

Mechanical stress and cell fate acquisition during zebrafish trunk neural crest cell migration

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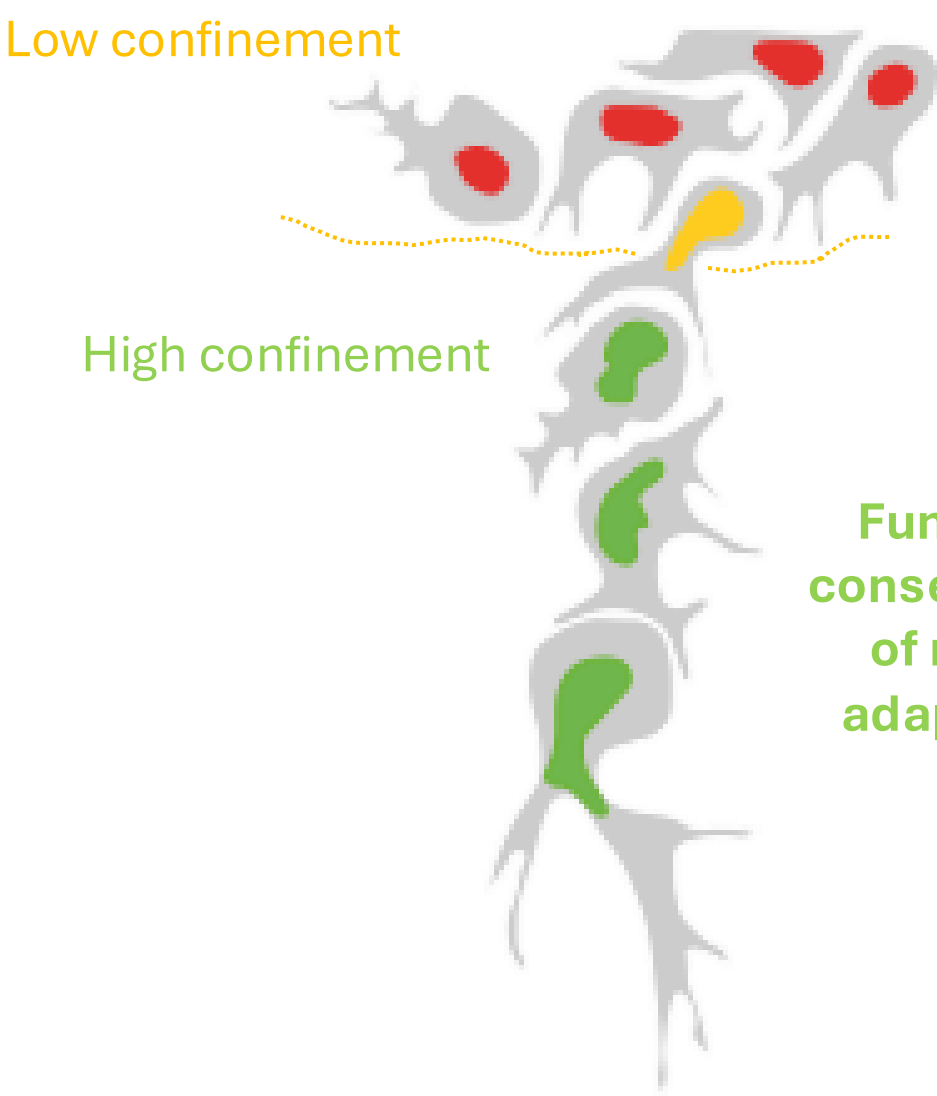
