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**Supporting information for article:**

**Crystal structure of *Arabidopsis thaliana* peroxiredoxin A C119S mutant**

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	1	10	20	30	40	50	60
AtPrxA	MASVASSTTLISSPSSRVFP	AKSSLS	SPSVSFLRTLSSPS	ASASLRSGFARRSSLS	STSR		
SmPrx1	.....	.....	MVLL.....	PNRP.....			
HsPrx2	.....	.....	.....	.....	.....	.....	.....
BtPrx3	..MAATAGRLFRASLIRH	VSAIPWGISASA	ALR.....	PAASRRMCLTNALWSGSDQA			
LcPrx4	.....	.....	MEEAAHV.....	KNSQCHNYAGGHVYPGEAFR			
PvPrx	.....	.....	.....	.....	.....	.....	.....
HpAhpc	.....	.....	.....	.....	.....	.....	.....
RnHbp23	.....	.....	.....	.....	.....	.....	.....

	70	80	90	100	110
AtPrxA	RSFAVKAQADDLPLVGNK	APDFEAEAVF	DQEFIK	VKLSDYIGK	KYVILFFYP
SmPrx1	.....	APDFKQAVI	NGEFKE	ICLKDYRG	KYVVLFFYP
HsPrx2	.....	MASGNARIGKP	APDFKATAVV	DGAFKE	VKLSDYKG
BtPrx3	KFAFSTSSSYHAPAVTQH	APYFKGTAVV	SGEFKE	ISLDDFKG	KYLVLFFYP
LcPrx4	VPVSDHSLHLSKAKISK	APQWEGTAVI	NGEFKE	LKLSDYRG	KYLVLFFYP
PvPrx	.....	MPTYVGKE	APFKAEAVF	GDNSFGE	VNLTQFI
HpAhpc	.....	MLVTKL	APDFKAPAVL	GNNEVD	EHFELSKNL
RnHbp23	.....	MSSGNAKIGHP	APSKATAVM	PDGQFKD	ISLSDYKG

	120	130	140	150	160	170
AtPrxA	CPTEITAFSDRHSEFEKL	NTEVIGVSVDS	VFSHLAWV	QTDKRS	GGIGD	LNYP
SmPrx1	CPTEITAFSDQVEEFNSR	NCQVIACSTDS	QYSHLAWD	NLDRKS	GGIGHM	KIPL
HsPrx2	CPTEITAFSDNRAEDFR	KLGC	EVLSVDS	QFTHLAWI	NTPRKE	GGIGPL
BtPrx3	CPTEITAFSDKASEFH	DVNC	EVAVSVDS	HFSHLAWI	NTPRKN	GGIGHM
LcPrx4	CPTEITAFSDRVHEFRA	INTEV	VVACSVDS	QFTHLAWI	ITPRKQ	GGIGPM
PvPrx	CPSEITAFDLDKALDA	FHERN	VELLGC	SVDSKY	THLAWK	KTPLAK
HpAhpc	CPTEITAFD	KRVKDF	HEKGF	NVIGV	SIDSE	QVHF
RnHbp23	CPTEITAFD	RAE	EFK	KLNCQ	VIGASVDS	HFC

