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Citation for final published version:

Navajas Acedo, Joaquin, Voas, Matthew G., Alexander, Richard, Woolley, Thomas , Unruh, Jay R., Li, Hua, Moens, Cecilia and Piotrowski, Tatjana 2019. Parallel control of mechanosensory hair cell orientation by the PCP and Wnt pathways. Nature Communications 10 , 3993. 10.1038/s41467-019-12005-y

Publishers page: http://dx.doi.org/10.1038/s41467-019-12005-y

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Figure Supplementary 1 for Figure 1

wnt11f1 is only expressed by primI-derived neuromasts

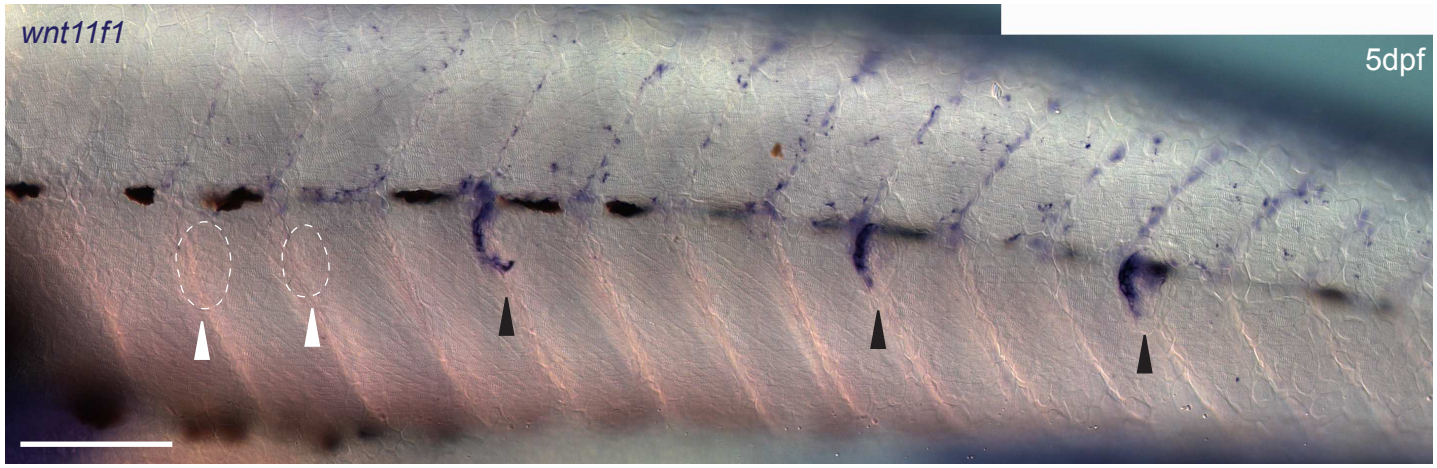
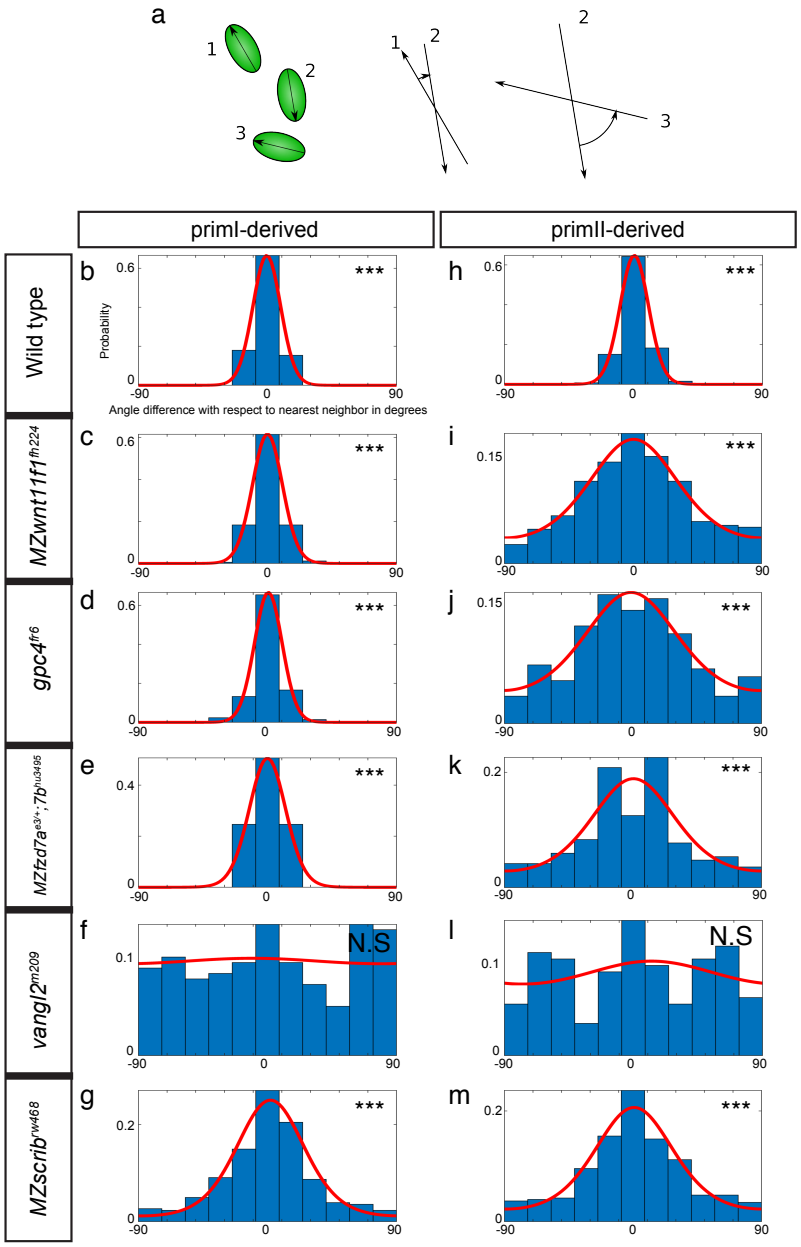


