

# Supplementary Figure 5

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##load the library	
library(motifStack)	

### data import and get the unique motifs in mammals or fruit fly

We use getRankedUniqueMotifs function to calculate the unique motifs only existing in mammals or fruit fly. Here both matAlign and MotIV are used for motif alignment, because the shortages of each alignment method could be compensated by different alignment methods.

```
getmatAlignOut <- function(pfms, pcmpath, outpath="output"){
  matAlign_path <- "./app/matAlign-v4a"
  neighbor_path <- "./app/neighbor.app/Contents/MacOS/neighbor"
  system(paste("perl matAlign2tree.pl --in . --pcmpath", pcopath,
              "--out", outpath,
              "--matAlign", matAlign_path,
              "--neighbor", neighbor_path,
              "--tree","UPGMA"))

  newickstrUPGMA <-
    readLines(con=file.path(outpath, "NJ.matAlign.distMX.nwk"))
  phylog <- newick2phylog(newickstrUPGMA, FALSE)
  leaves <- names(phylog$leaves)
  motifs <- pfms[leaves]
  return(list(phylog=phylog,
              motifs=DNAmotifAlignment(motifs),
              leaves=leaves,
              unaligned.pfms=motifs))
}

getMotIVOut <- function(pfms, cc, align){
  pfmList2matrixList <- function(pfms){
    m <- lapply(pfms, function(.ele) as(.ele, "matrix"))
    names(m) <- unlist(lapply(pfms, function(.ele) .ele$name))
    m
  }
  jaspar.scores <-
    MotIV::readDBScores(
      file.path(".", "app", "scores",
                paste("JaspRand_", cc, "_", align, ".scores", sep="")))
  d <- MotIV::motifDistances(pfmList2matrixList(pfms),
                             cc=cc, align=align)
  hc <- MotIV::motifHclust(d)
  phylog <- hclust2phylog(hc)
  leaves <- names(phylog$leaves)
```

```

motifs <- pfms[hc$order]
return(list(phylog=phylog,
           motifs=DNAmotifAlignment(motifs),
           leaves=leaves,
           unaligned.pfms=motifs))
}

colorSet <- c("Dm"="#00FC00",
            "Mm"="brown", "Ms"="#F69156",
            "Hs"="#D900D9")

pcmpath <- "pcmsDatasetALL"
pcms <- readPCM(pcmpath)
pfms<-lapply(pcms,pcm2pfm)

matAlignOut <- getmatAlignOut(pfms, pcpath)
species <- factor(gsub("(Dm|Mm|Ms|Hs).*$", "\\\\$1", matAlignOut$leaves))
leaveNames.matAlign <- gsub("(Dm|Mm|Ms|Hs)_", "", matAlignOut$leaves)
species.col.matAlign <- species
levels(species.col.matAlign) <- colorSet[levels(species)]
species.col.matAlign <- as.character(species.col.matAlign)
species.matAlign <- species.col.matAlign
species.matAlign[species.matAlign %in% colorSet[c("Mm", "Ms", "Hs")]] <- "m" #mammalian
species.matAlign[species.matAlign==colorSet["Dm"]] <- "d" #fly
matAlignL <- getRankedUniqueMotifs(matAlignOut$phylog, species.matAlign)

motIVOut <- getMotIVOut(pfms, "ALLR", "SWU")
species <- factor(gsub("(Dm|Mm|Ms|Hs).*$", "\\\\$1", motIVOut$leaves))
leaveNames.motIV <- gsub("(Dm|Mm|Ms|Hs)_", "", motIVOut$leaves)
species.col.motIV <- species
levels(species.col.motIV) <- colorSet[levels(species)]
species.col.motIV <- as.character(species.col.motIV)
species.motIV <- species.col.motIV
species.motIV[species.motIV %in% colorSet[c("Mm", "Ms", "Hs")]] <- "m"
species.motIV[species.motIV==colorSet["Dm"]] <- "d"
motIVoutL <- getRankedUniqueMotifs(motIVOut$phylog, species.motIV)

```

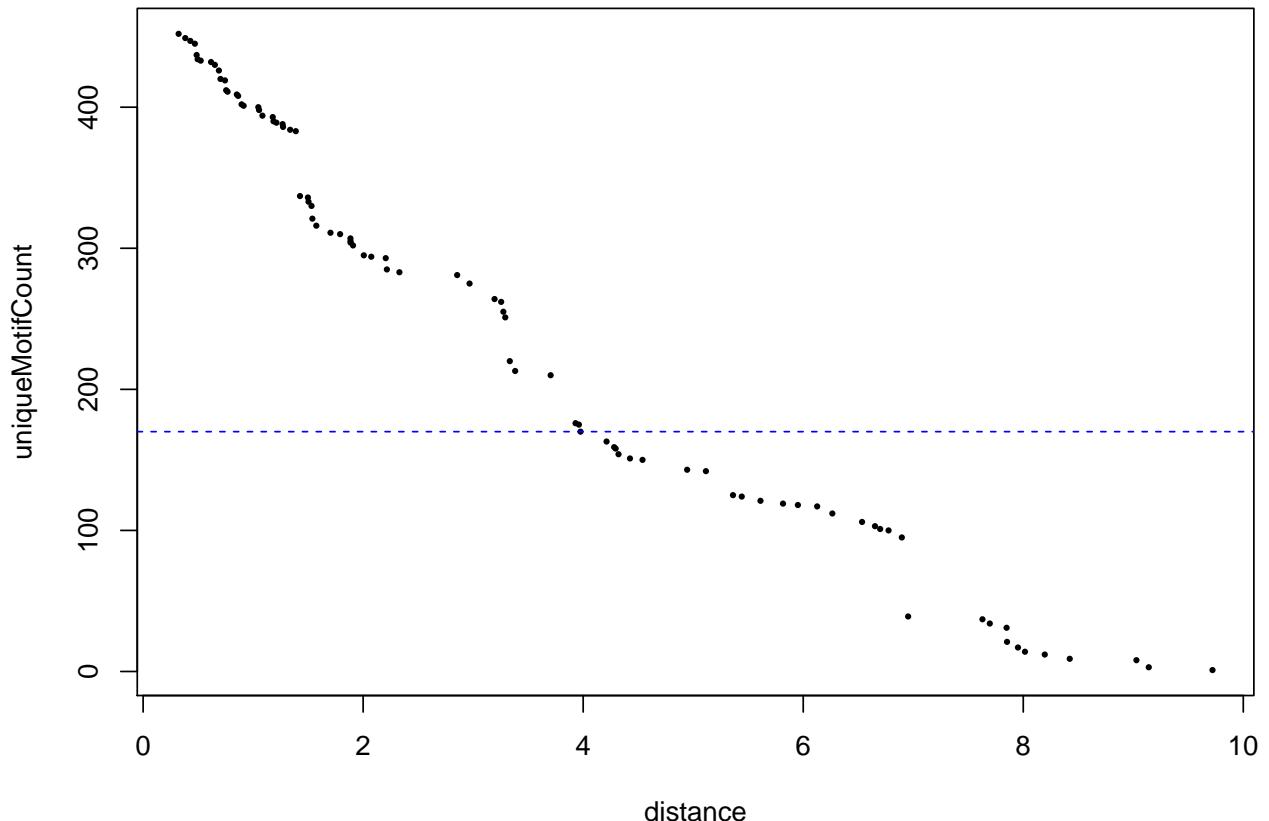
We select close number counts of unique motifs by both methods.

```

plot(matAlignL$uni.length, pch=16, cex=.5, main="matAlign")
abline(h = 170, lty=2, col="blue")

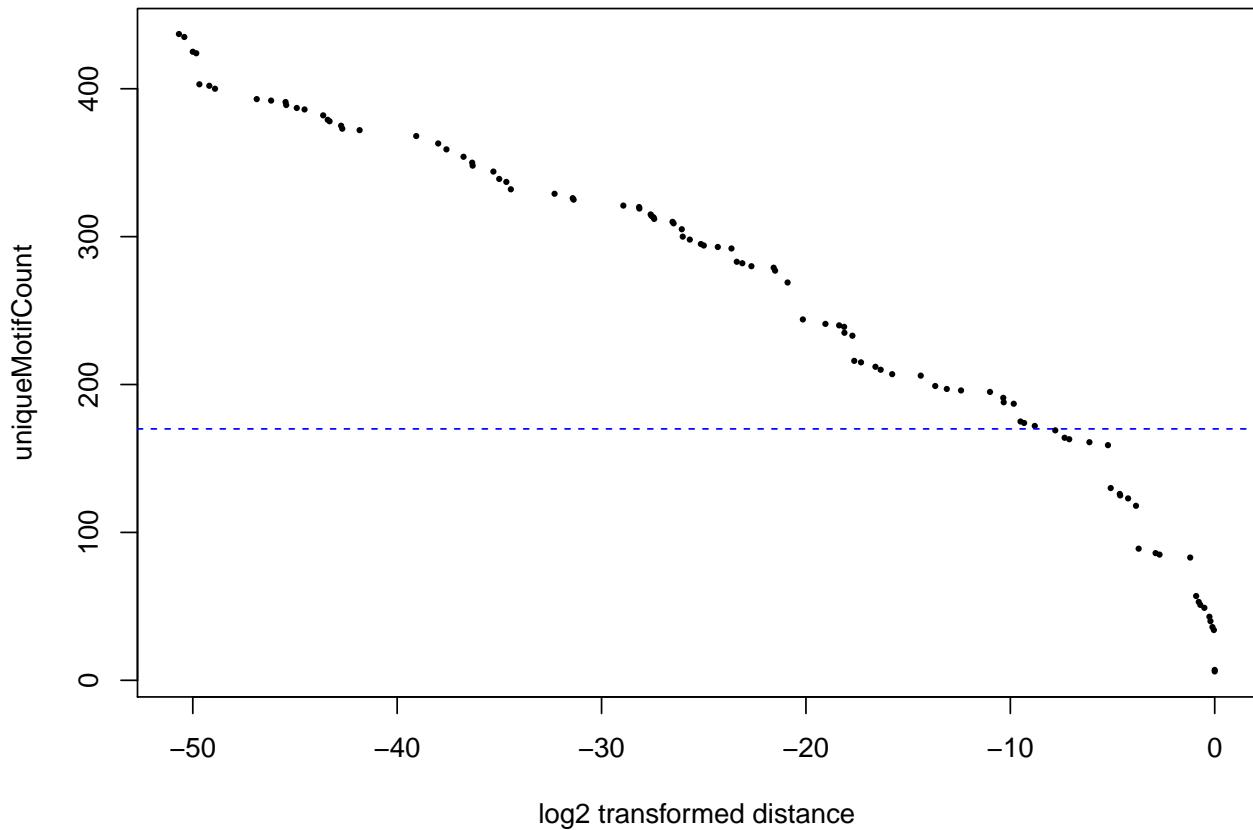
```

## matAlign



```
uni.length <- motIVoutL$uni.length  
uni.length[, 1] <- log2(uni.length[, 1])  
plot(uni.length, pch=16, cex=.5, main="motIV", xlab="log2 transformed distance")  
abline(h = 170, lty=2, col="blue")
```

