**Electronic Supplementary Information**

**Fig. S1.** Absorbance of LDL-DiD. The absorption of LDL-DiD shows little change after a 2 hr incubation with trypsin at 37°C. The control is a 2 hr incubation at room temperature in the absence of trypsin.

**Fig. S2.** Wortmannin inhibits transport of LDL to the late endosomes. (A) Confocal microscopy image of a cell treated with wortmannin (240 nM) and incubated with LDL-DiD (red) for 1 hr. (B) Decreased colocalization of LDL-DiD with EYFP-Rab7 (green) shows that transport to Rab7-endosomes is inhibited by wortmannin. Error bars represent the standard deviation of 120 LDL-DiD particles/cell in 3 cells.

**Fig. S3.** Colocalization of mannose-6-phosphate receptor (MPR) with Rab7. EYFP-Rab7 (green) shows 68 ± 12% colocalization with MPR-Cy5 (red) measured in 6 cells.

**Fig. S4.** Colocalization of LAMP1 with LAMP2. LAMP1-EYFP (green) shows ~100% colocalization with LAMP2-Cy5 (red) measured in 6 cells.
Figure S1
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Figure S2
Figure S3