SEC17 and SEC18 act as SNARE chaperones during protein transport between organelles, transport to and from the plasma membrane, and fusion between organelles. Sec18p is an AAA-ATPase whose activity is stimulated by Sec17p. Sec18p is the yeast homolog of the mammalian NSF and Sec17p is the yeast homolog of the mammalian alpha-SNAP.During ER to Golgi transport, Sec17p and Sec18p bind SNARE complexes that formed after the ER-derived vesicle has docked with the Golgi membrane and are required for membrane fusion. In contrast, during homotypic vacuole fusion, Sec17p and Sec18p are required prior to docking and membrane fusion. Sec17p and Sec18p bind SNARE complexes that have accumulated on vacuole membranes from previous fusion events. Then the ATPase activity of Sec18p drives disassembly of these SNARE complexes and primes them for another round of vacuolar fusion. Based on Sec17p and Sec18p function during yeast homotypic vacuole fusion as well as studies in mammalian systems of other membrane fusion events, Sec17p and Sec18p are proposed to facilitate the recycling of SNARE proteins during all membrane fusion events.