## motIV



Here we merged the results from different alignment methods.

```
prettyNum(matAlignL$uni.length[matAlignL$uni.length[, "uniqueMotifCount"]==170,])

##           distance uniqueMotifCount
##      "3.97602"          "170"

prettyNum(motIVoutL$uni.length[abs(
  motIVoutL$uni.length[, "uniqueMotifCount"]-170)<2,])

##           distance uniqueMotifCount
##      "0.004479258"        "169"

matAlignSig <- motifSignature(matAlignOut$unaligned.pfms,
                                matAlignOut$phylog,
                                groupDistance=4, min.freq=1)
motIVSig <- motifSignature(motIVOut$unaligned.pfms,
                            matIVOut$phylog,
                            groupDistance=0.005, min.freq=1)
library(reshape2)
matAlign.sig4 <-
  melt(lapply(signatures(matAlignSig),
             function(.ele){unlist(strsplit(.ele$name, ";"))}))
motIV.sig.005 <-
  melt(lapply(signatures(motIVSig),
             function(.ele){unlist(strsplit(.ele$name, ";"))}))
```

```

rank.name <- union(names(matAlignL$uni.rank), names(motIVoutL$uni.rank))
rank <- cbind(matAlignL$uni.rank[rank.name],
              motIVoutL$uni.rank[rank.name])
rownames(rank) <- rank.name
colnames(rank) <- c("matAlign.rank", "motIV.rank")
rank <- rank[order(rowSums(rank)),]
rank <- cbind(rank, "rank"=1:nrow(rank))
rank <- cbind(rank,
              matAlign.Sig_gpDis.4=
                matAlign.sig4[match(rownames(rank),
                                    matAlign.sig4[,1]), 2],
              motIV.Sig_gpDis.0.005=
                motIV.sig.005[match(rownames(rank),
                                    motIV.sig.005[,1]), 2])
rank <- as.data.frame(rank)
rank <-
  cbind(rank,
        motifNameInFigure=gsub("_", " ", gsub("^.._ ", "", rownames(rank))))
head(rank)

##          matAlign.rank motIV.rank rank matAlign.Sig_gpDis.4
## Hs_LHX6_M7192           32       8   1             47
## Hs_PDX1_M7304           32       8   2             34
## Ms_Lhx8_M7634           32       8   3             34
## Hs_HOMEZ_M7122          13      35   4             29
## Mm_Homez                 13      35   5             29
## Mm_Dobox4                 4      52   6             44
##          motIV.Sig_gpDis.0.005 motifNameInFigure
## Hs_LHX6_M7192           29       LHX6 M7192
## Hs_PDX1_M7304           29       PDX1 M7304
## Ms_Lhx8_M7634           29       Lhx8 M7634
## Hs_HOMEZ_M7122          35       HOMEZ M7122
## Mm_Homez                 35       Homez
## Mm_Dobox4                 55       Dobox4

```

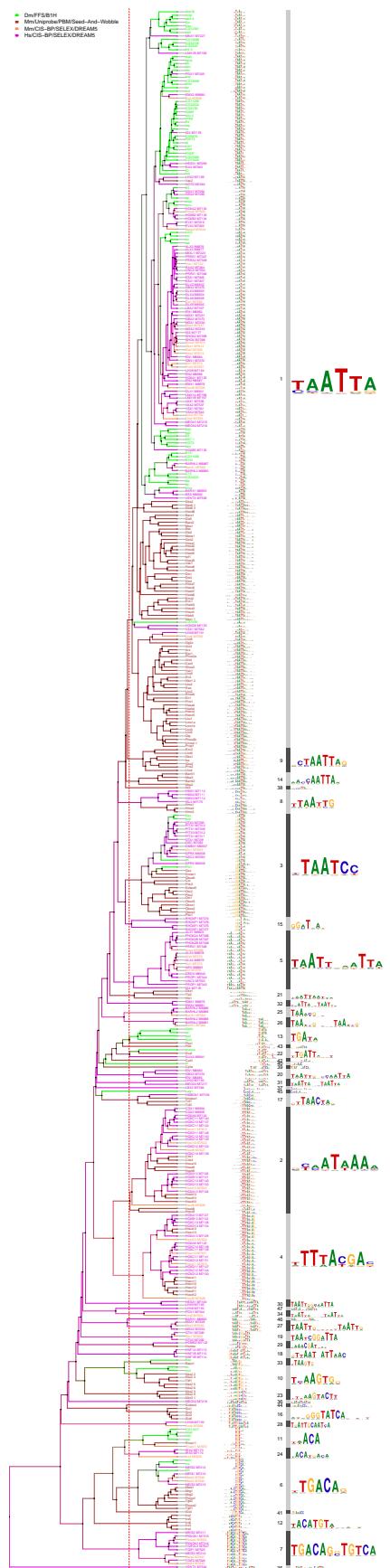
## motif piles

Here is the output of all the motifs by matAlign.

```

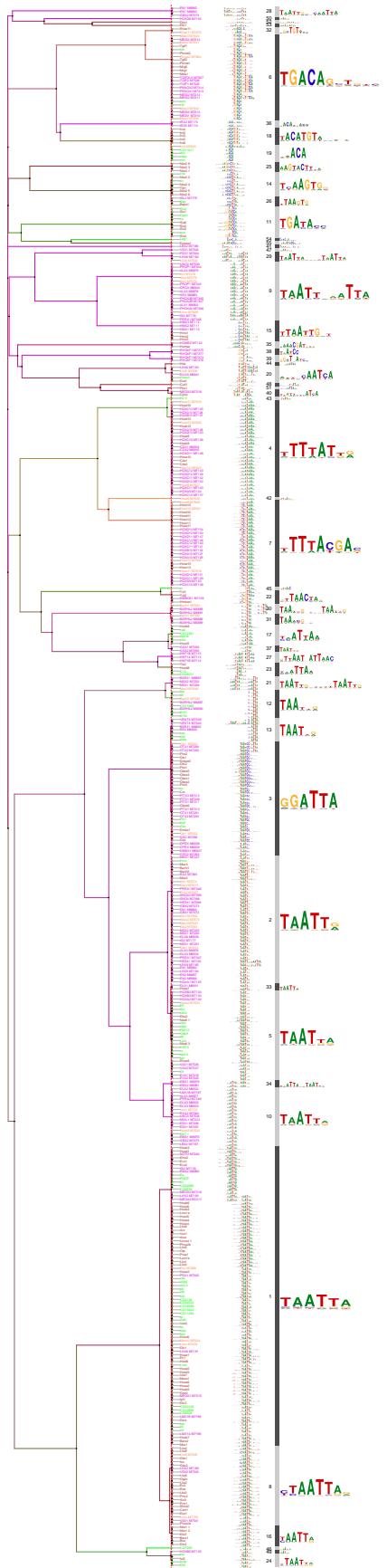
motifPiles(phylog=matAlignOut$phylog, matAlignOut$motifs,
            signatures(matAlignSig),
            col.tree=species.col.matAlign, col.leaves=species.col.matAlign,
            col.pfms2=sigColor(matAlignSig),
            col.pfms2.width=.01, labels.leaves=leaveNames.matAlign,
            plotIndex=c(F,TRUE), IndexCex=1,
            groupDistance=4, clabel.leaves=.6)
legend("topleft",
       legend=c("Dm/FFS/B1H",
               "Mm/Uniprobe/PBM/Seed-And-Wobble",
               "Mm/CIS-BP/SELEX/DREAM5",
               "Hs/CIS-BP/SELEX/DREAM5"),
       fill= colorSet[c("Dm", "Mm", "Ms", "Hs")],
       border="white", lty=NULL, bty = "n")

```



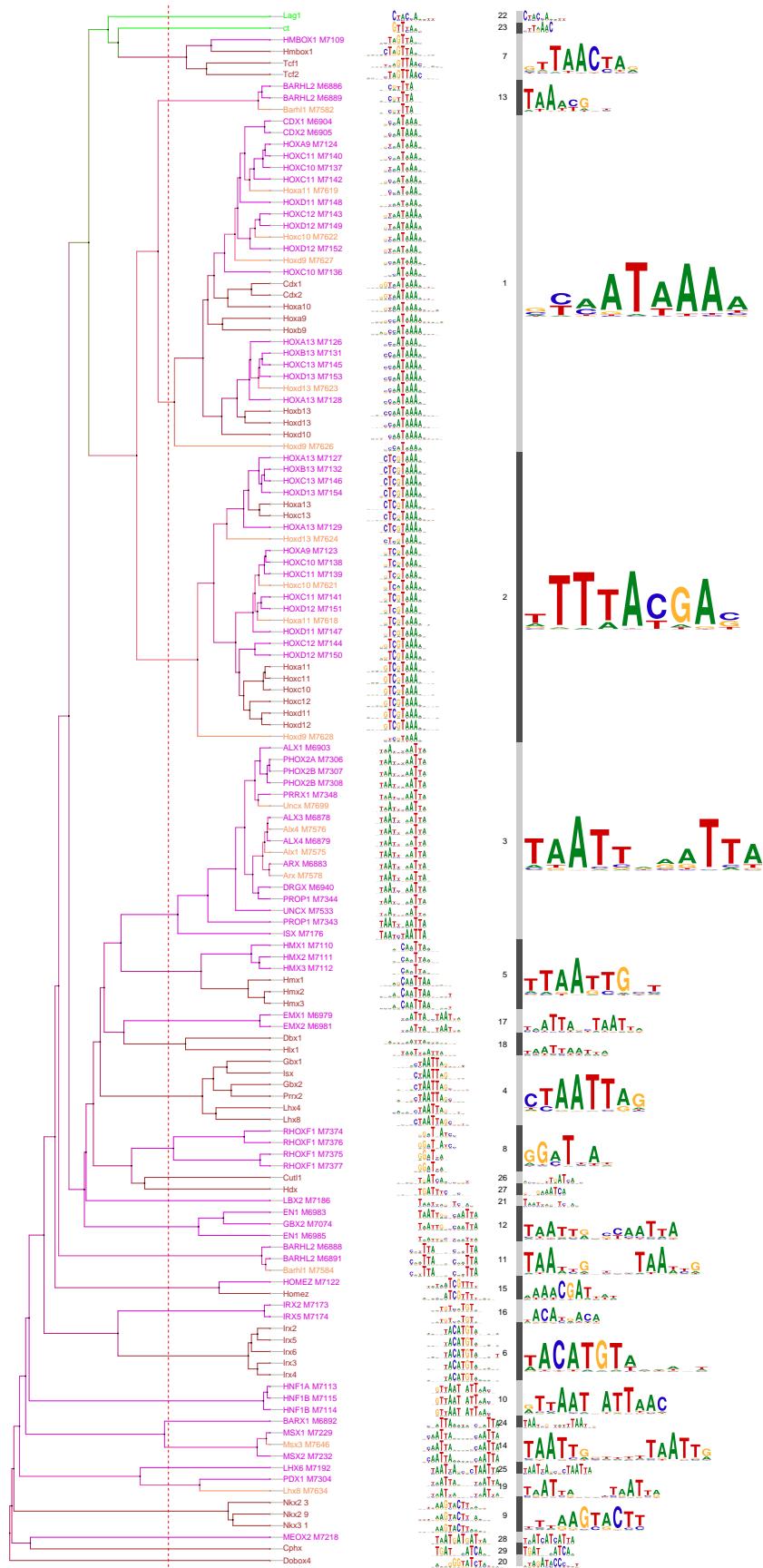
Here is the output of all the motifs by motIV.

```
motifPiles(phylog=motIVOut$phylog, motIVOut$motifs,
            signatures(motIVSig),
            col.tree=species.col.motIV, col.leaves=species.col.motIV,
            col.pfms=sigColor(motIVSig),
            col.pfms2.width=.01, labels.leaves=leaveNames.motIV,
            plotIndex=c(F,TRUE), IndexCex=1,
            groupDistance=0.005, clabel.leaves=.6)
```



