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Supplemental Table 1. **Components of the human exocyst complex and the corresponding *Drosophila* homologs.** The exocyst complex has eight subunits and is highly conserved. * Conservation score is calculated by the DRSC Integrative Ortholog Prediction Tool (DIOPT) at <http://www.flyrnai.org/diopt>. The max score between fly and human homologs is 16, and genes with a score higher than 2 could be considered as orthologs.

Supplemental Figure 1. **Sec15 protein level decreased in exocyst gene-silenced nephrocytes.** **A.** Immunodetection of Sec15 (red) in control and exocyst-gene-silenced nephrocytes. Note that Sec15 level is much higher in the control than in the exocyst deficient nephrocytes (circled by white dashed lines). Cell nuclei are labeled by DAPI staining (blue). **B.** Quantitative analysis of Sec15 protein levels.

Supplemental Figure 2. **Pyd and Sns colocalize at NSD in nephrocytes.** Immunodetection of Pyd (green, left panel) and Sns (red, central panel) on the surface plane of the nephrocytes. Note that Pyd and Sns co-localize in the fingerprint-like NSD structures (yellow in the merged images, right panel).

Supplemental Figure 3. **Pyd co-localized with Rab5 and Rab11 on the nephrocyte cell surface.** **A** Wild type adult nephrocyte immunodetection of Pyd

(red, left panels), YFP-tagged Rab5 fusion protein (green, central panels; detected using a GFP-labeled primary antibody specific for YFP) and merged images (right panels, yellow indicates overlapping red and green fluorescence). Pyd and YFP-Rab5 overlapped to some extent (arrowheads). **B** Pyd and YFP-tagged Rab7 (YFP-Rab7) examined as above. Pyd and YFP-Rab7 did not overlap. YFP-Rab7 was predominantly localized in the nephrocyte interior. **C** Pyd and YFP-tagged Rab11 (YFP-Rab11) examined as above. Pyd and YFP-Rab11 showed appreciable overlap.

Supplemental Figure 4. **Rab11 is required for Sec15 localization.** Immunodetection of Pyd (green) and Sec15 (red) in control (**A**) and *Rab11*-silenced (**B**) at the surface plane of nephrocytes. Sec15 is distributed uniformly in small vesicles in the control but forms big aggregates in *Rab11*-silenced nephrocytes. Note that the morphology of Sec15 aggregates is different from Pyd-positive structures, although these two structures are often closely associated.

Supplemental Figure 5. **Exocyst gene silencing disrupts Pyd and Sns membrane localization.** Immunodetection of Pyd (green) and Sns (red) in control and exocyst gene silencing nephrocytes at the medial plane. Cell nuclei are labeled by DAPI staining (blue). Note that Pyd and Sns localize at/close to the cell membrane in the control but accumulated in shorter finger-print-like structures inside the exocyst gene-silenced nephrocytes.

Wen_Supplemental Table 1

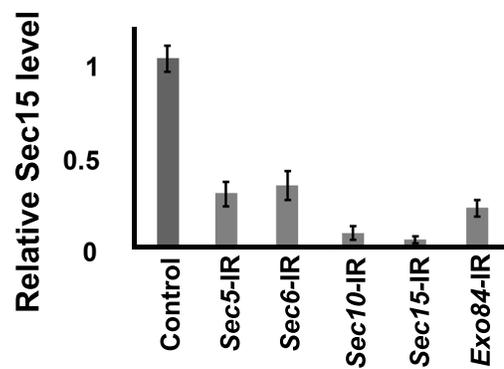
Human Gene	Drosophila homolog	Conservation Score*
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Exoc4	Sec8	14
Exoc5	Sec10	14
Exoc6/Exoc6B	Sec15	13
Exoc7	Exo70	15
Exoc8	Exo84	14

