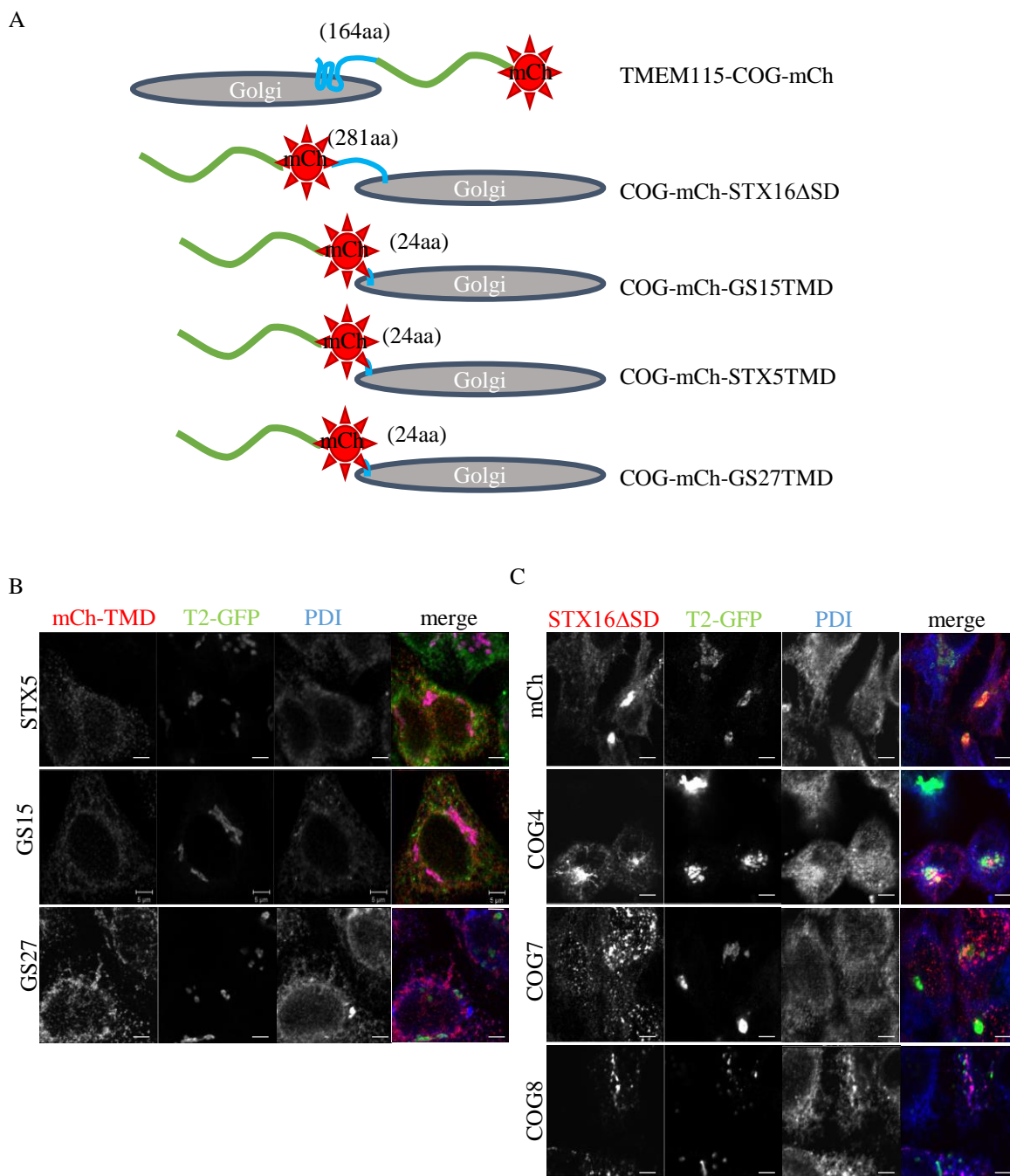


# Supplemental Materials

*Molecular Biology of the Cell*

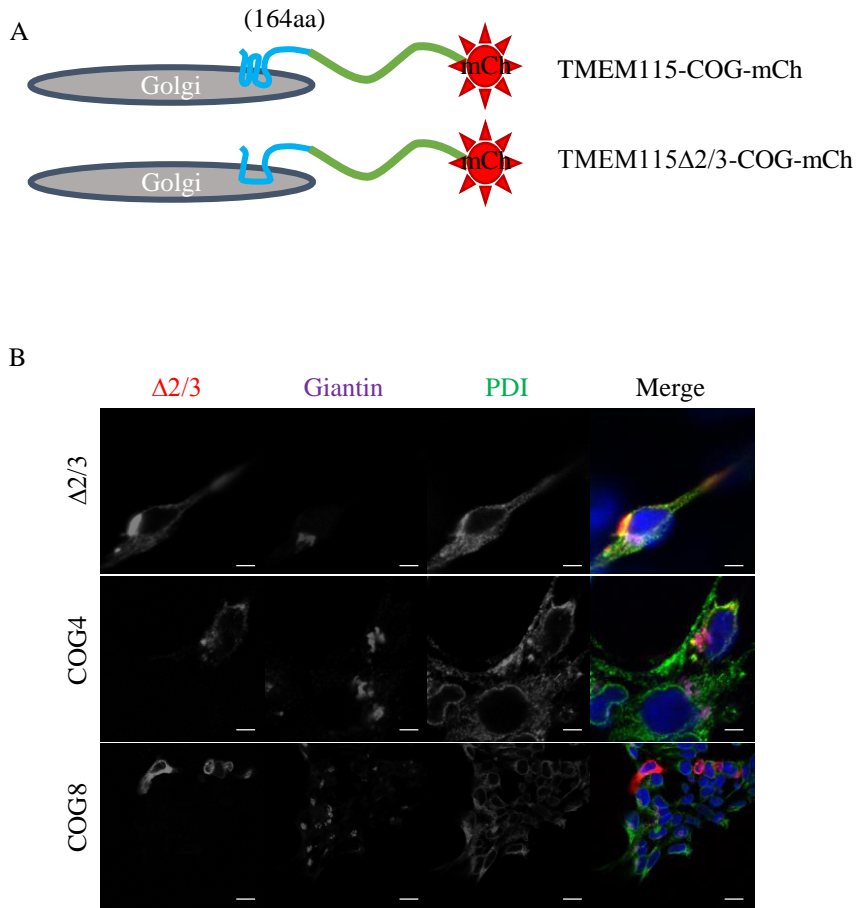
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# Supplemental Figure S1



**Figure S1. TMD is not enough to localize COG on the Golgi.** A) mCherry (red) fluorescent constructs designed to anchor COG subunits (green) to the Golgi. Anchor proteins in blue: full length TMEM115, STX16 without SNARE domain, and the TMD of GS15, STX5 and GS27. B-C) HeLa cells stably expressing Golgi protein GalNacT2-GFP (green) and co-stained with ER protein PDI (blue). Transient expression of anchored-COG constructs. Confocal images collected with Zeiss LSM 510. Scale bar = 5 microns. B) COG8 with C-terminal TMD and C) COG4, COG7 and COG8 with a longer C-terminal anchor, STX16 without SNARE domain.

