Secretion Lecture Handout
Mark F. Wiser, October 16, 2000

Selected Reviews

Kuehn MJ and Scheckman R (1997) COPII and secretory cargo capture into transport vesicles. Curr Opin Cell Biol 9, 477-483.

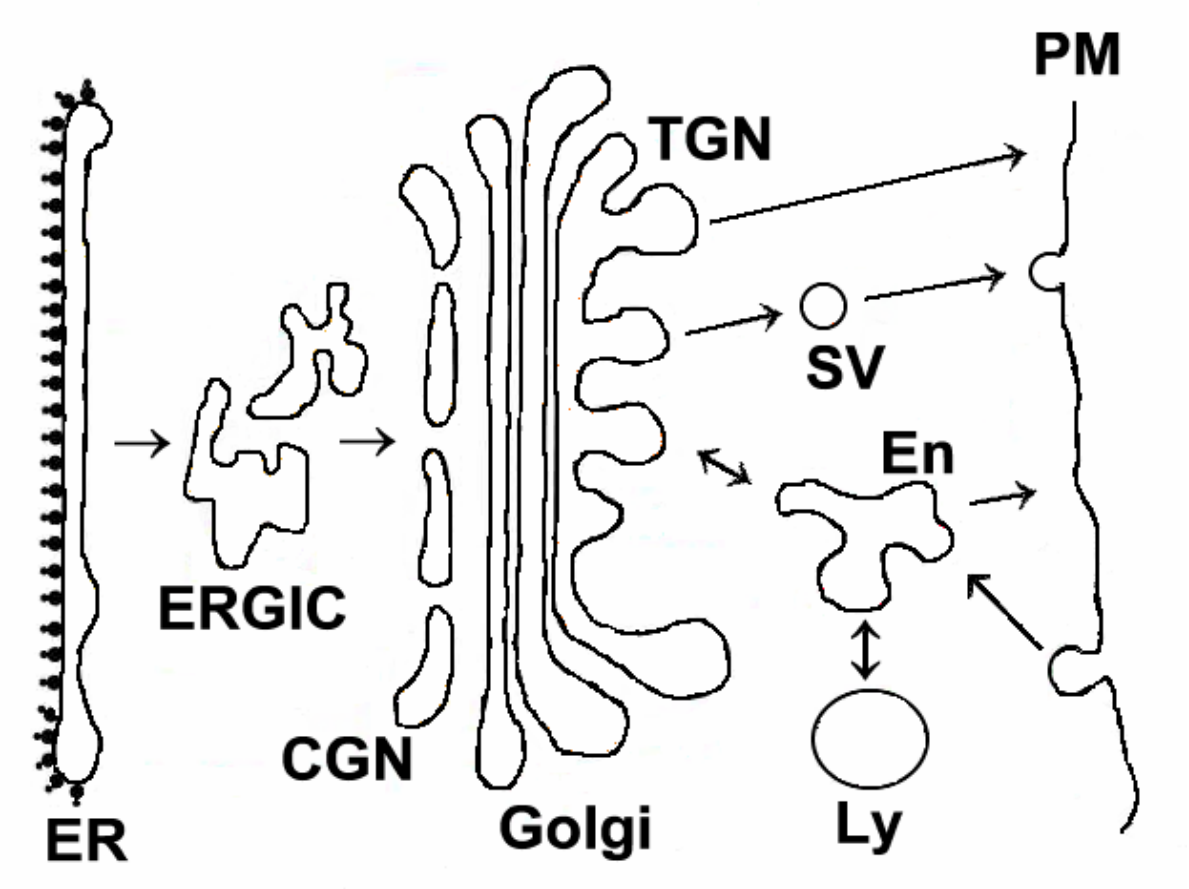
Bannykh SI, Nishimura N, and Balch WE (1998) Getting into the Golgi. Trends Cell Biol 8, 21-25.

Rothman JE (1994) Mechanisms of intracellular protein transport. Nature 372, 55-63.

Pelham HRB (1998) Getting through the Golgi complex. Trends Cell Biol 8, 45-49.

Balch WE and Allan BB (1999) Protein sorting by directed maturation of Golgi compartments. Science 285, 63-66.

Scheckman R and Orci L (1996) Coat proteins and vesicle budding. Science 271, 1526-1533.

