

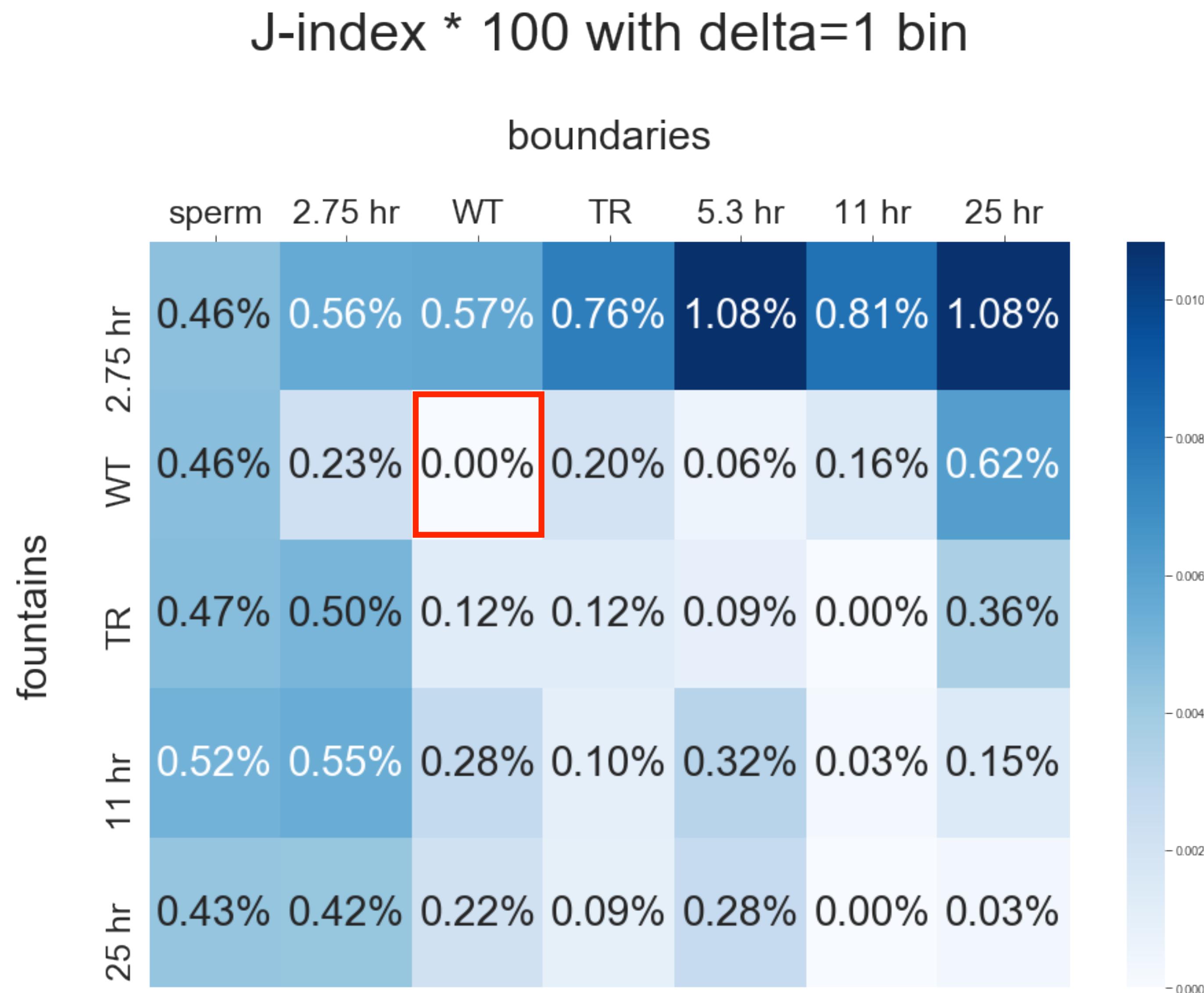
TAD boundaries and fountains

in *Danio rerio* embryo development

TAD boundaries annotation