Figure Supplementary 2 for Figure 1

Analysis of hair cell orientation with respect to the nearest neighbor
(do hair cells show relative orientation with respect to each other?)



Hair cell orientation in double mutants

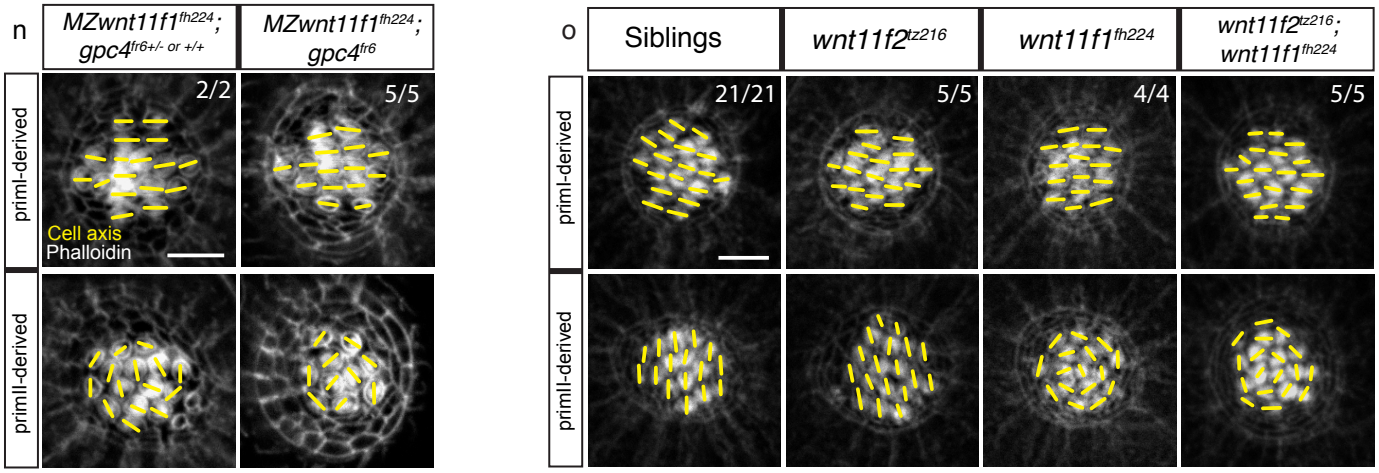


Figure Supplementary 3 for Figure 2

Analysis of angle difference between a given hair cell's orientation and the nearest fitting ellipse (concentricity)