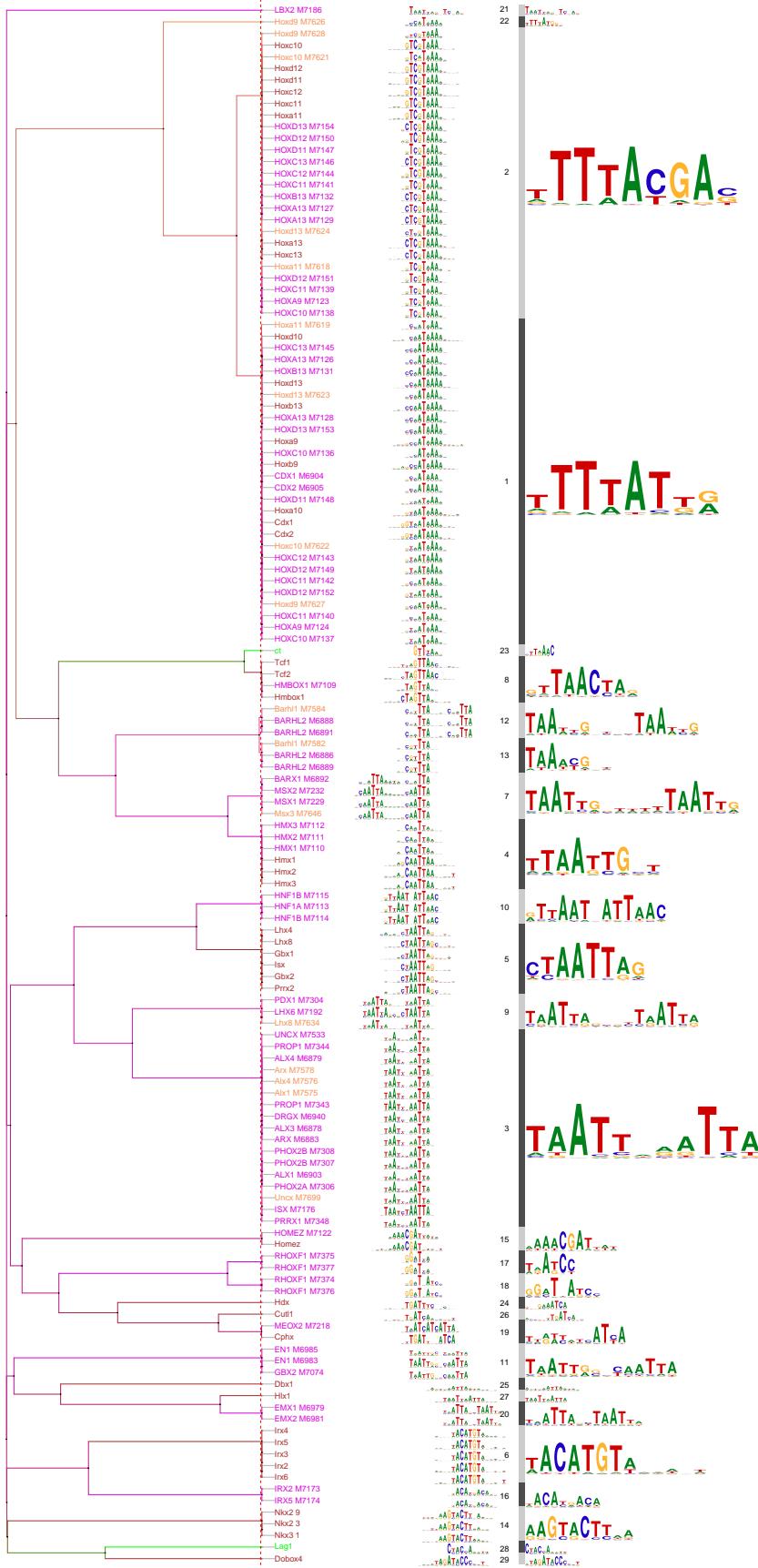
Here is the output of unique motifs aligned by matAlign.

```
uni <- intersect(
  matAlignL$uni.list[[paste("dist_",
    matAlignL$uni.length[
      matAlignL$uni.length[, "uniqueMotifCount"]==170, 1],
    sep="")]],
  motIVoutL$uni.list[[paste("dist_",
    motIVoutL$uni.length[abs(
      motIVoutL$uni.length[, "uniqueMotifCount"]-170)<2, 1],
    sep="")]]])
uniPath <- "pcmsDatasetUni_matAlign.4_motIV.005"
dir.create(uniPath, showWarnings=FALSE)
sta <- file.copy(file.path(pcopath, paste(uni, "pcm", sep=".")),
  file.path(uniPath, paste(uni, "pcm", sep=".")))
uni.pcms <- readPCM(uniPath)
uni.pfms<-lapply(uni.pcms,pcm2pfm)
gpDis <- 4
uni.matAlign <- getmatAlignOut(uni.pfms, uniPath)
uni.matAlignSig <- motifSignature(uni.matAlign$unaligned.pfms,
  uni.matAlign$phylog,
  groupDistance=gpDis, min.freq=1)
species <- factor(gsub("(Dm|Mm|Ms|Hs).*", "\\\1", uni.matAlign$leaves))
levels(species) <- colorSet[c("Dm", "Hs", "Mm", "Ms")]
species <- as.character(species)
leaveNames <- gsub("(Dm|Mm|Ms|Hs)_", "", uni.matAlign$leaves)
motifPiles(uni.matAlign$phylog,
  uni.matAlign$motifs,
  signatures(uni.matAlignSig),
  col.tree=species, col.leaves=species,
  col.pfms2=sigColor(uni.matAlignSig),
  col.pfms2.width=.01,
  labels.leaves=leaveNames,
  plotIndex=c(F,TRUE), IndexCex=1,
  groupDistance=gpDis, clabel.leaves=1)
```



Here is the output of unique motifs aligned by motIV.

```
cc <- "ALLR"
align <- "SWU"
gpDis <- 0.005
uni.motIV <- getMotIVOut(uni.pfms, cc, align)
uni.motIVSig <- motifSignature(uni.motIV$unaligned.pfms,
                                uni.motIV$phylog,
                                groupDistance=gpDis, min.freq=1)
species <- factor(gsub("^(Dm|Mm|Ms|Hs).*$", "\\\1", uni.motIV$leaves))
levels(species) <- colorSet[c("Dm", "Hs", "Mm", "Ms")]
species <- as.character(species)
leaveNames <- gsub("^(Dm|Mm|Ms|Hs)_", "", uni.motIV$leaves)
motifPiles(uni.motIV$phylog,
            uni.motIV$motifs,
            signatures(uni.motIVSig),
            col.tree=species, col.leaves=species,
            col.pfms2=sigColor(uni.motIVSig),
            col.pfms2.width=.01,
            labels.leaves=leaveNames,
            plotIndex=c(F,TRUE), IndexCex=1,
            groupDistance=gpDis, clabel.leaves=1)
```



## rank list

```

uni.matAlign.sig4 <-
  melt(lapply(signatures(uni.matAlignSig),
              function(.ele){unlist(strsplit(.ele$name, ";"))}))
uni.motIV.sig.005 <-
  melt(lapply(signatures(uni.motIVSig),
              function(.ele){unlist(strsplit(.ele$name, ";"))}))
rank <- cbind(rank,
               uni.matAlign.Sig_gpDis.4=
                 uni.matAlign.sig4[match(rownames(rank),
                                         uni.matAlign.sig4[,1]), 2],
               uni.motIV.Sig_gpDis.0.005=
                 uni.motIV.sig.005[match(rownames(rank),
                                         uni.motIV.sig.005[,1]), 2])
rank

##                                     matAlign.rank motIV.rank rank matAlign.Sig_gpDis.4
## Hs_LHX6_M7192                  32          8    1           47
## Hs_PDX1_M7304                  32          8    2           34
## Ms_Lhx8_M7634                  32          8    3           34
## Hs_HOMEZ_M7122                  13         35    4           29
## Mm_Homez                         13         35    5           29
## Mm_Dobox4                        4          52    6           44
## Hs_ME0X2_M7218                  9          54    7           36
## Mm_Nkx2_3                        35         41    8           23
## Mm_Nkx2_9                        35         41    9           23
## Mm_Nkx3_1                        35         41   10           23
## Hs_HNF1A_M7113                  10         87   11           18
## Hs_HNF1B_M7114                  10         87   12           18
## Hs_HNF1B_M7115                  10         87   13           18
## Hs_HOXA13_M7127                  40         58   14            4
## Hs_HOXA13_M7129                  40         58   15            4
## Hs_HOXA9_M7123                  40         58   16            4
## Hs_HOXB13_M7132                  40         58   17            4
## Hs_HOXC10_M7138                  40         58   18            4
## Hs_HOXC11_M7139                  40         58   19            4
## Hs_HOXC11_M7141                  40         58   20            4
## Hs_HOXC12_M7144                  40         58   21            4
## Hs_HOXC13_M7146                  40         58   22            4
## Hs_HOXD11_M7147                  40         58   23            4
## Hs_HOXD12_M7150                  40         58   24            4
## Hs_HOXD12_M7151                  40         58   25            4
## Hs_HOXD13_M7154                  40         58   26            4
## Mm_Hoxa11                         40         58   27            4
## Mm_Hoxa13                         40         58   28            4
## Mm_Hoxc10                         40         58   29            4
## Mm_Hoxc11                         40         58   30            4
## Mm_Hoxc12                         40         58   31            4
## Mm_Hoxc13                         40         58   32            4
## Mm_Hoxd11                         40         58   33            4
## Mm_Hoxd12                         40         58   34            4
## Ms_Hoxa11_M7618                  40         58   35            4
## Ms_Hoxc10_M7621                  40         58   36            4

```

## Ms_Hoxd13_M7624	40	58	37	4
## Ms_Hoxd9_M7626	40	58	38	2
## Ms_Hoxd9_M7628	40	58	39	4
## Hs_EN1_M6983	104	1	40	20
## Hs_EN1_M6985	104	1	41	20
## Hs_GBX2_M7074	104	1	42	20
## Hs_LBX2_M7186	101	7	43	37
## Mm_Dbx1	122	1	44	21
## Mm_Hlx1	122	1	45	21
## Hs_ALX1_M6903	126	8	46	5
## Hs_ALX3_M6878	126	8	47	5
## Hs_ALX4_M6879	126	8	48	5
## Hs_ARX_M6883	126	8	49	5
## Hs_DRGX_M6940	126	8	50	5
## Hs_ISX_M7176	126	8	51	5
## Hs_PHOX2A_M7306	126	8	52	5
## Hs_PHOX2B_M7307	126	8	53	5
## Hs_PHOX2B_M7308	126	8	54	5
## Hs_PROP1_M7343	126	8	55	5
## Hs_PROP1_M7344	126	8	56	5
## Hs_PRRX1_M7348	126	8	57	5
## Hs_UNCX_M7533	126	8	58	5
## Ms_Alx1_M7575	126	8	59	5
## Ms_Alx4_M7576	126	8	60	5
## Ms_Arx_M7578	126	8	61	5
## Ms_Uncx_M7699	126	8	62	5
## Hs_BARX1_M6892	18	127	63	46
## Hs_MSX1_M7229	18	127	64	27
## Hs_MSX2_M7232	18	127	65	27
## Ms_Msx3_M7646	18	127	66	27
## Hs_BARHL2_M6886	107	44	67	25
## Hs_BARHL2_M6888	107	44	68	26
## Hs_BARHL2_M6889	107	44	69	25
## Hs_BARHL2_M6891	107	44	70	26
## Ms_Barhl1_M7582	107	44	71	25
## Ms_Barhl1_M7584	107	44	72	26
## Hs_HMX1_M7110	144	8	73	8
## Hs_HMX2_M7111	144	8	74	8
## Hs_HMX3_M7112	144	8	75	8
## Mm_Hmx1	144	8	76	8
## Mm_Hmx2	144	8	77	8
## Mm_Hmx3	144	8	78	8
## Dm_Lag1	113	52	79	45
## Hs_CDX1_M6904	40	131	80	2
## Hs_CDX2_M6905	40	131	81	2
## Hs_HOXA13_M7126	40	131	82	2
## Hs_HOXA13_M7128	40	131	83	2
## Hs_HOXA9_M7124	40	131	84	2
## Hs_HOXB13_M7131	40	131	85	2
## Hs_HOXC10_M7136	40	131	86	2
## Hs_HOXC10_M7137	40	131	87	2
## Hs_HOXC11_M7140	40	131	88	2
## Hs_HOXC11_M7142	40	131	89	2
## Hs_HOXC12_M7143	40	131	90	2

## Hs_HOXC13_M7145	40	131	91	2
## Hs_HOXD11_M7148	40	131	92	2
## Hs_HOXD12_M7149	40	131	93	2
## Hs_HOXD12_M7152	40	131	94	2
## Hs_HOXD13_M7153	40	131	95	2
## Mm_Cdx1	40	131	96	2
## Mm_Cdx2	40	131	97	2
## Mm_Hoxa10	40	131	98	2
## Mm_Hoxa9	40	131	99	2
## Mm_Hoxb13	40	131	100	2
## Mm_Hoxb9	40	131	101	2
## Mm_Hoxd10	40	131	102	2
## Mm_Hoxd13	40	131	103	2
## Ms_Hoxa11_M7619	40	131	104	2
## Ms_Hoxc10_M7622	40	131	105	2
## Ms_Hoxd13_M7623	40	131	106	2
## Ms_Hoxd9_M7627	40	131	107	2
## Mm_Cphx	118	54	108	39
## Mm_Cutl1	125	54	109	42
## Hs_RHOXF1_M7374	155	37	110	15
## Hs_RHOXF1_M7375	155	37	111	15
## Hs_RHOXF1_M7376	155	37	112	15
## Hs_RHOXF1_M7377	155	37	113	15
## Hs_LHX6_M7193	2	198	114	28
## Ms_Lhx8_M7636	2	198	115	28
## Hs_IRX2_M7173	152	50	116	24
## Hs_IRX5_M7174	152	50	117	24
## Hs_HOXD8_M7155	211	1	118	1
## Hs_VSX1_M7542	211	8	119	1
## Mm_Pbx1	171	54	120	13
## Hs_MEIS3_M7214	22	208	121	7
## Ms_Meis2_M7641	22	208	122	7
## Ms_Meis3_M7643	22	208	123	7
## Hs_HMBOX1_M7109	113	119	124	17
## Mm_Hmbox1	113	119	125	17
## Mm_Tcf1	113	119	126	17
## Mm_Tcf2	113	119	127	17
## Hs_HESX1_M7100	38	200	128	30
## Hs_LHX9_M7195	38	200	129	30
## Dm_ct	119	119	130	40
## Hs_EMX1_M6979	120	124	131	32
## Hs_EMX2_M6981	120	124	132	32
## Mm_Gbx1	164	90	133	9
## Mm_Gbx2	164	90	134	9
## Mm_Isx	164	90	135	9
## Mm_Lhx4	164	90	136	9
## Mm_Lhx8	164	90	137	9
## Mm_Prrx2	164	90	138	9
## Hs_OTX1_M7290	15	242	139	19
## Hs_OTX2_M7292	15	242	140	19
## Ms_Otx1_M7652	15	242	141	19
## Mm_Irx2	96	165	142	12
## Mm_Irx3	96	165	143	12
## Mm_Irx4	96	165	144	12