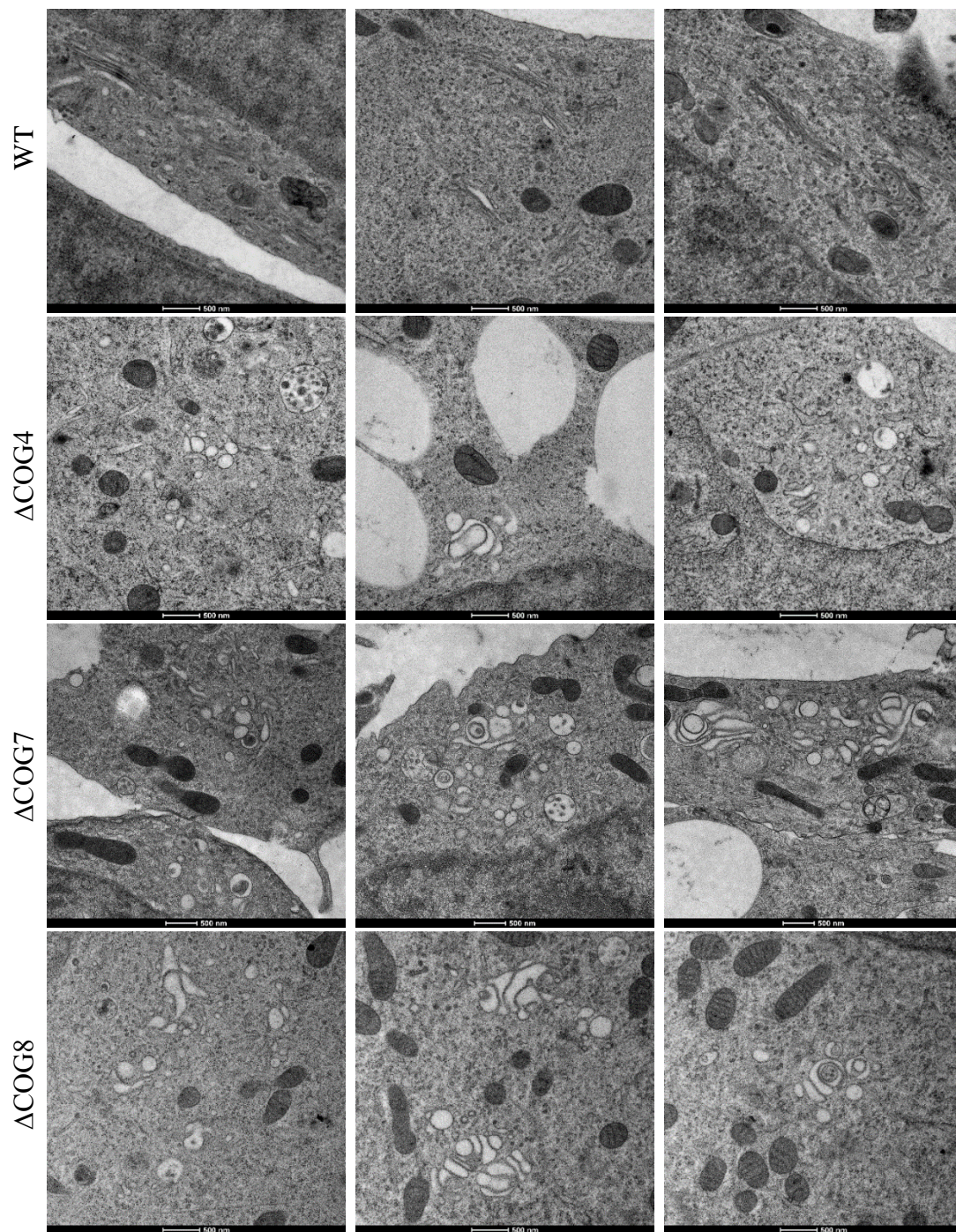
# Supplemental Figure S2



**Figure S2. Truncated TMEM115-anchored COG subunits are not Golgi localized.** A) Schematic of full length TMEM115-anchored (blue) COG (green) subunit, and COG subunit anchored by TMEM115 (blue) with TMD 2 and 3 deleted. B) Expression of TMEM115 $\Delta$ 2/3, and TMEM115 $\Delta$ 2/3-COG4 and TMEM115 $\Delta$ 2/3-COG8 in HEK 293 cells. Co-stained with antibodies to Golgi marker Giantin (purple) and ER marker PDI (green). Confocal images collected with Zeiss LSM880. Scale bar = 5 microns.



