

### **Description of Additional Supplementary Files**

File Name: Supplementary Movie 1

Description: Vangl2 enrichment on anterior membranes is dynamic over time

File Name: Supplementary Movie 2

Description: Vangl2 enrichment on the anterior membrane does not colocalize with filamentous actin

File Name: Supplementary Movie 3

Description: Vangl2 localizes to anterior apical membranes and to basal membrane extensions in dividing cells

File Name: Supplementary Movie 4

Description: Vangl2 anterior polarization is lost during cell division