



Colloquium

Mobile Small RNAs Controlling Plant Reproduction

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Host: Xiaoqi Feng

Abstract: Small interfering RNAs (siRNAs) play a crucial role in plant reproduction, yet their mobility and function remain incompletely understood. We found that a large proportion of siRNAs found in pollen of the flowering plant *Capsella rubella* relies on non-cell-autonomous mobile siRNAs generated in surrounding maternal tissues. Using a grafting approach, we show that siRNAs generated in maternal tissues that surround the fertilization products act as non-cell autonomous mobile signals that trigger the production of secondary siRNAs through post-transcriptional gene silencing. This process parallels reproductive phased si (phasi)RNA biogenesis, which is widespread across angiosperms but has been considered absent in Brassicaceae. These mobile siRNAs do not primarily guide DNA methylation, but mainly function post-transcriptionally and cleave transcripts. Loss of these reproductive siRNAs causes pollen arrest, underscoring their essential role. Together, these findings highlight siRNAs as long-distance communication signals from maternal sporophytic tissues to the male gametophyte with critical functions in developmental regulation.

Monday, November 3, 2025 11:30am - 12:30pm

Raiffeisen Lecture Hall



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