## Mm_Irx5	96	165	145	12
## Mm_Irx6	96	165	146	12
## Mm_Alx3	177	90	147	1
## Mm_Cart1	177	90	148	1
## Mm_En2	177	90	149	1
## Mm_Esx1	177	90	150	1
## Mm_Lbx2	177	90	151	1
## Mm_Lhx2	177	90	152	1
## Mm_Lhx6	177	90	153	1
## Mm_Nkx1_2	177	90	154	1
## Mm_Og2x	177	90	155	1
## Mm_Phox2a	177	90	156	1
## Mm_Prrx1	177	90	157	1
## Mm_Rax	177	90	158	1
## Mm_Shox2	177	90	159	1
## Ms_Lhx8_M7635	177	90	160	1
## Hs_LHX2_M7190	102	170	161	31
## Hs_MEOX2_M7217	102	170	162	31
## Mm_Hdx	151	126	163	43
## Dm(CG7056	211	86	164	1
## Hs_VENTX_M7540	1	299	165	35
## Mm_Barx1	221	90	166	1
## Mm_Bsx	221	90	167	1
## Mm_Dlx2	221	90	168	1
## Mm_Dlx5	221	90	169	1
## Mm_Nkx1_1	221	90	170	1
## Mm_Tlx2	122	197	171	21
## Mm_Rhox11	276	84	172	11
## Ms_Rhox11_M7670	276	84	173	11
## Mm_Rhox6	177	189	174	1
## Mm_Hoxb8	40	327	175	2
## Mm_Six2	4	376	176	16
## Mm_Six3	4	376	177	16
## Mm_Six6	4	376	178	16
## Mm_Hoxa7	221	162	179	1
## Mm_Alx4	177	217	180	1
## Mm_Arx	177	217	181	1
## Mm_Hoxa4	177	217	182	1
## Mm_Hoxb4	177	217	183	1
## Mm_Hoxc4	177	217	184	1
## Mm_Hoxc5	177	217	185	1
## Mm_Lhx1	177	217	186	1
## Mm_Lhx3	177	217	187	1
## Mm_Lhx5	177	217	188	1
## Mm_Lhx9	177	217	189	1
## Mm_Lmx1a	177	217	190	1
## Mm_Lmx1b	177	217	191	1
## Mm_Otp	177	217	192	1
## Mm_Phox2b	177	217	193	1
## Mm_Prox1	177	217	194	1
## Mm_Uncx4_1	177	217	195	1
## Mm_Vsx1	177	217	196	1
## Mm_Hoxb6	221	175	197	1
## Hs_LHX2_M7189	308	90	198	1

## Mm_Msx2	160	245	199	14
## Hs_VSX1_M7541	322	90	200	1
## Hs_VSX2_M7543	322	90	201	1
## Ms_Uncx_M7700	322	90	202	1
## Mm_Six4	143	278	203	41
## Hs_ISL2_M7175	144	283	204	8
## Mm_Hoxc6	221	207	205	1
## Mm_Six1	4	426	206	16
## Hs_LHX6_M7191	177	270	207	1
## Mm_En1	177	270	208	1
## Dm_H2_O	317	131	209	1
## Dm_exd	171	278	210	13
## Ms_Irx3_M7629	152	301	211	24
## Dm_lbe	282	173	212	1
## Dm_lbl	282	173	213	1
## Mm_Barx2	221	236	214	1
## Mm_Hoxb7	221	236	215	1
## Mm_Msx1	221	236	216	1
## Hs_HOXB5_M7135	296	164	217	1
## Mm_Hoxb3	221	240	218	1
## Hs_ME0X2_M7216	303	170	219	1
## Hs_MNX1_M7227	286	188	220	1
## Mm_Hoxc9	40	436	221	2
## Hs_DLX1_M6931	322	162	222	1
## Hs_DUXA_M6941	176	310	223	22
## Hs_DPRX_M6939	295	192	224	3
## Mm_Dlx1	221	270	225	1
## Mm_Hlxb9	221	270	226	1
## Mm_Hoxa1	221	270	227	1
## Mm_Hoxc8	221	270	228	1
## Dm_Six4	171	321	229	13
## Mm_Dbx2	252	241	230	1
## Hs_LMX1B_M7197	322	176	231	1
## Mm_Barh11	160	345	232	14
## Mm_Barh12	160	345	233	14
## Mm_Msx3	160	345	234	14
## Mm_Gsh2	221	284	235	1
## Mm_Hoxa2	221	284	236	1
## Mm_Hoxa6	221	284	237	1
## Mm_Hoxb5	221	284	238	1
## Mm_Hoxd3	221	284	239	1
## Mm_Ipf1	221	284	240	1
## Mm_Meox1	221	284	241	1
## Mm_Vax1	221	284	242	1
## Dm_Dll	296	213	243	1
## Hs_VAX1_M7536	322	189	244	1
## Hs_VAX2_M7537	322	189	245	1
## Mm_Hoxd1	221	293	246	1
## Hs_ALX3_M6877	338	176	247	1
## Hs_DLX2_M6932	338	176	248	1
## Hs_DLX3_M6933	338	176	249	1
## Hs_DLX5_M6935	338	176	250	1
## Hs_ESX1_M7006	338	176	251	1
## Hs_ESX1_M7007	338	176	252	1

## Hs_MIXL1_M7223	338	176	253	1
## Hs_PRRX2_M7349	338	176	254	1
## Hs_RAX2_M7364	338	176	255	1
## Hs_UNCX_M7534	338	176	256	1
## Ms_Vsx1_M7702	338	176	257	1
## Dm_Antp	286	234	258	1
## Dm_Dfd	296	234	259	1
## Mm_Hoxa5	221	311	260	1
## Ms_Hoxd3_M7625	338	196	261	1
## Hs_EN1_M6982	338	200	262	1
## Hs_EN2_M6986	338	200	263	1
## Hs_EN2_M6987	338	200	264	1
## Hs_HOXA1_M7125	338	200	265	1
## Hs_LHX9_M7194	338	200	266	1
## Mm_Is12	159	388	267	38
## Dm_tin	214	333	268	10
## Mm_Nkx2_4	214	333	269	10
## Mm_Nkx2_5	214	333	270	10
## Mm_Nkx2_6	214	333	271	10
## Mm_Titf1	214	333	272	10
## Mm_Hoxd8	252	296	273	1
## Hs_GBX2_M7075	338	211	274	1
## Hs_LBX2_M7187	338	211	275	1
## Mm_Evx2	164	392	276	9
## Hs_LMX1A_M7196	322	236	277	1
## Mm_Emx2	221	349	278	1
## Mm_Evx1	221	349	279	1
## Dm_ara	276	301	280	11
## Dm_caup	276	301	281	11
## Dm_CG11617	276	301	282	11
## Dm_mirr	276	301	283	11
## Dm_NK7_1	296	281	284	1
## Mm_Dlx3	221	360	285	1
## Hs_ALX3_M6876	338	245	286	1
## Hs_DLX4_M6934	338	245	287	1
## Hs_DLX6_M6936	338	245	288	1
## Hs_EN1_M6984	338	245	289	1
## Hs_GBX1_M7072	338	245	290	1
## Hs_GBX2_M7073	338	245	291	1
## Hs_ISX_M7177	338	245	292	1
## Hs_MSX1_M7230	338	245	293	1
## Hs_MSX1_M7231	338	245	294	1
## Hs_MSX2_M7233	338	245	295	1
## Hs_PRRX1_M7346	338	245	296	1
## Hs_PRRX1_M7347	338	245	297	1
## Hs_SHOX_M7398	338	245	298	1
## Hs_SHOX2_M7399	338	245	299	1
## Ms_Alx1_M7574	338	245	300	1
## Ms_Dlx1_M7592	338	245	301	1
## Ms_Dlx2_M7593	338	245	302	1
## Ms_Gbx1_M7612	338	245	303	1
## Ms_Gbx2_M7613	338	245	304	1
## Ms_Msx3_M7647	338	245	305	1
## Ms_Prrx2_M7657	338	245	306	1

## Ms_Shox2_M7674	338	245	307	1
## Mm_Dobox5	265	322	308	3
## Mm_Otx1	265	322	309	3
## Mm_Otx2	265	322	310	3
## Mm_Pitx2	265	322	311	3
## Hs_MEOX1_M7215	303	284	312	1
## Hs_DMBX1_M6937	395	192	313	3
## Hs_DPRX_M6938	395	192	314	3
## Hs_GSC2_M7093	395	192	315	3
## Dm_vnd	214	374	316	10
## Mm_Nkx2_2	214	374	317	10
## Ms_Lhx4_M7633	322	270	318	1
## Dm_Optix	171	426	319	13
## Dm_so	171	426	320	13
## Dm_onecut	263	338	321	22
## Mm_Dux1	263	338	322	22
## Dm_Abd_B	286	315	323	1
## Dm_C15	306	296	324	1
## Dm(CG34031	306	296	325	1
## Mm_Dlx4	221	383	326	1
## Hs_VENTX_M7539	305	299	327	1
## Hs_EVX1_M7019	391	213	328	1
## Hs_EVX2_M7020	391	213	329	1
## Mm_Obox1	265	340	330	3
## Mm_Obox2	265	340	331	3
## Mm_Obox3	265	340	332	3
## Mm_Obox5	265	340	333	3
## Mm_Pitx1	265	340	334	3
## Hs_GSX1_M7094	450	160	335	1
## Hs_GSX2_M7095	450	160	336	1
## Dm_cad	286	327	337	1
## Dm(CG12361	286	327	338	1
## Mm_Nkx6_3	252	364	339	1
## Mm_Dmbx1	311	306	340	3
## Hs_EMX1_M6978	338	281	341	1
## Ms_Barhl1_M7583	403	216	342	1
## Hs_NOTO_M7264	308	313	343	1
## Mm_Hoxa3	221	401	344	1
## Hs_MEIS1_M7210	312	316	345	6
## Hs_MEIS3_M7213	312	316	346	6
## Ms_Meis2_M7640	312	316	347	6
## Ms_Meis3_M7642	312	316	348	6
## Hs_LMX1B_M7198	317	314	349	1
## Mm_Tgif1	256	379	350	6
## Dm_Scr	286	351	351	1
## Hs_HESX1_M7099	399	245	352	1
## Hs_RAX_M7363	399	245	353	1
## Mm_Nkx6_1	252	394	354	1
## Dm_Lim3	338	311	355	1
## Dm_abd_A	286	364	356	1
## Dm_bsh	296	355	357	1
## Mm_Pknox2	256	401	358	6
## Dm_HGTX	296	364	359	1
## Ms_Meox2_M7644	391	270	360	1

