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Article:

Somashekar, H., Takanami, K., Benitez-Alfonso, Y. orcid.org/0000-0001-9779-0413 et al. (3 more authors) (2024) Callose Deficiency Modulates Plasmodesmata Frequency and Extracellular Distance in Rice Pollen Mother and Tapetal cells. *Annals of Botany*. mcae137. ISSN: 0305-7364

<https://doi.org/10.1093/aob/mcae137>

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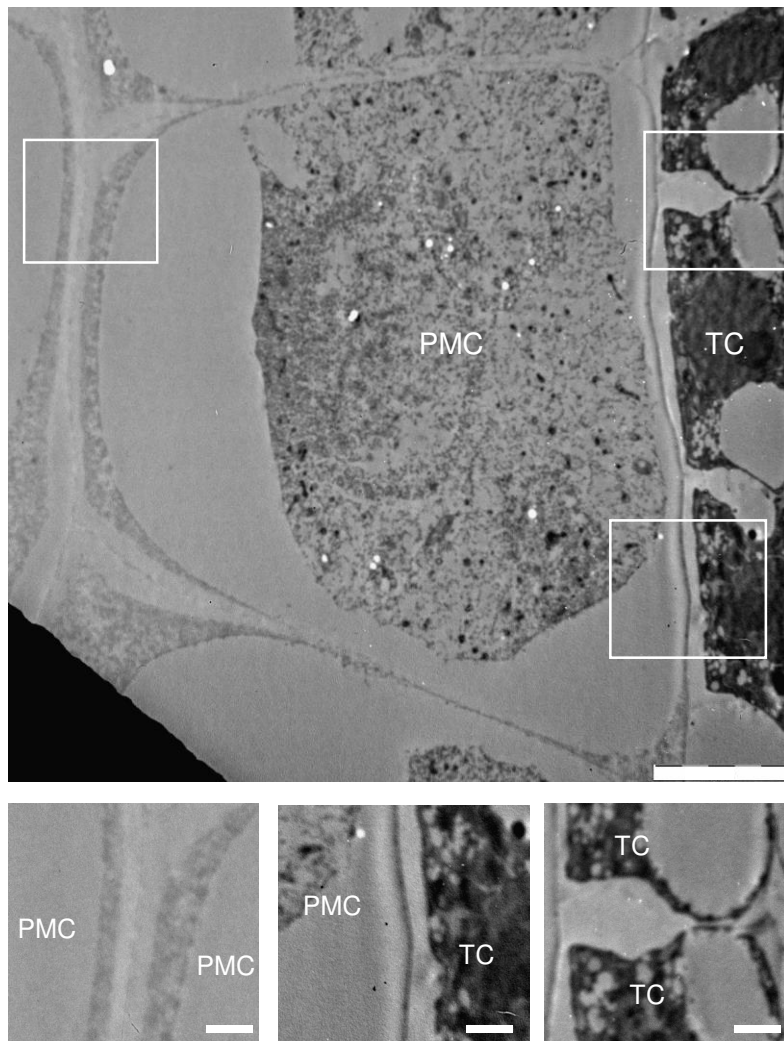
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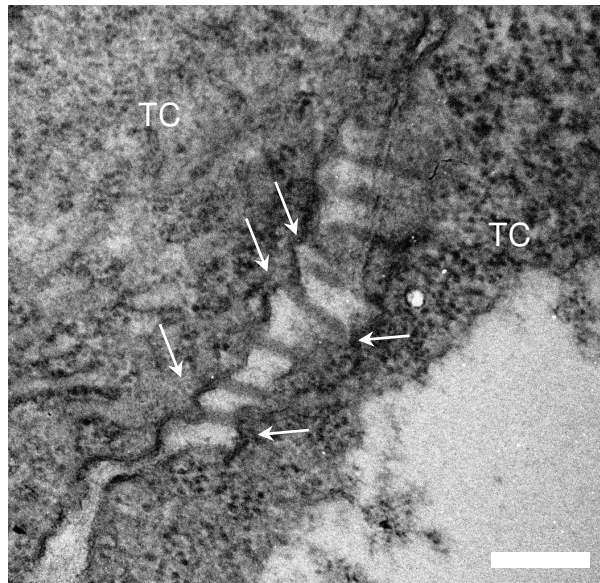