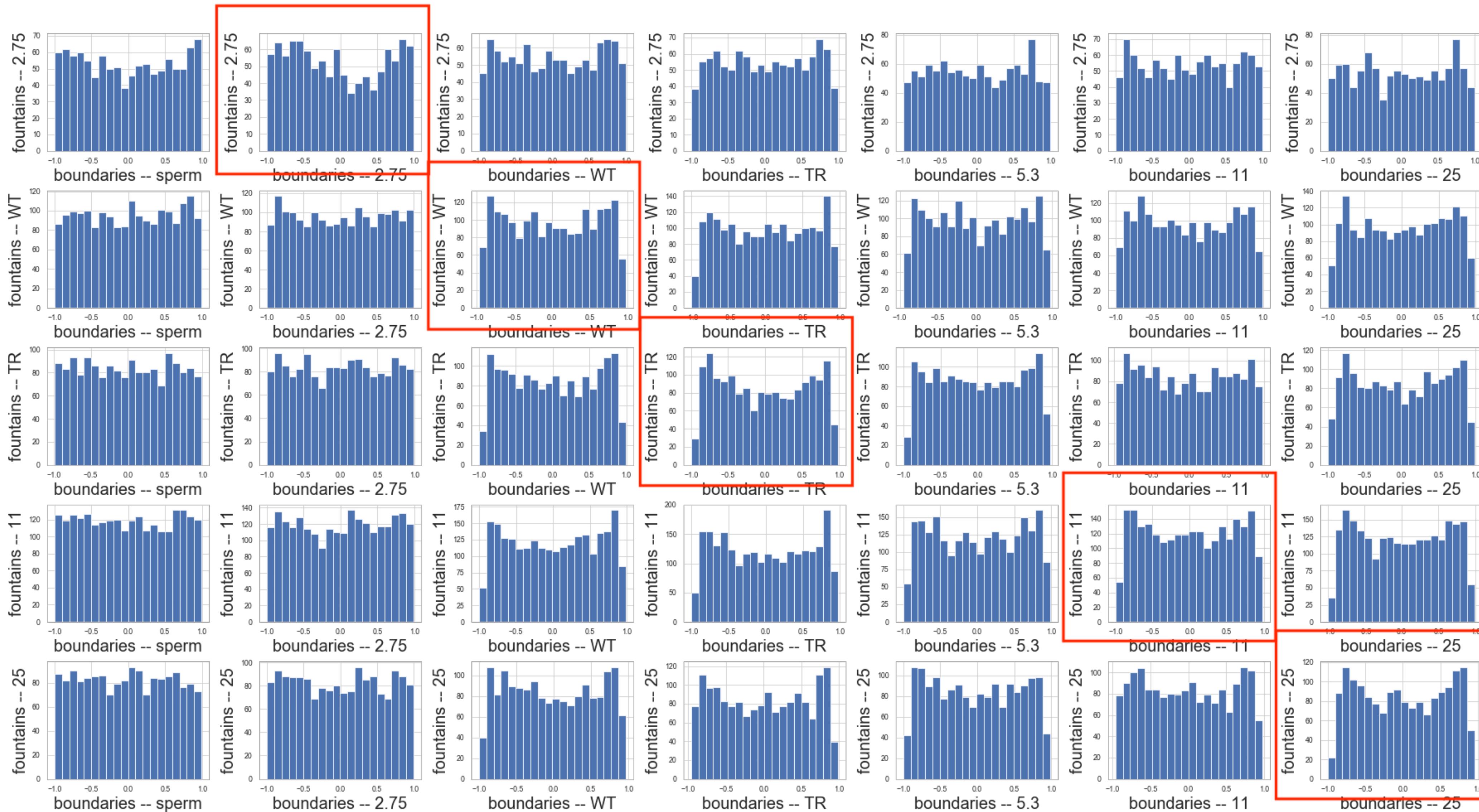
	sperm	2.75 hr	5.3 hr	WT	TR	11 hr	25 hr
Boundaries	649	685	1 593	1 535	1 534	1 252	1 614
Fountains		1 110		1 947	1 706	2 432	1 685