Wen_Supplemental Figure 1

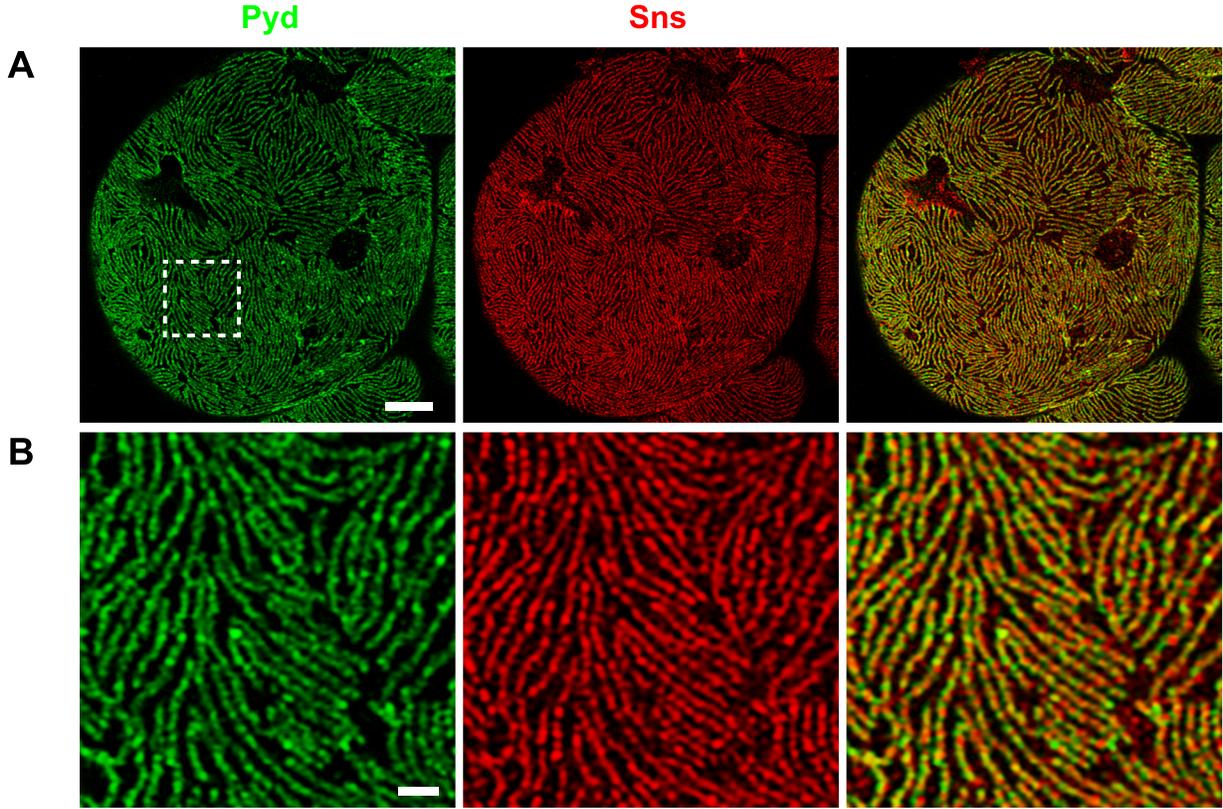
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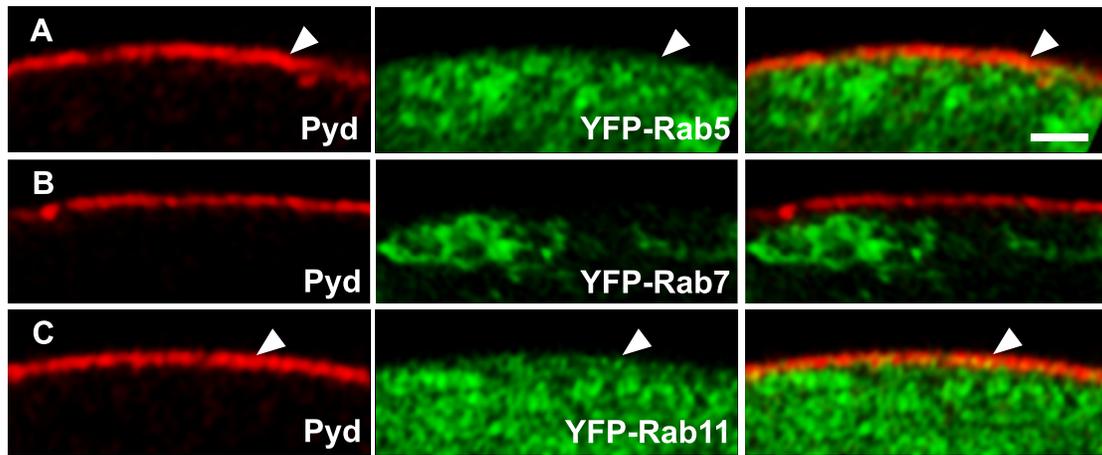
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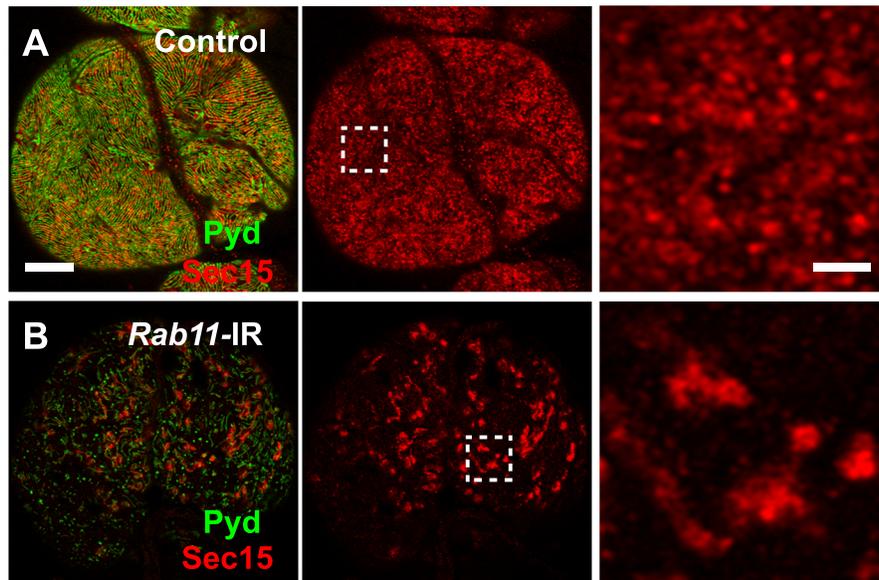
Wen_Supplemental Figure 2



Wen-Supplemental Figure 3



Wen_Supplemental Figure 4



Wen_Supplemental Figure 5

