Developmental Cell *12*

Supplemental Data

aPKC Controls Microtubule Organization to Balance Adherens Junction Symmetry and Planar Polarity during Development

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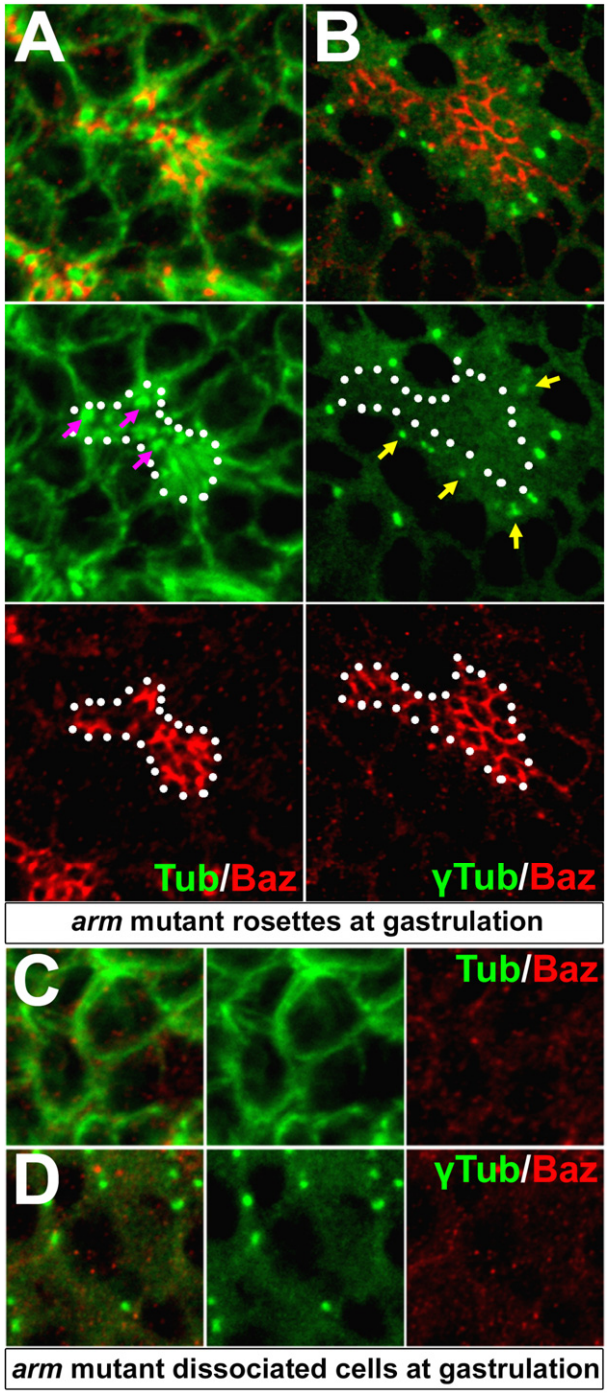

Figure S1. Gastrulating Maternal/Zygotic *arm*$^{m/z}$ Mutants Have an Abnormal Apical MT Organization That Is Distinct from the Abnormal Apical MT Organization of Gastrulating *apkc*$^{m/z}$ Mutants

To rule out the idea that the MT defects in *apkc*$^{m/z}$ mutants are solely due to AJ disruption, we compared them to *arm*$^{m/z}$ mutants. We previously showed that in *arm*$^{m/z}$ mutants, most cells dissociate (C, D) while a few retain residual epithelial character (A, B; Harris and Peifer, 2004). In both, MT organization differs from that in *apkc*$^{m/z}$

