Cells must sense and regulate their internal $\text{NH}_4^+$ levels to modulate nitrogen levels and avoid $\text{NH}_4^+$ toxicity. Bai et al. (pages 1497–1511) identify an Arabidopsis $[\text{Ca}^{2+}]_{\text{c}}$-associated protein kinase (CAP1), a receptor-like kinase that mediates $\text{NH}_4^+$ homeostasis. CAP1 also regulates the polar growth of root hairs by maintaining tip-focused cytoplasmic $\text{Ca}^{2+}$ gradients. The cap1-1 mutation specifically affects root hair tip elongation and the morphology of root hairs on Murashige and Skoog medium and produces elevated levels of cytoplasmic $\text{NH}_4^+$. Ammonium depletion from the medium reestablished the $\text{Ca}^{2+}$ gradient necessary for normal root hair tip growth in the mutant. The image shows abnormal root hairs in a cap1-1 mutant grown on Murashige and Skoog medium.
Homoeologous Chromosome Sorting and Progression of Meiotic Recombination in *Brassica napus*: Ploidy Does Matter!

Laurie Grandont, Nieves Cuñado, Olivier Coriton, Virgine Huteau, Frédérique Eber, Anne Marie Chèvre, Mathilde Grelon, Liudmila Chelysheva, and Eric Jenczewski

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Analysis of the Root System Architecture of *Arabidopsis* Provides a Quantitative Readout of Crosstalk between Nutritional Signals

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A Receptor-Like Kinase Mediates Ammonium Homeostasis and Is Important for the Polar Growth of Root Hairs in *Arabidopsis*

Ling Bai, Xiaonan Ma, Guozeng Zhang, Shufei Song, Yun Zhou, Lijie Gao, Yuchen Miao, and Chun-Peng Song

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The Rice Basic Helix-Loop-Helix Transcription Factor TDR INTERACTING PROTEIN2 Is a Central Switch in Early Anther Development

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Ertao Wang, Nan Yu, S. Asma Bano, Chengwu Liu, Anthony J. Miller, Donna Cousins, Xiaowei Zhang, Pascal Ratet, Million Tadege, Kirankumar S. Mysore, J. Allan Downie, Jeremy D. Murray, Giles E.D. Oldroyd, and Michael Schultze

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