Microtubules are conserved cytoskeletal elements that form by the polymerization of alpha- and beta-tubulin heterodimers. The formation of polymerization-competent tubulin heterodimers requires that alpha-tubulin and beta-tubulin are properly folded. Specific cofactors are required for the post-chaperonin folding of alpha- and beta-tubulin in vitro and homologs of these cofactors have been found in numerous organisms, including S.cerevisiae. In S.cerevisiae, PAC2 is a non-essential gene that is homologous to mammalian cofactor E. Consistent with the in vitro studies, genetic analyses of PAC2 demonstrate that Pac2p acts downstream of Alf1p/cofactor B in alpha-tubulin folding, and in parallel with Rbl2p/cofactor A and Cin1p/cofactor D, in beta-tubulin folding. Similar to the other yeast cofactors, pac2 null mutants are super-sensitive to benomyl, a microtubule depolymerizing drug. Overexpression of Cin1p can suppress the benomyl sensitivity of pac2 null mutants, and Cin1p and Pac2p have been shown to interact in vivo. Pac2p physically interacts with alpha-tubulin, likely mediated by its single CLIP-170 domain, found in several microtubule-associated proteins. The PAC2gene was isolated in a genetic screen for mutants that were synthetically lethal with the mitotic kinesin, Cin8p.