

SUPPLEMENTARY DATA

FIG. S1. Morphology of dormant and active cambium. (a) Dormant cambium in November. (b) Cambial reactivation in February. Arrows: anticlinal divisions at the phloem side. (c) Cambium in February (color version of 2B in the main text). Arrow: an expanding cambial derivative at the xylem side. (d) Active cambium in May. Arrows: intrusively growing tips of developing xylem fibres (IGX). (e) Active cambium in June. Black arrows show anticlinally divided cells of developing phloem, and white arrows point to IGX. (f) Cambium in February. Arrows: anticlinal divisions of developing phloem cells. Methods: TS (a–e), RS (d), BF (a, b, d–f), Fl (c). Scale bars: = 20 μm (a, b, f), 30 μm (d, e), 40 μm (c). For abbreviations, see legend to Fig. 2 in main text.

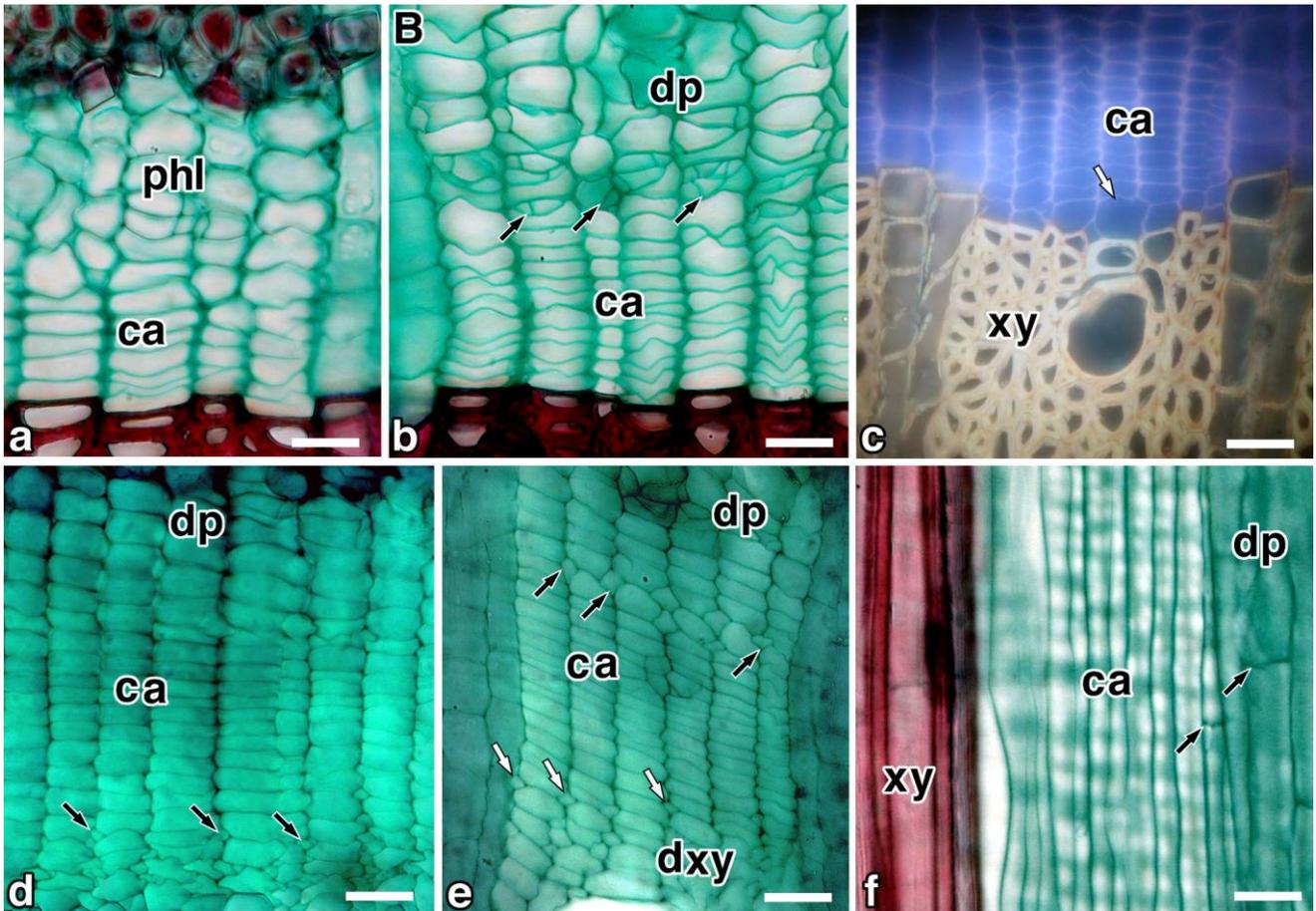