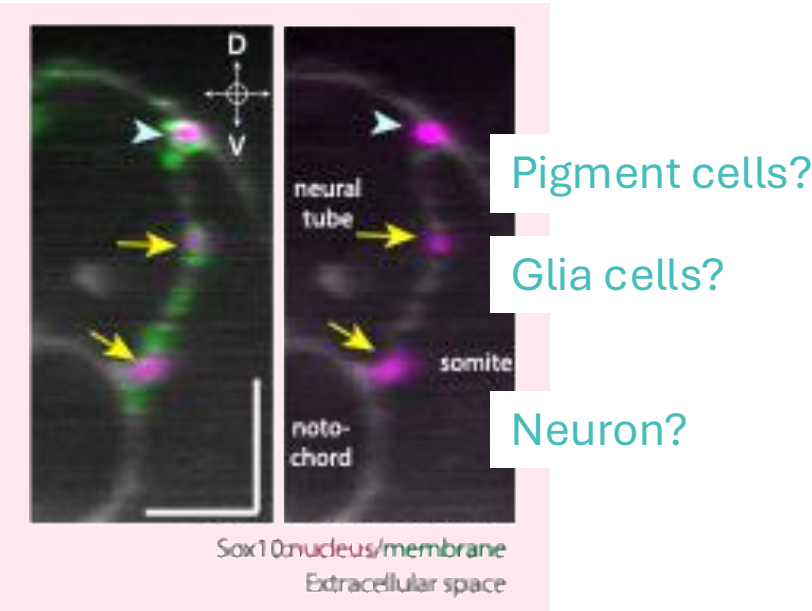
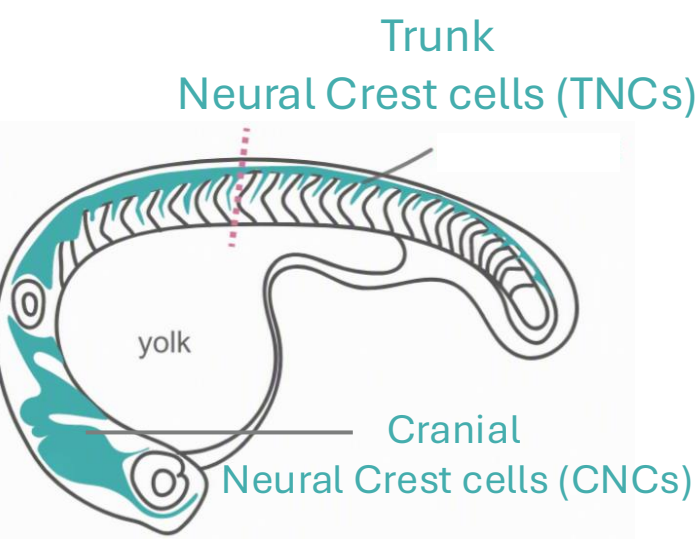
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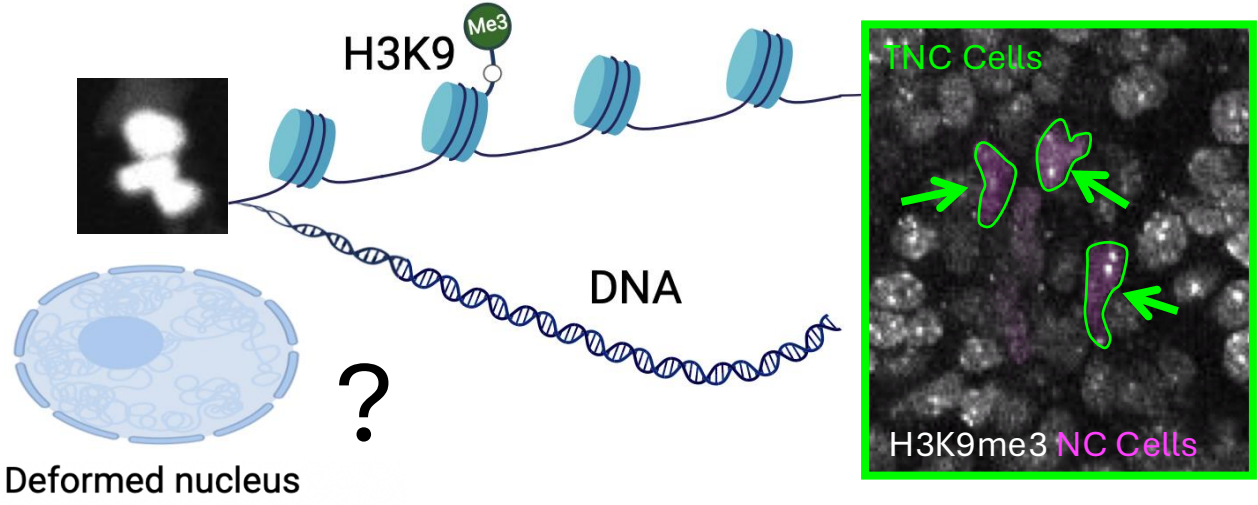


