SHS1 encodes a septin. Septins are a family of conserved proteins first identified in yeast and subsequently found in numerous other fungi and animals, including human, mouse, Drosophila, and C. elegans. Four yeast septins, Cdc3p Cdc10p, Cdc11p, and Cdc12p, have been studied extensively; they are required for cytokinesis, axial bud site selection, and the correct localization of several other proteins involved in cytokinesis, morphogenesis, and bud site selection. Shs1p was identified by its two-hybrid interaction with Spa2p, a protein implicated in the control of polarized bud growth. Shs1p contains a C-terminal domain not found in the other yeast septins, and is not essential. Like other yeast septins, Shs1p localizes to a ring around the bud neck. Shs1p associates with the Cdc3p, Cdc10p, Cdc11p, and Cdc12p septins on a Gin4p affinity column. Gin4p and two related protein kinases, Hsl1p and Kcc4p are involved in cell cycle progression. PR, All known septins contain consensus GTP-binding domains, and Drosophila septins hydrolyze GTP in vitro. Septin GTPase activity has not been studied extensively in yeast.