BLM10 has been characterized as a proteasome activator protein that binds to the core proteasome particle to activate proteolysisand as a factor which plays a role in the assembly of nuclear core proteasome particles. Fehlker et al. find Blm10p in association with proteasome precursor complexes. Schmidt et al. find that the majority of Blm10p in the cell is found in mature complexes containing both the core particle and the 19S regulatory module as well as Blm10p. They suggest that although most proteasome activators are multisubunit ring-shaped complexes, Blm10p is a large protein that appears to bind to the ring-shaped proteasome core particle as an individual protein.Blm10p is similar to mammalian PA200, a proteasome activator protein which stimulates the degradation of peptides, but not of intact proteins. PA200 is postulated to be involved in DNA repair, though the mechanism by which this may occur is not clear.BLM3 was identified genetically in a large screen looking for mutations conferring hypersensitivity to the drug bleomycin and radiation. The ORF YFL007W was cloned as a multicopy suppressor of the codominant blm3-1 mutation. Complete deletions of the YFL007W ORF indicated that cells are hypersensitive to bleomycin and viable in the absence of the drug. Subsequent resequencing of the region around YFL007W indicated the presence of an additional G, resulting in the original YFL006W ORF being merged into YFL007W. Genetic mapping and sequencing of the expanded YFL007W ORF in the blm3-1 mutant indicated that YFL007W was an extragenic suppressor of the blm3-1 mutation. Thus, YFL007W was renamed BLM10. The gene corresponding to the original blm3-1 mutation was later identified as UBP3.