

# Molecular Characterization of a Peroxiredoxin from the Mole Cricket, *Gryllotalpa orientalis*: cDNA Cloning, Expression and Functional Assay

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A cDNA encoding the peroxiredoxin (Prx) from the mole cricket, *Gryllotalpa orientalis* was cloned and characterized. The *G. orientalis* Prx (GoPrx) cDNA contains an open reading frame of 660 bp encoding 220 amino acid residues. The GoPrx belongs to the 1-Cys subgroup of peroxiredoxin family. The deduced amino acid sequence of the GoPrx cDNA showed 69% identity to *Drosophila melanogaster* DmPrx-2540 and 50% to *D. melanogaster* DmPrx-6005. Phylogenetic analysis confirmed a closer relationship of the deduced amino acid sequences of the GoPrx gene to the DmPrx-2540 and DmPrx-6005 of the 1-Cys PTx group. The cDNA encoding GoPrx was expressed as a 27-kDa polypeptide in the baculovirus-infected insect Sf9 cells and the purified recombinant GoPrx was shown to reduce H<sub>2</sub>O<sub>2</sub> in the presence of dithiothreitol. Northern blot analysis revealed that GoPrx transcripts are present in all tissues examined, suggesting that GoPrx gene is expressed in most, if not all, body tissues. The induction of GoPrx to H<sub>2</sub>O<sub>2</sub> by Northern blot analysis showed that the level of GoPrx mRNA significantly increased during the H<sub>2</sub>O<sub>2</sub> exposure.