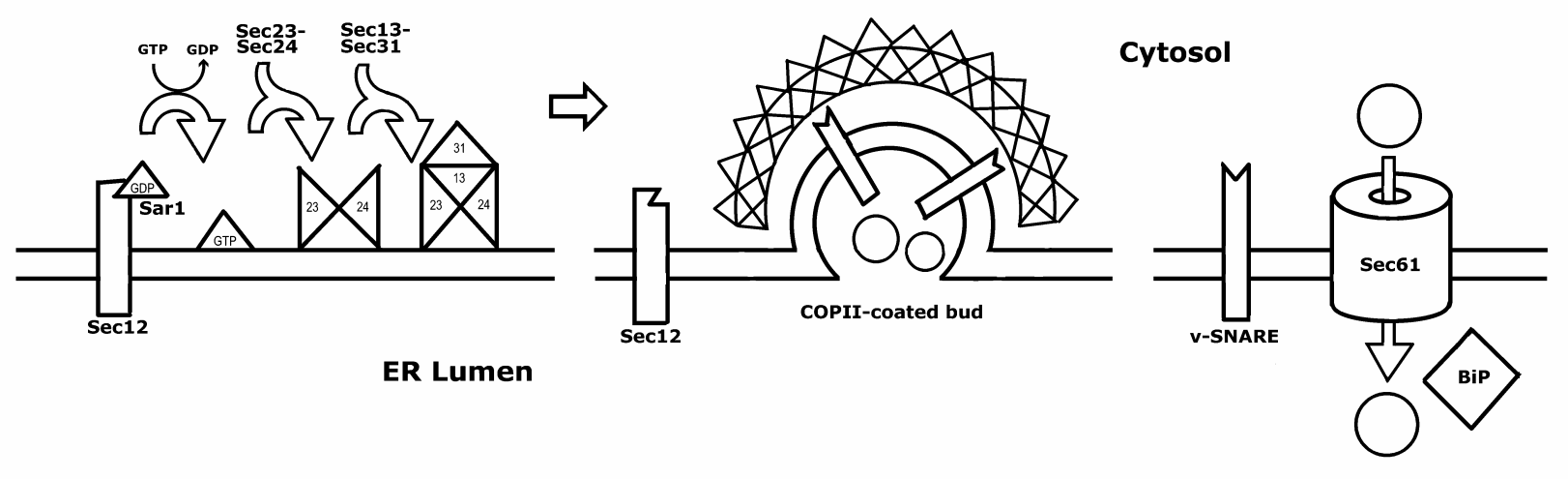


A Variety of Coat Complexes Participate in Vesicle Formation

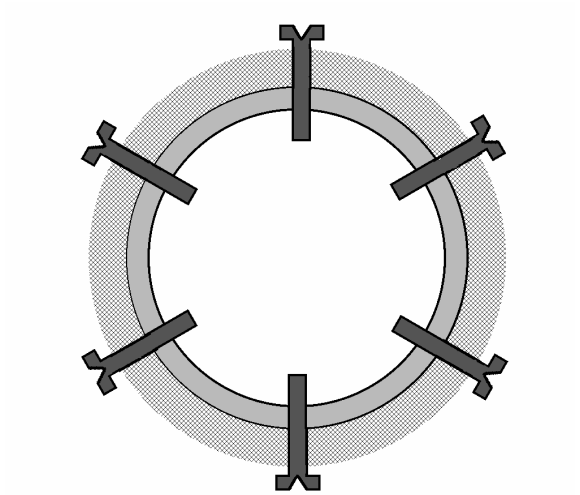
Coat	Locations	G-protein
COP-II	ER → ERGIC	Sar1
COP-I (coatomer)	ERGIC → ER; Golgi stacks; endocytic compartments	ARF1
clathrin + adaptors (AP1 – AP3)	TGN; cell surface (RME)	dynamin; ARF1
retromers (?)	endosome → Golgi	
caveolin (?)	cell surface	

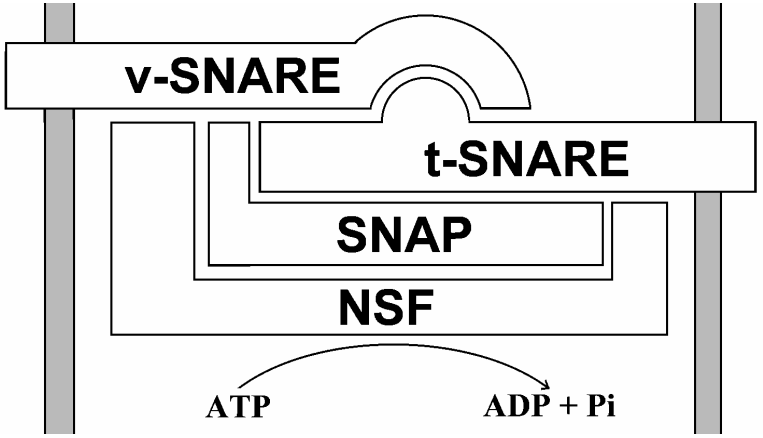
COP-II Components

Name	Size	Comments
Sar1p	21 kDa	ras-like G protein
Sec12p	43 kDa	Sar1p specific GEF; integral ER protein
Sec23-complex	400 kDa	
Sec23p	85 kDa	Sar1p specific GAP
Sec24p	105 kDa	
Sec13-complex	700 kDa	
Sec13p	34 kDa	
Sec31p	150 kDa	



COP I vesicles composed of coatomer and a ras-like G-protein called ARF (ADP ribosylation factor). Coatomer formed from 7 coat proteins (COPs): α (160 kDa), β (110 kDa), β' (102 kDa), γ (98 kDa), δ (61 kDa), ε (31 kDa), and ζ (20 kDa).





GTPase
uncoating