TAD boundaries and fountains almost do not intersect

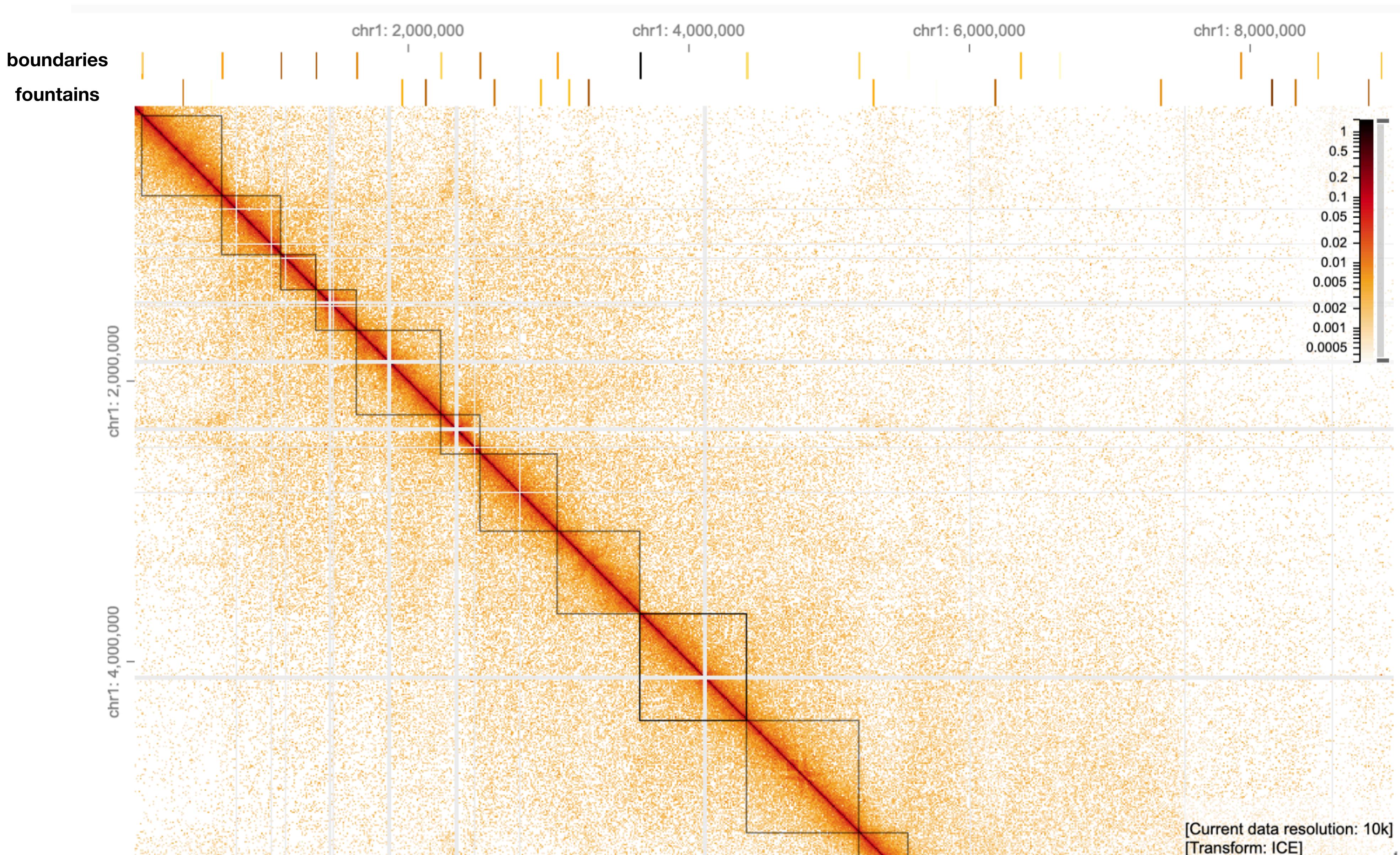


TAD boundaries and fountains almost do not intersect

