

Figure S1

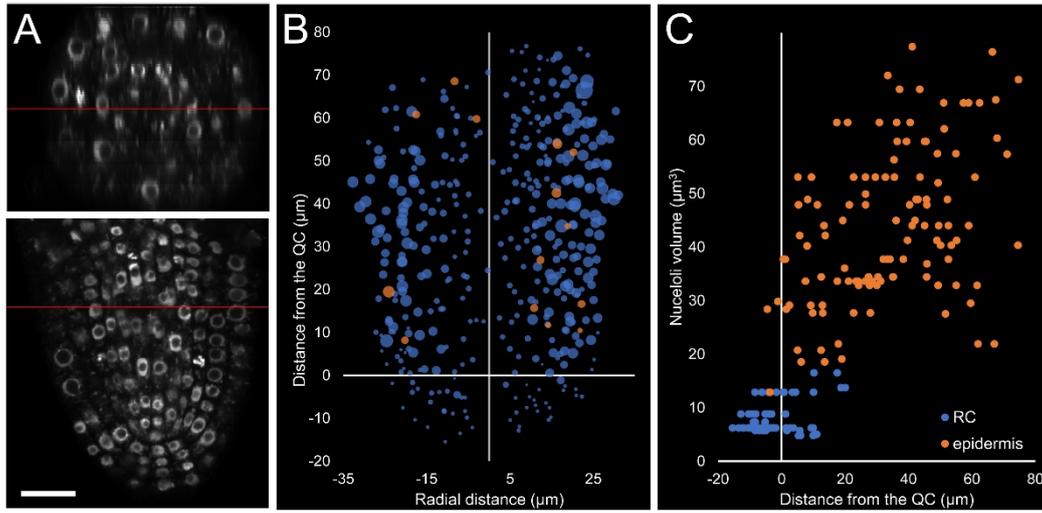


Figure S1. Nuclei and chromatin analysis in a young Arabidopsis LR. (A) Confocal 3D image of a young Arabidopsis LR; top: cross section, bottom: longitudinal section. (B). Nucleoli volume distribution along the longitudinal axis: orange indicate mitotic nuclei. (C) Nucleoli volume distribution along the longitudinal axis in different tissues: root cap (RC), blue; and epidermis, orange. Scale bar: 20 µm.

Figure S2

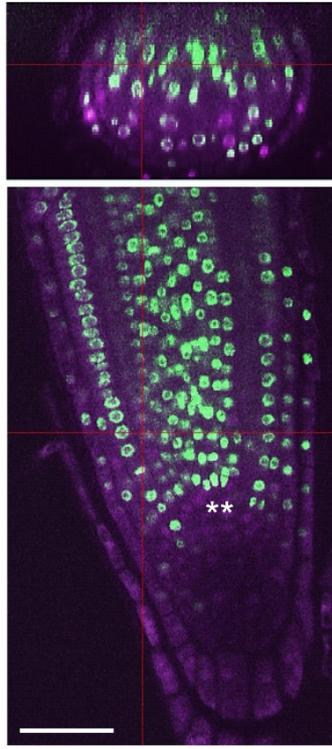


Figure S2. Long EdU staining of Arabidopsis PR. Seedlings were incubated with EdU for 8 h; Confocal 3D image of an Arabidopsis PR; top: cross section, bottom: longitudinal section. QC is marked with asterisks. Scale bar: 50 μm .

