Bem1p helps to establish the cellular polarity that is required for bud and shmoo formation. An excellent review written by Madden and Snyder describes the process of establishing cell polarity and morphogenesis in yeast. Bem1p is an SH3-domain protein that binds Cdc24p, which is a nucleotide exchange factor for Cdc42p, a Rac/Rho GTPase. Because Bem1p also binds Ste5p and Ste20p, which are central components of the mating pathway, Bem1's role may be to connect the mating signal to the proteins that induce the appropriate changes to the actin cytoskeleton. Bem1p, Cdc24p, and Cdc42p also interact with a GTPase complex that is involved in budding. This GTPase complex consists of Rsr1/Bud1, a Ras-related GTPase, Bud2p, the GTPase activating protein, and Bud5p, the guanine-nucleotide exchange factor. The function of the Rsr1 GTPase complex may be to localize Bem1p, Cdc24p, and Cdc42p at the nascent bud site where they can reorganize the actin cytoskeleton to establish polarization.