## Dm_hbn	296	369	361	1
## Dm_Bap	284	390	362	33
## Mm_Bapx1	284	390	363	33
## Mm_Vax2	308	369	364	1
## Dm(CG15696	317	360	365	1
## Dm(CG32105	317	360	366	1
## Dm(CG4328	317	360	367	1
## Dm_Hmx	334	345	368	1
## Mm_Obox6	294	393	369	3
## Hs_BARX1_M6893	334	355	370	1
## Hs_BSX_M6902	334	355	371	1
## Mm_Crx	265	426	372	3
## Mm_Pitx3	265	426	373	3
## Mm_Gsc	387	306	374	3
## Hs_BARHL2_M6887	403	294	375	1
## Dm_hth	312	387	376	6
## Ms_Otx1_M7653	395	306	377	3
## Hs_HOXB2_M7133	421	280	378	1
## Hs_GSC_M7092	401	306	379	3
## Hs_HOXB3_M7134	421	295	380	1
## Dm_en	338	383	381	1
## Dm_inv	338	383	382	1
## Dm_lab	338	383	383	1
## Dm_Ubx	286	436	384	1
## Dm_tup	337	388	385	1
## Dm(CG11085	403	326	386	1
## Dm_B_H1	403	330	387	1
## Dm_B_H2	403	330	388	1
## Hs_BARHL2_M6890	403	330	389	1
## Hs_HOXA2_M7130	421	320	390	1
## Ms_En2_M7598	385	373	391	1
## Dm_ftz	394	369	392	1
## Ms_Hoxa2_M7620	421	351	393	1
## Dm_exex	421	355	394	1
## Dm_zen2	427	351	395	1
## Dm_ems	410	369	396	1
## Dm_eve	433	355	397	1
## Hs_EMX2_M6980	385	404	398	1
## Dm_Dr	389	404	399	1
## Hs_PITX1_M7309	413	380	400	3
## Hs_PITX1_M7311	413	380	401	3
## Hs_PITX3_M7312	413	380	402	3
## Dm_Ind	390	404	403	1
## Dm_E5	450	351	404	1
## Dm(CG13424	402	404	405	1
## Dm_oc	384	426	406	3
## Dm_btn	446	364	407	1
## Dm_ro	448	364	408	1
## Dm_Ptx1	387	426	409	3
## Dm(CG33980	409	404	410	1
## Dm(CG18599	410	404	411	1
## Dm_s lou	421	394	412	1
## Hs_PITX1_M7310	413	403	413	3
## Dm_PHDP	420	404	414	1

## Dm_Lim1	431	394	415	1
## Dm_repo	431	394	416	1
## Dm_ap	434	394	417	1
## Dm_Pph13	435	394	418	1
## Dm_Awh	427	404	419	1
## Dm_pb	427	404	420	1
## Dm_zen	427	404	421	1
## Dm_OdsH	438	394	422	1
## Hs_OTX1_M7291	412	425	423	3
## Dm_bcd	413	426	424	3
## Dm_Gsc	413	426	425	3
## Hs_OTX2_M7293	413	426	426	3
## Dm_al	435	404	427	1
## Dm_CG9876	435	404	428	1
## Dm(CG11294	438	404	429	1
## Dm(CG32532	438	404	430	1
## Dm(CG4136	438	404	431	1
## Dm_otp	438	404	432	1
## Dm_Rx	438	404	433	1
## Dm_unc_4	438	404	434	1
## Dm_unpg	438	404	435	1
## Hs_PDX1_M7305	446	404	436	1
## Hs_ISX_M7178	448	404	437	1
## Hs_MEIS2_M7211	22	NA	438	7
## Hs_PKNOX1_M7313	22	NA	439	7
## Hs_PKNOX2_M7314	22	NA	440	7
## Hs_TGIF1_M7525	22	NA	441	7
## Hs_TGIF2_M7526	22	NA	442	7
## Hs_TGIF2LX_M7527	22	NA	443	7
## Ms_Pknox2_M7654	22	NA	444	7
## Mm_Meis1	256	NA	445	6
## Mm_Mrg1	256	NA	446	6
## Mm_Mrg2	256	NA	447	6
## Mm_Pknox1	256	NA	448	6
## Mm_Tgif2	256	NA	449	6
## Dm_achi	331	NA	450	6
## Dm_vis	331	NA	451	6
## Hs_MEIS2_M7212	331	NA	452	6
## motIV.Sig.gpDis.0.005		motifNameInFigure		
## Hs_LHX6_M7192	29	LHX6	M7192	
## Hs_PDX1_M7304	29	PDX1	M7304	
## Ms_Lhx8_M7634	29	Lhx8	M7634	
## Hs_HOMEZ_M7122	35	HOMEZ	M7122	
## Mm_Homez	35		Homez	
## Mm_Dobox4	55		Dobox4	
## Hs_MEOX2_M7218	40	MEOX2	M7218	
## Mm_Nkx2_3	25		Nkx2 3	
## Mm_Nkx2_9	25		Nkx2 9	
## Mm_Nkx3_1	25		Nkx3 1	
## Hs_HNF1A_M7113	27	HNF1A	M7113	
## Hs_HNF1B_M7114	27	HNF1B	M7114	
## Hs_HNF1B_M7115	27	HNF1B	M7115	
## Hs_HOXA13_M7127	7	HOXA13	M7127	
## Hs_HOXA13_M7129	7	HOXA13	M7129	

## Hs_HOXA9_M7123	7	HOXA9 M7123
## Hs_HOXB13_M7132	7	HOXB13 M7132
## Hs_HOXC10_M7138	7	HOXC10 M7138
## Hs_HOXC11_M7139	7	HOXC11 M7139
## Hs_HOXC11_M7141	7	HOXC11 M7141
## Hs_HOXC12_M7144	7	HOXC12 M7144
## Hs_HOXC13_M7146	7	HOXC13 M7146
## Hs_HOXD11_M7147	7	HOXD11 M7147
## Hs_HOXD12_M7150	7	HOXD12 M7150
## Hs_HOXD12_M7151	7	HOXD12 M7151
## Hs_HOXD13_M7154	7	HOXD13 M7154
## Mm_Hoxa11	7	Hoxa11
## Mm_Hoxa13	7	Hoxa13
## Mm_Hoxc10	7	Hoxc10
## Mm_Hoxc11	7	Hoxc11
## Mm_Hoxc12	7	Hoxc12
## Mm_Hoxc13	7	Hoxc13
## Mm_Hoxd11	7	Hoxd11
## Mm_Hoxd12	7	Hoxd12
## Ms_Hoxa11_M7618	7	Hoxa11 M7618
## Ms_Hoxc10_M7621	7	Hoxc10 M7621
## Ms_Hoxd13_M7624	7	Hoxd13 M7624
## Ms_Hoxd9_M7626	42	Hoxd9 M7626
## Ms_Hoxd9_M7628	7	Hoxd9 M7628
## Hs_EN1_M6983	28	EN1 M6983
## Hs_EN1_M6985	28	EN1 M6985
## Hs_GBX2_M7074	28	GBX2 M7074
## Hs_LBX2_M7186	41	LBX2 M7186
## Mm_Dbx1	52	Dbx1
## Mm_Hlx1	53	Hlx1
## Hs_ALX1_M6903	9	ALX1 M6903
## Hs_ALX3_M6878	9	ALX3 M6878
## Hs_ALX4_M6879	9	ALX4 M6879
## Hs_ARX_M6883	9	ARX M6883
## Hs_DRGX_M6940	9	DRGX M6940
## Hs_ISX_M7176	9	ISX M7176
## Hs_PHOX2A_M7306	9	PHOX2A M7306
## Hs_PHOX2B_M7307	9	PHOX2B M7307
## Hs_PHOX2B_M7308	9	PHOX2B M7308
## Hs_PROP1_M7343	9	PROP1 M7343
## Hs_PROP1_M7344	9	PROP1 M7344
## Hs_PRRX1_M7348	9	PRRX1 M7348
## Hs_UNCX_M7533	9	UNCX M7533
## Ms_Alx1_M7575	9	Alx1 M7575
## Ms_Alx4_M7576	9	Alx4 M7576
## Ms_Arx_M7578	9	Arx M7578
## Ms_Uncx_M7699	9	Uncx M7699
## Hs_BARX1_M6892	21	BARX1 M6892
## Hs_MSX1_M7229	21	MSX1 M7229
## Hs_MSX2_M7232	21	MSX2 M7232
## Ms_Msx3_M7646	21	Msx3 M7646
## Hs_BARHL2_M6886	31	BARHL2 M6886
## Hs_BARHL2_M6888	30	BARHL2 M6888
## Hs_BARHL2_M6889	31	BARHL2 M6889

## Hs_BARHL2_M6891	30	BARHL2 M6891
## Ms_Barhl1_M7582	31	Barhl1 M7582
## Ms_Barhl1_M7584	30	Barhl1 M7584
## Hs_HMX1_M7110	15	HMX1 M7110
## Hs_HMX2_M7111	15	HMX2 M7111
## Hs_HMX3_M7112	15	HMX3 M7112
## Mm_Hmx1	15	Hmx1
## Mm_Hmx2	15	Hmx2
## Mm_Hmx3	15	Hmx3
## Dm_Lag1	54	Lag1
## Hs_CDX1_M6904	4	CDX1 M6904
## Hs_CDX2_M6905	4	CDX2 M6905
## Hs_HOXA13_M7126	4	HOXA13 M7126
## Hs_HOXA13_M7128	4	HOXA13 M7128
## Hs_HOXA9_M7124	4	HOXA9 M7124
## Hs_HOXB13_M7131	4	HOXB13 M7131
## Hs_HOXC10_M7136	4	HOXC10 M7136
## Hs_HOXC10_M7137	4	HOXC10 M7137
## Hs_HOXC11_M7140	4	HOXC11 M7140
## Hs_HOXC11_M7142	4	HOXC11 M7142
## Hs_HOXC12_M7143	4	HOXC12 M7143
## Hs_HOXC13_M7145	4	HOXC13 M7145
## Hs_HOXD11_M7148	4	HOXD11 M7148
## Hs_HOXD12_M7149	4	HOXD12 M7149
## Hs_HOXD12_M7152	4	HOXD12 M7152
## Hs_HOXD13_M7153	4	HOXD13 M7153
## Mm_Cdx1	4	Cdx1
## Mm_Cdx2	4	Cdx2
## Mm_Hoxa10	4	Hoxa10
## Mm_Hoxa9	4	Hoxa9
## Mm_Hoxb13	4	Hoxb13
## Mm_Hoxb9	4	Hoxb9
## Mm_Hoxd10	4	Hoxd10
## Mm_Hoxd13	4	Hoxd13
## Ms_Hoxa11_M7619	4	Hoxa11 M7619
## Ms_Hoxc10_M7622	4	Hoxc10 M7622
## Ms_Hoxd13_M7623	4	Hoxd13 M7623
## Ms_Hoxd9_M7627	4	Hoxd9 M7627
## Mm_Cphx	40	Cphx
## Mm_Cutl1	48	Cutl1
## Hs_RHOXF1_M7374	39	RHOXF1 M7374
## Hs_RHOXF1_M7375	38	RHOXF1 M7375
## Hs_RHOXF1_M7376	39	RHOXF1 M7376
## Hs_RHOXF1_M7377	38	RHOXF1 M7377
## Hs_LHX6_M7193	20	LHX6 M7193
## Ms_Lhx8_M7636	20	Lhx8 M7636
## Hs_IRX2_M7173	36	IRX2 M7173
## Hs_IRX5_M7174	36	IRX5 M7174
## Hs_HOXD8_M7155	50	HOXD8 M7155
## Hs_VSX1_M7542	47	VSX1 M7542
## Mm_Pbx1	51	Pbx1
## Hs_MEIS3_M7214	6	MEIS3 M7214
## Ms_Meis2_M7641	6	Meis2 M7641
## Ms_Meis3_M7643	6	Meis3 M7643

