

Supplementary Materials

Characteristics of a Novel Manganese Superoxide Dismutase of a Hadal Sea Cucumber (*Paelopatides* sp.) from the Mariana Trench

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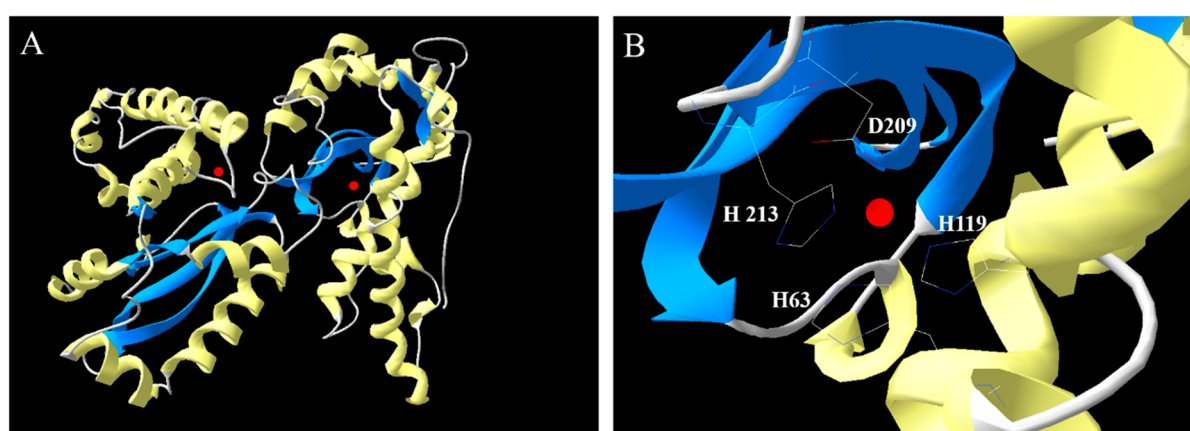


Figure S1. The predicted 3D model of Ps-Mn-SOD. Red spheres represent manganese ions. (A) homodimer. (B) close-up of the manganese ion binding site.

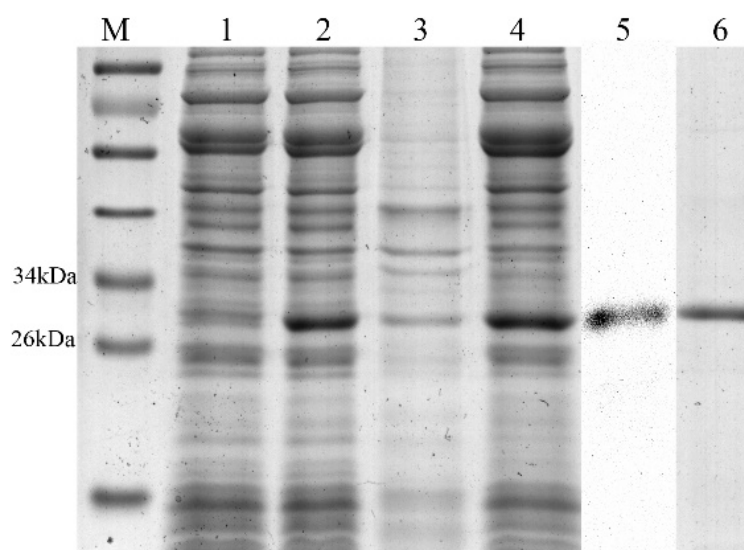


Figure S2. Analysis of SDS-PAGE. M: protein marker, Lane 1: total proteins before induction, Lane 2: total proteins after induction, Lane 3: inclusion body after ultrasonication, Lane 4: supernatant after ultrasonication, Lane 5: Western blot of recombinant protein, Lane 6: purified protein.

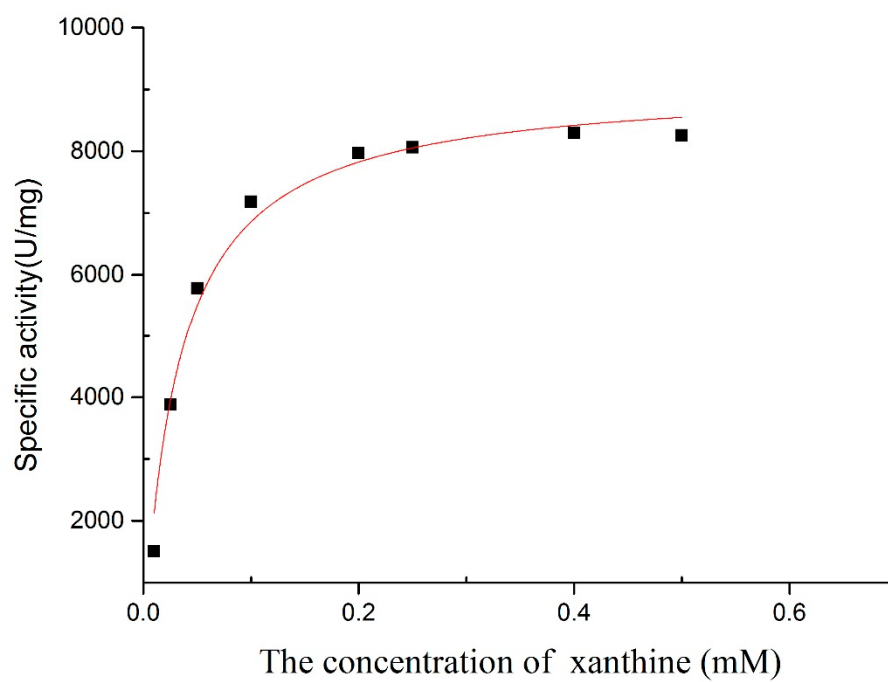


Figure S3. The curve of kinetic parameters of Ps-Mn-SOD.