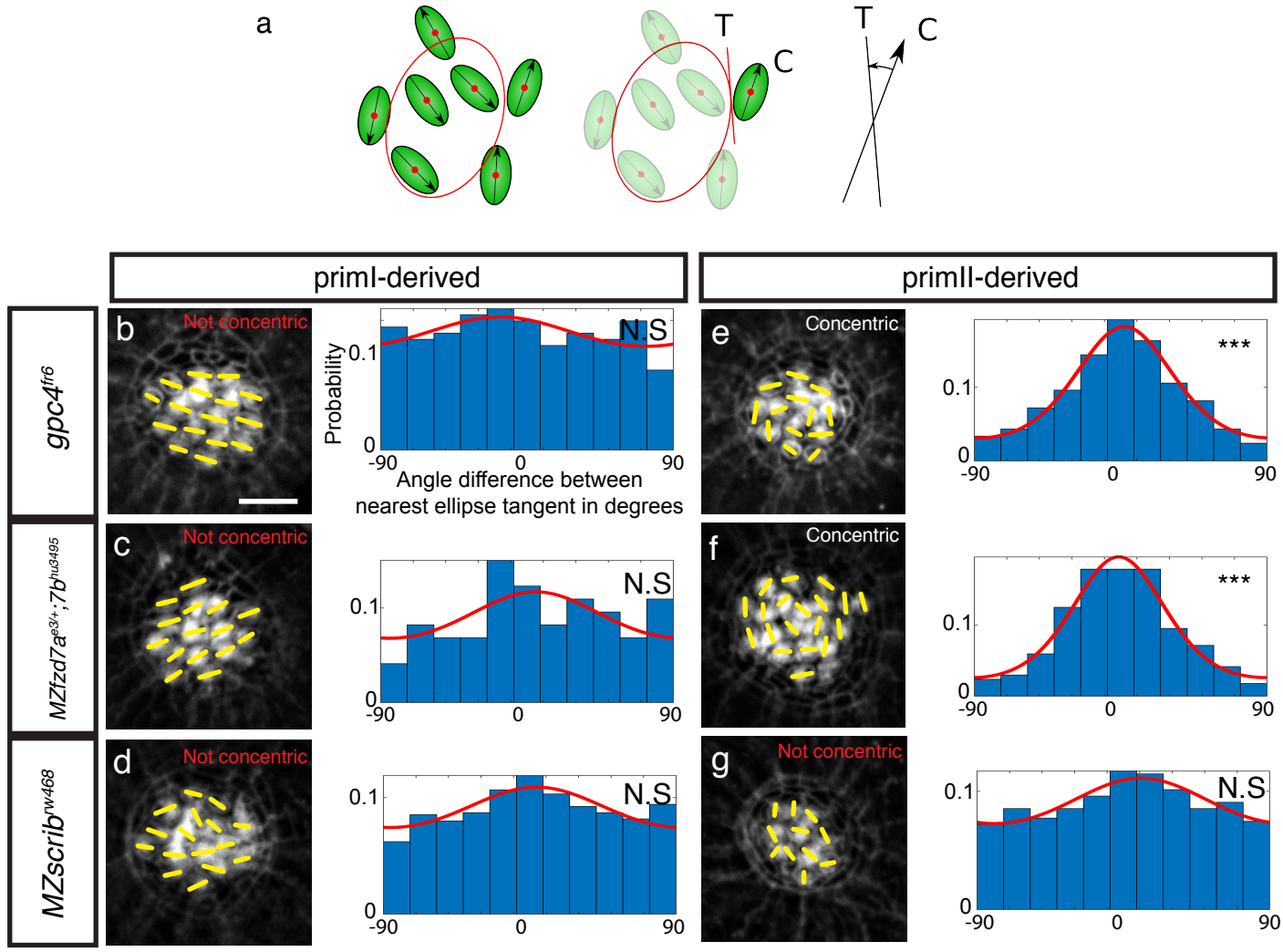


Figure Supplementary 4 for Figure 2

Analysis of hair cell orientation with respect to the nearest neighbor

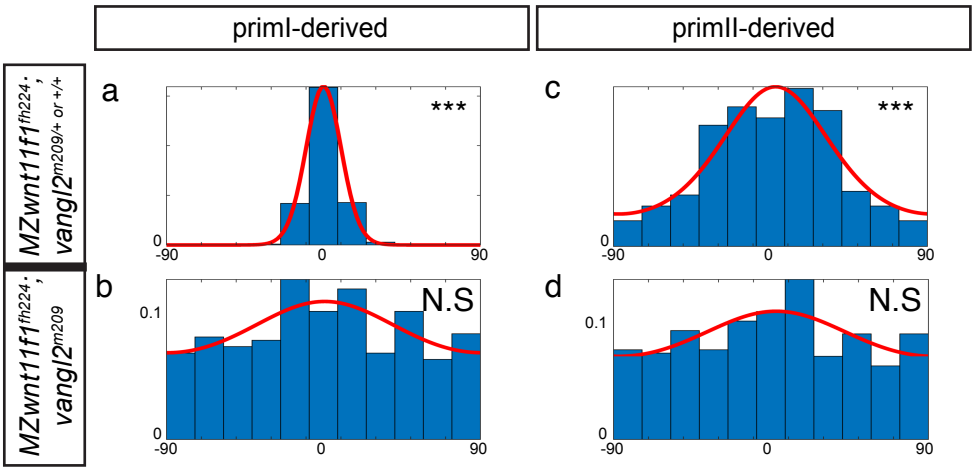


Figure Supplementary 5 for Figure 3

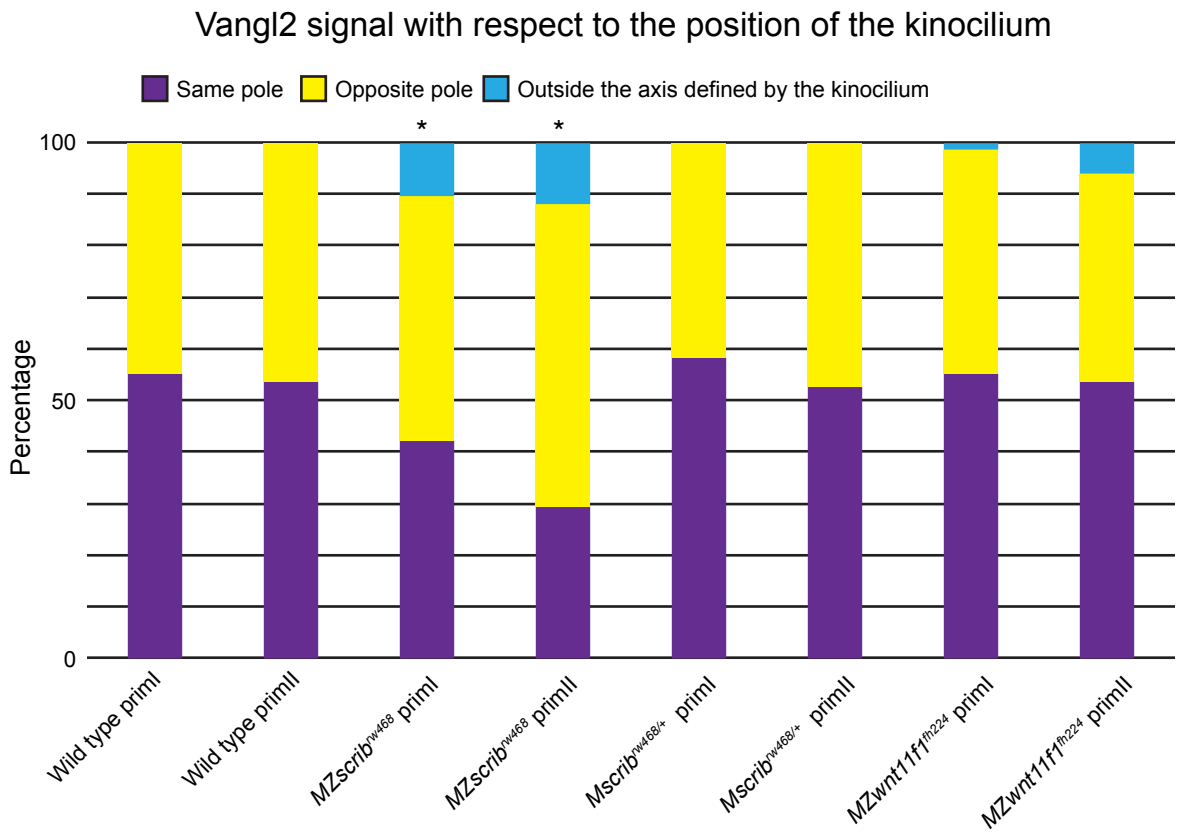