TNCs squeezing through tissues acquire various fates

Scientific question



Nuclear deformation reorganises chromatin

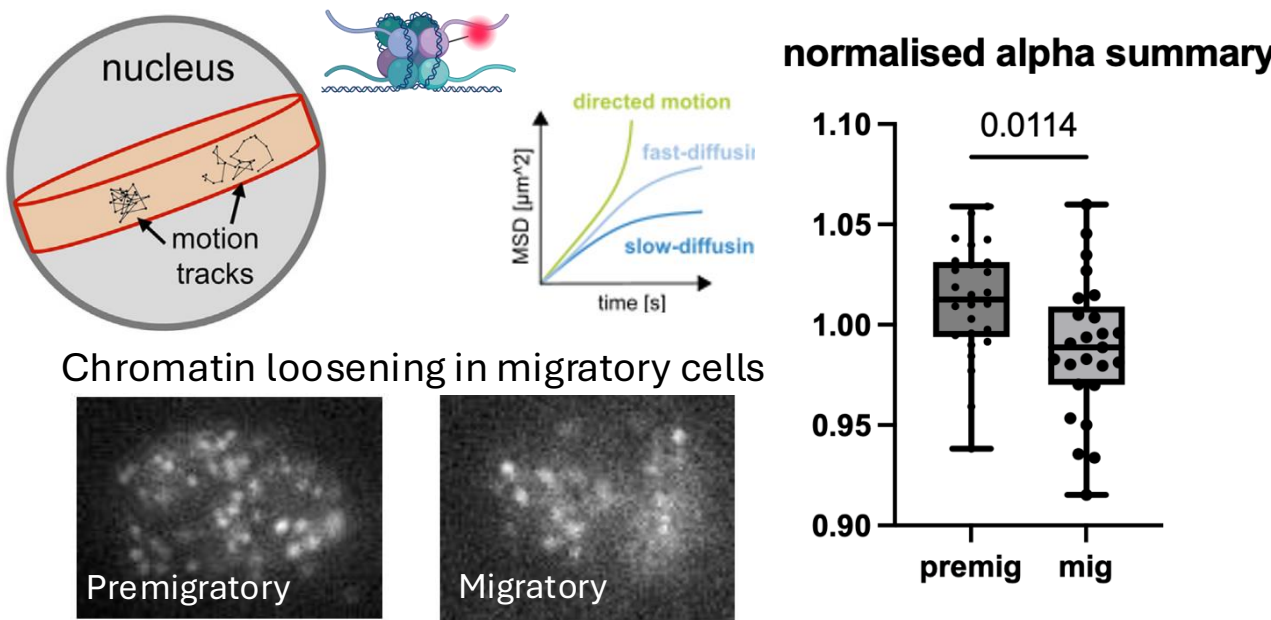


Does tissue confinement influence chromatin organisation and then the fate choices?