mutants. (A, B) Epithelial rosettes in gastrulating *arm*$^{m/z}$ mutants. (A) Baz (red), MTs (green). Note strong MT accumulation within the apical rings marked by Baz (Baz honeycomb is outlined and purple arrows mark MT accumulations). (B) Baz (red), centrosomes (green). Note centrosome positioning outside of the apical rings marked by Baz staining (Baz honeycomb is outlined and yellow arrows mark centrosomes). In *arm*$^{m/z}$ mutants, centrosomes localize away from residual Baz complexes and MT bundles run into the apical domain. This is in contrast to *apkc*$^{m/z}$ mutants in which centrosomal MT asters localize next to residual Baz/AJ complexes. (C, D) Dissociated cells in a gastrulating *arm*$^{m/z}$ mutant. (C) Baz (red), MTs (green). Baz complexes are dispersed and MTs are disorganized. (D) Baz (red), centrosomes (green). Baz complexes are dispersed and centrosomes are randomly positioned. MT organization in dissociated cells in gastrulating *arm*$^{m/z}$ mutants also differs from that of *apkc*$^{m/z}$ mutants.

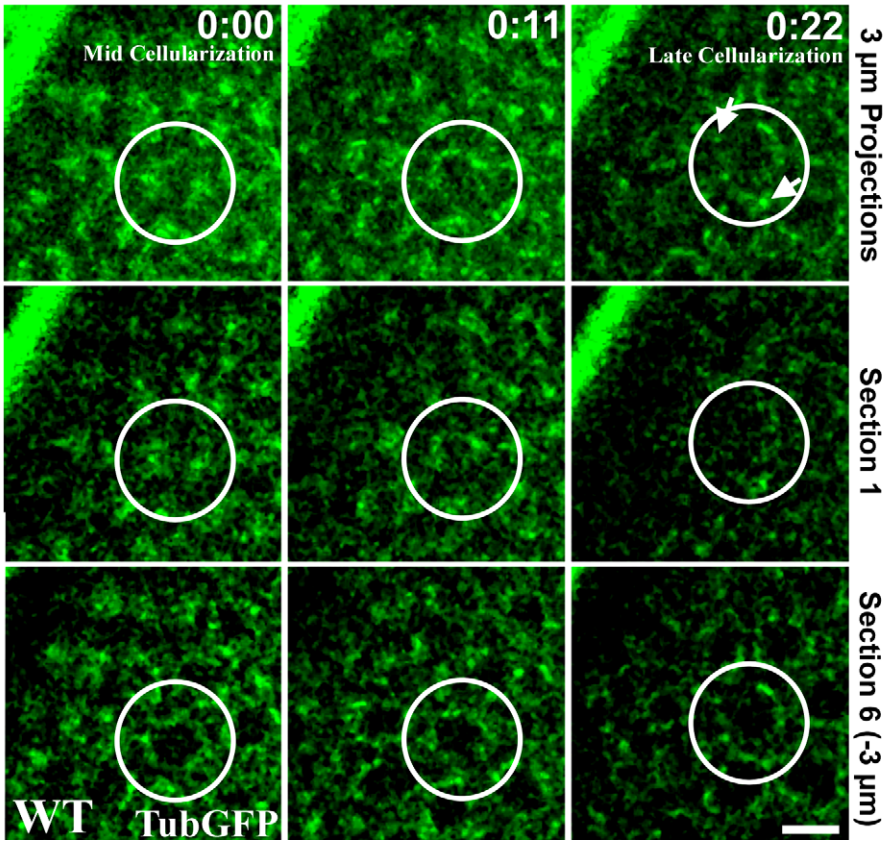

Figure S2. Tubulin-GFP Reveals the Reorganization of Apical MTs during WT Cellularization

Live imaging of WT embryos expressing tubulin-GFP. To ensure that all apical MTs were imaged a stack of six sections, each separated by 0.5 µm. were acquired at each time point. Extended focus projections of the stacks reveals MTs in two apical asters in each cell compartment during early-mid cellularization (0:00; one cell compartment circled). By late cellularization (0:22), the apical asters break down into MT bundles (arrowheads), as seen with live WT embryos injected with rhodamine-labeled tubulin and fixed WT embryos stained for tubulin (Figure 4). Section 1 shows that the apical-most MTs were imaged. Section 6 shows that more basal MTs are organized into lateral bundles at all stages (one cell compartment circled). The auto-fluorescent vitelline membrane that surrounds the embryo provides an additional spatial reference (top left corner). Bar, 5 µm.