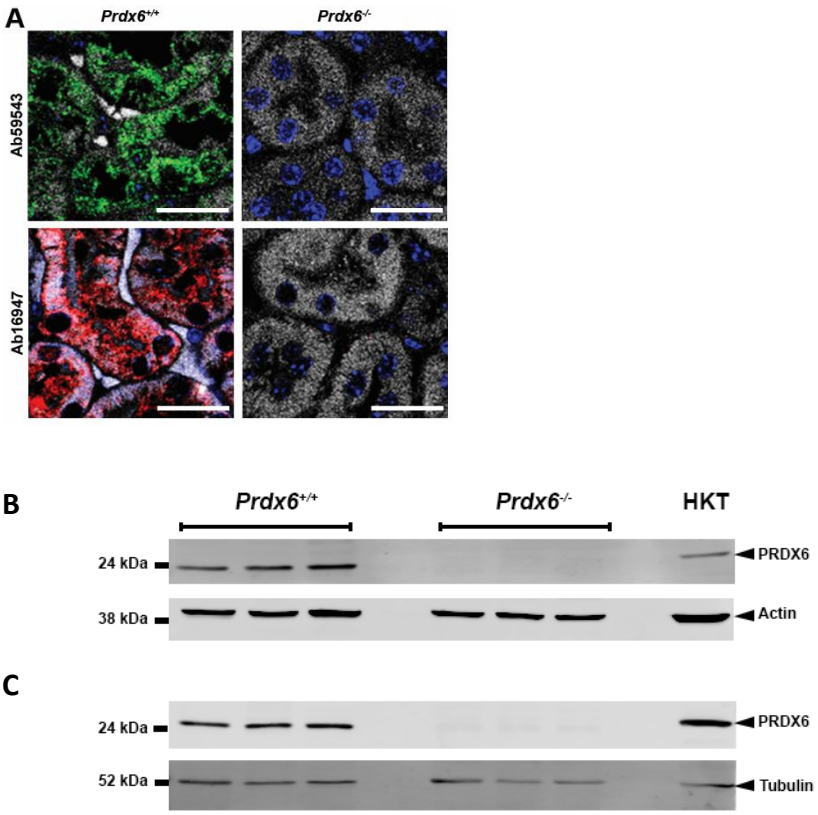
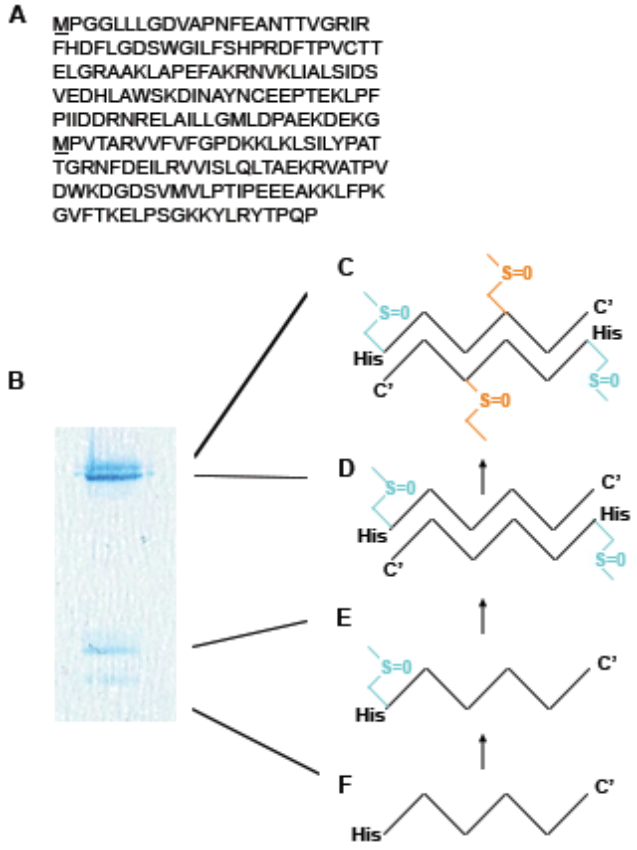
Supplementary Figure 1. Confirmation of antibody specificity by immunofluorescence and Western blotting