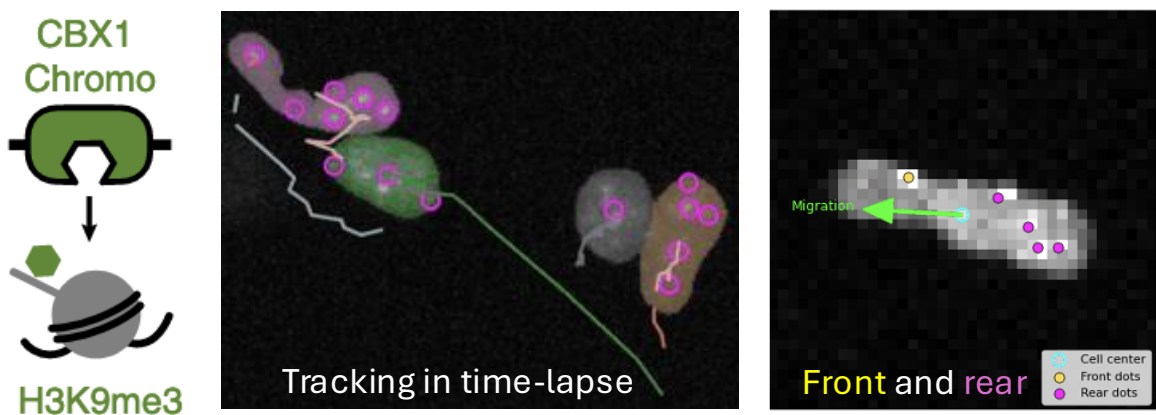
Using single-molecule imaging & live-reporter to track chromatin dynamics

Heterochromatin is reduced in migratory TNCs
But not in less confined or H3K9me3 OE mutant

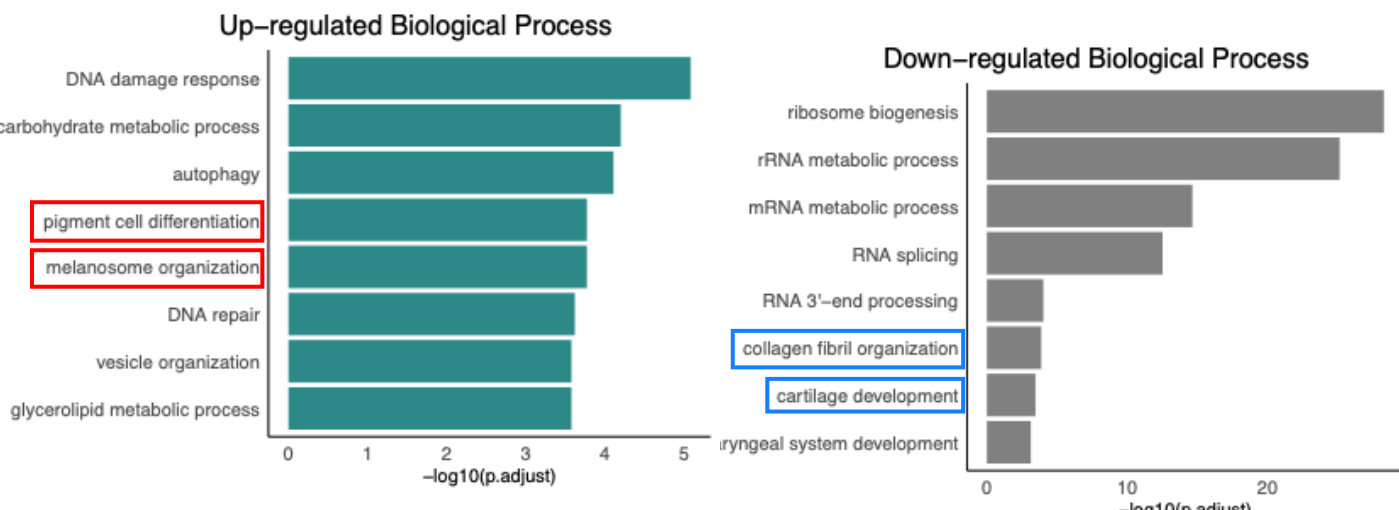
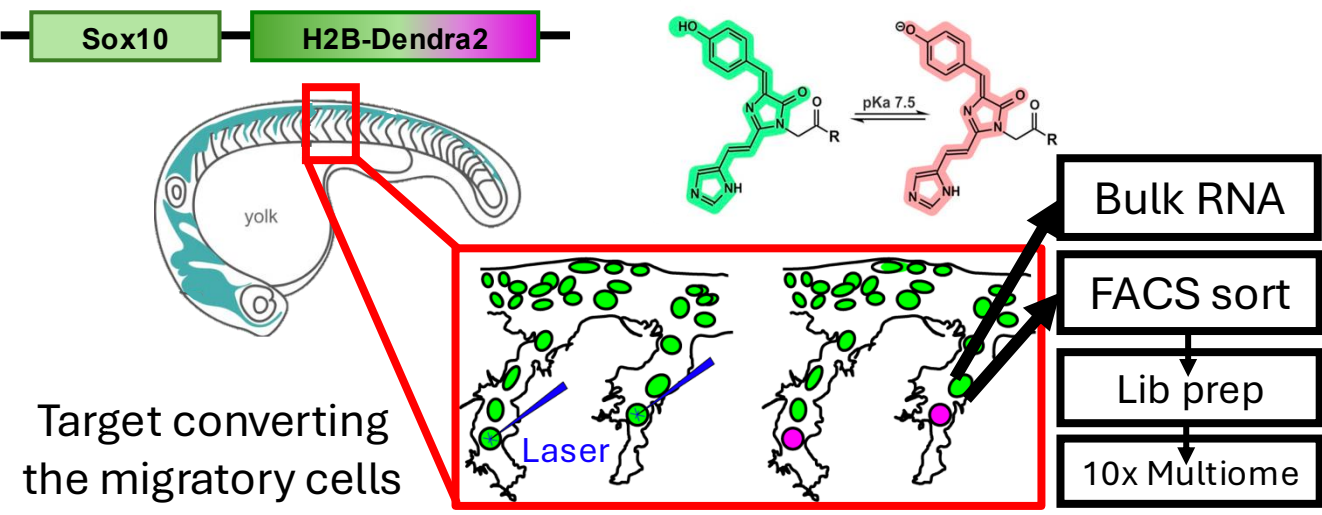
Less space for H2B to move around after migration