Figure S3

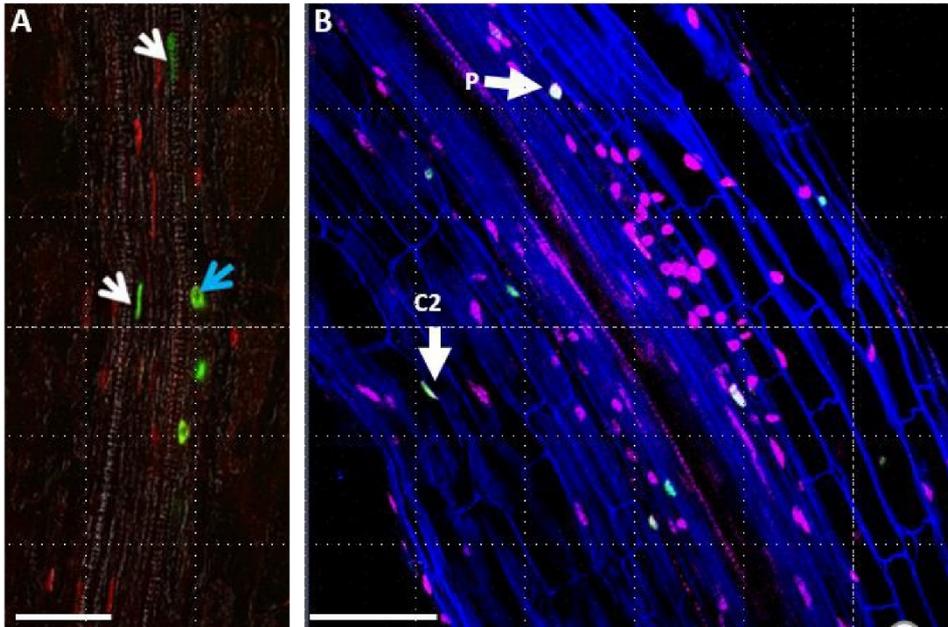


Figure S3. Analysis of the cell cycle events in the mature part of the plants. (A) Mature region of an Arabidopsis PR with *de novo* induction of a LR. Red: nuclei staining with DAPI; green: EdU staining; blue arrow: pericycle; white arrow: vascular cells. (B) Mature region of a PR in alfalfa. Blue: cell border staining with calcofluor white; magenta: nuclei staining with PI; green: EdU; C2 and P: DNA replication in cortex 2 and pericycle, respectively. Scale bars: 50 μm .

Figure S4

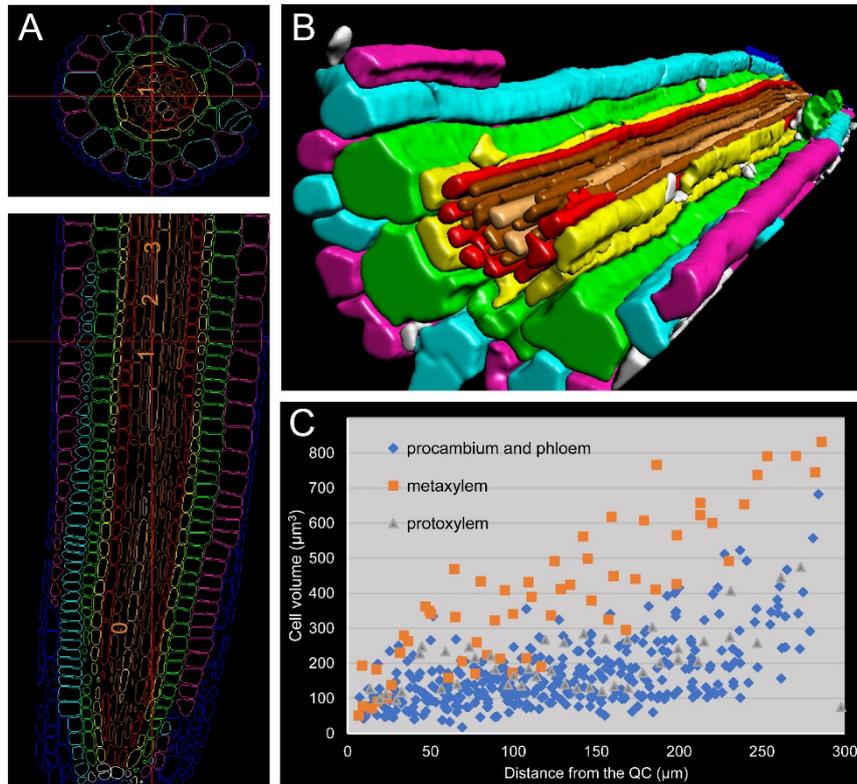


Figure S4. Vascular analysis in Arabidopsis and foxtail millet PRs. (A) Virtual 3D image of an Arabidopsis the PR; top: cross section, bottom: longitudinal section. (B) 3D render after segmentation. (C) Cell volume distribution along the longitudinal axis in different tissues: procambium and phloem, blue; metaxylem, orange; protoxylem, grey.