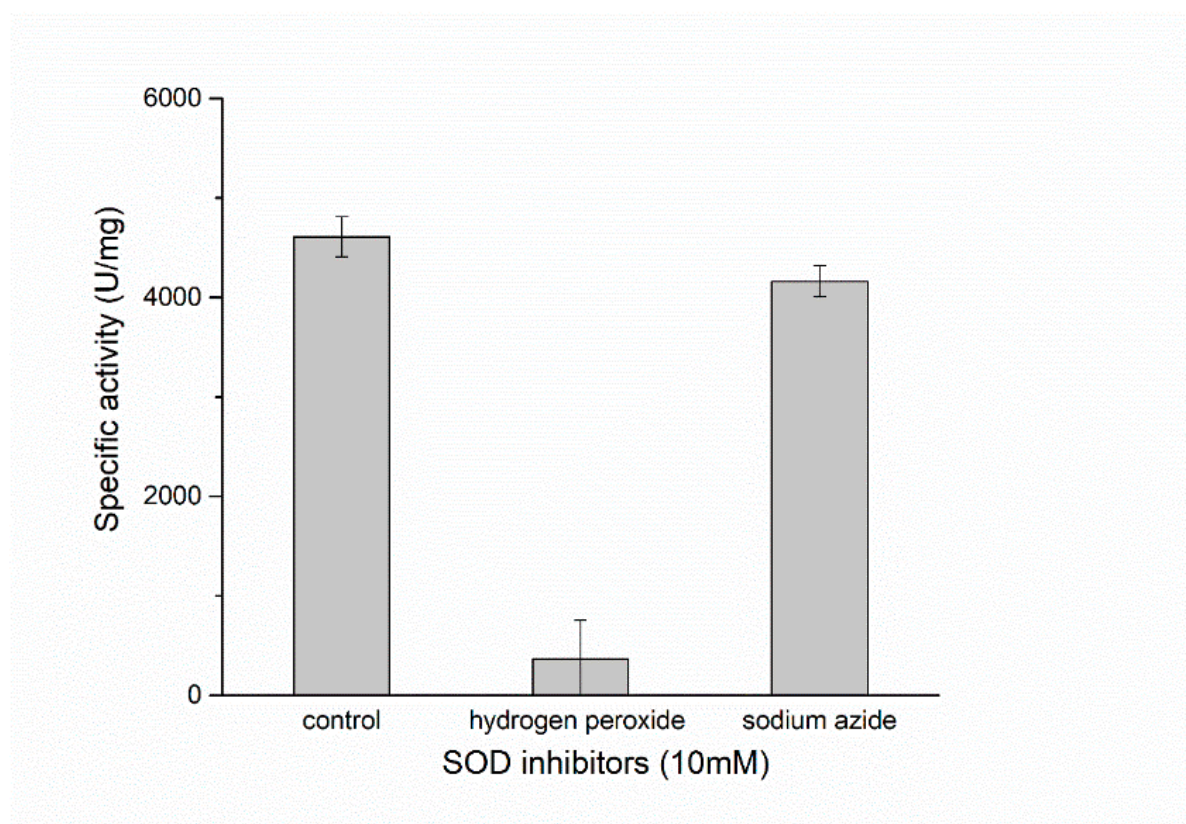


Figure S4. SOD type assay. The result is expressed using specific activity.

Table S1. Pairwise alignment analysis between Ps-Mn-SOD and other species.

Species	Genbank No.	Abbreviation	Size (aa)	Similarity%	Identity%	Gap%
<i>Apostichopus japonicus</i>	PIK42700.1	A. ja	250	83.9	78.0	2.0
<i>Strongylocentrotus purpuratus</i>	XP_791826.1	S. pu	269	65.1	47.0	13.5
<i>Exaiptasia pallida</i>	KXJ16556.1	E. pa	252	66.3	47.7	3.9
<i>Capitella teleta</i>	ELT98943.1	C. te	259	66.9	47.9	4.6
<i>Mizuhopecten yessoensis</i>	OWF42083.1	M. ye	261	64.4	46.7	8.9
<i>Stylophora pistillata</i>	PFX26188.1	S. pi	257	63.1	45.8	3.1

Table S2. The prediction of cleavage site of Ps-Mn-SOD.

Name of Enzyme	No. of Cleavages	Positions of Cleavage Sites
Chymotrypsin-high specificity (C-term to [FYW], not before P)	30	9 25 31 35 42 44 50 67 78 105 112 116 122 123 149 152 155 159 167 171 173 184 211 215 216 230 231 236 245 246
Trypsin	23	5 22 30 34 57 65 69 70 74 79 104 107 135 156 165 183 218 222 225 232 240 241 251