Figure Supplementary 6 for Figure 3

Vangl2 localization is absent in *vangl2*^{m209} mutants

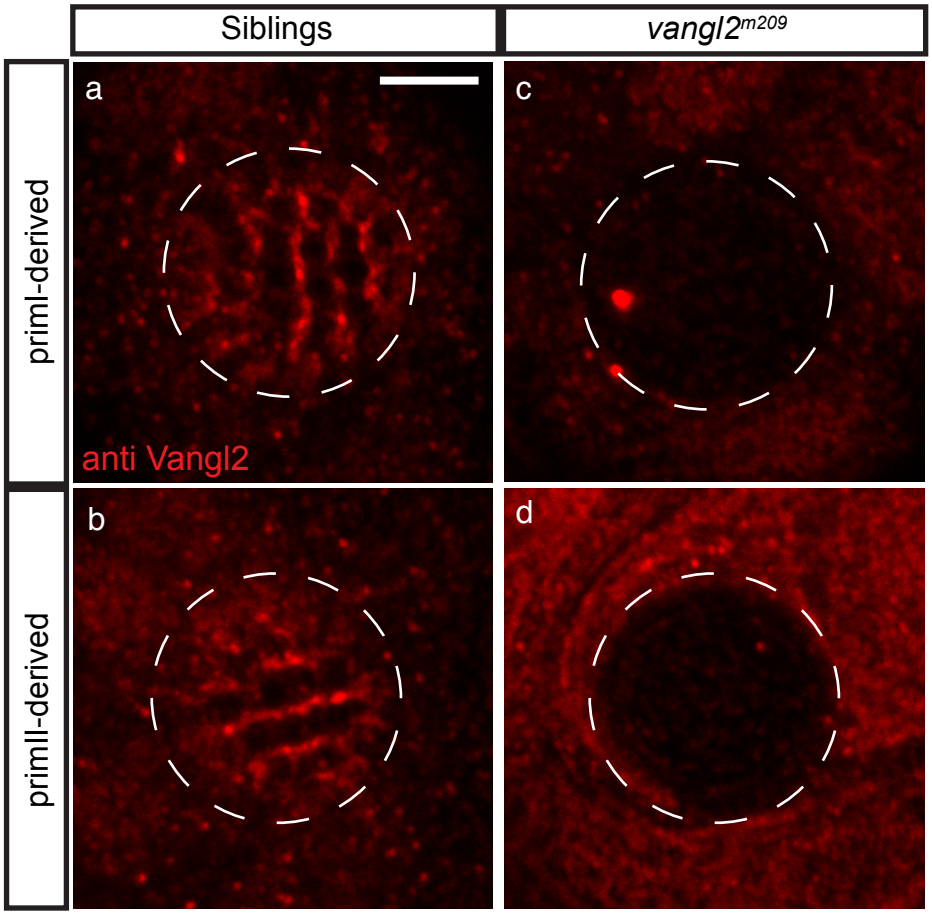


Figure Supplementary 7 for Figure 4

Analyses of cell behaviors of hair cell precursors during development show no differences between Wild type and *MZwnt11f1* mutants

