

## TRANSPOSON AND GENOME

Genomes adapt not only to the external environment, but also to internal challenges — such as the activity of transposable elements.

Transposable elements (TEs), once considered “junk DNA”, are now recognized as major drivers of genome evolution, contributing to genetic innovation but also threatening genomic stability. To counteract this, organisms have evolved a variety of defense mechanisms, including KRAB-ZFPs, piRNAs, the HUSH complex, and 4.5SH RNA, leading to a continuous evolutionary arms race. This dynamic interplay not only preserves genome integrity but also fosters the development of novel gene regulatory systems and species-specific adaptations.

The paper is by Iwasaki et al.<sup>1</sup>.

1. [https://www.cell.com/trends/genetics/abstract/S0168-9525\(25\)00009-5?\\_returnURL=https%3A%2F%2Flinkinghub.elsevier.com%2Fretrieve%2Fpii%2FS0168952525000095%3Fshowall%3Dtrue](https://www.cell.com/trends/genetics/abstract/S0168-9525(25)00009-5?_returnURL=https%3A%2F%2Flinkinghub.elsevier.com%2Fretrieve%2Fpii%2FS0168952525000095%3Fshowall%3Dtrue)