The SKI complex is a cytoplasmic complex composed of a putative RNA helicase, a tetratricopeptide repeat proteinand a WD repeat protein. Along with the adaptor protein Ski7p, the SKI complex mediates the cytoplasmic functions of the exosome, a 3'-5' exonuclease complex. Together, the SKI complex, Ski7p and the exosome function in a wide range of 3'-5' RNA catabolic processes that include the routine turnover of normal mRNAs, the degradation of aberrant mRNAs by 3'-5' nonsense-mediated decayand non-stop mRNA decay, and the degradation of other cytoplasmic RNAs including unadenylated RNAsand viral dsRNA. Although the SKI complex was originally described as a heterotrimer containing Ski2p, Ski3p and Ski8p, later work provides evidence that it is a heterotetramer containing one subunit each of Ski2p and Ski3p, and two subunits of Ski8p. All members of the SKI complex are found in humans and the human genes for hSKI2and hSKI8have been identified. However, Ski7p is found only in a subset of Saccharomyces species; the closely related protein, Hbs1p, is likely to fill the role of Ski7p in other fungi and possibly other eukaryotes. Null mutants of ski2, ski3, ski8 and ski7 have similar phenotypes. All have the superkiller phenotype indicative of increased accumulation or viral dsRNA, and exhibit synthetic lethality with mutations in genes involved in 5'-3' mRNA decay.