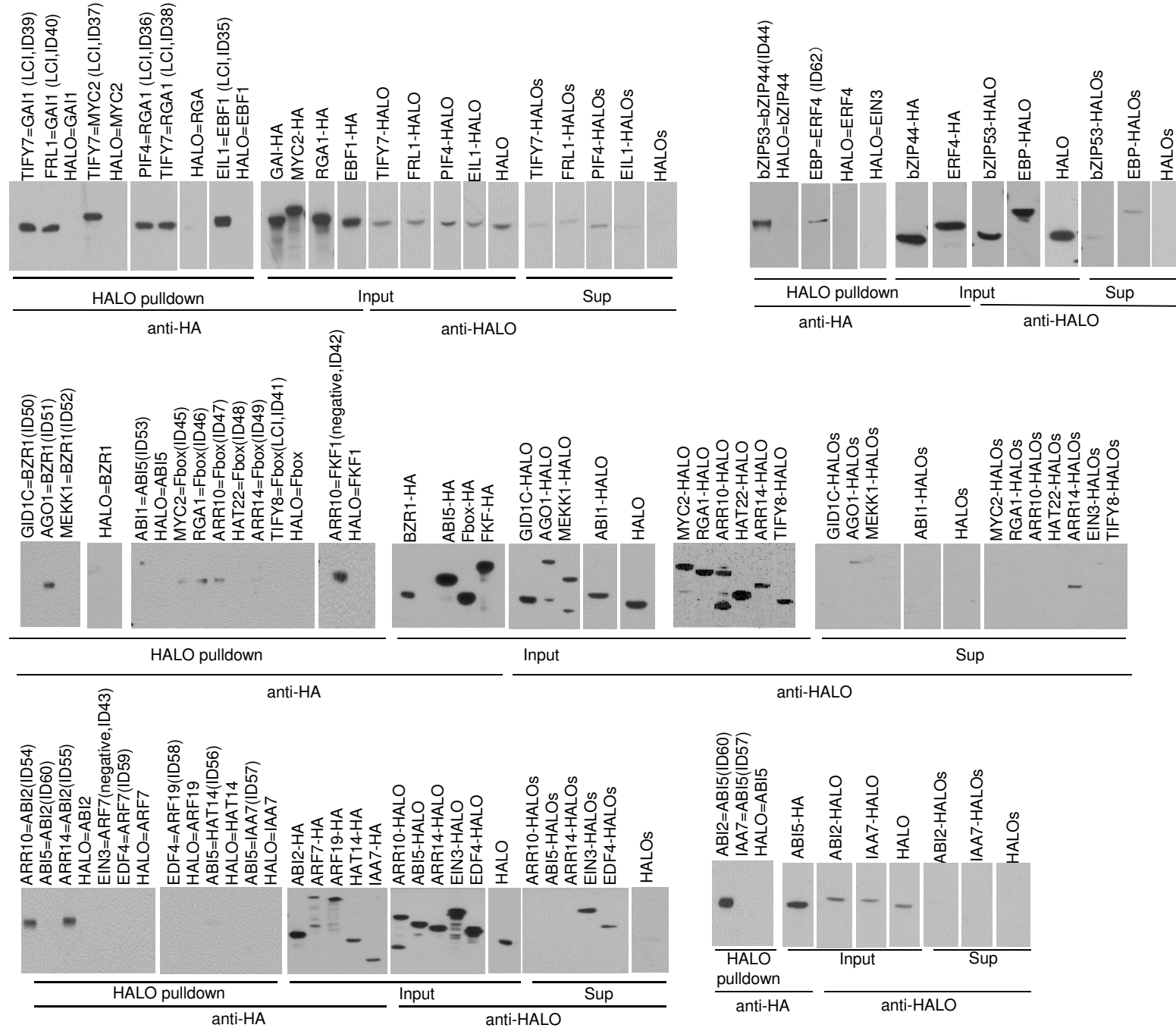
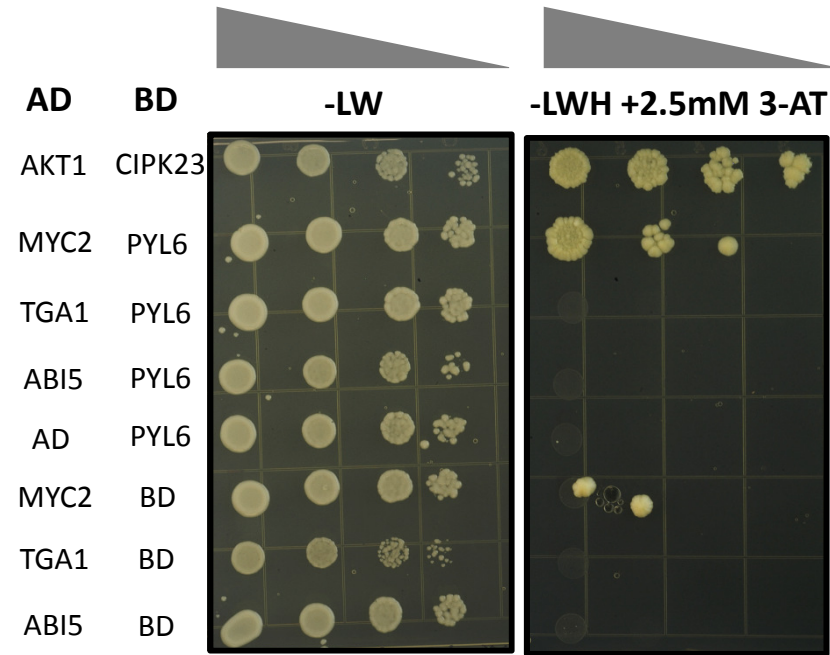