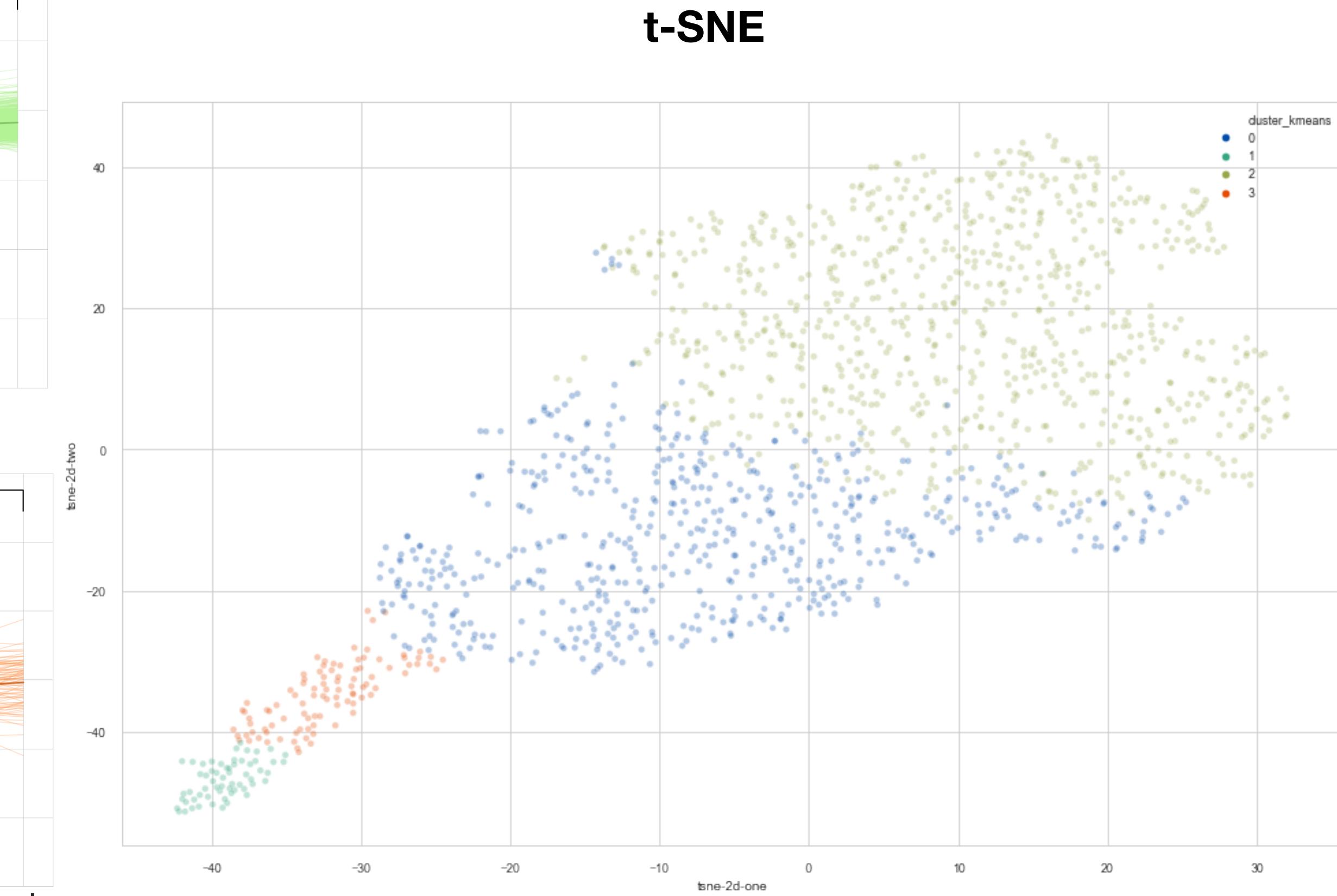
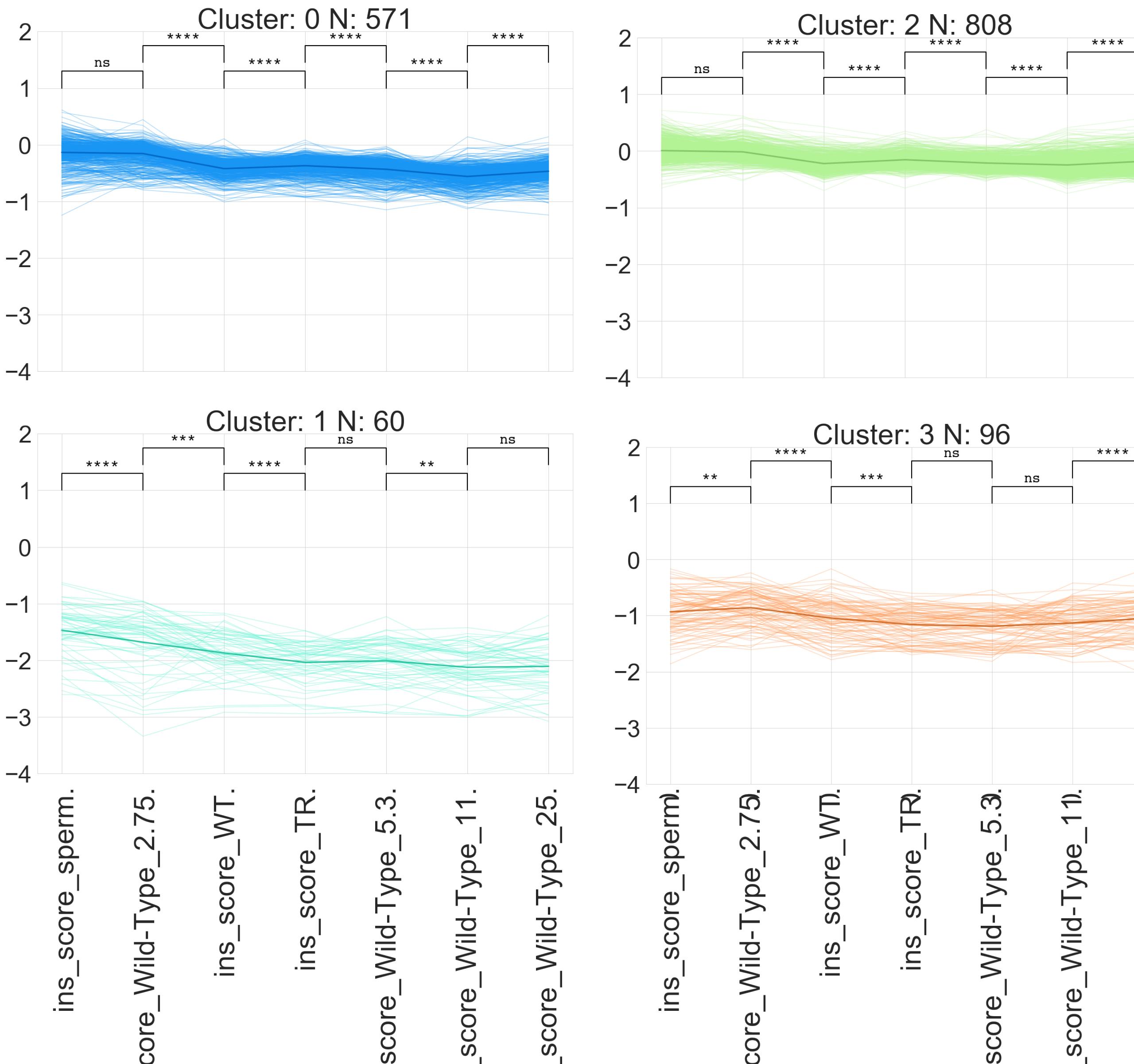
Distribution of relative distance from fountains to the center of TAD