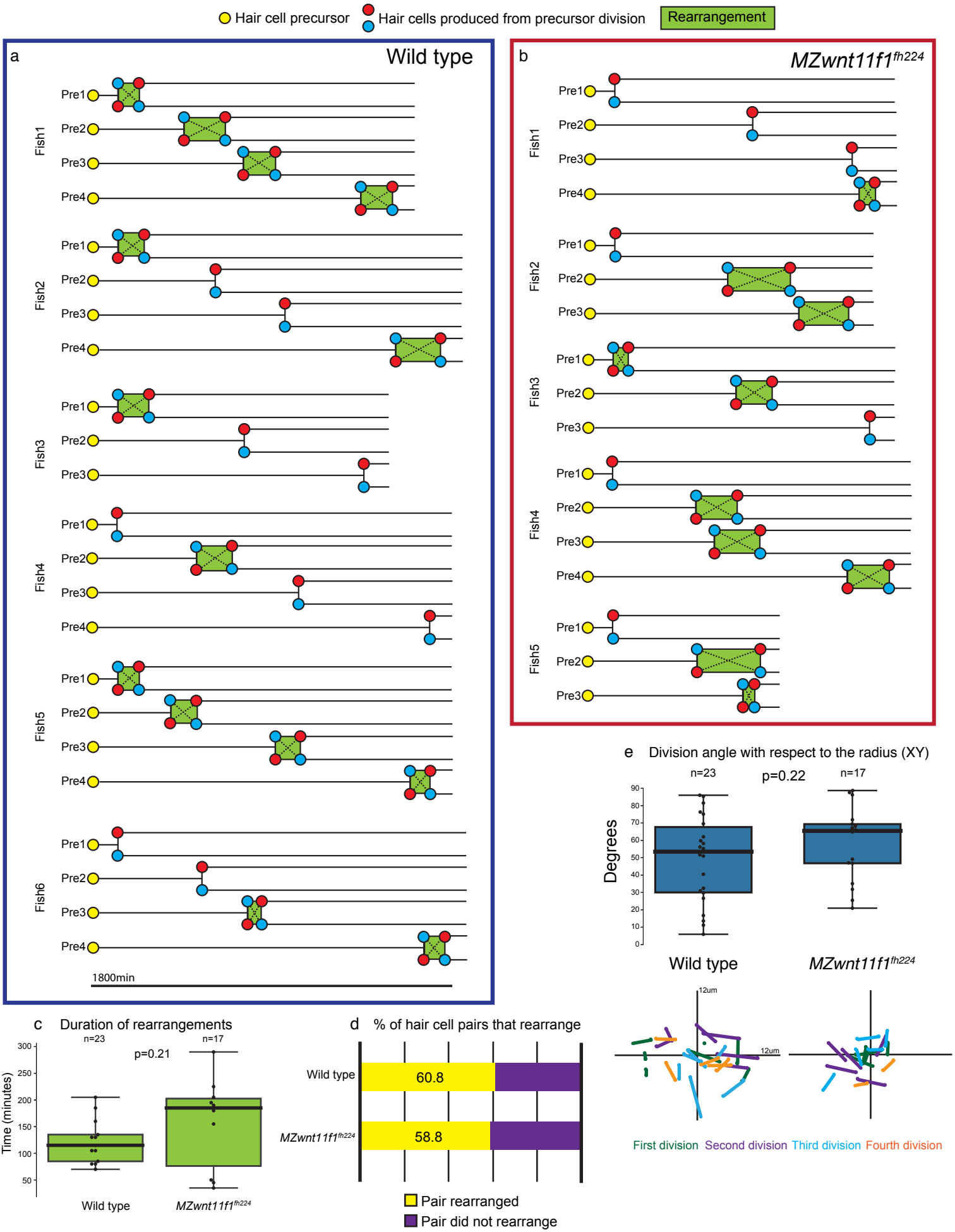


Figure Supplementary 8 for Figure 4

Angle comparison with nearest neighbor of hair cells in primII-derived neuromasts