## Hs_HMBOX1_M7109	22	HMBOX1 M7109
## Mm_Hmbox1	22	Hmbox1
## Mm_Tcf1	22	Tcf1
## Mm_Tcf2	22	Tcf2
## Hs_HESX1_M7100	2	HESX1 M7100
## Hs_LHX9_M7195	2	LHX9 M7195
## Dm_ct	45	ct
## Hs_EMX1_M6979	34	EMX1 M6979
## Hs_EMX2_M6981	34	EMX2 M6981
## Mm_Gbx1	8	Gbx1
## Mm_Gbx2	8	Gbx2
## Mm_Isx	8	Isx
## Mm_Lhx4	8	Lhx4
## Mm_Lhx8	8	Lhx8
## Mm_Prrx2	8	Prrx2
## Hs_OTX1_M7290	3	OTX1 M7290
## Hs_OTX2_M7292	3	OTX2 M7292
## Ms_Otx1_M7652	3	Otx1 M7652
## Mm_Irx2	18	Irx2
## Mm_Irx3	18	Irx3
## Mm_Irx4	18	Irx4
## Mm_Irx5	18	Irx5
## Mm_Irx6	18	Irx6
## Mm_Alx3	8	Alx3
## Mm_Cart1	8	Cart1
## Mm_En2	8	En2
## Mm_Esx1	8	Esx1
## Mm_Lbx2	8	Lbx2
## Mm_Lhx2	8	Lhx2
## Mm_Lhx6	8	Lhx6
## Mm_Nkx1_2	16	Nkx1 2
## Mm_Og2x	8	Og2x
## Mm_Phox2a	8	Phox2a
## Mm_Prrx1	8	Prrx1
## Mm_Rax	8	Rax
## Mm_Shox2	8	Shox2
## Ms_Lhx8_M7635	8	Lhx8 M7635
## Hs_LHX2_M7190	1	LHX2 M7190
## Hs_MEOX2_M7217	1	MEOX2 M7217
## Mm_Hdx	44	Hdx
## Dm(CG)7056	46	CG7056
## Hs_VENTX_M7540	13	VENTX M7540
## Mm_Barx1	16	Barx1
## Mm_Bsx	16	Bsx
## Mm_Dlx2	16	Dlx2
## Mm_Dlx5	16	Dlx5
## Mm_Nkx1_1	16	Nkx1 1
## Mm_Tlx2	23	Tlx2
## Mm_Rhox11	32	Rhox11
## Ms_Rhox11_M7670	32	Rhox11 M7670
## Mm_Rhox6	5	Rhox6
## Mm_Hoxb8	17	Hoxb8
## Mm_Six2	11	Six2
## Mm_Six3	11	Six3

## Mm_Six6	11	Six6
## Mm_Hoxa7	33	Hoxa7
## Mm_Alx4	1	Alx4
## Mm_Arx	1	Arx
## Mm_Hoxa4	1	Hoxa4
## Mm_Hoxb4	1	Hoxb4
## Mm_Hoxc4	1	Hoxc4
## Mm_Hoxc5	1	Hoxc5
## Mm_Lhx1	1	Lhx1
## Mm_Lhx3	1	Lhx3
## Mm_Lhx5	1	Lhx5
## Mm_Lhx9	1	Lhx9
## Mm_Lmx1a	1	Lmx1a
## Mm_Lmx1b	1	Lmx1b
## Mm_Otp	1	Otp
## Mm_Phox2b	1	Phox2b
## Mm_Prop1	1	Prop1
## Mm_Uncx4_1	1	Uncx4 1
## Mm_Vsx1	1	Vsx1
## Mm_Hoxb6	1	Hoxb6
## Hs_LHX2_M7189	8	LHX2 M7189
## Mm_Msx2	2	Msx2
## Hs_VSX1_M7541	8	VSX1 M7541
## Hs_VSX2_M7543	8	VSX2 M7543
## Ms_Uncx_M7700	8	Uncx M7700
## Mm_Six4	11	Six4
## Hs_ISL2_M7175	26	ISL2 M7175
## Mm_Hoxc6	1	Hoxc6
## Mm_Six1	11	Six1
## Hs_LHX6_M7191	1	LHX6 M7191
## Mm_En1	1	En1
## Dm_H2_0	43	H2 0
## Dm_exd	11	exd
## Ms_Irx3_M7629	19	Irx3 M7629
## Dm_lbe	12	lbe
## Dm_lbl	12	lbl
## Mm_Barx2	1	Barx2
## Mm_Hoxb7	1	Hoxb7
## Mm_Msx1	1	Msx1
## Hs_HOXB5_M7135	49	HOXB5 M7135
## Mm_Hoxb3	1	Hoxb3
## Hs_MEOX2_M7216	1	MEOX2 M7216
## Hs_MNX1_M7227	2	MNX1 M7227
## Mm_Hoxc9	17	Hoxc9
## Hs_DLX1_M6931	33	DLX1 M6931
## Hs_DUXA_M6941	20	DUXA M6941
## Hs_DPRX_M6939	3	DPRX M6939
## Mm_Dlx1	1	Dlx1
## Mm_Hlxb9	1	Hlxb9
## Mm_Hoxa1	1	Hoxa1
## Mm_Hoxc8	1	Hoxc8
## Dm_Six4	11	Six4
## Mm_Dbx2	5	Dbx2
## Hs_LMX1B_M7197	10	LMX1B M7197

## Mm_Barl1	2	Barl1
## Mm_Barl2	2	Barl2
## Mm_Msx3	2	Msx3
## Mm_Gsh2	1	Gsh2
## Mm_Hoxa2	1	Hoxa2
## Mm_Hoxa6	1	Hoxa6
## Mm_Hoxb5	1	Hoxb5
## Mm_Hoxd3	1	Hoxd3
## Mm_Ipf1	1	Ipf1
## Mm_Meox1	1	Meox1
## Mm_Vax1	1	Vax1
## Dm_Dll	5	Dll
## Hs_VAX1_M7536	5	VAX1 M7536
## Hs_VAX2_M7537	5	VAX2 M7537
## Mm_Hoxd1	1	Hoxd1
## Hs_ALX3_M6877	10	ALX3 M6877
## Hs_DLX2_M6932	10	DLX2 M6932
## Hs_DLX3_M6933	10	DLX3 M6933
## Hs_DLX5_M6935	10	DLX5 M6935
## Hs_ESX1_M7006	10	ESX1 M7006
## Hs_ESX1_M7007	10	ESX1 M7007
## Hs_MIXL1_M7223	10	MIXL1 M7223
## Hs_PRRX2_M7349	10	PRRX2 M7349
## Hs_RAX2_M7364	10	RAX2 M7364
## Hs_UNCX_M7534	10	UNCX M7534
## Ms_Vsx1_M7702	10	Vsx1 M7702
## Dm_Antp	24	Antp
## Dm_Dfd	24	Dfd
## Mm_Hoxa5	1	Hoxa5
## Ms_Hoxd3_M7625	10	Hoxd3 M7625
## Hs_EN1_M6982	2	EN1 M6982
## Hs_EN2_M6986	2	EN2 M6986
## Hs_EN2_M6987	2	EN2 M6987
## Hs_HOXA1_M7125	2	HOXA1 M7125
## Hs_LHX9_M7194	2	LHX9 M7194
## Mm_Isl2	24	Isl2
## Dm_tin	14	tin
## Mm_Nkx2_4	14	Nkx2 4
## Mm_Nkx2_5	14	Nkx2 5
## Mm_Nkx2_6	14	Nkx2 6
## Mm_Titf1	14	Titf1
## Mm_Hoxd8	23	Hoxd8
## Hs_GBX2_M7075	10	GBX2 M7075
## Hs_LBX2_M7187	10	LBX2 M7187
## Mm_Evx2	1	Evx2
## Hs_LMX1A_M7196	1	LMX1A M7196
## Mm_Emx2	1	Emx2
## Mm_Evx1	1	Evx1
## Dm_ara	19	ara
## Dm_caup	19	caup
## Dm(CG11617)	19	CG11617
## Dm_mirr	19	mirr
## Dm_NK7_1	10	NK7 1
## Mm_Dlx3	1	Dlx3

## Hs_ALX3_M6876	2	ALX3 M6876
## Hs_DLX4_M6934	2	DLX4 M6934
## Hs_DLX6_M6936	2	DLX6 M6936
## Hs_EN1_M6984	2	EN1 M6984
## Hs_GBX1_M7072	2	GBX1 M7072
## Hs_GBX2_M7073	2	GBX2 M7073
## Hs_ISX_M7177	2	ISX M7177
## Hs_MSX1_M7230	2	MSX1 M7230
## Hs_MSX1_M7231	2	MSX1 M7231
## Hs_MSX2_M7233	2	MSX2 M7233
## Hs_PRRX1_M7346	2	PRRX1 M7346
## Hs_PRRX1_M7347	2	PRRX1 M7347
## Hs_SHOX_M7398	2	SHOX M7398
## Hs_SHOX2_M7399	2	SHOX2 M7399
## Ms_Alx1_M7574	2	Alx1 M7574
## Ms_Dlx1_M7592	2	Dlx1 M7592
## Ms_Dlx2_M7593	2	Dlx2 M7593
## Ms_Gbx1_M7612	2	Gbx1 M7612
## Ms_Gbx2_M7613	2	Gbx2 M7613
## Ms_Msx3_M7647	2	Msx3 M7647
## Ms_Prrx2_M7657	2	Prrx2 M7657
## Ms_Shox2_M7674	2	Shox2 M7674
## Mm_Dobox5	3	Dobox5
## Mm_Otx1	3	Otx1
## Mm_Otx2	3	Otx2
## Mm_Pitx2	3	Pitx2
## Hs_MEOX1_M7215	1	MEOX1 M7215
## Hs_DMBX1_M6937	3	DMBX1 M6937
## Hs_DPRX_M6938	3	DPRX M6938
## Hs_GSC2_M7093	3	GSC2 M7093
## Dm_vnd	14	vnd
## Mm_Nkx2_2	14	Nkx2 2
## Ms_Lhx4_M7633	1	Lhx4 M7633
## Dm_Optix	11	Optix
## Dm_so	11	so
## Dm_onecut	20	onecut
## Mm_Duxl	20	Duxl
## Dm_Abd_B	17	Abd B
## Dm_C15	23	C15
## Dm(CG34031	23	CG34031
## Mm_Dlx4	1	Dlx4
## Hs_VENTX_M7539	13	VENTX M7539
## Hs_EVX1_M7019	5	EVX1 M7019
## Hs_EVX2_M7020	5	EVX2 M7020
## Mm_Obox1	3	Obox1
## Mm_Obox2	3	Obox2
## Mm_Obox3	3	Obox3
## Mm_Obox5	3	Obox5
## Mm_Pitx1	3	Pitx1
## Hs_GSX1_M7094	37	GSX1 M7094
## Hs_GSX2_M7095	37	GSX2 M7095
## Dm_cad	17	cad
## Dm(CG12361	17	CG12361
## Mm_Nkx6_3	5	Nkx6 3

## Mm_Dmbx1	3	Dmbx1
## Hs_EMX1_M6978	10	EMX1 M6978
## Ms_Barhl1_M7583	12	Barhl1 M7583
## Hs_NOTO_M7264	1	NOTO M7264
## Mm_Hoxa3	1	Hoxa3
## Hs_MEIS1_M7210	6	MEIS1 M7210
## Hs_MEIS3_M7213	6	MEIS3 M7213
## Ms_Meis2_M7640	6	Meis2 M7640
## Ms_Meis3_M7642	6	Meis3 M7642
## Hs_LMX1B_M7198	1	LMX1B M7198
## Mm_Tgif1	6	Tgif1
## Dm_Scr	5	Scr
## Hs_HESX1_M7099	2	HESX1 M7099
## Hs_RAX_M7363	2	RAX M7363
## Mm_Nkx6_1	5	Nkx6 1
## Dm_Lim3	1	Lim3
## Dm_abd_A	5	abd A
## Dm_bsh	13	bsh
## Mm_Pknox2	6	Pknox2
## Dm_HGTX	5	HGTX
## Ms_Meox2_M7644	1	Meox2 M7644
## Dm_hbn	1	hbn
## Dm_Bap	26	Bap
## Mm_Bapx1	26	Bapx1
## Mm_Vax2	1	Vax2
## Dm(CG15696	1	CG15696
## Dm(CG32105	1	CG32105
## Dm(CG4328	1	CG4328
## Dm_Hmx	2	Hmx
## Mm_Obox6	3	Obox6
## Hs_BARX1_M6893	13	BARX1 M6893
## Hs_BSX_M6902	13	BSX M6902
## Mm_Crx	3	Crx
## Mm_Pitx3	3	Pitx3
## Mm_Gsc	3	Gsc
## Hs_BARHL2_M6887	12	BARHL2 M6887
## Dm_hth	6	hth
## Ms_Otx1_M7653	3	Otx1 M7653
## Hs_HOXB2_M7133	5	HOXB2 M7133
## Hs_GSC_M7092	3	GSC M7092
## Hs_HOXB3_M7134	5	HOXB3 M7134
## Dm_en	1	en
## Dm_inv	1	inv
## Dm_lab	1	lab
## Dm_Ubx	17	Ubx
## Dm_tup	24	tup
## Dm(CG11085	12	CG11085
## Dm_B_H1	12	B H1
## Dm_B_H2	12	B H2
## Hs_BARHL2_M6890	12	BARHL2 M6890
## Hs_HOXA2_M7130	5	HOXA2 M7130
## Ms_En2_M7598	1	En2 M7598
## Dm_ftz	1	ftz
## Ms_Hoxa2_M7620	5	Hoxa2 M7620