Figure S5

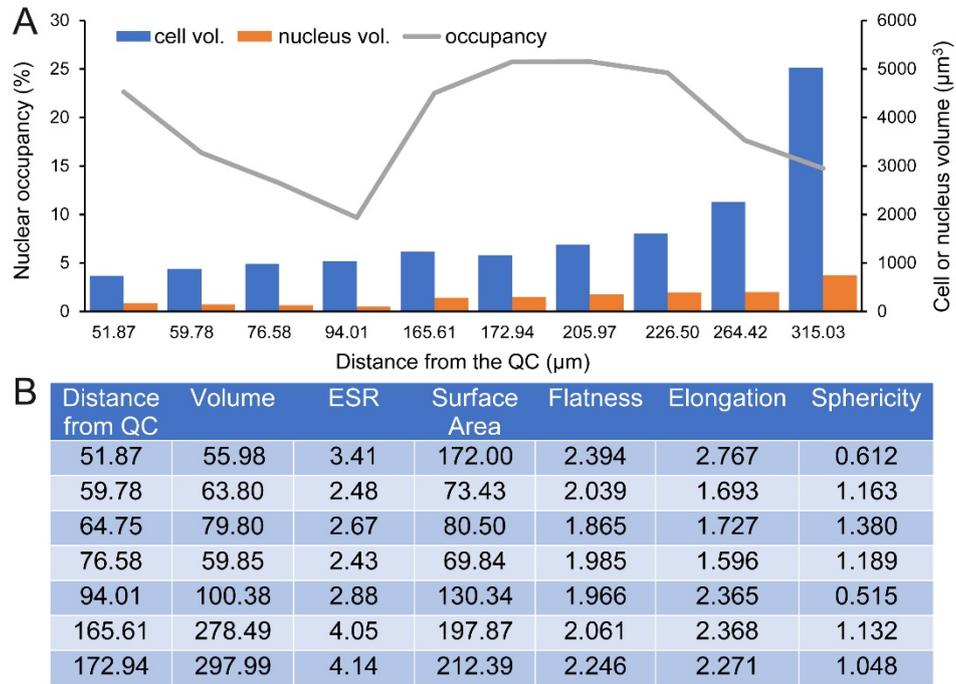


Figure S5. Chromatin parameters and nuclear occupancy in RAM and TZ of Arabidopsis atrichoblast cells in the PR. (A) Cell volume (blue bars); nuclei volume (orange bars) and cell volume/nuclei volume ratio (line). (B) Parameters of individual nuclei extracted by NucleusJ2.0 plugin (Dubos et al., 2020).

Figure S6

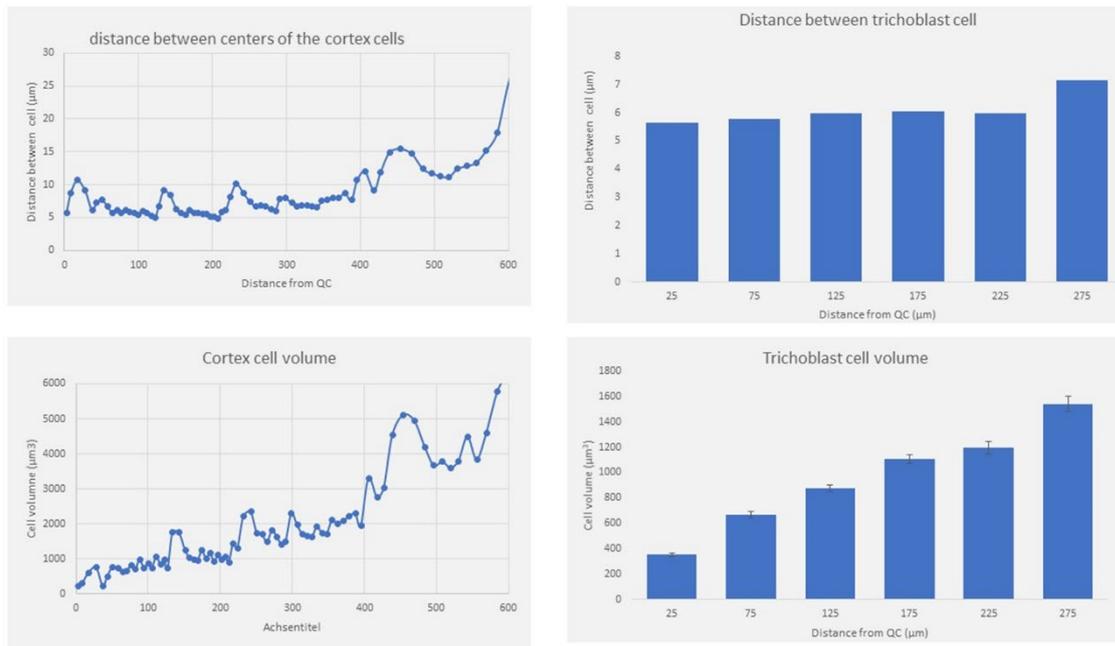


Figure S6. Length and volume distribution in epidermal cells. (A) Average distance between cells in the virtual 50 µm sections of the Arabidopsis PR. (B) Average volume in the same sections. In the trichoblast/atrichoblast (and less in cortex) cell volume was continuously increasing; e.g., cell volume of G1 cells at 25 µm is 3 time smaller as cell volume of G1 cells at 200 µm from QC, while cell length remained constant.