Thp1p is an RNA-binding protein which forms the stable TREX-2complex with Sac3p, Sus1p, and Cdc31p. TREX-2 is associated with the nuclear pore, is essential for nuclear mRNA export, and plays a role in mRNP biogenesis and genome maintenance. TREX-2 functions by docking the mRNP to specific nucleoporins at the nuclear entrance of the nuclear pore complex. TREX-2 components Sus1p and Cdc31p function synergistically to promote association of TREX-2 with the NPC, where it is anchored via the nucleoporin Nup1p. The TREX-2 complex facilitates the repositioning and association of actively transcribing genes with nuclear pores -\"gene gating\"- that is central to integrating transcription, processing, and mRNA nuclear export. TREX and TREX-2, the two main mRNA export complexes, are also required for efficient transcription-coupled repairin yeast. Thp1pand two other proteins previously shown to control transcription-associated recombination, Hpr1p and Tho2p, act in the same \"pathway\" connecting transcription elongation with the incidence of mitotic recombination. TREX-2, together with THO/TREX, defines a specific pathway connecting transcription elongation with export via an RNA-dependent dynamic process that provides a feedback mechanism for the control of transcription and the preservation of genetic integrity of transcribed DNA regions.Sgf73p, a subunit of the SAGA histone acetyltransferase complex, mediates recruitment of Thp1p and Sac3p to SAGA and their stable interaction with Sus1p-Cdc31p to form TREX-2 and target it to the nuclear pore complex. Targeting of Thp1p to the nuclear pore complex is perturbed in cells mutant for SEM1, a component of the lid subcomplex of the regulatory subunit of the 26S proteasome.Mutants disrupted for THP1 grow slowly, are cold-sensitive and sporulate with reduced efficiency. Deletion of THP1 also strongly stimulates recombination and impairs transcription. sac3Delta confers a transcription defect and hyper-recombination phenotype identical to that of thp1Delta, and mutations in either Sac3p or Thp1p affect genome integrity and lead to strong mRNA export defects. The poly+ RNA-binding heterogeneous nuclear ribonucleoprotein Nab2p is a multicopy suppressor of the transcription and RNA export defects of thp1Delta cells. thp1Delta cells also exhibit diploid-specific sensitivity to doxorubicin.Orthologs of Thp1p, the TREX-2 complex as a whole, and Nup1p, have been identified in Arabidopsis. Homologs of Thp1p have also been identified in Schizosaccharomyces pombe, Caenorhabditis elegans, Drosophila melanogaster, and Homo sapiens.