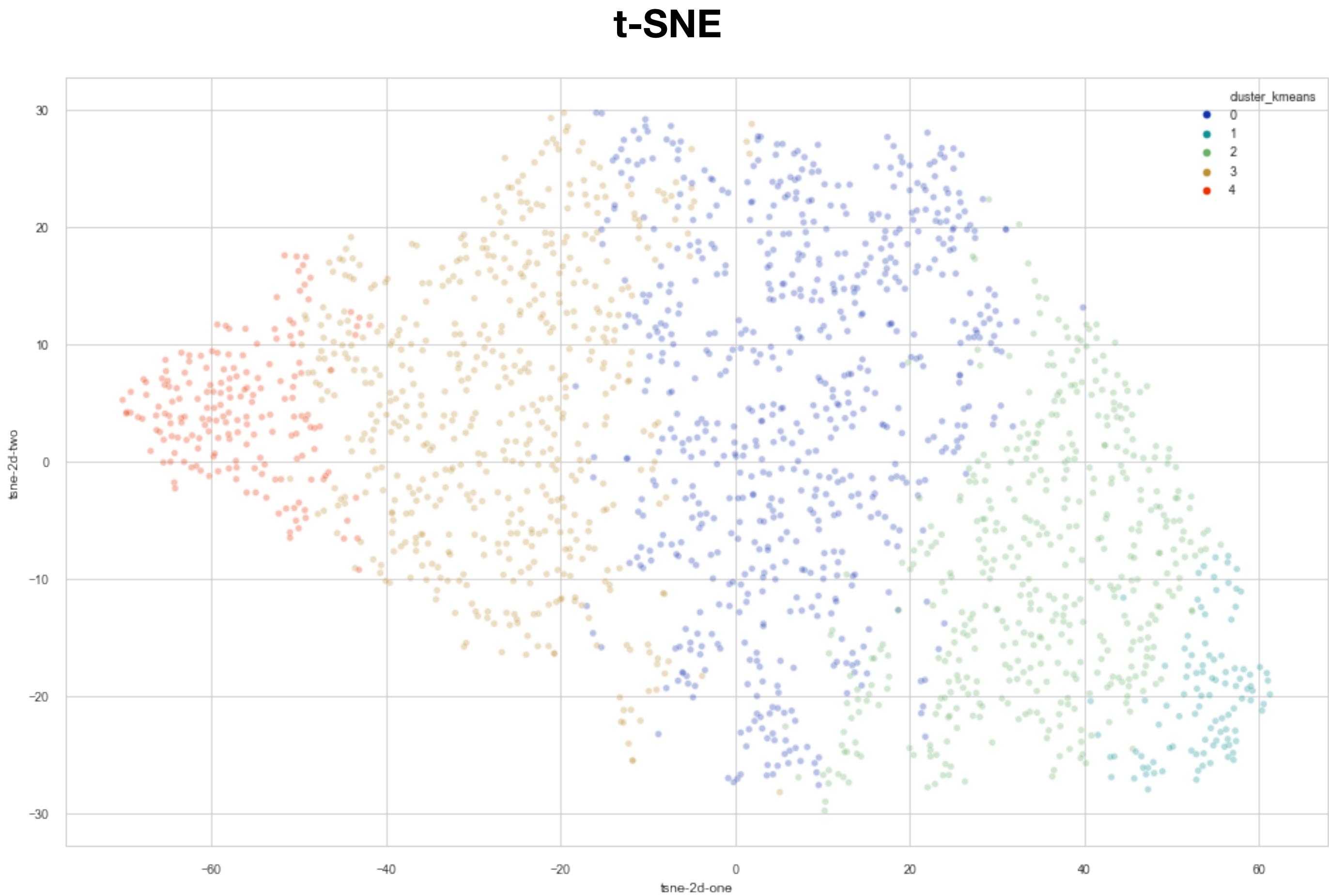
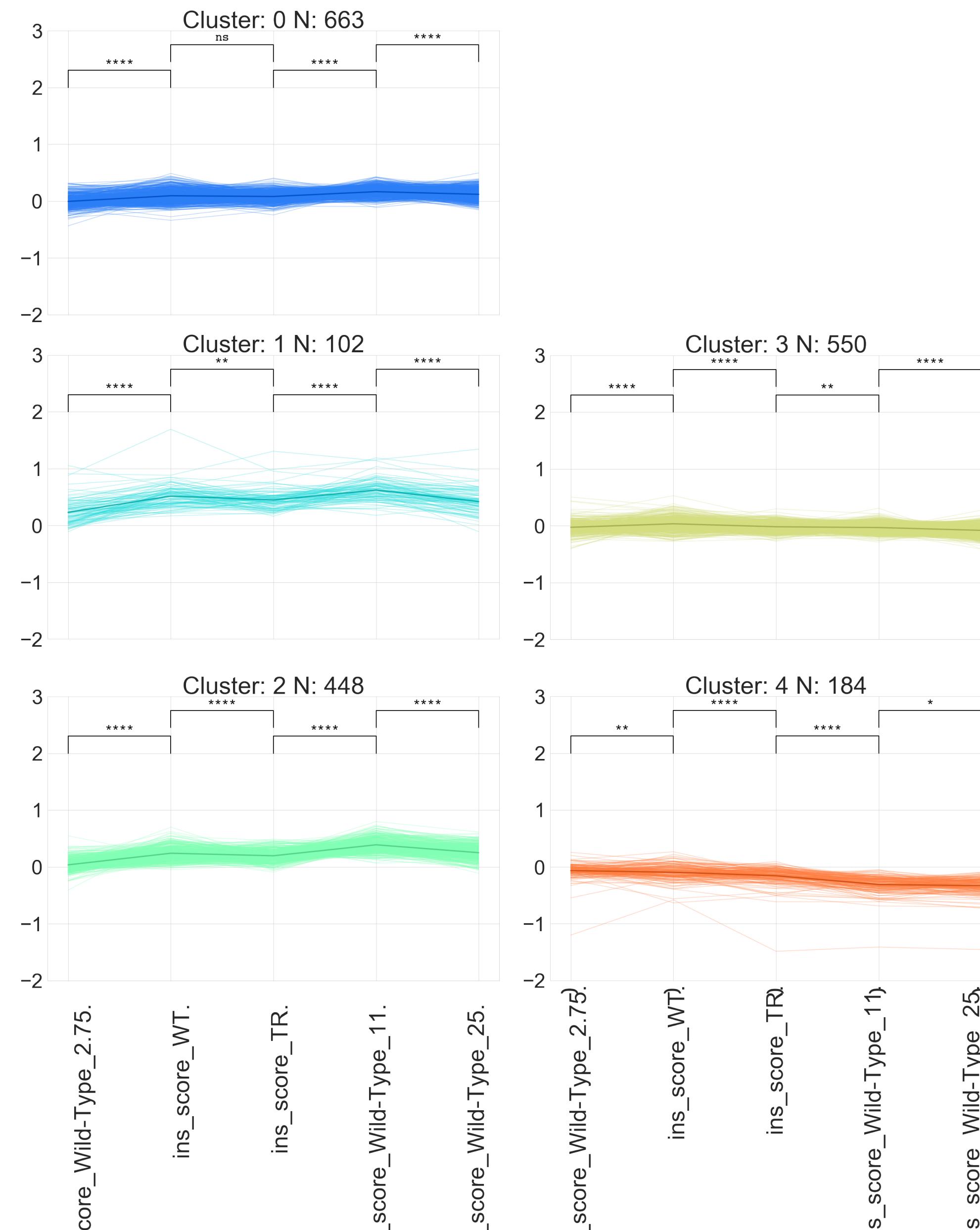
TAD boundaries and fountains almost do not intersect



