Intro :

\*Genome architecture <-> gene expression

->some lincRNAs regulate expression cis-trans.

\*Explain TADs, TAD boundaries, (CTCF enrichment).

\*Blabla investigate TAD-bound lincRNAs properties

?TR lincRNAs, impact on traits

Results

TAD boundaries definition

Introduction :

Genomic DNA is folded onto itself, forming compact structures that affect gene expression. On a large scale, regions presenting a high degree of compaction are classified as heterochromatin while uncondensed regions are classified as euchromatin. These are respectively associated with lower and higher expression levels. On a smaller scale, areas where DNA-DNA interactions are especially frequent are called topologically associated domains (TADs). Those domains are conserved across cell lines and contain smaller loop structures that allow different genetic elements such as enhancers and promoters to contact each other. The boundaries of TADs act as insulators, preventing DNA-DNA interactions across them. They are also gene-dense and enriched in highly transcribed genes (Ong et Corces, 2014).

Long intergenic non-coding RNAs (lincRNAs) might play a role in the regulation of nuclear architecture as they have been shown to mediate promoter-enhancer interactions and are enriched in TAD-boundaries (Chen et al 2016). LincRNAs that are associated with enhancer elements (elincRNAs) and therefore, highly transcribed are especially likely to be involved in such processes.