

Fuzzy Integral Similarity for TFBSs. Additional File 3. Jaspar Clustering

Jaspar clustering

In this section we describe the results obtained for the application of kmeans to the Jaspar motifs:

All five TRPs motifs are contained in two homogeneous clusters with two and three motifs. Five of ten BHLHs motifs form one homogeneous cluster. Four of the remaining five BHLHs are grouped together with one ETS motif. All six remaining ETSs motifs form one cluster together with three of four bZIP EBP's motifs. Four of five MADSs motifs are grouped in one homogeneous cluster. The remaining MADS motif is contained in one cluster together with five of six HOMEOS motifs. There exists one heterogeneous cluster formed by the remaining HOMEOS motif, one HMG motif and one FORKHEAD motif. Four of the remaining five HMGs motifs are grouped in two homogeneous clusters of two motifs each. Five of the remaining six FORKHEAD motifs form one homogeneous cluster. Seven of eight NUCLEAR motifs form one homogeneous cluster. Finally, all five bZIP CREBs motifs form one homogeneous cluster, and all six RELs motifs form two homogeneous clusters with four and two motifs. Figure 1 shows the clustering result. Logos for the different clusters can be found in the next section. As a summary, ten out of 15 of the obtained clusters are homogeneous, while eight motifs are not clustered and are considered as outliers.

1	IRF1-TRP-CLUSTER	IRF2-TRP-CLUSTER																		
2	Dorsal_2-REL	REL-REL	NF-kappaB-REL	NFKB1-REL																
3	FOXP2-FORKHEAD	FOXP1-FORKHEAD	FOXP1-FORKHEAD	FOXP1-FORKHEAD	FOXP1-FORKHEAD															
4	SRX-HMG	Sox5-HMG																		
5	Amt-bHLH	MAX-bHLH-ZIP	MYC-MAX-bHLH-ZIP	USF1-bHLH-ZIP	Myx-bHLH-ZIP															
6	GAMYB-TRP-CLUSTER	MYB.ph3-TRP-CLUSTER	Myb-TRP-CLUSTER																	
7	AGL3-MADS	Agamous-MADS	SQUA-MADS	SRE-MADS																
8	Dorsal_1-REL	RELA-REL																		
9	CFI-USP-NUCLEAR	NR2F1-NUCLEAR	PPARG-RXR-NUCLEAR	PPARG-NUCLEAR	RORA-NUCLEAR	RDRA1-NUCLEAR	ROR-NUCLEAR													
10	SOX9-HMG	Sox17-HMG																		
11	CREB1-bZIP	bZIP910-bZIP	bZIP911-bZIP	TCF11-MafG-bZIP																
12	En1-HOMEO	HMG-1-HMG	FOXP1-FORKHEAD																	
13	Amt-Ahr-bHLH	NHLH1-bHLH	Myf6-bHLH	TAL1-TCF3-bHLH	SP1B-ETS															
14	Athb-1-HOMEO-ZIP	TCF1-HOMEO	Prrx2-HOMEO	Ubx-HOMEO	Nfix2-5-HOMEO	MEF2A-MADS														
15	NFIL3-bZIP	HLP-bZIP	EBF1-bZIP	E74A-ETS	ELK1-ETS	GABPA-ETS	ELK4-ETS	SP1-ETS	c-ETS-ETS											

Figure 1: Clusters obtained by kmeans for the Jaspar motifs. The motifs that share the same background color belong to the same Jaspar family.