## Dm_exex	13	exex
## Dm_zen2	5	zen2
## Dm_ems	1	ems
## Dm_eve	13	eve
## Hs_EMX2_M6980	1	EMX2 M6980
## Dm_Dr	1	Dr
## Hs_PITX1_M7309	3	PITX1 M7309
## Hs_PITX1_M7311	3	PITX1 M7311
## Hs_PITX3_M7312	3	PITX3 M7312
## Dm_Ind	1	Ind
## Dm_E5	5	E5
## Dm_CG13424	1	CG13424
## Dm_oc	3	oc
## Dm_btn	5	btn
## Dm_ro	5	ro
## Dm_Ptx1	3	Ptx1
## Dm(CG33980	1	CG33980
## Dm(CG18599	1	CG18599
## Dm_slou	5	slou
## Hs_PITX1_M7310	3	PITX1 M7310
## Dm_PHDP	1	PHDP
## Dm_Lim1	5	Lim1
## Dm_repo	5	repo
## Dm_ap	5	ap
## Dm_Pph13	5	Pph13
## Dm_Awh	1	Awh
## Dm_pb	1	pb
## Dm_zen	1	zen
## Dm_OdsH	5	OdsH
## Hs_OTX1_M7291	3	OTX1 M7291
## Dm_bcd	3	bcd
## Dm_Gsc	3	Gsc
## Hs_OTX2_M7293	3	OTX2 M7293
## Dm_al	1	al
## Dm(CG9876	1	CG9876
## Dm(CG11294	1	CG11294
## Dm(CG32532	1	CG32532
## Dm(CG4136	1	CG4136
## Dm_otp	1	otp
## Dm_Rx	1	Rx
## Dm_unc_4	1	unc 4
## Dm_unpg	1	unpg
## Hs_PDX1_M7305	1	PDX1 M7305
## Hs_ISX_M7178	1	ISX M7178
## Hs_MEIS2_M7211	6	MEIS2 M7211
## Hs_PKNOX1_M7313	6	PKNOX1 M7313
## Hs_PKNOX2_M7314	6	PKNOX2 M7314
## Hs_TGIF1_M7525	6	TGIF1 M7525
## Hs_TGIF2_M7526	6	TGIF2 M7526
## Hs_TGIF2LX_M7527	6	TGIF2LX M7527
## Ms_Pknox2_M7654	6	Pknox2 M7654
## Mm_Meis1	6	Meis1
## Mm_Mrg1	6	Mrg1
## Mm_Mrg2	6	Mrg2

## Mm_Pknox1	6	Pknox1
## Mm_Tgif2	6	Tgif2
## Dm_achi	6	achi
## Dm_vis	6	vis
## Hs_MEIS2_M7212	6	MEIS2 M7212
##		uni.matAlign.Sig.gpDis.4 uni.motIV.Sig.gpDis.0.005
## Hs_LHX6_M7192	25	9
## Hs_PDX1_M7304	19	9
## Ms_Lhx8_M7634	19	9
## Hs_HOMEZ_M7122	15	15
## Mm_Homez	15	15
## Mm_Dobox4	20	29
## Hs_MEOX2_M7218	28	19
## Mm_Nkx2_3	9	14
## Mm_Nkx2_9	9	14
## Mm_Nkx3_1	9	14
## Hs_HNF1A_M7113	10	10
## Hs_HNF1B_M7114	10	10
## Hs_HNF1B_M7115	10	10
## Hs_HOXA13_M7127	2	2
## Hs_HOXA13_M7129	2	2
## Hs_HOXA9_M7123	2	2
## Hs_HOXB13_M7132	2	2
## Hs_HOXC10_M7138	2	2
## Hs_HOXC11_M7139	2	2
## Hs_HOXC11_M7141	2	2
## Hs_HOXC12_M7144	2	2
## Hs_HOXC13_M7146	2	2
## Hs_HOXD11_M7147	2	2
## Hs_HOXD12_M7150	2	2
## Hs_HOXD12_M7151	2	2
## Hs_HOXD13_M7154	2	2
## Mm_Hoxa11	2	2
## Mm_Hoxa13	2	2
## Mm_Hoxc10	2	2
## Mm_Hoxc11	2	2
## Mm_Hoxc12	2	2
## Mm_Hoxc13	2	2
## Mm_Hoxd11	2	2
## Mm_Hoxd12	2	2
## Ms_Hoxa11_M7618	2	2
## Ms_Hoxc10_M7621	2	2
## Ms_Hoxd13_M7624	2	2
## Ms_Hoxd9_M7626	1	22
## Ms_Hoxd9_M7628	2	2
## Hs_EN1_M6983	12	11
## Hs_EN1_M6985	12	11
## Hs_GBX2_M7074	12	11
## Hs_LBX2_M7186	21	21
## Mm_Dbx1	18	25
## Mm_Hlx1	18	27
## Hs_ALX1_M6903	3	3
## Hs_ALX3_M6878	3	3
## Hs_ALX4_M6879	3	3

## Hs_ARX_M6883	3	3
## Hs_DRGX_M6940	3	3
## Hs_ISX_M7176	3	3
## Hs_PHOX2A_M7306	3	3
## Hs_PHOX2B_M7307	3	3
## Hs_PHOX2B_M7308	3	3
## Hs_PROP1_M7343	3	3
## Hs_PROP1_M7344	3	3
## Hs_PRRX1_M7348	3	3
## Hs_UNCX_M7533	3	3
## Ms_Alx1_M7575	3	3
## Ms_Alx4_M7576	3	3
## Ms_Arx_M7578	3	3
## Ms_Uncx_M7699	3	3
## Hs_BARX1_M6892	24	7
## Hs_MSX1_M7229	14	7
## Hs_MSX2_M7232	14	7
## Ms_Msx3_M7646	14	7
## Hs_BARHL2_M6886	13	13
## Hs_BARHL2_M6888	11	12
## Hs_BARHL2_M6889	13	13
## Hs_BARHL2_M6891	11	12
## Ms_Barhl1_M7582	13	13
## Ms_Barhl1_M7584	11	12
## Hs_HMX1_M7110	5	4
## Hs_HMX2_M7111	5	4
## Hs_HMX3_M7112	5	4
## Mm_Hmx1	5	4
## Mm_Hmx2	5	4
## Mm_Hmx3	5	4
## Dm_Lag1	22	28
## Hs_CDX1_M6904	1	1
## Hs_CDX2_M6905	1	1
## Hs_HOXA13_M7126	1	1
## Hs_HOXA13_M7128	1	1
## Hs_HOXA9_M7124	1	1
## Hs_HOXB13_M7131	1	1
## Hs_HOXC10_M7136	1	1
## Hs_HOXC10_M7137	1	1
## Hs_HOXC11_M7140	1	1
## Hs_HOXC11_M7142	1	1
## Hs_HOXC12_M7143	1	1
## Hs_HOXC13_M7145	1	1
## Hs_HOXD11_M7148	1	1
## Hs_HOXD12_M7149	1	1
## Hs_HOXD12_M7152	1	1
## Hs_HOXD13_M7153	1	1
## Mm_Cdx1	1	1
## Mm_Cdx2	1	1
## Mm_Hoxa10	1	1
## Mm_Hoxa9	1	1
## Mm_Hoxb13	1	1
## Mm_Hoxb9	1	1
## Mm_Hoxd10	1	1

## Mm_Hoxd13	1	1
## Ms_Hoxa11_M7619	1	1
## Ms_Hoxc10_M7622	1	1
## Ms_Hoxd13_M7623	1	1
## Ms_Hoxd9_M7627	1	1
## Mm_Cphx	29	19
## Mm_Cutl1	26	26
## Hs_RHOXF1_M7374	8	18
## Hs_RHOXF1_M7375	8	17
## Hs_RHOXF1_M7376	8	18
## Hs_RHOXF1_M7377	8	17
## Hs_LHX6_M7193	NA	NA
## Ms_Lhx8_M7636	NA	NA
## Hs_IRX2_M7173	16	16
## Hs_IRX5_M7174	16	16
## Hs_HOXD8_M7155	NA	NA
## Hs_VSX1_M7542	NA	NA
## Mm_Pbx1	NA	NA
## Hs_MEIS3_M7214	NA	NA
## Ms_Meis2_M7641	NA	NA
## Ms_Meis3_M7643	NA	NA
## Hs_HMBOX1_M7109	7	8
## Mm_Hmbox1	7	8
## Mm_Tcf1	7	8
## Mm_Tcf2	7	8
## Hs_HESX1_M7100	NA	NA
## Hs_LHX9_M7195	NA	NA
## Dm_ct	23	23
## Hs_EMX1_M6979	17	20
## Hs_EMX2_M6981	17	20
## Mm_Gbx1	4	5
## Mm_Gbx2	4	5
## Mm_Isx	4	5
## Mm_Lhx4	4	5
## Mm_Lhx8	4	5
## Mm_Prrx2	4	5
## Hs_OTX1_M7290	NA	NA
## Hs_OTX2_M7292	NA	NA
## Ms_Otx1_M7652	NA	NA
## Mm_Irx2	6	6
## Mm_Irx3	6	6
## Mm_Irx4	6	6
## Mm_Irx5	6	6
## Mm_Irx6	6	6
## Mm_Alx3	NA	NA
## Mm_Cart1	NA	NA
## Mm_En2	NA	NA
## Mm_Esx1	NA	NA
## Mm_Lbx2	NA	NA
## Mm_Lhx2	NA	NA
## Mm_Lhx6	NA	NA
## Mm_Nkx1_2	NA	NA
## Mm_Og2x	NA	NA
## Mm_Phox2a	NA	NA

## Mm_Prrx1	NA	NA
## Mm_Rax	NA	NA
## Mm_Shox2	NA	NA
## Ms_Lhx8_M7635	NA	NA
## Hs_LHX2_M7190	NA	NA
## Hs_MEOX2_M7217	NA	NA
## Mm_Hdx	27	24
## Dm(CG7056	NA	NA
## Hs_VENTX_M7540	NA	NA
## Mm_Barx1	NA	NA
## Mm_Bsx	NA	NA
## Mm_Dlx2	NA	NA
## Mm_Dlx5	NA	NA
## Mm_Nkx1_1	NA	NA
## Mm_Tlx2	NA	NA
## Mm_Rhox11	NA	NA
## Ms_Rhox11_M7670	NA	NA
## Mm_Rhox6	NA	NA
## Mm_Hoxb8	NA	NA
## Mm_Six2	NA	NA
## Mm_Six3	NA	NA
## Mm_Six6	NA	NA
## Mm_Hoxa7	NA	NA
## Mm_Alx4	NA	NA
## Mm_Arx	NA	NA
## Mm_Hoxa4	NA	NA
## Mm_Hoxb4	NA	NA
## Mm_Hoxc4	NA	NA
## Mm_Hoxc5	NA	NA
## Mm_Lhx1	NA	NA
## Mm_Lhx3	NA	NA
## Mm_Lhx5	NA	NA
## Mm_Lhx9	NA	NA
## Mm_Lmx1a	NA	NA
## Mm_Lmx1b	NA	NA
## Mm_Otp	NA	NA
## Mm_Phox2b	NA	NA
## Mm_Prox1	NA	NA
## Mm_Uncx4_1	NA	NA
## Mm_Vsx1	NA	NA
## Mm_Hoxb6	NA	NA
## Hs_LHX2_M7189	NA	NA
## Mm_Msx2	NA	NA
## Hs_VSX1_M7541	NA	NA
## Hs_VSX2_M7543	NA	NA
## Ms_Uncx_M7700	NA	NA
## Mm_Six4	NA	NA
## Hs_ISL2_M7175	NA	NA
## Mm_Hoxc6	NA	NA
## Mm_Six1	NA	NA
## Hs_LHX6_M7191	NA	NA
## Mm_En1	NA	NA
## Dm_H2_O	NA	NA
## Dm_exd	NA	NA