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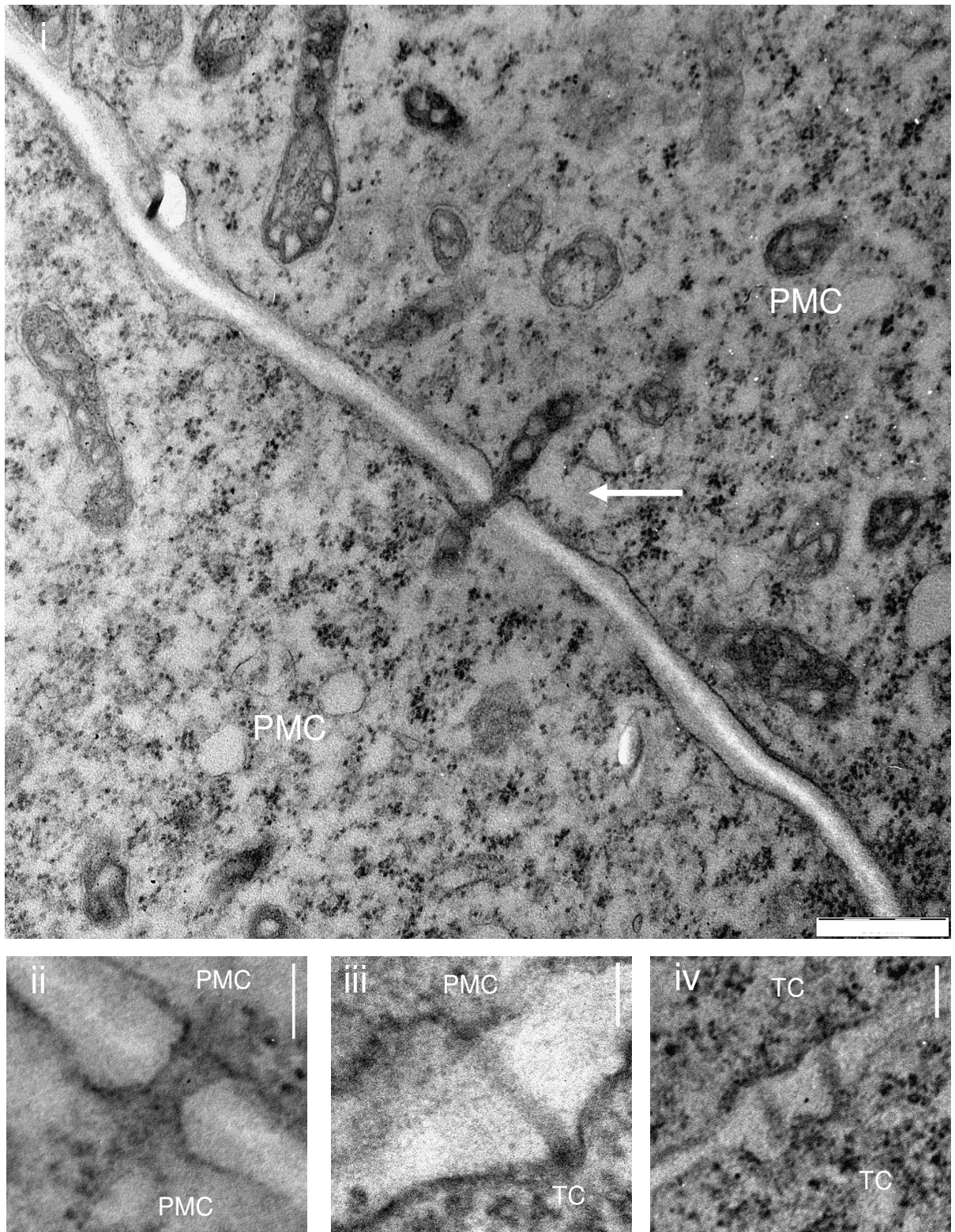


Anther (mm)	Cellular interface	Plasmodesmata observed	Cell wall length observed (μm)
0.70	PMC-PMC	0	126.3
0.70	PMC-TC	0	42.98
0.70	TC-TC	0	26.72

