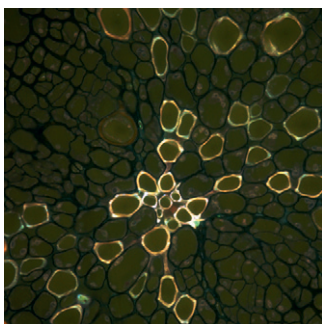


T H E  
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**ON THE COVER**



Tracheary element differentiation inhibitory factor (TDIF) peptide signaling plays a crucial role in the maintenance of procambial/cambial stem cells. Hirakawa et al. (pages 2618–2629) show that TDIF functions in the regulation of stem cell proliferation and xylem differentiation by two independent pathways. Activation of the *WUSCHEL*-related *HOMEBOX4* (*WOX4*) gene by TDIF is involved only in the enhancement of procambial cell proliferation, whereas TDIF-mediated inhibition of xylem commitment is independent of *WOX4*. The cover shows a cross section of secondary vascular tissues in a *tdr wox4* double mutant hypocotyl, in which the procambial/cambial stem cells adjacent to the phloem cells (green dots) have differentiated into xylem cells (with orange secondary walls), causing premature growth termination of secondary vascular tissues.



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





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