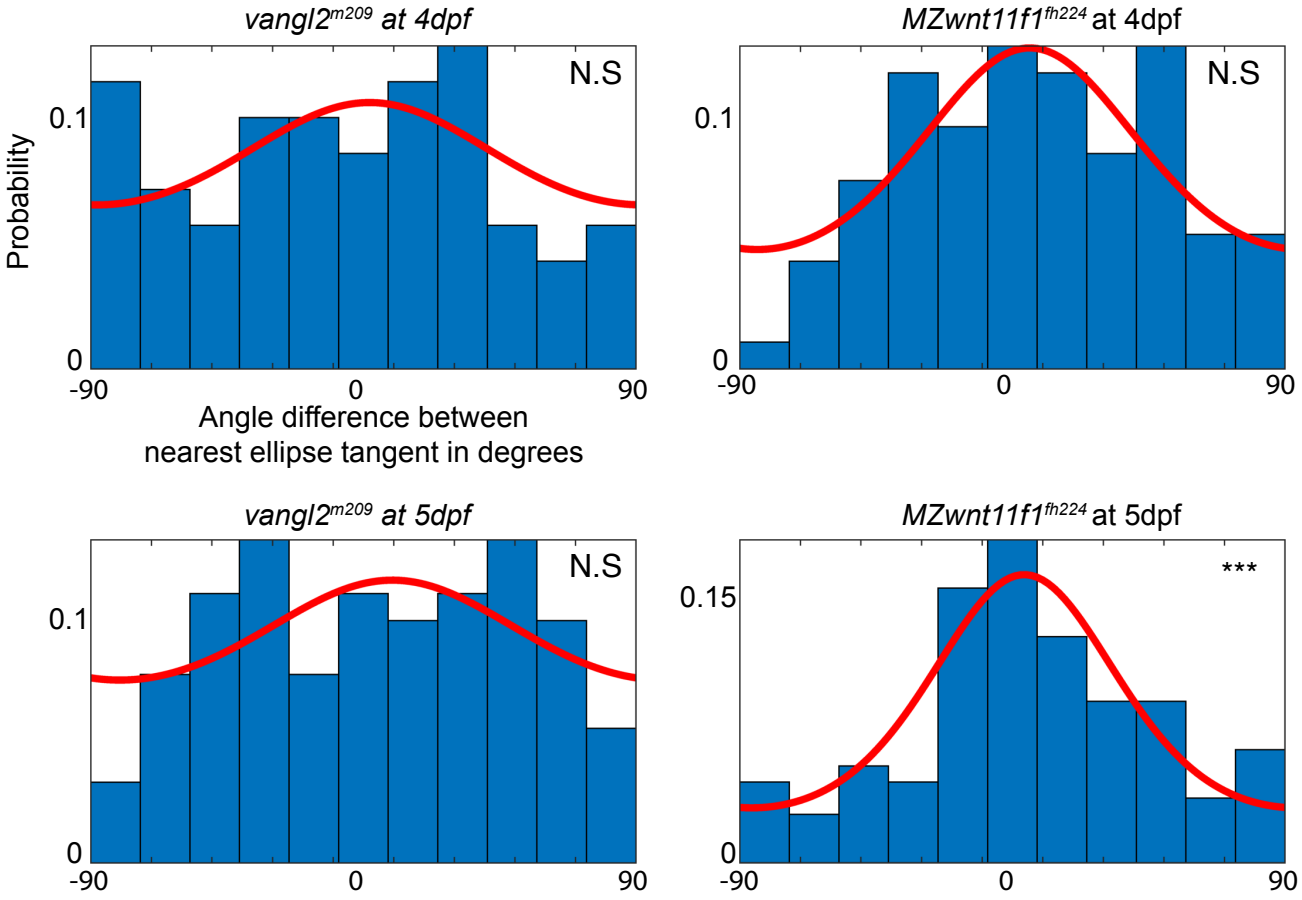
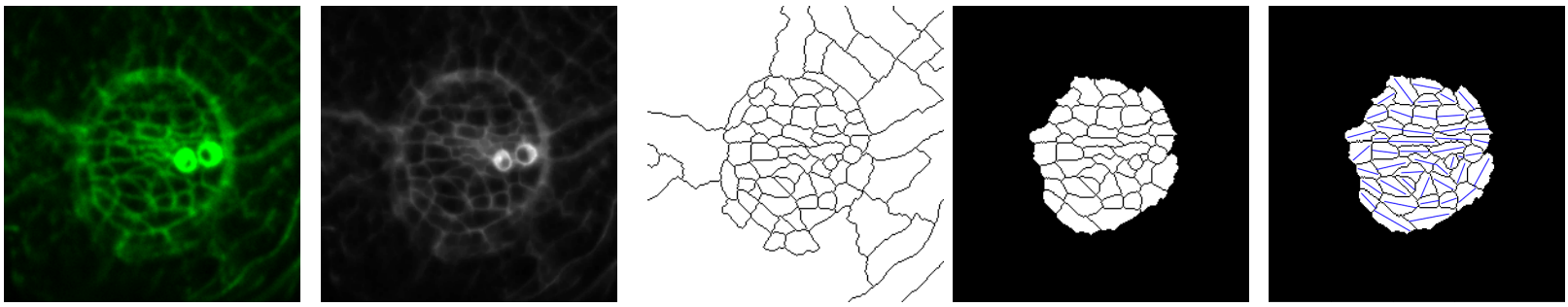