Logos of the clustering

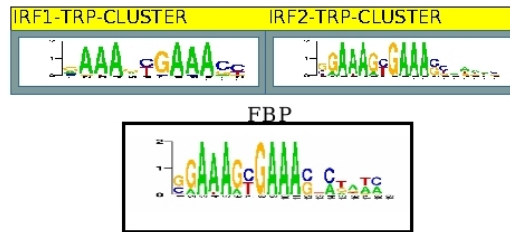


Figure 2: Cluster 1

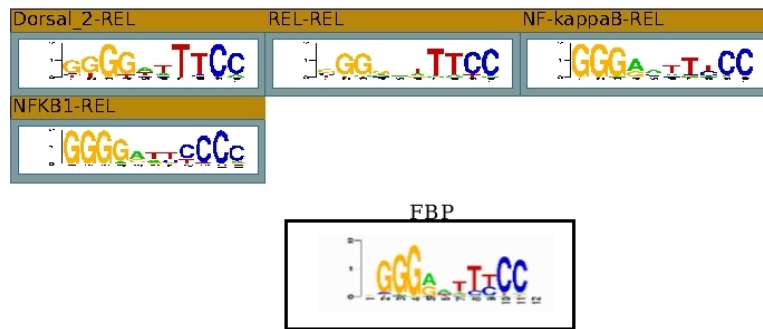


Figure 3: Cluster 2

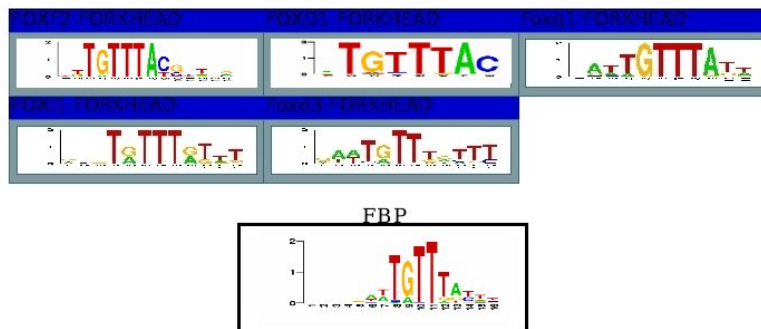


Figure 4: Cluster 3

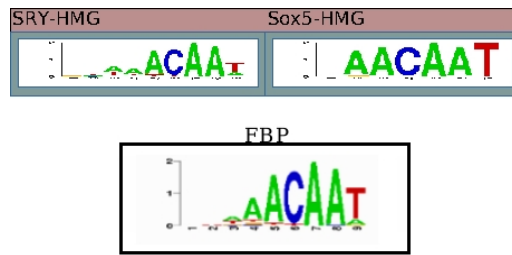


Figure 5: Cluster 4

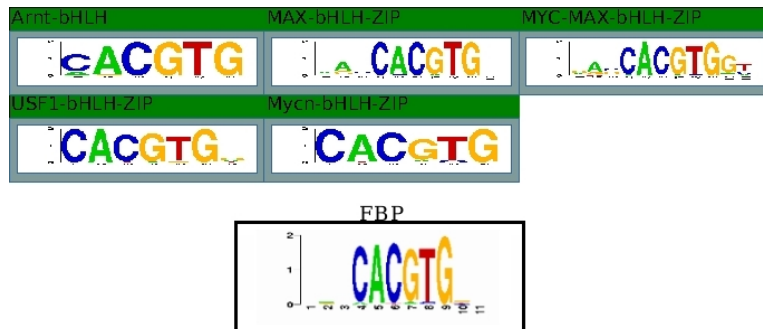


Figure 6: Cluster 5

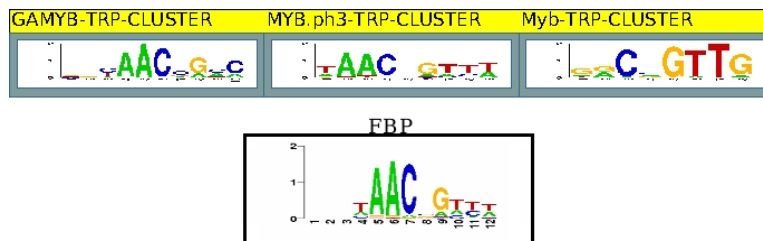


Figure 7: Cluster 6

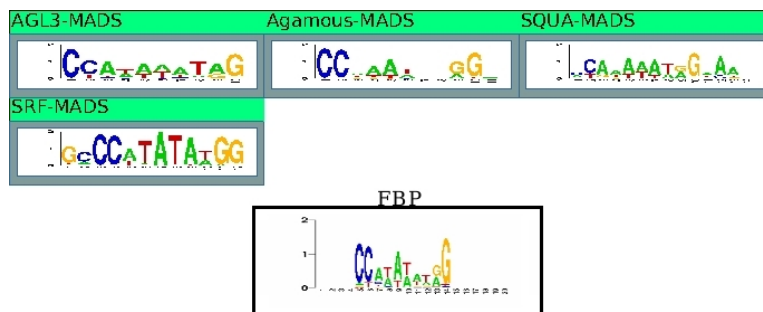


Figure 8: Cluster 7

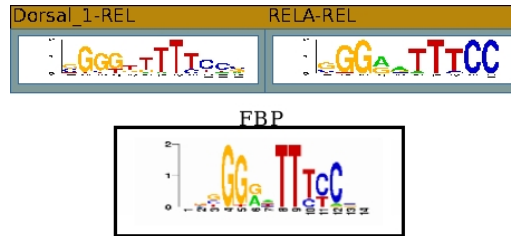


