

## Crystal Structure of Decameric Peroxiredoxin (AhpC) from *Amphibacillus xylanus*

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Peroxiredoxins (Prxs), also referred to as AhpCs, are a ubiquitous family of antioxidant enzymes. Bacterial AhpC is recognized as the primary scavenger of endogenously generated hydrogen peroxides. AhpC purified from *Amphibacillus xylanus* shows extremely high scavenging activity for both hydroperoxide and alkyl hydroperoxide in cooperation with the flavoprotein, NADH oxidase. Here we report the crystal structure of *A. xylanus* AhpC in its oxidized form. The enzyme forms a ring-like ( $\alpha$ 2)<sub>5</sub>-decamer, the structure of which is similar to those of the previously reported Prxs, and especially to that from *Salmonella typhimurium*. The dimer-dimer interface of the decamer exhibits moderate and conserved hydrophobic interactions, which have been proposed to dissociate at the physiological ionic strengths. In the crystal, electron densities of small molecules were observed between the decamers and were shown to play a unique role in the crystallization by bridging the decamers via the hydrogen bonds.

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