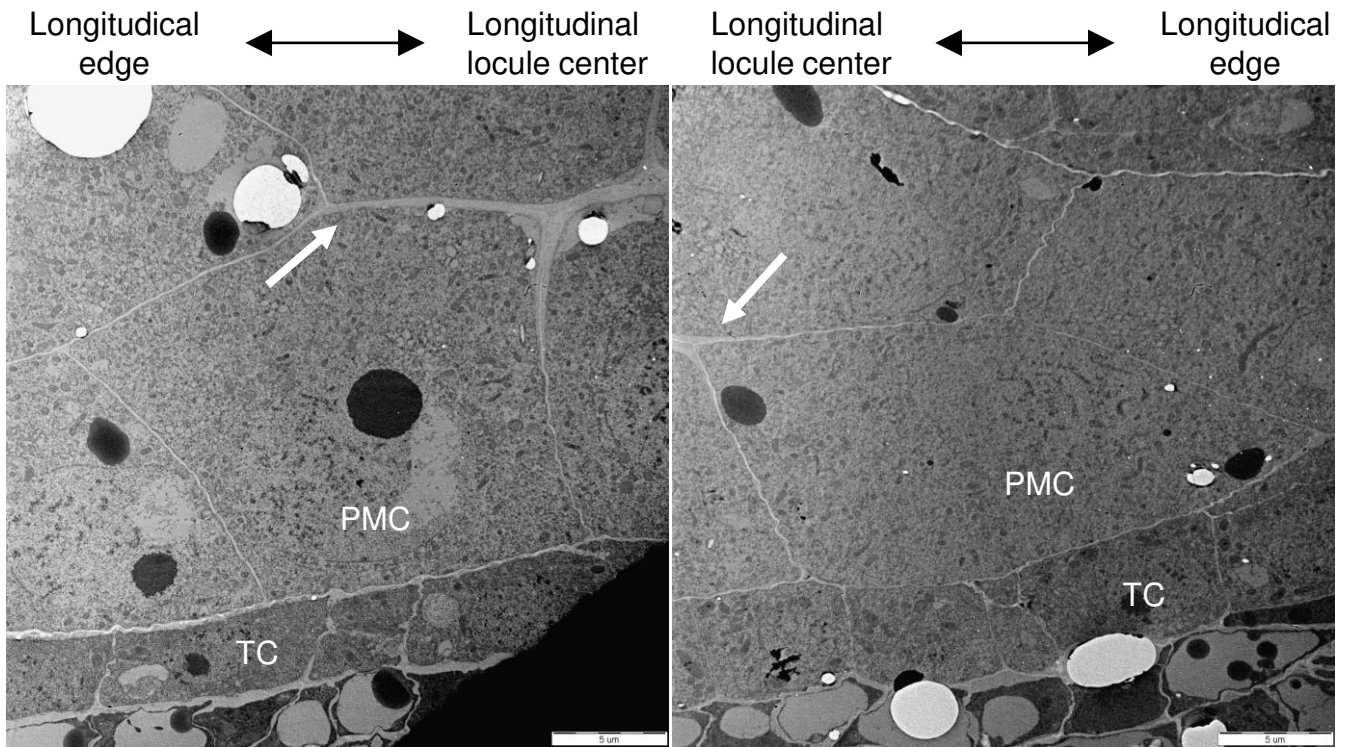
Supplemental Figure 1: Plasmodesmata are undetectable in mid-late meiosis anther in wild type. Transmission electron microscopic image showing all three cellular interfaces at wild type anthers (0.7-0.75mm), roughly corresponding to Meiosis II, Scale bar = $5\mu\text{m}$. Inset below showing no PD at the PMC-PMC, PMC-TC and TC-TC interfaces, Scalebar = $1\mu\text{m}$. Below table shows the quantification of PD observed. Note that the PD were not observed at all three interfaces.



Supplemental Figure 2: Densely packed plasmodesmata observed at the TC-TC interface in wild type anthers. Arrows indicate membrane invaginations at PD site. Scale =250nm.



Supplemental Figure 3: i. Diffusing cell organelle through plasmodesmata observed between pollen mother cells of premeiotic anthers (0.4-0.45mm). Scale bar = 500nm. ii-iv. Comparison of plasmodesmata size observed at three cellular interfaces in anther locules. Scale bar= 100nm



Supplemental Figure 4: Callose distribution at the PMC-PMC junction at the beginning stage of callose deposition in early premeiotic interphase anthers on a longitudinal section prior to spreading to the PMC-TC interface. The locule center and TC side ends are indicated above. White arrow shows the margins of callose deposition. Scale bar = 5μm