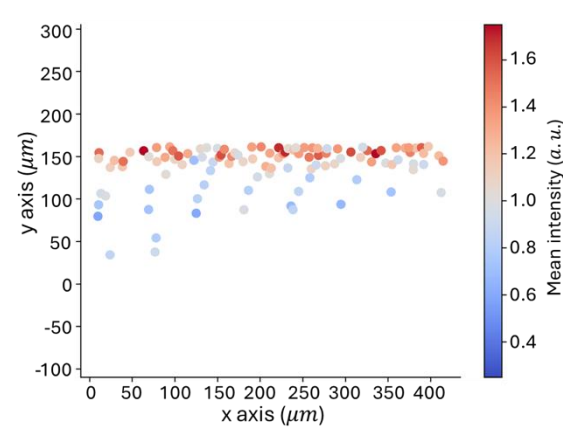
Different phase behaviours during confinement



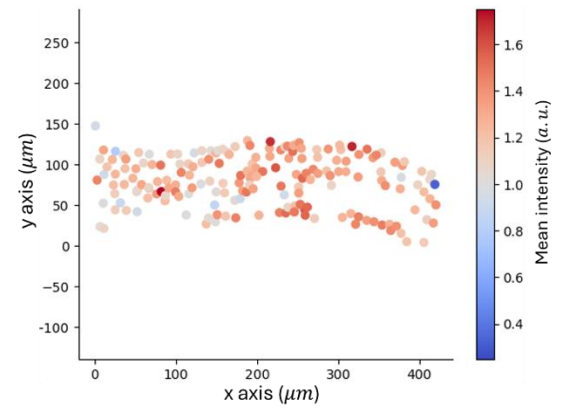
Bulk RNA-Seq and ongoing sc-RNA&ATAC-Seq