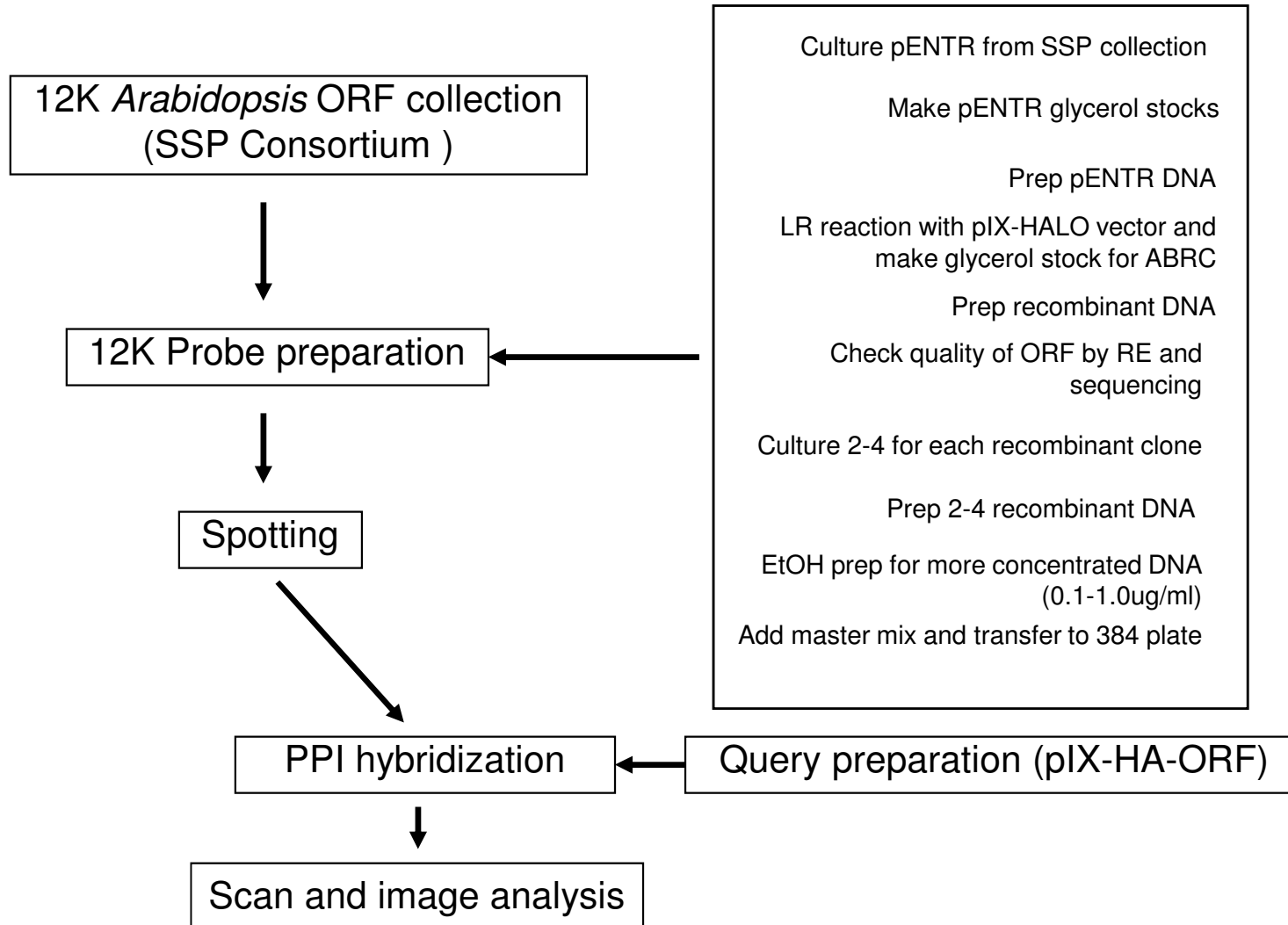


