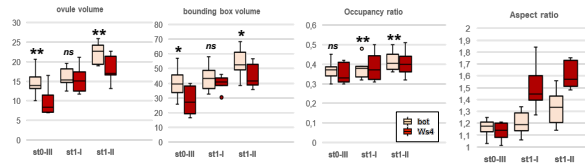
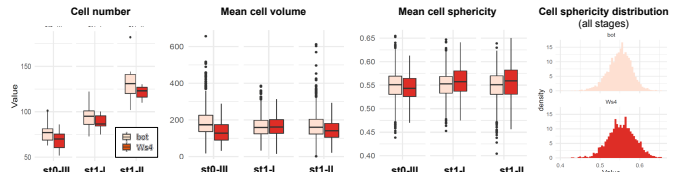


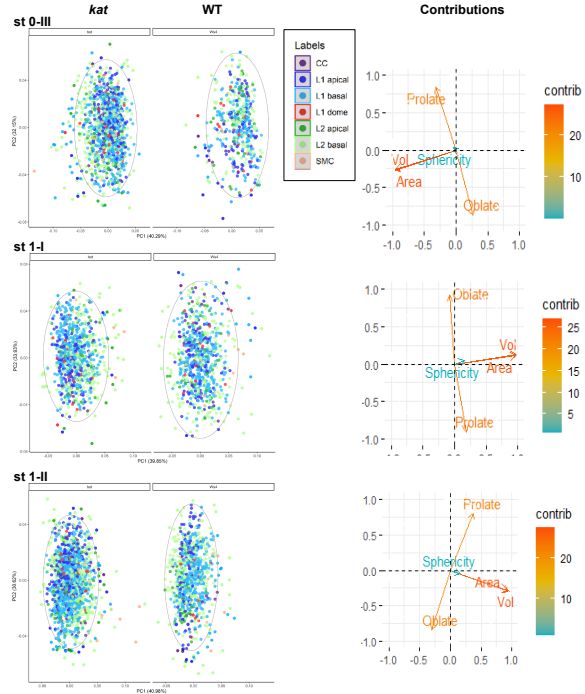
A Ovule shape in *kat* (*bot1-7*) vs WT (*Ws-4*)



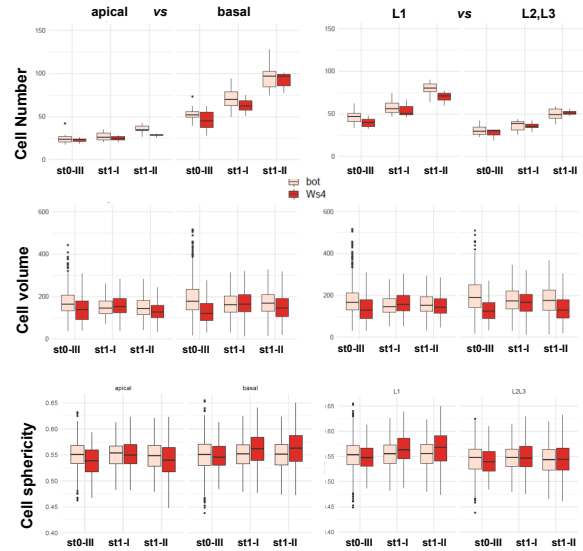
B Cell characteristics in *kat* (*bot1-7*) vs WT (*Ws-4*) - global analysis



C PCA *kat* (*bot1-7*) vs WT (*Ws-4*)



D Cell characteristics in *kat* (*bot1-7*) vs WT (*Ws-4*) - per viewpoints



E Mitotic activity in *katanin* mutants compared to the respective wild-type



Significance of differences to WT domains, $p \geq 0.05^*$, $p \geq 0.01^{**}$, $p \geq 0.001^{***}$

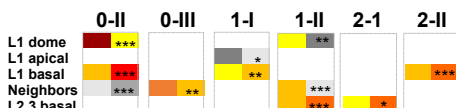


Figure 4 - figure supplement 2_Related to Figure 4. *katanin* ovule growth defects.

Figure 4 - figure supplement 2_Related to Figure 4. *katanin* ovule growth defects.

(A) *Ovule size, aspect ratio, bounding box, and bounding box occupancy.* Ovule volume was calculated as the sum of cell volumes for individual ovules (OvuleViz data). For each ovule, the volume of their fitting bounding box (represented [Figure 4D](#)) was calculated using box side lengths given in Imaris (Bitplane, AG) on ovule primordia treated as Surface objects (see [Materials and Methods](#)). Bounding box occupancy was calculated as the ratio of the ovule volume relative to its bounding box volume. The aspect ratio was calculated as the height (C length of the bounding box) divided by the mean of the width and depth lengths (A and B lengths of the bounding box). Man Whitney U test was used to assess differences between genotypes. Related to [Figure 4B-D](#).

(B) Comparison of cell number, cell volume, and sphericity in wild-type (WT) (*Ws-4*) and *katanin* (*kat*) ovule primordia (*bot1-7 allele*). Man Whitney U test was used to assess the differences between genotypes.

(C) Global PCA analyses of cell characteristics in *kat* versus WT ovules (*Ws-4*). PCA was performed on a dataset containing Sphericity, Ellipticity oblate, Ellipticity prolate, Area, and Volume measurements of WT and *kat* cells from ovules at the indicated stages (0-III, 1-I, 1-II). Cell types are labelled according to colour code indicated. 95% confidence ellipses are indicated (dashed lines). Only the first and the second Principal Components (PCs) are shown. The loading plots indicate the contributions of the variables to each component. Related to [Figure 4E](#).

(D) Comparison of mean cell number and volume in apical versus basal domains, and in L1 versus L2,L3 layers between WT (*Ws-4*) and *kat* (*bot1-7*) ovule primordia. Man Whitney U test was used to assess differences between genotypes. Related to [Figure 4E](#).

(D) Comparison of cell sphericity as in (C). Related to [Figure 4E](#).

(E) Mitotic activity in distinct domains of the ovule primordium of WT (*Col*, *Ws-4*) and *kat* (*lue1*, *bot1.7*) mutant plants. WT *Col* data are presented also in Figure 2 and shown here for better comparison only. The frequency of mitoses was scored using the CYCB1.1db-GFP reporter. Dark gray regions mark Phase I developmental stages. Two-tailed Fischer's exact test was used to assess differences between domains in the genotypes. Significant P values (* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$) are indicated for the different domains in coloured boxes below the heatmaps (first column: WT; second column: *kat*). Non-significant differences are not represented. See also [Figure 2 - Source Data 1](#) and [Figure 4 - Source Data 1](#). Related to [Figure 4F](#).