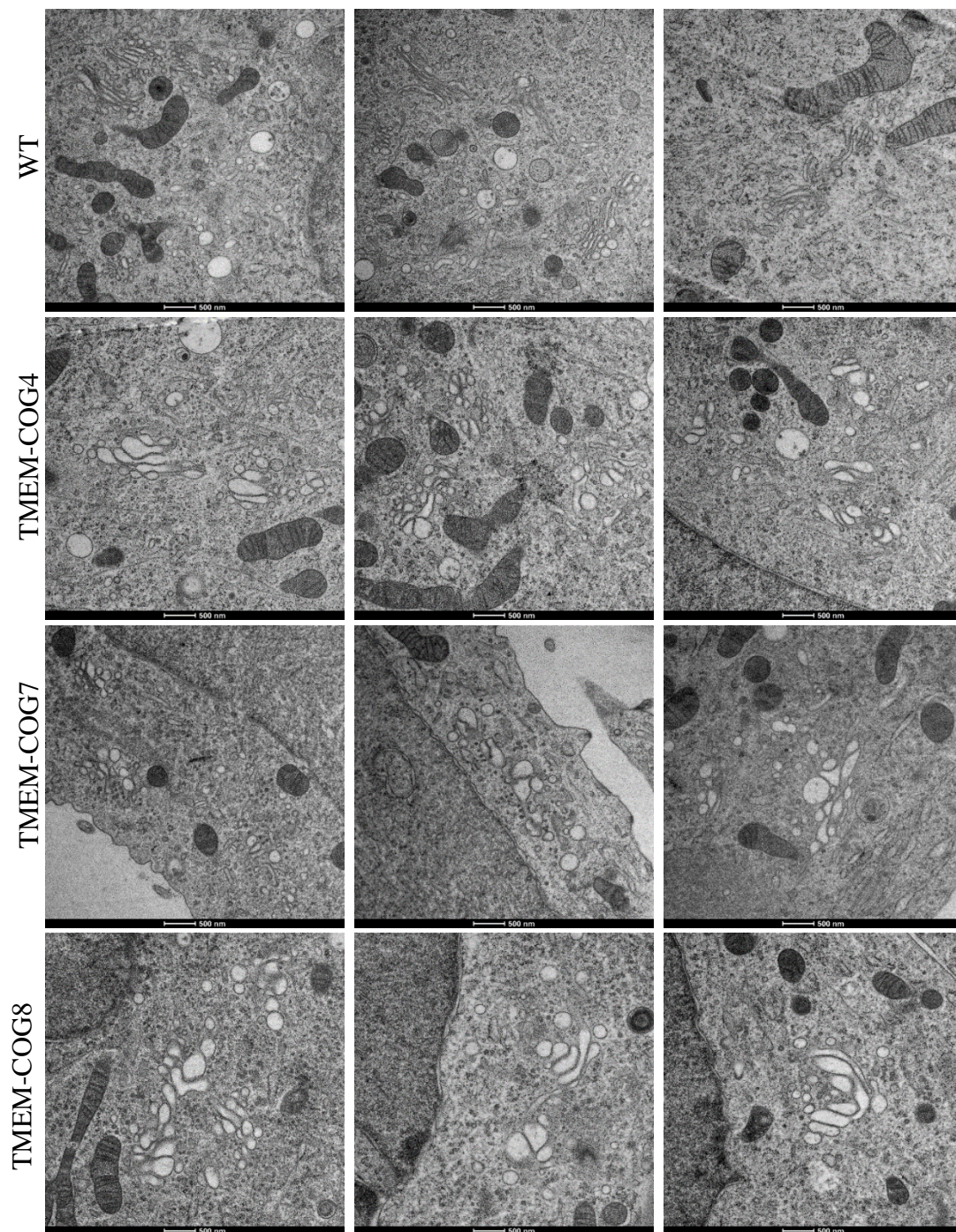
# Supplemental Figure S3



**Figure S3. EM analysis demonstrates abnormal Golgi cisternae in COG KO cells.** Golgi region visualized by TEM of 3 separate WT HEK293T, COG4 KO, COG7 KO and COG8 KO cells.



# Supplemental Figure S4



**Figure S4. TMEM-COG cannot rescue fine Golgi morphology in COG KO cells.** Golgi region visualized by TEM of 3 separate WT HEK293T, TMEM-COG4 in  $\Delta$ COG4 cells, TMEM-COG7 in  $\Delta$ COG7 cells, and TMEM-COG8 in COG8 KO cells.