

# Domain a' of *Bombyx mori* Protein Disulfide Isomerase Has Chaperone Activity

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Protein disulfide isomerase (PDI) is an endoplasmic reticulum (ER)-localized multifunctional enzyme that can function as a disulfide oxidase, a reductase, an isomerase, and a chaperone. The domain organization of PDI is abb'xa'c, with two catalytic (CxxC) motifs and a KDEL ER retention motif. The members of the PDI family exhibit differences in tissue distribution, specificity, and intracellular localization. We previously identified and characterized the PDI of *Bombyx mori* (bPDI) as a thioredoxin-like protein that shares primary sequence homology with other PDIs. Here we compare the reactivation of inactivated rRNase and sRNase by bPDI and three bPDI mutants, and show that bPDI has mammalian PDI-like activity. On its own, the *N*-terminal a domain does not retain this activity, but the a' domain does. This is the first report of chaperone activity only in the a' domain, but not in the a domain.

**Key words:** Protein Disulfide Isomerase (PDI), *Bombyx mori*, PDI Activity