TAD boundaries time-series clustering



Fountains time-series clustering

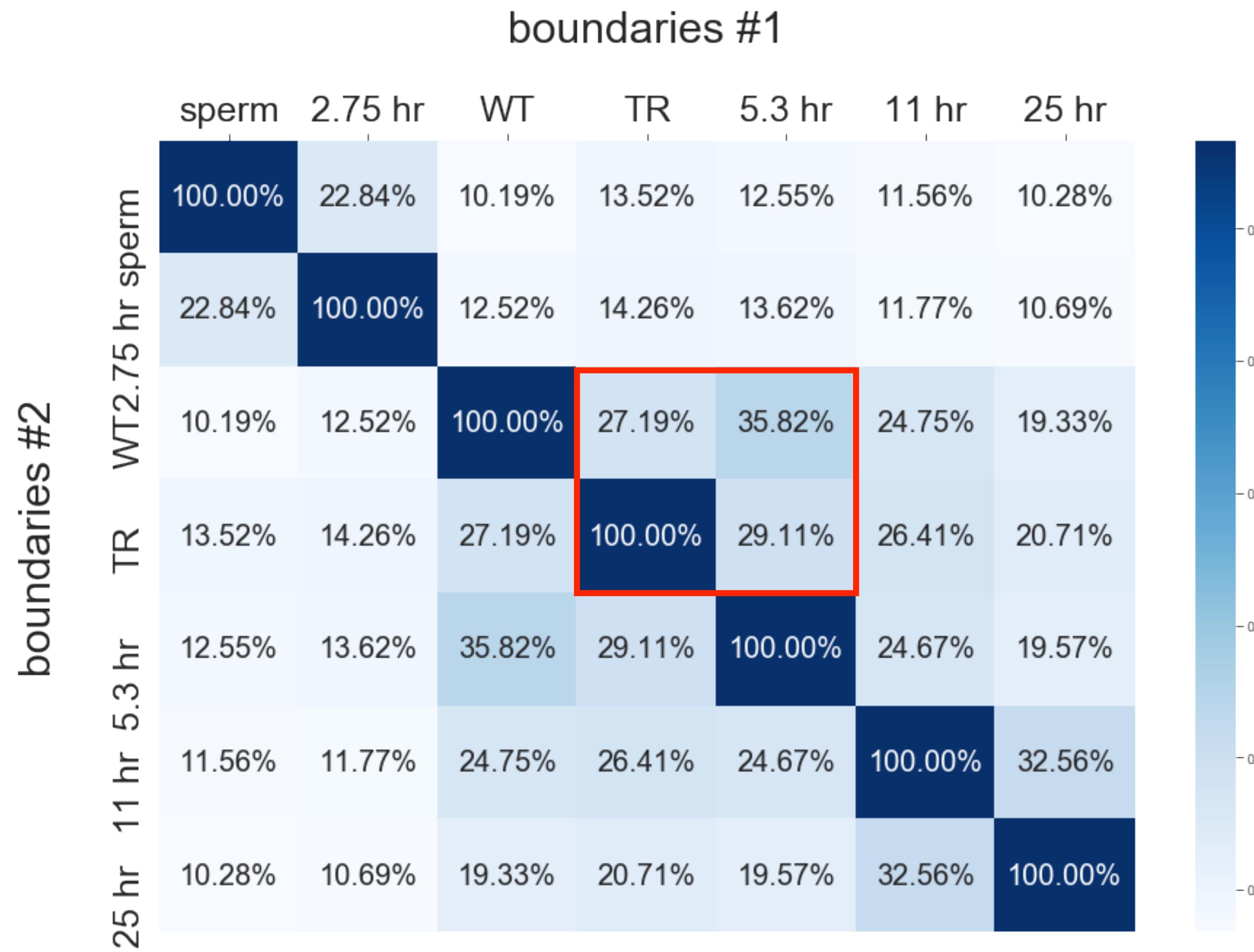


TAD boundaries calling

- HiChew (based on cooltools)
- Expected TAD size (500 Kb for *Danio rerio*)
- Local minima of the insulation score profile
- Boundary strength filtration (> 90th percentile)