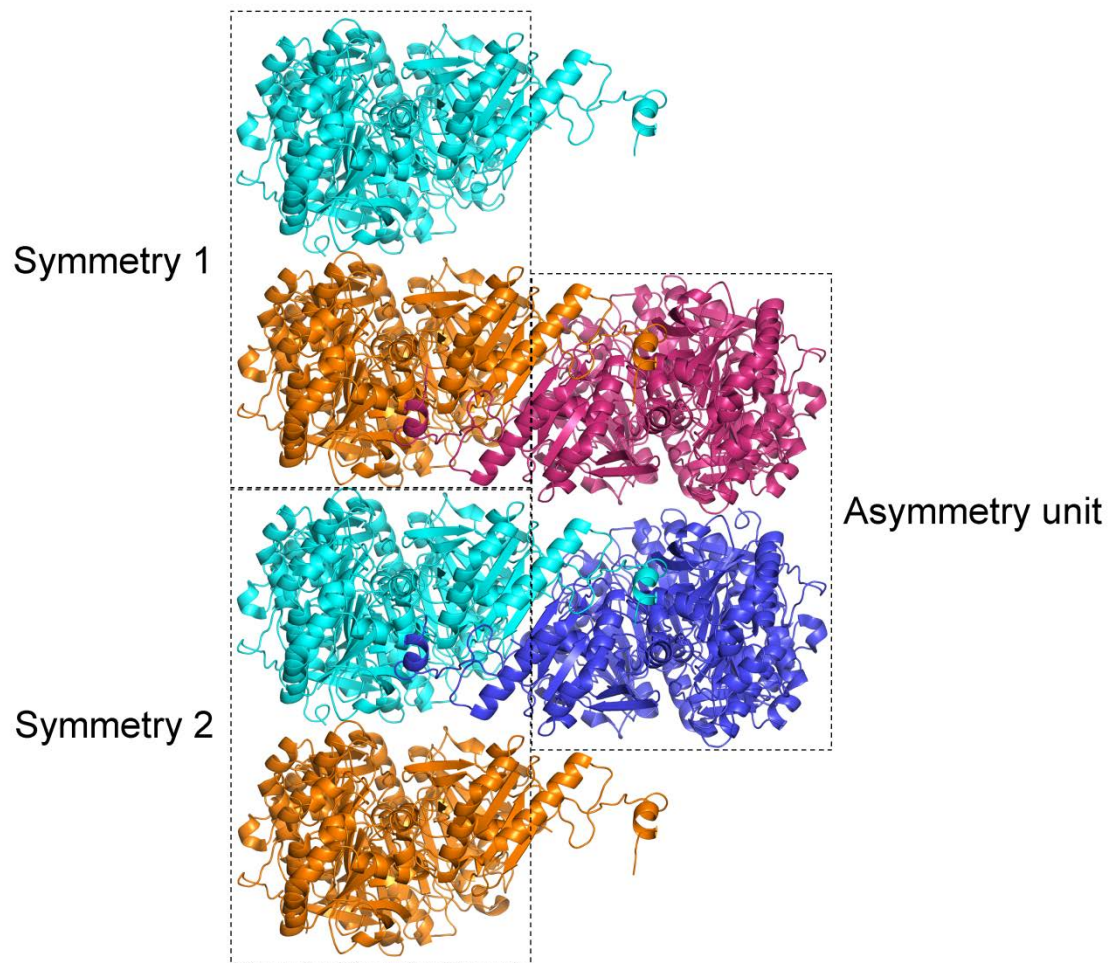
  

	180	190	200	210	220	230
AtPrxA	ISKSGFVLIHQGI	ALRGLFIID	KEGVIQ	HSTINNLGIG	GRSVDE	TMRTLQ
SmPrx1	ISKAYGVFDEED	GNARGLFIID	PNGILR	QITINDKPV	GRSVDE	TLRLLD
HsPrx2	LSEDYGVLTDEGI	AYRGLFIID	GKGVLR	QITVNDLPV	GRSVDE	ALRLVQ
BtPrx3	ISRDYGVLLLEGP	GLALRGLFIID	PNGVIK	HLSVNDLPV	GRSVDE	TLRLVK
LcPrx4	ISKDYGVYLEDQ	GHTLRGLFIID	EKGVL	RQITMNDLPV	GRSVDE	TLRLVQ
PvPrx	ISKDYNVLFDD	S	VSLRAFV	IDMNGIVQ	HLLVNNLA	IGRSVDE
HpAhpc	ISRDYDVLFE	EAL	RGAF	LIDK	NMKVR	HAVIND
RnHbp23	IAQDYGV	LKAD	EGISF	RGLFIID	DKGILR	QITIND

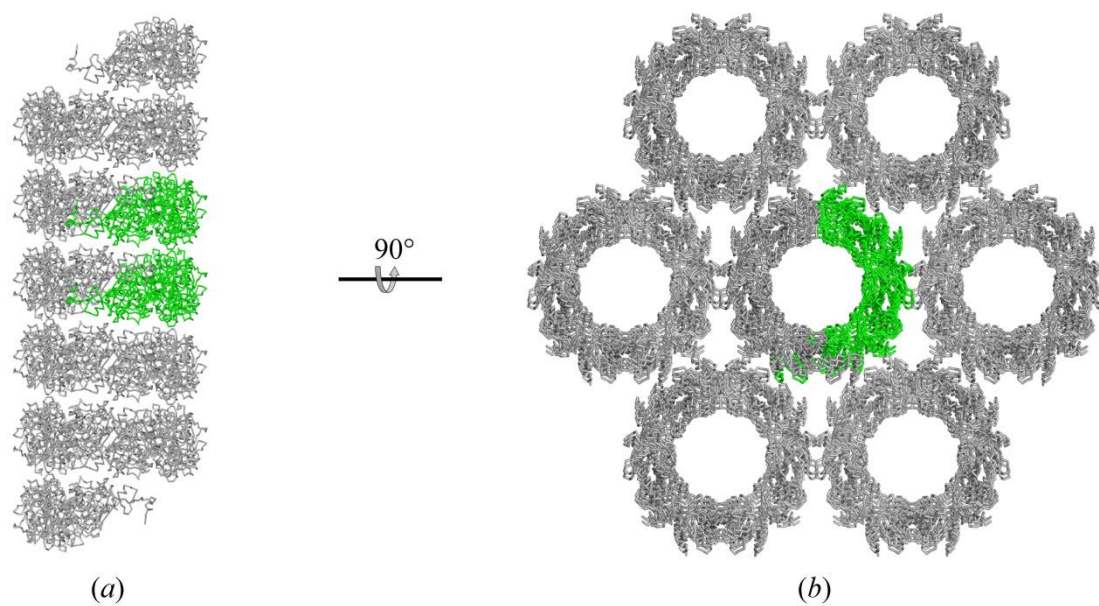
  

	240	250	260
AtPrxA	EVCPA	GWKPGEK	SMKPD
SmPrx1	EVCPA	VNWKR	GQHG
HsPrx2	EVCPA	GWKPG	SDTIK
BtPrx3	EVCPA	NWTP	ESP
LcPrx4	EVCPA	GWKPG	SDTI
PvPrx	DVCPA	NWQK	GKVS
HpAhpc	EVCPA	GWKPG	SDTI
RnHbp23	EVCPA	GWKPG	SDTI

**Supplementary Figure S1.** Sequence alignment of *A. thaliana* PrxA with several typical 2-Cys Prxs, including Prx1 from *Schistosoma mansoni*, Prx2 from *homo spaiens*, Prx3 from *Bos taurus*, Prx4 from *Larimichthys crocea*, Prx from *Plasmodium vivax*, Ahpc from *Helicobacter pylori*, and Hbp23 from *Rattus norvegicus*.



**Supplementary Figure S2.** PrxA formed decamers with symmetry related molecules. PrxA existed as two half-ring in the asymmetry unit, with half-ring-1 colored blue and half-ring-2 colored magenta. The symmetry related molecules of half-ring-1 and -2 are colored cyan and golden, respectively.



**Supplementary Figure S3.** PrxA decamers stacked to form tubes in crystal. (a) Side view of a PrxA tube. (b) Top view of seven PrxA tubes. The two half-ring of PrxA in the asymmetry unit are colored green, symmetry related molecules are colored gray.