## Ms_Irx3_M7629	NA	NA
## Dm_lbe	NA	NA
## Dm_lbl	NA	NA
## Mm_Barx2	NA	NA
## Mm_Hoxb7	NA	NA
## Mm_Msx1	NA	NA
## Hs_HOXB5_M7135	NA	NA
## Mm_Hoxb3	NA	NA
## Hs_MEOX2_M7216	NA	NA
## Hs_MNX1_M7227	NA	NA
## Mm_Hoxc9	NA	NA
## Hs_DLX1_M6931	NA	NA
## Hs_DUXA_M6941	NA	NA
## Hs_DPRX_M6939	NA	NA
## Mm_Dlx1	NA	NA
## Mm_H1xb9	NA	NA
## Mm_Hoxa1	NA	NA
## Mm_Hoxc8	NA	NA
## Dm_Six4	NA	NA
## Mm_Dbx2	NA	NA
## Hs_LMX1B_M7197	NA	NA
## Mm_Barhl1	NA	NA
## Mm_Barhl2	NA	NA
## Mm_Msx3	NA	NA
## Mm_Gsh2	NA	NA
## Mm_Hoxa2	NA	NA
## Mm_Hoxa6	NA	NA
## Mm_Hoxb5	NA	NA
## Mm_Hoxd3	NA	NA
## Mm_Ipf1	NA	NA
## Mm_Meox1	NA	NA
## Mm_Vax1	NA	NA
## Dm_Dll	NA	NA
## Hs_VAX1_M7536	NA	NA
## Hs_VAX2_M7537	NA	NA
## Mm_Hoxd1	NA	NA
## Hs_ALX3_M6877	NA	NA
## Hs_DLX2_M6932	NA	NA
## Hs_DLX3_M6933	NA	NA
## Hs_DLX5_M6935	NA	NA
## Hs_ESX1_M7006	NA	NA
## Hs_ESX1_M7007	NA	NA
## Hs_MIXL1_M7223	NA	NA
## Hs_PRRX2_M7349	NA	NA
## Hs_RAX2_M7364	NA	NA
## Hs_UNCX_M7534	NA	NA
## Ms_Vsx1_M7702	NA	NA
## Dm_Antp	NA	NA
## Dm_Dfd	NA	NA
## Mm_Hoxa5	NA	NA
## Ms_Hoxd3_M7625	NA	NA
## Hs_EN1_M6982	NA	NA
## Hs_EN2_M6986	NA	NA
## Hs_EN2_M6987	NA	NA

## Hs_HOXA1_M7125	NA	NA
## Hs_LHX9_M7194	NA	NA
## Mm_Isl2	NA	NA
## Dm_tin	NA	NA
## Mm_Nkx2_4	NA	NA
## Mm_Nkx2_5	NA	NA
## Mm_Nkx2_6	NA	NA
## Mm_Titf1	NA	NA
## Mm_Hoxd8	NA	NA
## Hs_GBX2_M7075	NA	NA
## Hs_LBX2_M7187	NA	NA
## Mm_Evx2	NA	NA
## Hs_LMX1A_M7196	NA	NA
## Mm_Emx2	NA	NA
## Mm_Evx1	NA	NA
## Dm_ara	NA	NA
## Dm_caup	NA	NA
## Dm(CG11617)	NA	NA
## Dm_mirr	NA	NA
## Dm_NK7_1	NA	NA
## Mm_Dlx3	NA	NA
## Hs_ALX3_M6876	NA	NA
## Hs_DLX4_M6934	NA	NA
## Hs_DLX6_M6936	NA	NA
## Hs_EN1_M6984	NA	NA
## Hs_GBX1_M7072	NA	NA
## Hs_GBX2_M7073	NA	NA
## Hs_ISX_M7177	NA	NA
## Hs_MSX1_M7230	NA	NA
## Hs_MSX1_M7231	NA	NA
## Hs_MSX2_M7233	NA	NA
## Hs_PRRX1_M7346	NA	NA
## Hs_PRRX1_M7347	NA	NA
## Hs_SHOX_M7398	NA	NA
## Hs_SHOX2_M7399	NA	NA
## Ms_Alx1_M7574	NA	NA
## Ms_Dlx1_M7592	NA	NA
## Ms_Dlx2_M7593	NA	NA
## Ms_Gbx1_M7612	NA	NA
## Ms_Gbx2_M7613	NA	NA
## Ms_Msx3_M7647	NA	NA
## Ms_Prrx2_M7657	NA	NA
## Ms_Shox2_M7674	NA	NA
## Mm_Dobox5	NA	NA
## Mm_Otx1	NA	NA
## Mm_Otx2	NA	NA
## Mm_Pitx2	NA	NA
## Hs_MEOX1_M7215	NA	NA
## Hs_DMBX1_M6937	NA	NA
## Hs_DPRX_M6938	NA	NA
## Hs_GSC2_M7093	NA	NA
## Dm_vnd	NA	NA
## Mm_Nkx2_2	NA	NA
## Ms_Lhx4_M7633	NA	NA

## Dm_Optix	NA	NA
## Dm_so	NA	NA
## Dm_onecut	NA	NA
## Mm_Duxl	NA	NA
## Dm_Abd_B	NA	NA
## Dm_C15	NA	NA
## Dm(CG34031	NA	NA
## Mm_Dlx4	NA	NA
## Hs_VENTX_M7539	NA	NA
## Hs_EVX1_M7019	NA	NA
## Hs_EVX2_M7020	NA	NA
## Mm_Obox1	NA	NA
## Mm_Obox2	NA	NA
## Mm_Obox3	NA	NA
## Mm_Obox5	NA	NA
## Mm_Pitx1	NA	NA
## Hs_GSX1_M7094	NA	NA
## Hs_GSX2_M7095	NA	NA
## Dm_cad	NA	NA
## Dm(CG12361	NA	NA
## Mm_Nkx6_3	NA	NA
## Mm_Dmbx1	NA	NA
## Hs_EMX1_M6978	NA	NA
## Ms_Barh11_M7583	NA	NA
## Hs_NOTO_M7264	NA	NA
## Mm_Hoxa3	NA	NA
## Hs_MEIS1_M7210	NA	NA
## Hs_MEIS3_M7213	NA	NA
## Ms_Meis2_M7640	NA	NA
## Ms_Meis3_M7642	NA	NA
## Hs_LMX1B_M7198	NA	NA
## Mm_Tgif1	NA	NA
## Dm_Scr	NA	NA
## Hs_HESX1_M7099	NA	NA
## Hs_RAX_M7363	NA	NA
## Mm_Nkx6_1	NA	NA
## Dm_Lim3	NA	NA
## Dm_abd_A	NA	NA
## Dm_bsh	NA	NA
## Mm_Pknox2	NA	NA
## Dm_HGTX	NA	NA
## Ms_Meox2_M7644	NA	NA
## Dm_hbn	NA	NA
## Dm_Bap	NA	NA
## Mm_Bapx1	NA	NA
## Mm_Vax2	NA	NA
## Dm(CG15696	NA	NA
## Dm(CG32105	NA	NA
## Dm(CG4328	NA	NA
## Dm_Hmx	NA	NA
## Mm_Obox6	NA	NA
## Hs_BARX1_M6893	NA	NA
## Hs_BSX_M6902	NA	NA
## Mm_Crx	NA	NA

## Mm_Pitx3	NA	NA
## Mm_Gsc	NA	NA
## Hs_BARHL2_M6887	NA	NA
## Dm_hth	NA	NA
## Ms_Otx1_M7653	NA	NA
## Hs_HOXB2_M7133	NA	NA
## Hs_GSC_M7092	NA	NA
## Hs_HOXB3_M7134	NA	NA
## Dm_en	NA	NA
## Dm_inv	NA	NA
## Dm_lab	NA	NA
## Dm_Ubx	NA	NA
## Dm_tup	NA	NA
## Dm(CG11085	NA	NA
## Dm_B_H1	NA	NA
## Dm_B_H2	NA	NA
## Hs_BARHL2_M6890	NA	NA
## Hs_HOXA2_M7130	NA	NA
## Ms_En2_M7598	NA	NA
## Dm_ftz	NA	NA
## Ms_Hoxa2_M7620	NA	NA
## Dm_exex	NA	NA
## Dm_zen2	NA	NA
## Dm_ems	NA	NA
## Dm_eve	NA	NA
## Hs_EMX2_M6980	NA	NA
## Dm_Dr	NA	NA
## Hs_PITX1_M7309	NA	NA
## Hs_PITX1_M7311	NA	NA
## Hs_PITX3_M7312	NA	NA
## Dm_Ind	NA	NA
## Dm_E5	NA	NA
## Dm(CG13424	NA	NA
## Dm_oc	NA	NA
## Dm_btn	NA	NA
## Dm_ro	NA	NA
## Dm_Ptx1	NA	NA
## Dm(CG33980	NA	NA
## Dm(CG18599	NA	NA
## Dm_slou	NA	NA
## Hs_PITX1_M7310	NA	NA
## Dm_PHDP	NA	NA
## Dm_Lim1	NA	NA
## Dm_repo	NA	NA
## Dm_ap	NA	NA
## Dm_Pph13	NA	NA
## Dm_Awh	NA	NA
## Dm_pb	NA	NA
## Dm_zen	NA	NA
## Dm_OdsH	NA	NA
## Hs_OTX1_M7291	NA	NA
## Dm_bcd	NA	NA
## Dm_Gsc	NA	NA
## Hs_OTX2_M7293	NA	NA

```

## Dm_al          NA          NA
## Dm(CG9876)    NA          NA
## Dm(CG11294)   NA          NA
## Dm(CG32532)   NA          NA
## Dm(CG4136)    NA          NA
## Dm(otp)        NA          NA
## Dm(Rx)         NA          NA
## Dm(unc_4)      NA          NA
## Dm(unpg)       NA          NA
## Hs(PDX1_M7305) NA          NA
## Hs(ISX_M7178)  NA          NA
## Hs(MEIS2_M7211) NA          NA
## Hs(PKNOX1_M7313) NA          NA
## Hs(PKNOX2_M7314) NA          NA
## Hs(TGIF1_M7525) NA          NA
## Hs(TGIF2_M7526) NA          NA
## Hs(TGIF2LX_M7527) NA          NA
## Ms(Pknox2_M7654) NA          NA
## Mm(Meis1)      NA          NA
## Mm(Mrg1)       NA          NA
## Mm(Mrg2)       NA          NA
## Mm(Pknox1)     NA          NA
## Mm(Tgif2)      NA          NA
## Dm(achi)       NA          NA
## Dm(vis)        NA          NA
## Hs(MEIS2_M7212) NA          NA

```

## sessionInfo

```

sessionInfo()

## R version 3.4.1 (2017-06-30)
## Platform: x86_64-apple-darwin15.6.0 (64-bit)
## Running under: OS X El Capitan 10.11.6
##
## Matrix products: default
## BLAS: /Library/Frameworks/R.framework/Versions/3.4/Resources/lib/libRblas.0.dylib
## LAPACK: /Library/Frameworks/R.framework/Versions/3.4/Resources/lib/libRlapack.dylib
##
## locale:
## [1] en_US.UTF-8/en_US.UTF-8/en_US.UTF-8/C/en_US.UTF-8/en_US.UTF-8
##
## attached base packages:
## [1] stats4     parallel   grid       stats      graphics   grDevices utils
## [8] datasets   methods    base
##
## other attached packages:
## [1] reshape2_1.4.2      motifStack_1.20.1   Biostrings_2.44.2
## [4] XVector_0.16.0      IRanges_2.10.2      S4Vectors_0.14.3
## [7] ade4_1.7-6          MotifV_1.32.0      BiocGenerics_0.22.0
## [10] grImport_0.9-0     XML_3.98-1.9
##
## loaded via a namespace (and not attached):

```

```
## [1] Rcpp_0.12.12          plyr_1.8.4
## [3] compiler_3.4.1         GenomeInfoDb_1.12.2
## [5] bitops_1.0-6           tools_3.4.1
## [7] zlibbioc_1.22.0        digest_0.6.12
## [9] evaluate_0.10.1        lattice_0.20-35
## [11] BSgenome_1.44.0        Matrix_1.2-10
## [13] DelayedArray_0.2.7    yaml_2.1.14
## [15] seqLogo_1.42.0        GenomeInfoDbData_0.99.0
## [17] rtracklayer_1.36.4    stringr_1.2.0
## [19] knitr_1.16             htmlwidgets_0.9
## [21] rprojroot_1.2          Biobase_2.36.2
## [23] BiocParallel_1.10.1    rGADEM_2.24.0
## [25] rmarkdown_1.6           magrittr_1.5
## [27] scales_0.4.1           backports_1.1.0
## [29] Rsamtools_1.28.0       htmltools_0.3.6
## [31] matrixStats_0.52.2     GenomicRanges_1.28.4
## [33] GenomicAlignments_1.12.1 SummarizedExperiment_1.6.3
## [35] colorspace_1.3-2       stringi_1.1.5
## [37] munsell_0.4.3          RCurl_1.95-4.8
```