Supplemental Figure Legends

Figure S1. Yip1A likely achieves its steady state localization at in the ERGIC by cycling through the ER. Cells untreated (A, B) or treated for 20 min at 37°C with 100 μM H89 (C, D) were fixed and stained with antibodies against Yip1A (A, C) or ERGIC-53 (B, D). Scale bar, 10 μm.

Figure S2. Yip1A depletion results in fragmentation of the Golgi into mini-stacks that retain both GM130 and GRASP65. Cells stably expressing GFP-GalNacT2 and treated with a control siRNA (A-C) or Yip1A siRNA (D-O) were fixed 72 hrs later and stained with antibodies against Yip1A (A,D), GM130 (G), GRASP65 (J) or PDI (M). The corresponding GFP-GalNacT2 patterns are shown in (B, E, H, K and N) and the merge is also shown (C, F, I, L, O). Scale bar, 10 μm. Note that both GM130 and GRASP65 are in GalNacT2-containing Golgi membranes that are separate from the whorled ER. Scale bar, 10 μm.

Figure S3. GM130 and GRASP65 remain largely separate from the whorled ER in cells lacking Yip1A. Cells treated with a control siRNA (A-C and G-I) or Yip1A siRNA (D-F and J-L) were fixed 72 hrs later and doubly stained using antibodies against GM130 (A, D) and PDI (B, E) or GRASP65 (G, J) and PDI (H, K). The merges are also shown (C, F, I, L). Scale bar, 10 μm.

Figure S4. ERGIC integrity is maintained in cells lacking Yip1A. Cells treated with a control siRNA (A-C) or Yip1A siRNA (D-F) were fixed 72 hrs later and doubly stained using antibodies against Yip1A (A, D) and ERGIC-53 (B, E). The merge is also shown (C, F). Scale bar, 10 μm.

Figure S5. ERGIC-53 remains largely separate from the whorled ER in cells lacking Yip1A. Cells treated with a control siRNA (A-C) or Yip1A siRNA (D-F) were fixed 72 hrs later and doubly stained using antibodies against ERGIC-53 (A, D) and Calnexin (B, E). The merge is also shown (C, F). Scale bar, 10 μm.

Figure S6. Whorls retain continuity with the general ER. A part of the general ER within cells transfected with mGFP-Sec61γ alone (A) or a whorl within cells co-transfected with mGFP-Sec61γ and Yip1A siRNA (B) were photobleached 48 hrs after transfection and subsequently monitored for fluorescence recovery after bleaching. Green circles mark the bleached region of interest (ROI) and red circles mark an unbleached reference ROI within the same cells. Scale bar, 1 μm. (C) Normalized fluorescence recovery plot showing rapid diffusion of mGFP-Sec61γ into both the general ER (black squares, $t_{1/2}$ ~ 10s) and whorled ER (blue circles, $t_{1/2}$ ~ 20s).

Figure S7. Golgi organization is largely intact in cells lacking Yip1A. Golgi stacks in cells treated with a control (A) or Yip1A siRNA (B). Arrow (A) indicates a Golgi stack of typical length in cells treated with control siRNA. Arrows (B) indicate shorter Golgi stacks in Yip1A siRNA-2-treated cells. Scale bar (E, F), 500 nm.

Figure S8. Yip1A knockdown has no apparent effect on the microtubule cytoskeleton. Cells transfected with a control siRNA (A, B) or Yip1A siRNA (C, D) were fixed 72 hrs later and doubly stained with antibodies against PDI (A, C) and Tubulin (B, D). Scale bar, 10 μm.

Figure S9. DP1 is in ER whorls. Cells co-transfected with Myc-DP1 and either a control siRNA (A) or Yip1A siRNA (B) were fixed 72 hrs later and stained with antibodies against the Myc epitope. Scale bar, 10 μm.

