

## **Supplementary Data**

**Movie S1. Dynamics of Rab11a-positive compartments in PTCs.** PTCs grown on MatTek dishes were transfected with SNAP-Rab11a and labeled with Cell-SNAP TMR-Star. After washing, cells were imaged. Frames were acquired every second for 3 min. The rendered movie is speeded up 40-fold over real time. The movie shows examples of fission and fusion of Rab11a-positive compartments in a representative cell.

**Movie S2. Dynamics of Rab11a-positive compartments in PTCs.** Inset from the cell in Movie S1 showing a tubular structure budding from a Rab11a-positive compartment.

**Movies S3-S5. Albumin and dextran traffic through Rab11a-positive structure in PTCs.** PTCs grown on MatTek dishes were transfected with SNAP-Rab11a, labeled with Cell-SNAP 505 (green), incubated with 40  $\mu\text{g/ml}$  Alexa Fluor 647-albumin (blue) and 1 mg/ml Rhodamine-dextran (red) for 30 min, and chased for 30 min, prior to imaging. Frames were acquired every 5 sec for 95 sec. The rendered movies are speeded up  $\sim 20$ -fold over real time.

**Movies S6-S8. Albumin and GFP-minimegalin dynamics in PTCs expressing mCherry-Rab11a.** PTCs grown on MatTek dishes and transfected with mCherry-Rab11a (red) and GFP-minimegalin (green) were incubated with 40  $\mu\text{g/ml}$  Alexa Fluor 647-albumin (blue) for 20 min prior to imaging. Frames were acquired every 4 sec for 3 min. The rendered movies are speeded up  $\sim 60$ -fold over real time. The movies illustrate the rapid trafficking dynamics of these cargoes. Both albumin and GFP-minimegalin can be observed in tubular carriers as well as in Rab11a-positive structures. The green channel in Movie S7 has been brightened to highlight the appearance and rapid movement of a GFP-minimegalin-containing tubule (arrowhead).

**Movie S9. Albumin and GFP-minimegalin dynamics in PTCs.** PTCs grown on MatTek dishes and transfected with GFP-minimegalin were incubated with 40  $\mu\text{g/ml}$  Alexa Fluor 647-albumin for 20 min prior to imaging. Frames were acquired every 5 sec for 300 sec. The rendered movie is speeded up  $\sim 61$ -fold over real time and the albumin signal is pseudocolored red for better visibility. The distribution of GFP-minimegalin and albumin are qualitatively similar in these cells compared with PTCs overexpressing Rab11a (Movies S6-S8).