FIG. S2. Cell wall development of differentiating xylem and phloem cells. (a) Expanding earlywood vessels in March. (b) SEM micrograph of developing vessel wall in March (black arrow). White arrows point to membranes of perforation partitions between vessel elements. These perforation partitions have probably been ripped off during sample preparation for SEM. (c) Developing phloem and xylem in June. Red coloration of the secondary wall in developing cells is indicative for beginning of lignification (arrows in a and b). Methods: TS (a, c), RS (b), BF (a–c). Bars = 50 μ m. For abbreviations, see legend to Fig. 2 in main text.

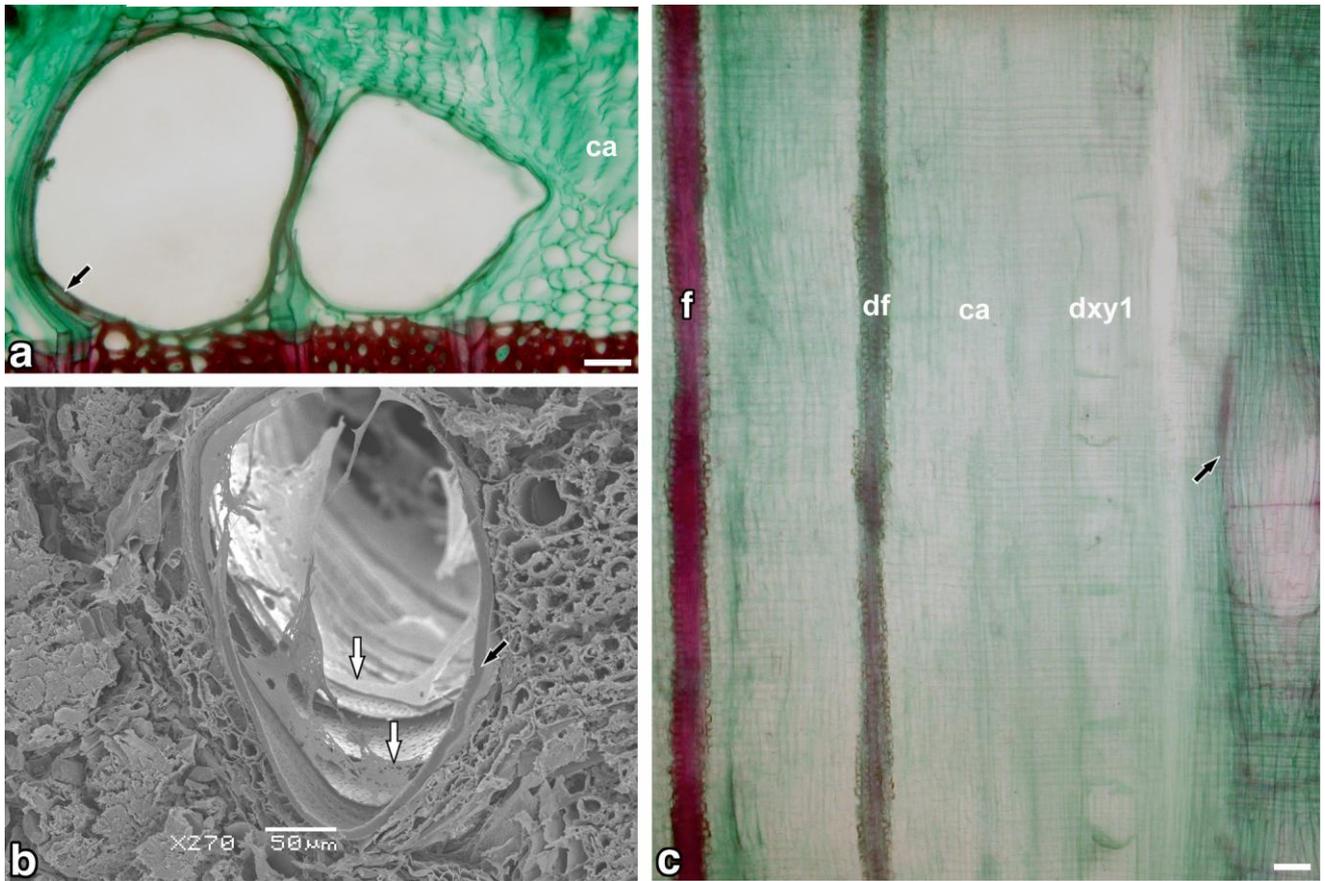


FIG. S3. June samples of different individuals of teak showing a similar pattern of growth zone formation in the earlywood. Methods: TS and BF. For abbreviations, see legend to Fig. 2 in main text.