Figure S1

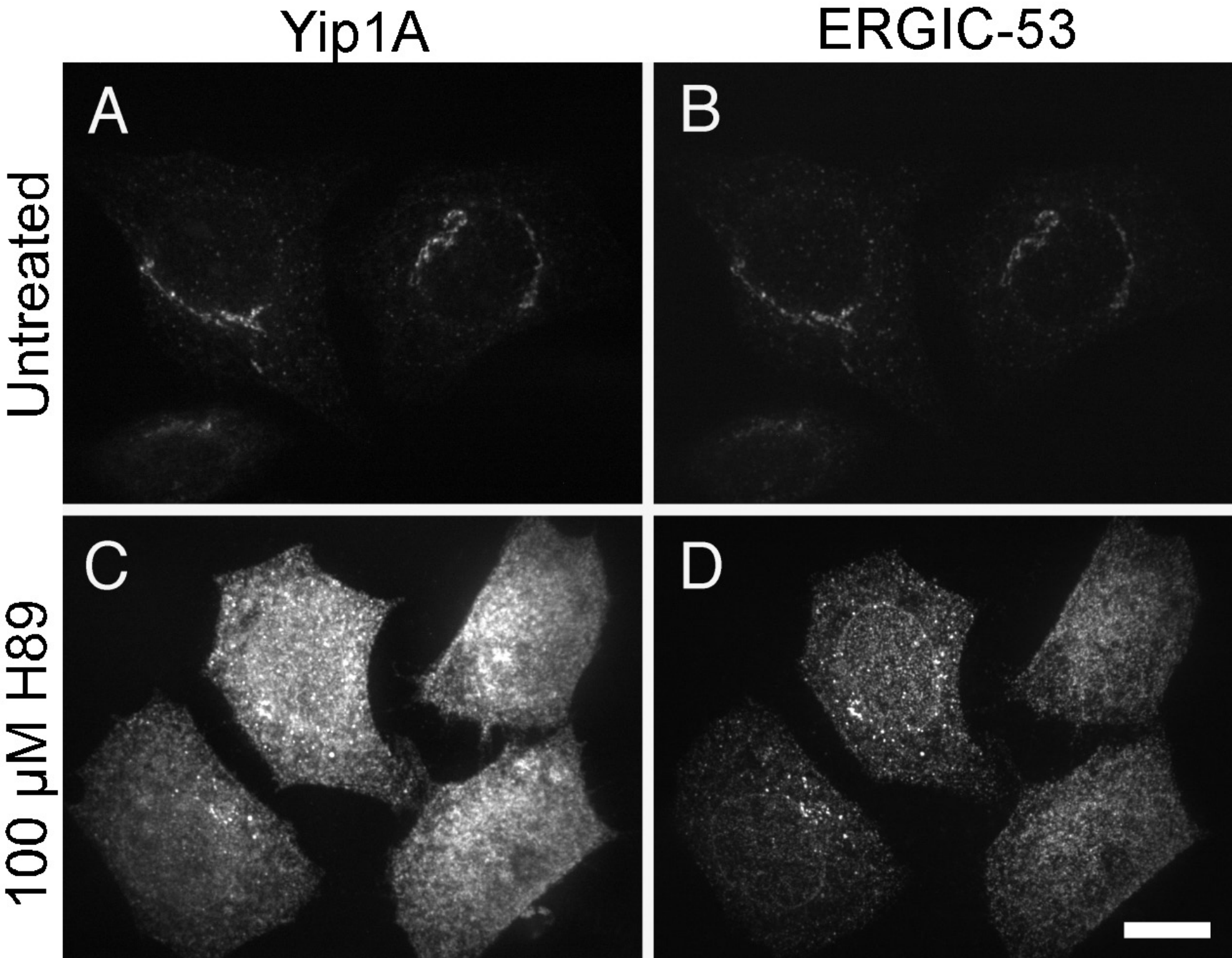
