

Supplementary Data 3 | Control TFs without the gyre-spanning binding mode.

For the randomly chosen control TFs shown in **Extended Data Fig. 2f**, the table lists the log₂ E-MI ratios between the bound and unbound libraries, both for the area corresponding to the gyre-spanning binding (Gs, 3-mers spaced by 77-83 bp) and for the area representing the background (bk, 3-mers spaced by 50-70 bp). For each TF, we tested against the null hypothesis that the (E-MI ratio (Gs) - E-MI ratio (bk)) of each TF is less or equal than that of all the 20 control TFs. The TFs with identified gyre-spanning mode (below the dashed line) have much smaller p-values than the control TFs.

The 2D E-MI heatmaps suggest that these TFs do not have the gyre-spanning mode as Brachyury (T) has; they are used for evaluation of the fluctuation of the background noise between the cycle 5 bound and unbound libraries.

TF	E-MI ratio (Gs)	E-MI ratio (bk)	p_value
ELF2	0.8	0.8	0.028
FOXD3	0.95	0.96	0.87
PKNOX2	0.92	0.93	0.87
LEF1	0.89	0.89	0.25
BHLHA15	1	1	0.0043
E2F8	0.91	0.92	0.98
PITX2	0.99	0.98	0.15
MYBL1	1.05	1.06	0.6
IRF3	0.87	0.88	0.83
HMBOX1	1.04	1.07	1
HSF4	1.13	1.11	1.60E-07
FOXE1	1.1	1.1	0.0038
ATF2	0.94	0.95	1
NR3C2	1	1.01	1
CREB3L1	1.06	1.07	0.86
LMX1B	1.04	1.06	1
TBX3	1.01	1	2.00E-04
CDX1	1.05	1.04	2.00E-05
NFATC4	1.11	1.1	6.90E-07
GATA2	1.04	1.04	0.99
T	1.17	1.06	2.70E-20
T	1.08	0.91	3.30E-23
T	1.18	1	2.40E-24
T	1.1	0.97	1.50E-21
TBX2	1.77	1.08	6.00E-35
TBX2	1.07	0.95	9.40E-21
TBX2	1.53	1.09	2.70E-31