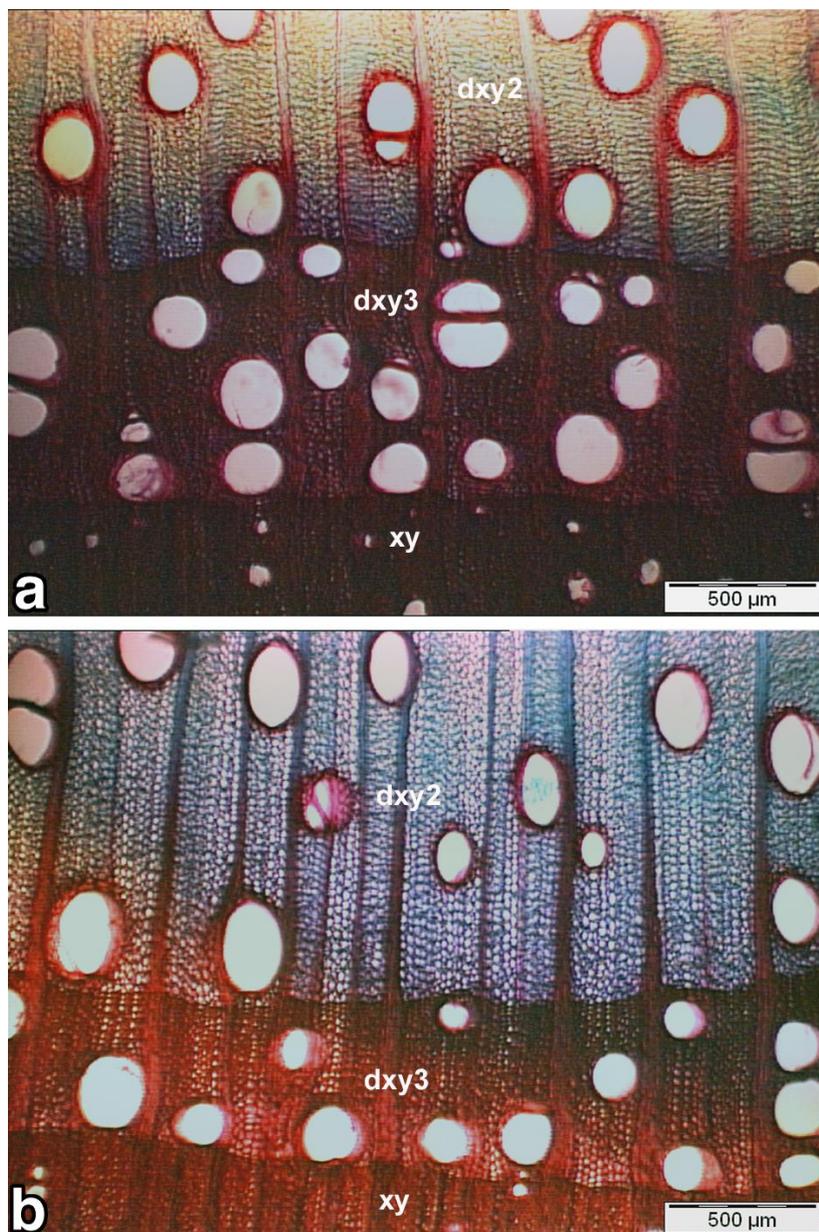


FIG. S4. Growth zones and growth ring structure in teak. (a) An annual growth ring boundary (arrow) between latewood and earlywood. (b) Indistinct growth zone boundary (GZB) in earlywood (arrow) marked by a variation in fibre cell wall thickness. (c and d) Distinct GZB in latewood (arrows). The GZB is marked by flattened terminal fibres and initial layers of axial parenchyma. (e) Development of a true annual growth ring boundary (arrows) in April. The initial layers of the new annual ring contain axial parenchyma with distinct pits in thickened cell walls. The differentiation of the earlywood cells in the middle (marked ew) is advanced (note the thicker and safranin-stained cell walls) relative to the earlywood cells at the left and right side of the image. (f) An oblique tangential longitudinal section through an annual ring boundary showing latewood fibres (lw) and earlywood axial parenchyma (ew). Methods: TS (a–e), TLS (f), BF (a–d), FL (e), PL (f). Bars = 100 μm (a), 200 μm (b, d), 500 μm (c), 50 μm (e, f). For abbreviations, see legend to Fig. 2 in main text.