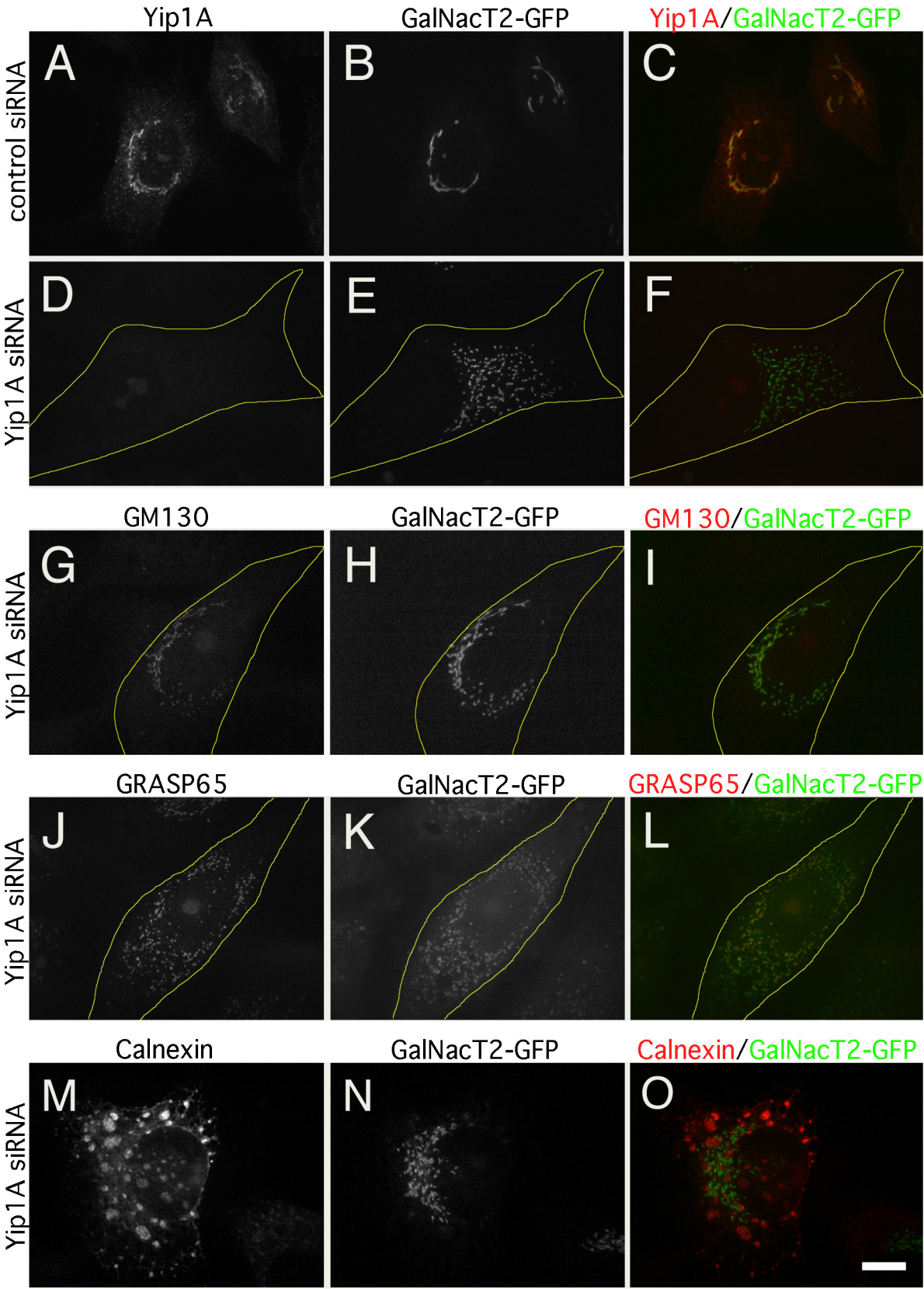