Figure Supplementary 9 for Figure 5

Pipeline for Segmentation of Phalloidin images for Support Cell orientation analysis

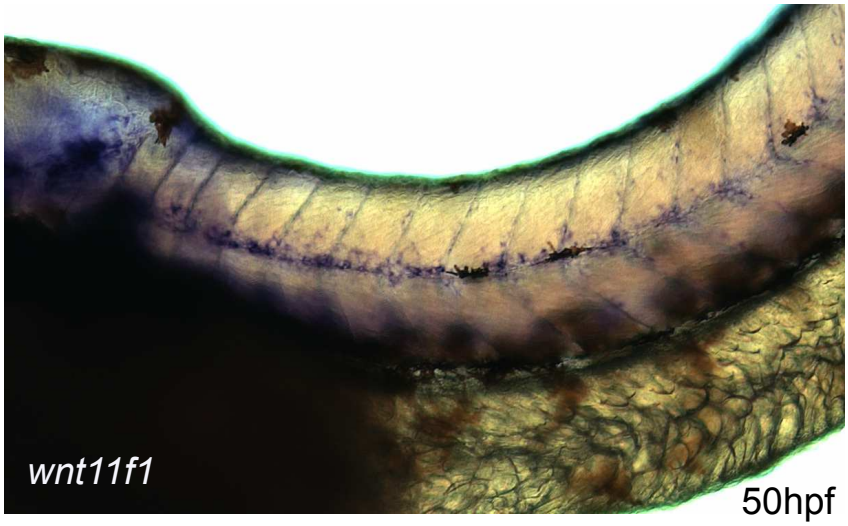
Step 1	**Step 2**	**Step 3**	**Step 4**	**Step 5**
Phalloidin staining	Custom sharpening	MorphoJ segmentation	Image Clean-up	Fitting ellipse



(3h after Neomycin)

Figure Supplementary 10 for Figure 6

wnt11f1 is expressed in the muscle



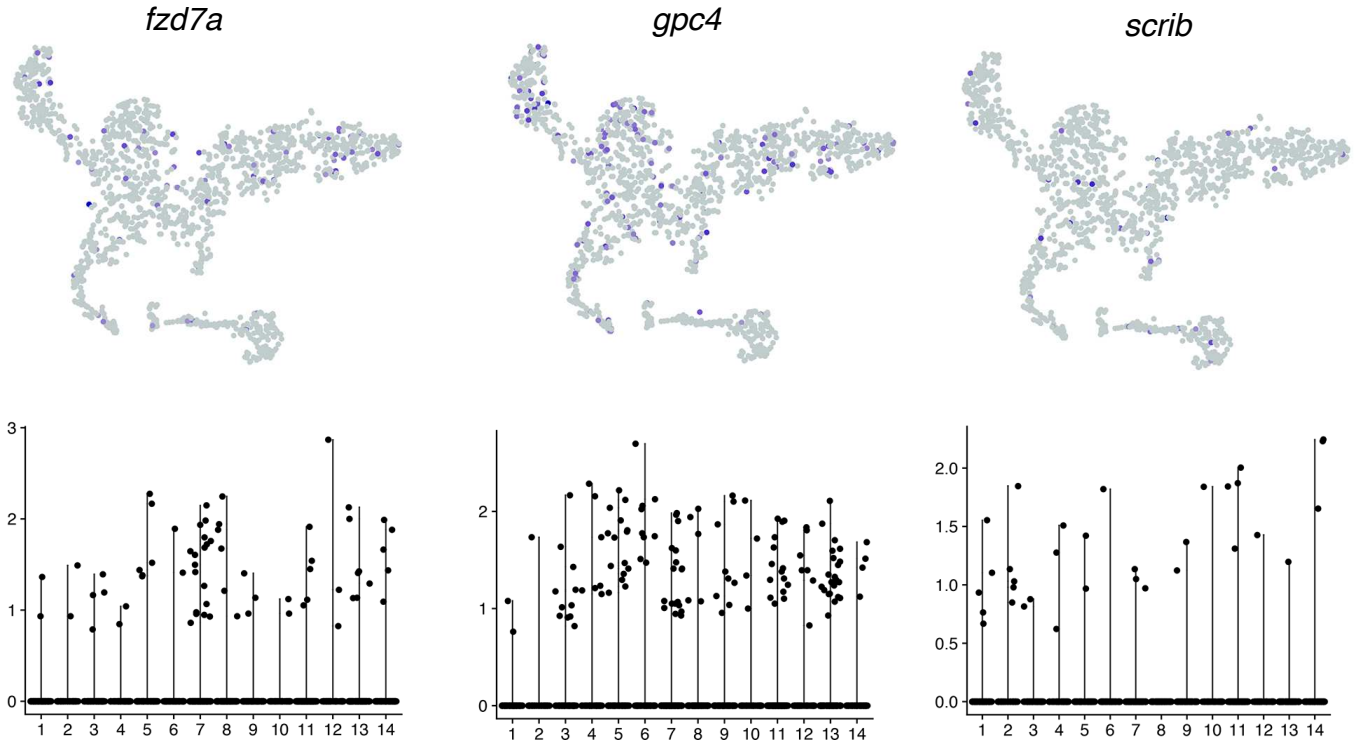


Figure Supplementary 11 for Figure 6

Neuromasts derived from the Occipital prim and primD show a hair cell phenotype in *MZwnt11f1* mutants

