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# Investigating TE distribution across replication timing programmes in early mouse development

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## Abstract

Preimplantation development is a crucial period marked by intricate genomic processes, including the emergence of DNA replication timing (RT) and the transcriptional activation of transposable elements (TEs). TEs are ubiquitous DNA elements within eukaryotic genomes with the potential to influence gene expression and genome stability. However, the crosstalk between TEs and host DNA replication is poorly understood. Here, in this study, leveraging computational genomic analysis on single cell repli-seq datasets from our laboratory, we systematically examine the genomic landscape of TEs in relation to RT in mouse preimplantation embryos. We observe a heterogeneous distribution of TE across the different RT zones and reveal a different distribution pattern of TEs according to their evolutionary age. Our study suggests a potential regulatory role of TE in DNA replication dynamics during mouse preimplantation development.

**Keywords:** Transposable element, replication timing, genetic distribution, mouse embryo

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