Figure S2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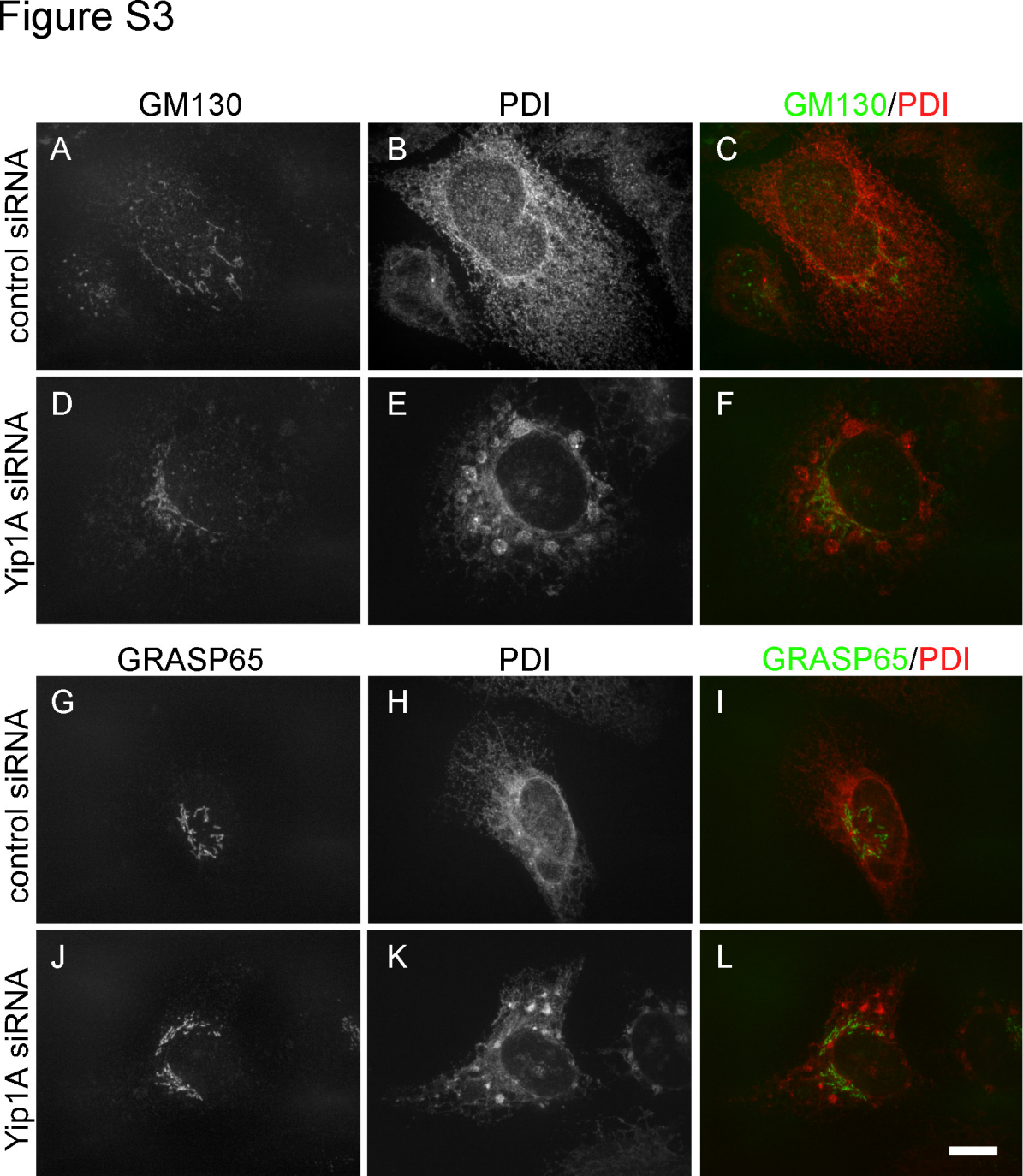
GalNacT2-GFP
Yip1A/GalNacT2-GFP
control siRNA
A
B
C
Yip1A siRNA
D
E
F
GM130
GalNacT2-GFP
GM130/GalNacT2-GFP
Yip1A siRNA
G
H
I
GRASP65
GalNacT2-GFP
GRASP65/GalNacT2-GFP
Yip1A siRNA
J
K
L
Calnexin
GalNacT2-GFP
Calnexin/GalNacT2-GFP
Yip1A siRNA
M
N
O