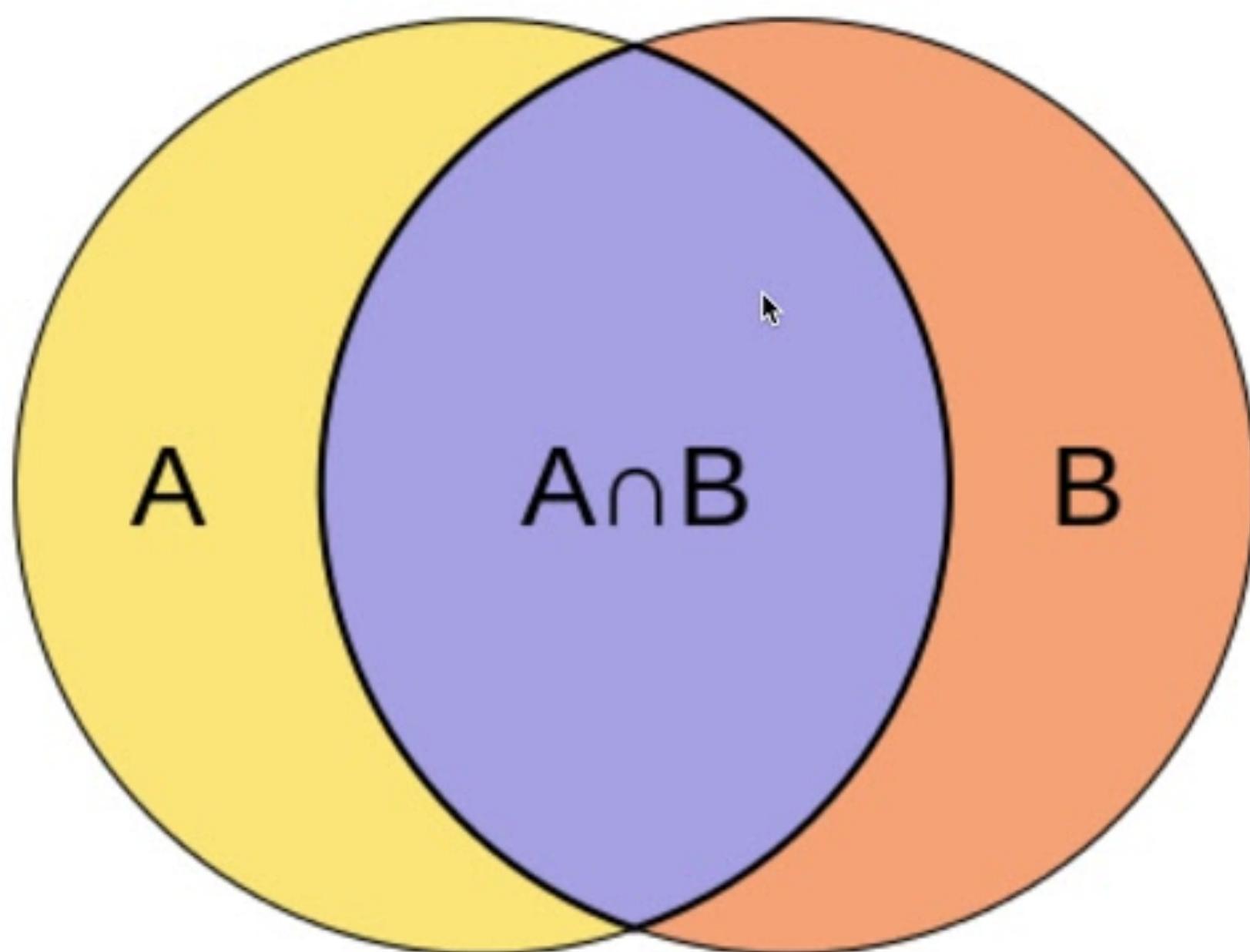
TAD boundaries annotation

J-index * 100 with delta=1 bin

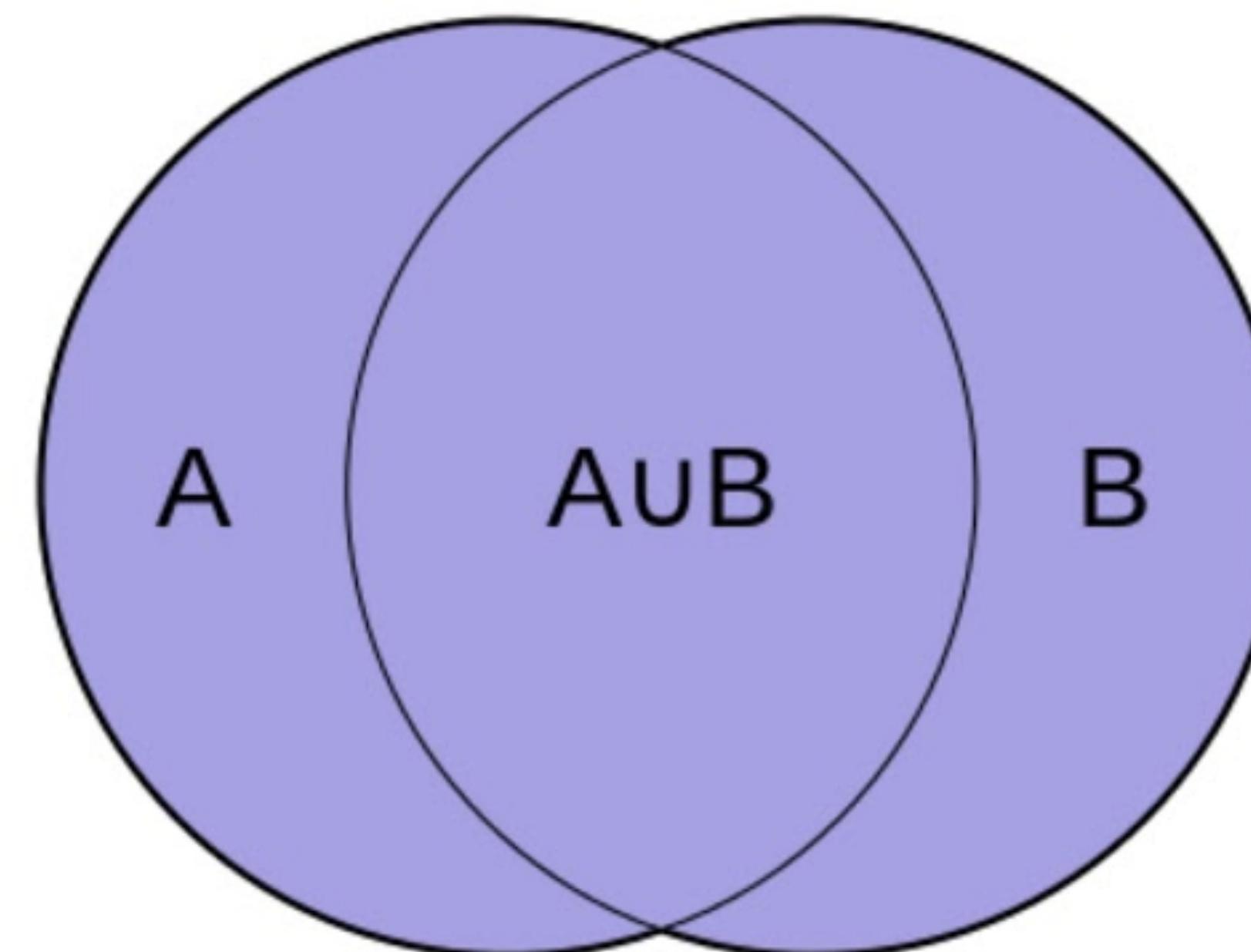


Jaccard coefficient

Intersection



Union

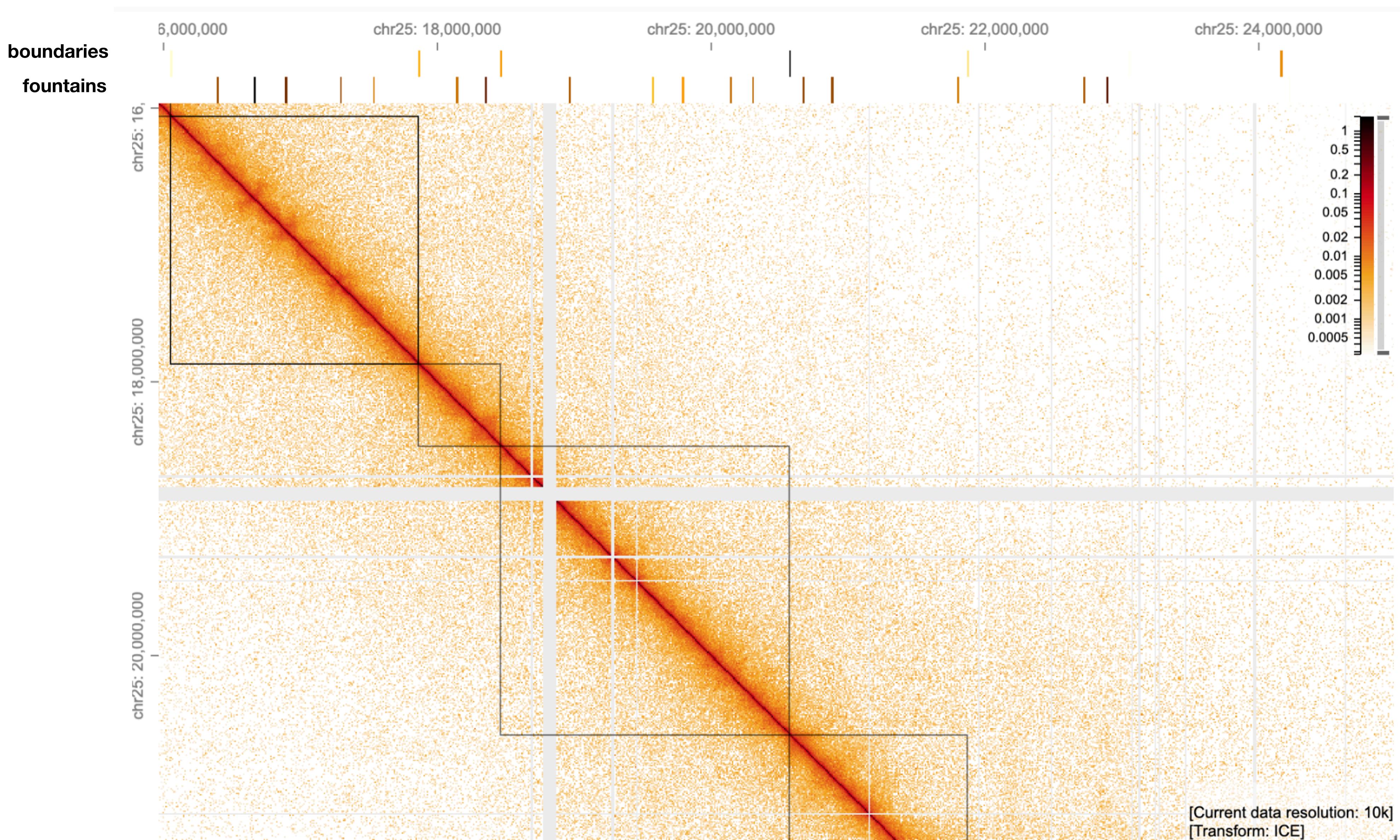


$$J(A, B) = \frac{|A \cap B|}{|A \cup B|}$$

Time-series clustering

- Structures found on the WT stage were used
- Then insulation score has been calculated for all the corresponding loci in all embryo stages
- ...clustering
- Method: K-means (number of clusters depends on the Elbow criterion & silhouette score)

TAD boundaries and fountains almost do not intersect



TAD boundaries and fountains almost do not intersect

