23rd WPI©IHS Seminar

"Biogenesis and functions of PIWIinteracting RNAs in Drosophila germline"

Mobilization of transposable elements (TEs) can lead to natural insertion mutations that generally have negative effects on the host genome. Thus, host species have evolved control mechanisms that restrict TE activity. One such mechanism is RNAi/RNA silencing, where small RNAs of 20–30 nucleotides (nt) in length trigger multiple forms of sequence-specific gene silencing. In the Drosophila germline, PIWI-interacting RNAs (piRNAs) are produced from single-stranded long non-coding RNAs that are transcribed from intergenic elements, piRNA clusters, and are loaded onto PIWI proteins to yield piRISCs. However, the underlying mechanisms of how piRNAs are produced and function in TE silencing remain unknown.



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