Figure S3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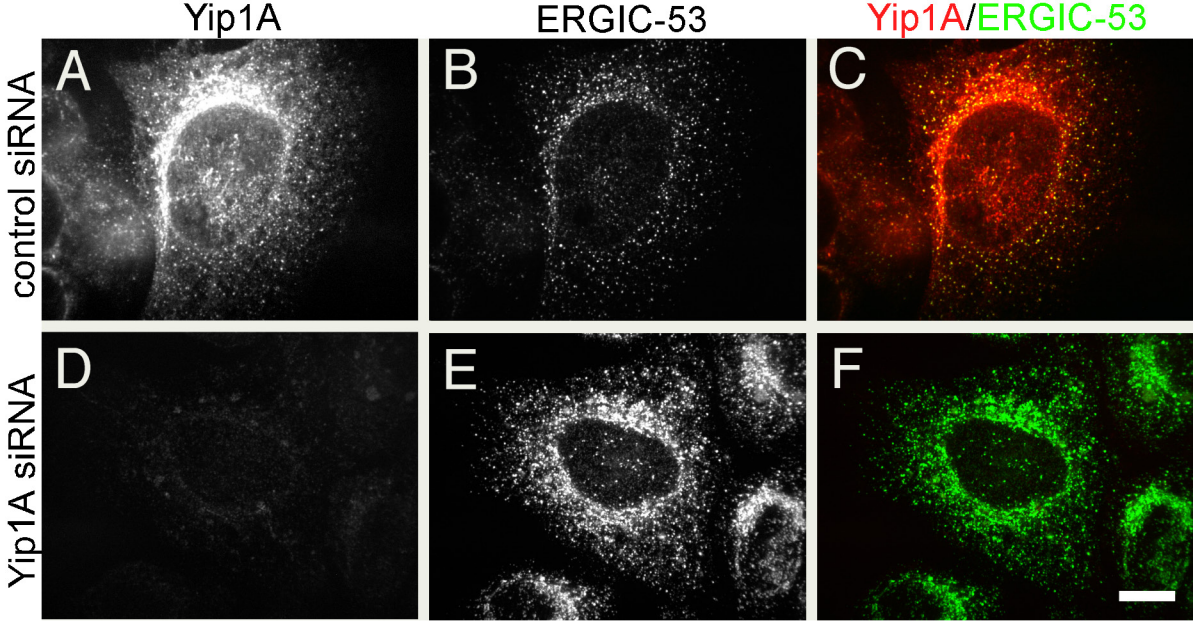
PDI
GM130/PDI
control siRNA
Yip1A siRNA
A
B
C
D
E
F
GRASP65
PDI
GRASP65/PDI
G
H
I
J
K
L

