Rsr1pis a ras-like GTPase required for the first step in budding, bud site selection. RSR1 was first identified as a high copy suppressor of a temperature sensitive mutation in the guanine nucleotide exchange factor CDC24. Mutations in RSR1 result in a random budding pattern rather than the usual axial pattern in haploids and bipolar pattern in a/alpha diploids. Rsr1p is also required for morphological changes in response to mating pheromone, and for efficient cell fusion. Rsr1p is a small GTP-binding protein and shows significant similarity to many proteins in the ras superfamily, especially to mammalian Rap GTPases. Bud2p appears to be the GTPase-activating protein that negatively regulates Rsr1p, and Bud5p the GDP/GTP exchange factor that positively regulates it. Rsr1p has been found to interact with Cdc24p when Rsr1p is in its GTP-bound state, and with Bem1p when it is in its GDP-bound state. Rsr1p is associated with the plasma membrane, and is thought to interact with Bud2p, Bud5p, Cdc24p, and Bem1p at the site of future bud growth.