



中国科学院生物物理研究所

贝时璋讲座

Armitage determines Piwi-piRISC processing from precursor formation and quality control to inter-organelle translocation in *Drosophila*

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报告人简介

2012- Professor , Graduate School of Science, The University of Tokyo, Japan
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【报告摘要】 In *Drosophila* ovarian somatic cells, Piwi and piRNA form piRNA-induced silencing complex (piRISC) to repress transposons. In the current model, Armitage (Armi) brings the Piwi-piRISC precursor (pre-piRISC) to mitochondria, where Zucchini-dependent piRISC maturation occurs. We recently found that Armi is necessary for Piwi-pre-piRISC formation at Yb bodies and that Armi triggers the preclusion of Piwi-pre-piRISC from Yb bodies prior to translocation to mitochondria. Piwi-pre-piRISC resists leaving Yb bodies until Armi binds Piwi-pre-piRISC through inward RNA. Lack of Armi N-terminus phenocopied. These findings suggest that Armi determines Piwi-piRISC processing from precursor formation and quality control to inter-organelle translocation for maturation.

【研究成果】：

- 1.Nishida KM, ... , Siomi H and **Siomi MC**. (2018) Hierarchical roles of mitochondrial Papi and Zucchini in Bombyx germline piRNA biogenesis. **Nature**
- 2.Matsumoto N, ... , Siomi H, **Siomi MC*** and Nureki O*. (2016) Crystal structure of silkworm PIWI-clade Argonaute Siwi bound to piRNA. **Cell**
- 3.Sumiyoshi T , ... , Siomi H and **Siomi MC**. (2016) Loss of *l(3)mbt* leads to acquisition of the ping-pong cycle in *Drosophila* ovarian somatic cells. **Genes & Development**
- 4.Iwasaki YW , ... , **Siomi MC**, Siomi H and Saito K. (2016) Piwi modulates chromatin accessibility by regulating multiple factors including histone H1 to repress transposons. **Molecular Cell**
- 5.Sato K , ... , **Siomi MC** and Siomi H. (2015) Krimper enforces an antisense bias on piRNA pools by binding AGO3 in the *Drosophila* germline. **Molecular Cell**
- 6.Ohtani H , ... , **Siomi MC*** and Saito K*. (2013) DmGTSF1 is necessary for Piwi-piRISC-mediated transcriptional transposon silencing in the *Drosophila* ovary. **Genes & Development**
- 7.Nishida KM , ... , Siomi H and **Siomi MC**. (2013) Roles of R2D2, a cytoplasmic D2 body component, in the endogenous siRNA pathway in *Drosophila*. **Molecular Cell**
- 8.Nishimasu H, ... , **Siomi MC*** and Nureki O*. (2012) Structure and function of Zucchini endonuclease in piRNA biogenesis. **Nature**
- 9.Saito K , ... , Siomi H and **Siomi MC**. (2010) Roles for the Yb body components Armitage and Yb in primary piRNA biogenesis in *Drosophila*. **Genes & Development**
- 10.Saito K, ... , Siomi H and **Siomi MC**. (2009) A regulatory circuit for piwi by the large Maf gene traffic jam in *Drosophila*. **Nature**