Figure S4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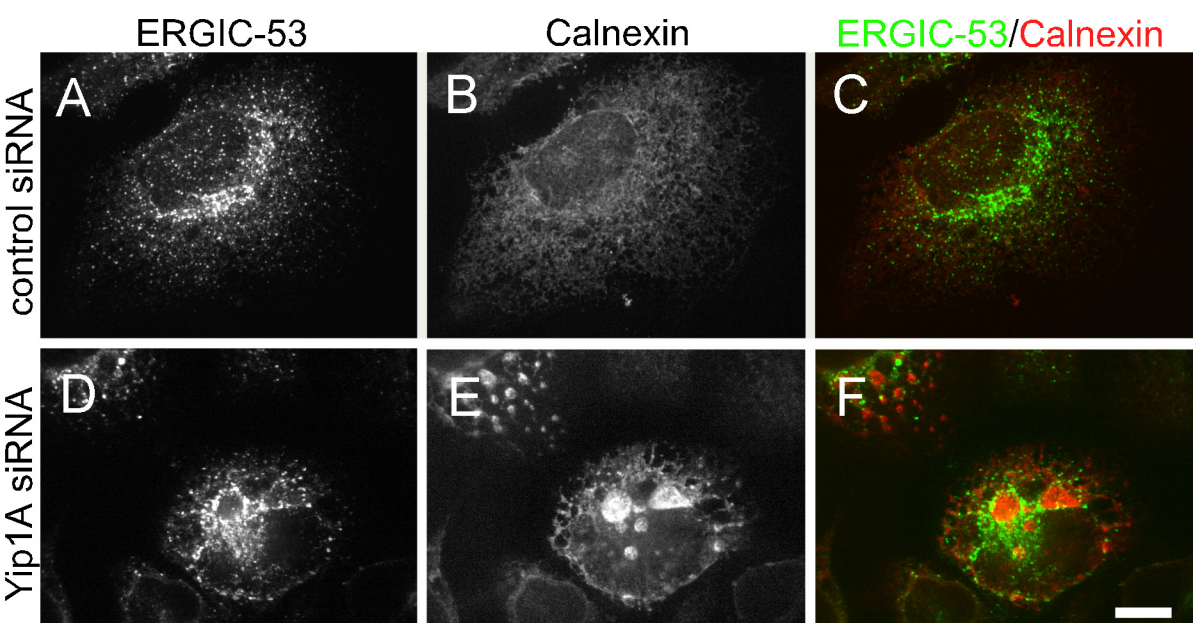
Yip1A/ERGIC-53
A
B
C
control siRNA
D
E
F
Yip1A siRNA

