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ARF-GAP-mediated interaction between the ER-Golgi v-SNAREs and the COPI coat

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In eukaryotic cells, secretion is achieved by vesicular transport. Fusion of such vesicles with the correct target compartment relies on SNARE proteins on both vesicle (v-SNARE) and the target membranes (t-SNARE). At present it is not clear how v-SNAREs are incorporated into transport vesicles. Here, we show that binding of ADP-ribosylation factor (ARF)-GTPase-activating protein (GAP) to ER-Golgi v-SNAREs is an essential step for recruitment of Arf1p and coatomer, proteins that together form the COPI coat. ARF-GAP acts catalytically to recruit COPI components. Inclusion of v-SNAREs into COPI vesicles could be mediated by direct interaction with the coat. The mechanisms by which v-SNAREs interact with COPI and COPII coat proteins seem to be different and may play a key role in determining specificity in vesicle budding.

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