Figure-S6(Ecker)



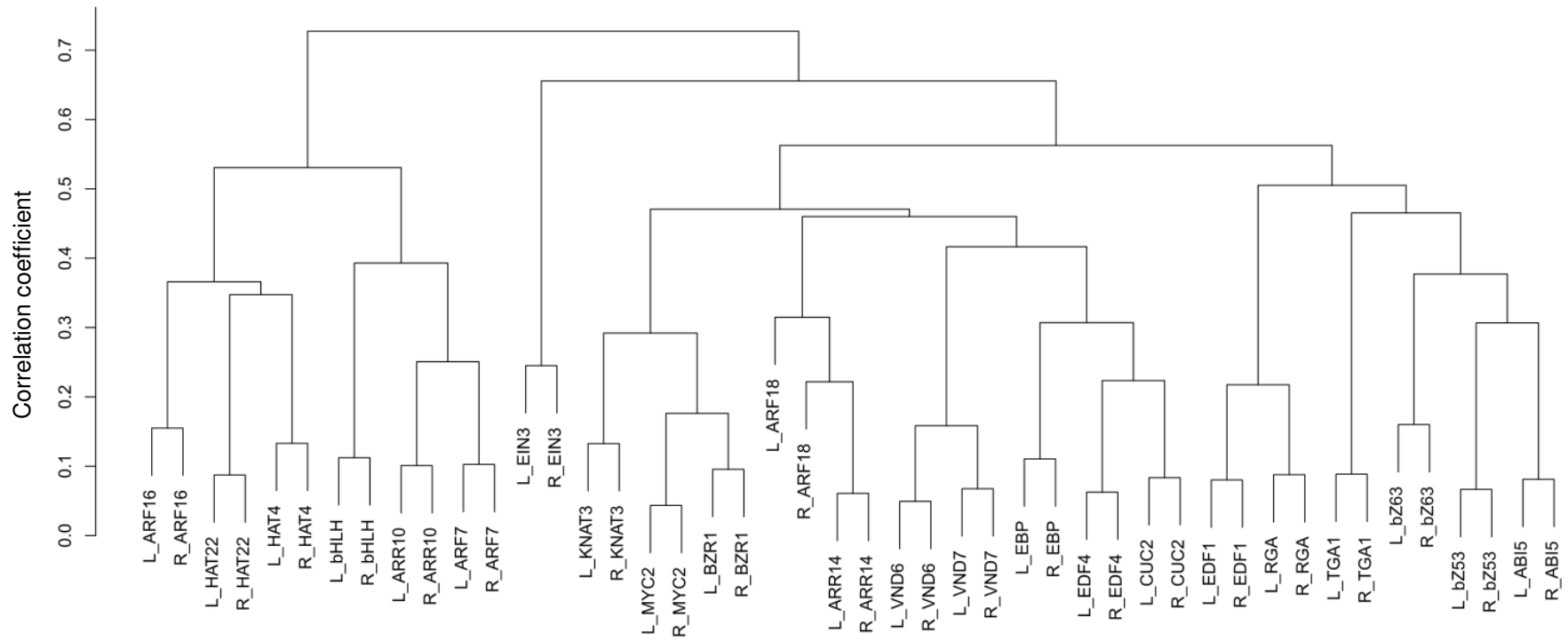
Supplementary Figure 6: Yeast two hybrid assay validation for PYL6 interactors. Three candidates from TF-NAPPA array (MYC2, ABI5 and TGA1) were cloned in the AD vector pGAD.GH and tested against PYL6 cloned in the BD vector pGBT9.BS. Each pair of constructs were introduced in the yeast strain PJ69-4A, and 5 μ L of 1/10 dilution series were spotted in SD media without Leucine and Tryptophan (left, cotransformation control), and in a triple drop-out media without Leucine, Tryptophan and Histidine plus 2.5 mM of 3-amino-1,2,4-triazole (right). Negative controls (interaction with empty vector) were also spotted at the bottom, and positive control interactors (AD-AKT1 and BD-CIPK23) were spotted at the top. Plates were grown at 30 $^{\circ}$ C for 13 days.

Figure-S7(Ecker)



Supplementary Figure 7: Pipeline for production of high-density HaloTag-NAPPA arrays and subsequent protein-protein interaction screening.

Figure-S8(Ecker)



Supplementary Figure 8: Duplicate spots on HaloTag-NAPPA arrays (AtNAPPA03) showed high correlation. L, left side replicate spot; R, right side replicate spot.