Figure S5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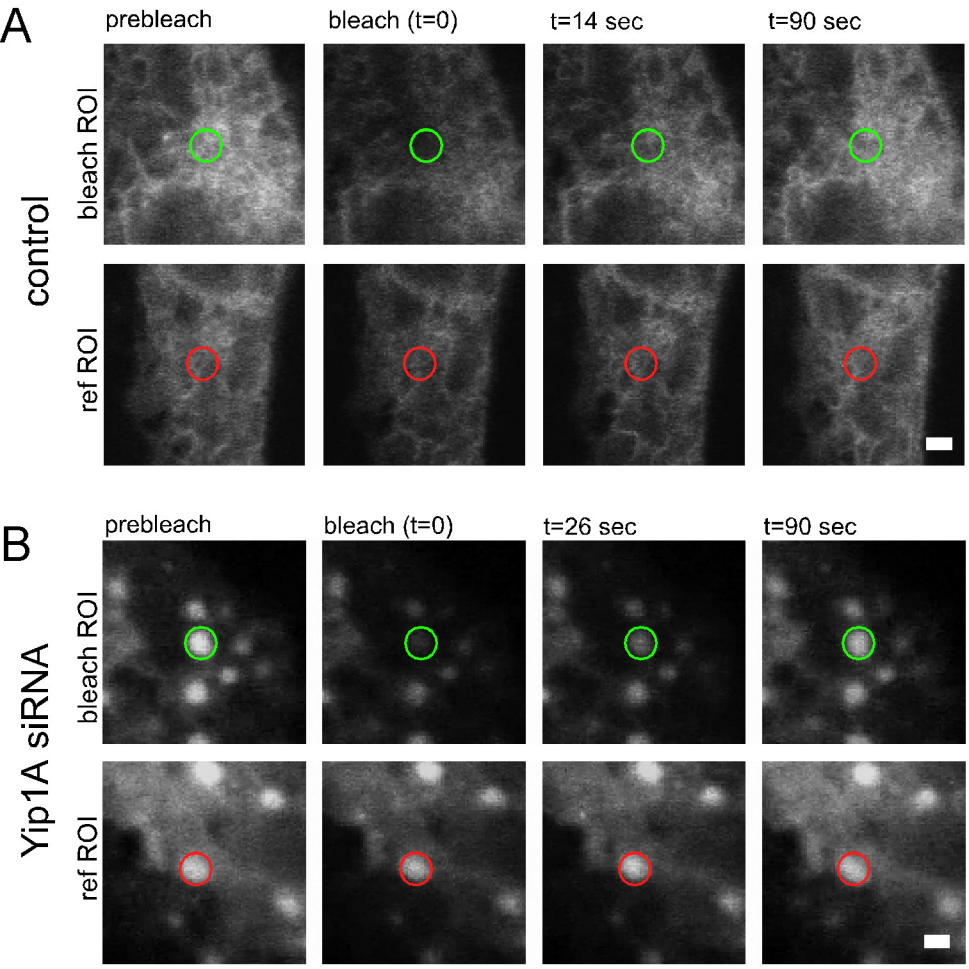
Calnexin
ERGIC-53/Calnexin
control siRNA
Yip1A siRNA
A
B
C
D
E
F

