



Supplemental Figure 1. Set-up phase of the model and the effect of modulating different features. (A-C) Set-up phase of the model. **(A-B)** Initial canvas shape and set-up, showing the proximodistal distribution of the growth promoting factor PGRAD **(A, pink)** and the PRN **(B, MINUSORG, red, PLUSORG, yellow, POL, green, the orientation polarity field is indicated by the black arrows)**. During the set-up phase PGRAD promotes K_{par} , and K_{per} is constant. By 120 h the canvas forms a rounded triangular shape, similar to the shape of a young lemma **(C)**. This is the starting stage of all of the further models. If this simulation is continued, without any changes, the canvas deforms to form an elongated triangular shape, with proximodistally elongated clones **(D)**. **(E)** The effect of WING on the shape of resulting outgrowths. If growth is promoted by WING, with no restriction where WING concentration is high, by 350 h the outgrowths are sharp and triangular **(E)**. **(F-I)** Modulation of the spatial distribution of factors during the wing phase of the model. Altering the position of the PLUSORG factor (yellow) near the region of BKN3, which produces POLARISER (green). Irrespective of the position of BOUNDARY, the polarity field (black arrows), determined by the concentration gradient of the diffusible factor POL, still converges in the lemma margins **(F,H)**. If PLUSORG surrounds the BKN3 region **(F)**, the wing outgrowth shape is similar to the shape when PLUSORG is proximal to the BKN3 region (compare **G** with Figure. 8Q). If PLUSORG is distal to the BKN3 region **(H)**, outgrowths still form but are altered in shape (compare **I** with Figure. 8Q), it may be that growth rate patterns need to be altered to generate more wing-like outgrowths. Scale bars: 100 μ m.