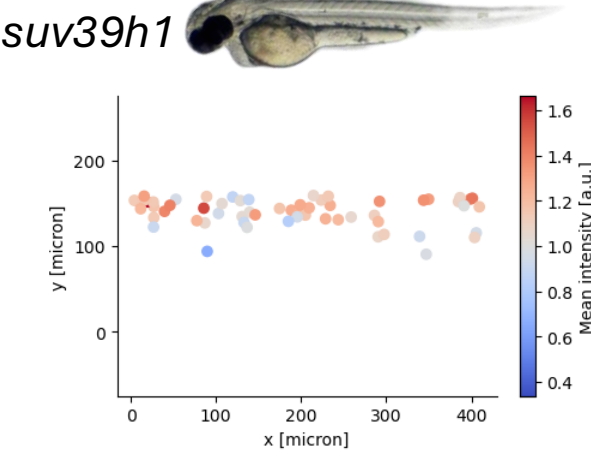
Control



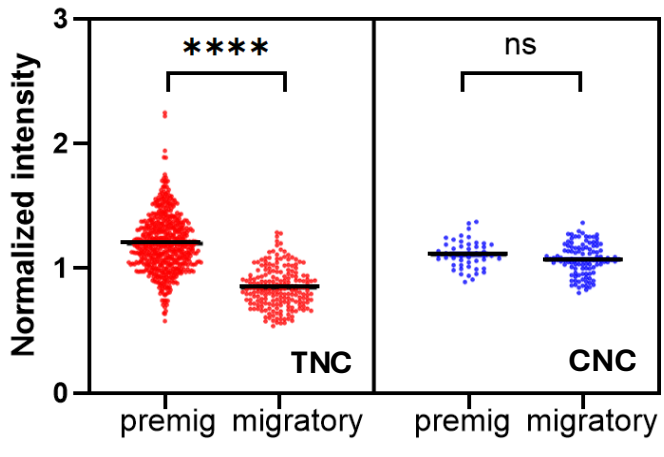
tbx16 (absent of somite mutant) (spt)



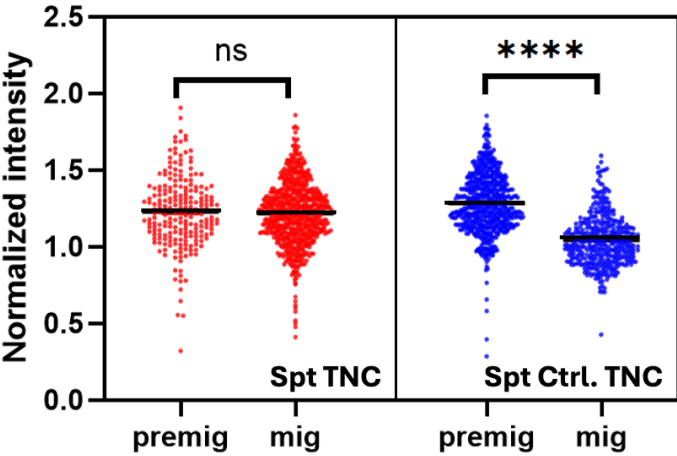
(overexpress methyltransferase)



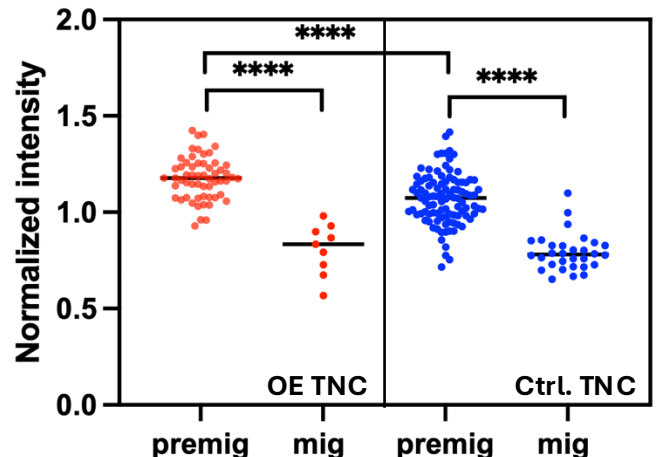
H3K9me3 measurment



H3K9me3 measurment



H3K9me3 measurment



Summary and future work

TNCs lose the H3K9me3 heterochromatin mark and the chromatin loosens during migration.

Ex-vivo fish culture in squeezing PDMS devices to decouple chemical and confinement cues.

Acknowledgement:

Cambridge Advanced Imaging Centre (CAIC)

Cambridge Aquatic Facility

Malhar Chitnis & Andrew Holle

Elephes Sung