Supplemental Figure 6



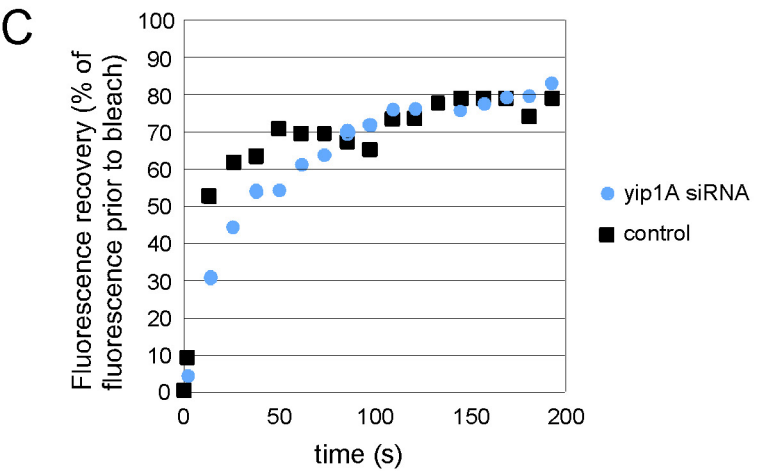


Figure S7

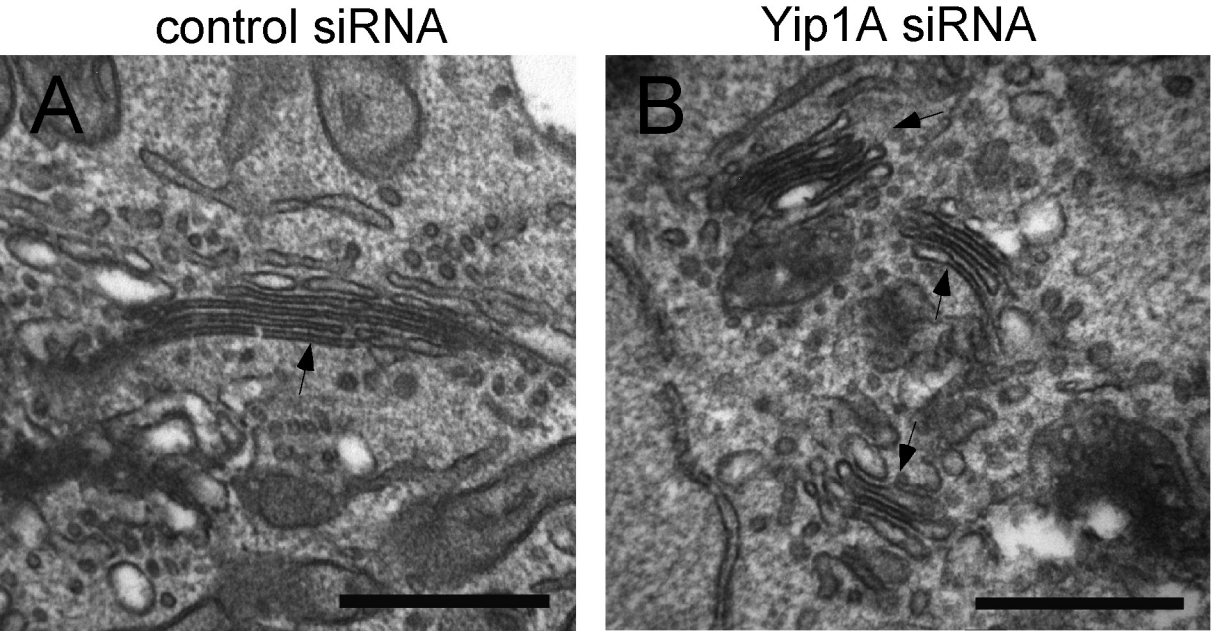


Figure S8

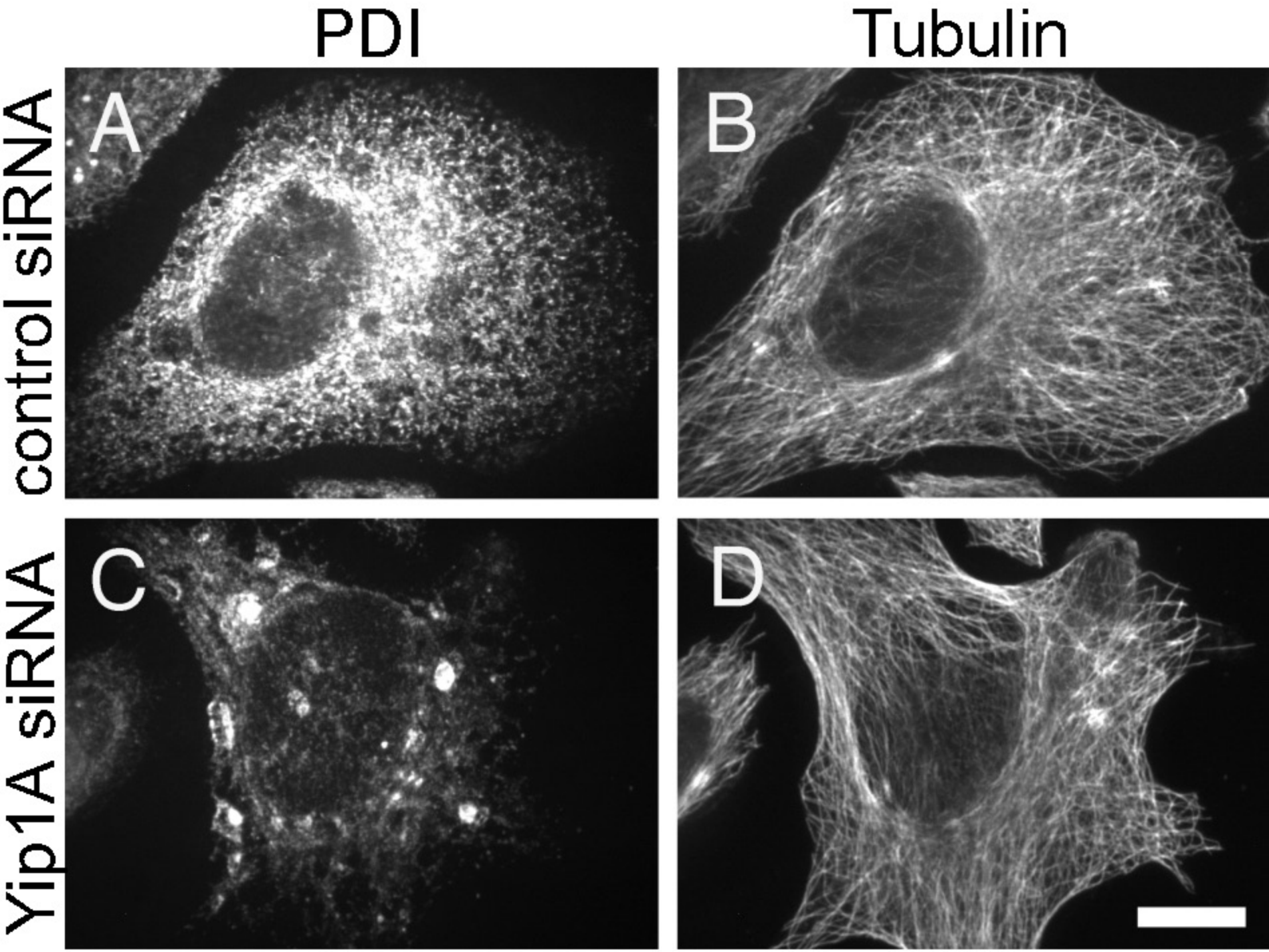


Figure S9