Figure 9: Cluster 8

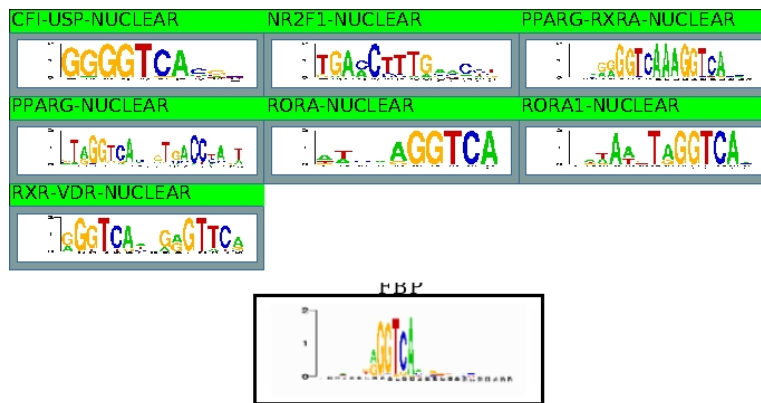


Figure 10: Cluster 9

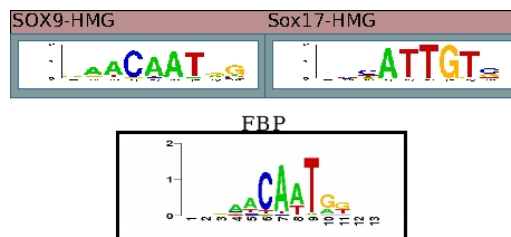


Figure 11: Cluster 10

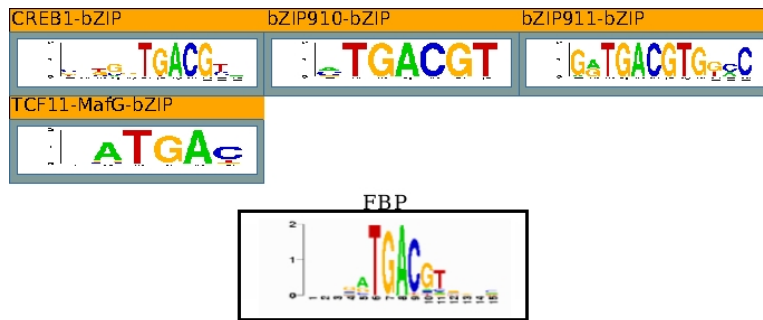


Figure 12: Cluster 11

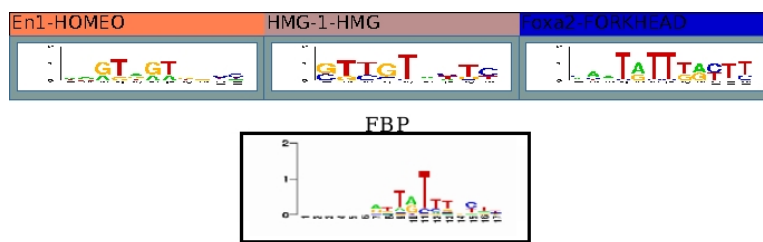


Figure 13: Cluster 12

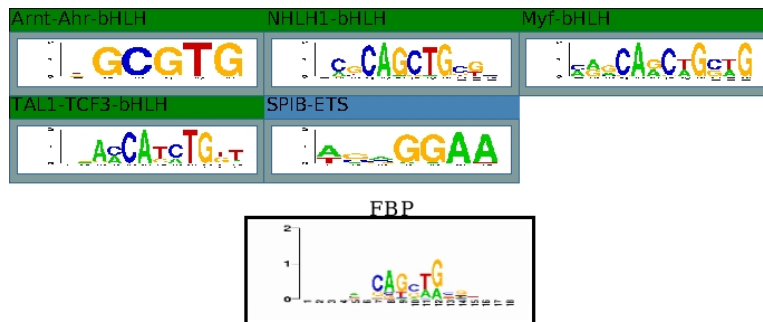


Figure 14: Cluster 13

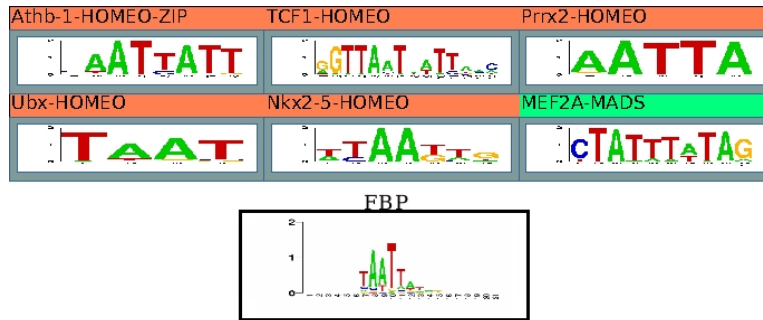


Figure 15: Cluster 14

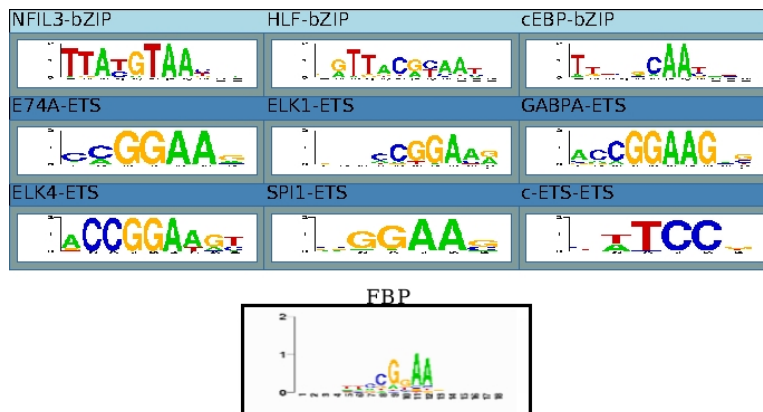


Figure 16: Cluster 15