The exosome complex possesses 3'-5' exonuclease and endoribonucleolytic activities that are essential for diverse ribonucleolytic processes in both the nucleus and the cytoplasm. The nuclear exosome is associated with the TRAMP complex and is involved in RNA catabolic processes including RNA surveillance, pre-mRNA turnoverand the production of mature 3' ends for snoRNAs, snRNAs and rRNAs. The cytoplasmic exosome is associated with Ski7p and the SKI complex and is involved in RNA catabolic processes that include both the routine turnover of normal mRNAas well as the degradation of aberrant mRNAs. The 10-subunit core exosome complexis the same in both locations, but the nuclear exosome contains an additional subunitand two additional accessory factors. Although the exosome was originally described as a \"complex of exonucleases,\" with multiple subunits proposed to have RNase activity, later work has shown that this mechanism is unlikely in yeast. With the exception of Ski6p, none of the yeast subunits that show homology to E. coli RNase PH retain the active site residues seen in the bacterial or archael enzymes. Further research has also demonstrated that most, if not all, detectable enzymatic activity resides in the Dis3p and Rrp6p subunits.RRP40 encodes a core subunit of the exosome. Like most exosome components, Rrp40p is highly conserved among eukaryotes, including humans hRrp40p. The Rrp40p sequence is predicted to contain both S1 and KH RNA binding domains, however RNA binding activity of isolated Rrp40p is weak and detectable only in some experimental conditions. Rrp40p has been definitively demonstrated to bind manganese. RRP40 is an essential gene, but cells depleted for Rrp40p accumulate aberrant forms of rRNA.