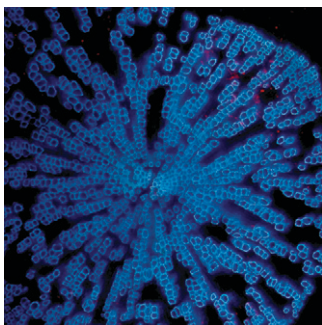


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ON THE COVER



Wood is formed by the successive addition of secondary xylem, which consists of cells with a conspicuously thickened secondary wall composed mainly of lignin and cellulose. Mitsuda et al. (pages 270–280) show that two plant-specific transcription factors, NAC SECONDARY WALL THICKENINGS PROMOTING FACTOR1 (NST1) and NST3, are key regulators of the formation of secondary walls in woody tissues of *Arabidopsis*. Experiments with both loss- and gain-of-function mutants suggest that NST1 and NST3 function redundantly to promote secondary wall thickening in interfascicular fibers and secondary xylem. Putative orthologs of *NST1* and *NST3* present in the genome of poplar suggest that they might also function as key regulators of the formation of secondary walls in trees and could be used as a tool for the genetic engineering of wood and its derivatives. The cover image shows an autofluorescent image of lignin in a cross section of root hypocotyl of the *nst1-1 nst3-1* double mutant. Lignified secondary xylem was never observed, whereas lignification of vascular vessels was not affected, showing up as a fireworks-like display of fluorescent spots.

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