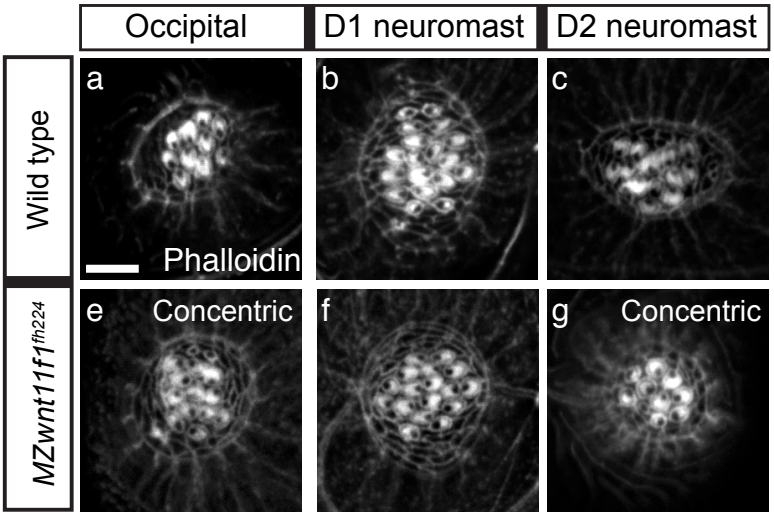
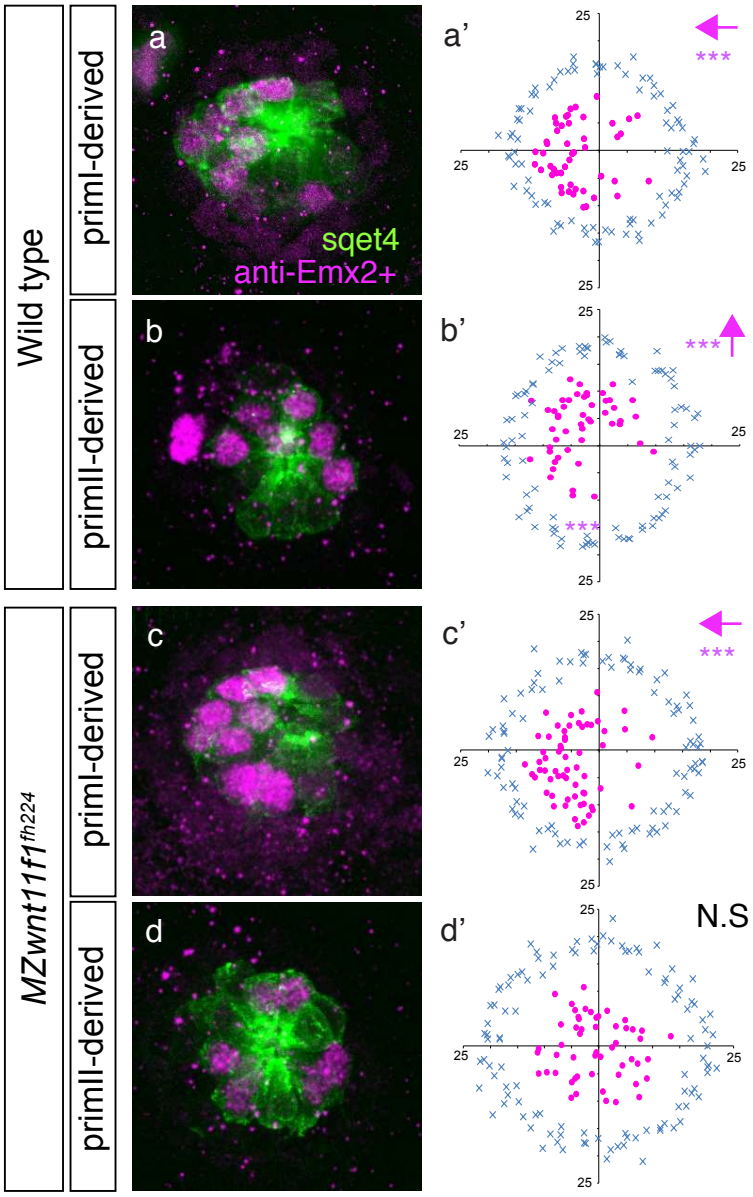


Figure Supplementary 12

Distribution, but not ratio of expression, of Emx+ hair cells is affected in primII-derived neuromasts of *MZwnt11f1* mutants