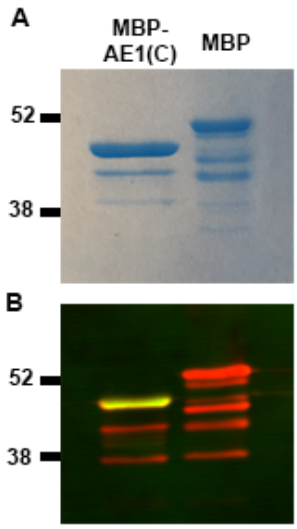
Kidney sections from *Prdx6*$^{+/+}$ and *Prdx6*$^{-/-}$ mice were used to test the specificity of the anti PRDX6 antibodies Ab59543 (green) and Ab16947 (red) (A) Scale bars: 20 µm. Western blots with three samples each of *Prdx6*$^{+/+}$ and *Prdx6*$^{-/-}$ total kidney lysate with a human kidney total (HKT) lysate as a control were probed with Ab59543 (B) and Ab16947 (C). Actin and tubulin were used as loading controls respectively. The sample preparations were carried out under reducing conditions.

Supplementary Figure 2. Summarized MALDI-TOF-TOF results of the expressed construct PRDX6 monomer and dimer doublet bands and their oxidation states.



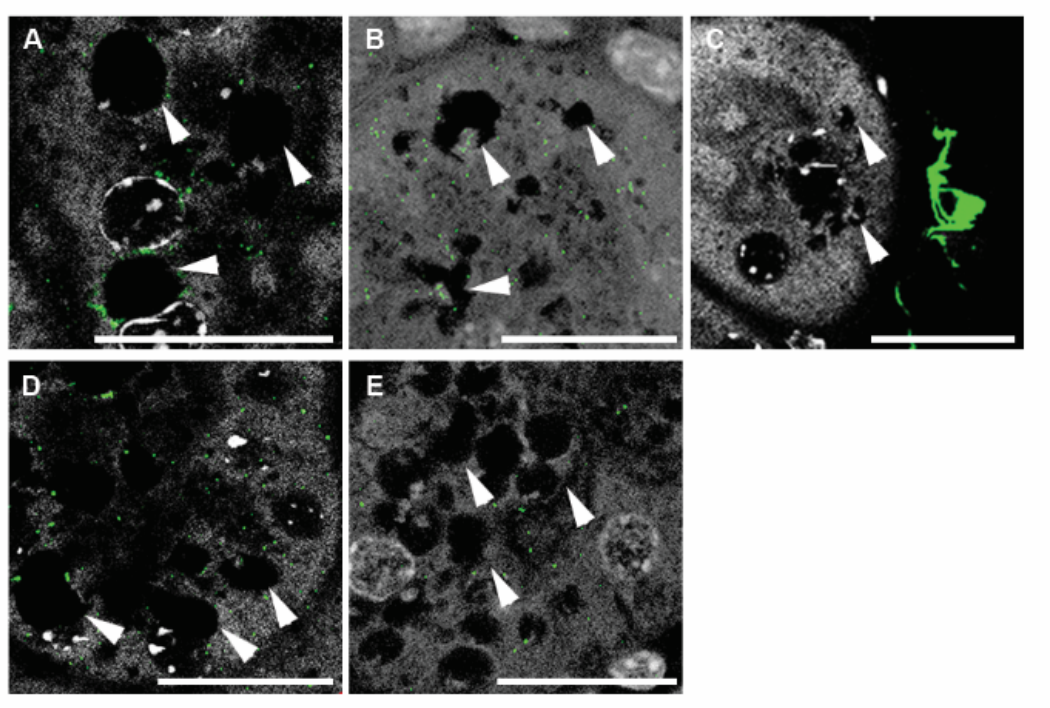
(A) Amino acid sequence of PRDX6 (A) with oxidised methionine residues (M1 and M127) identified by Mascot software underlined. (B) Coomassie-stained gel of expressed purified HisPRDX6 showing the protein in a range of oxidation states and (C-F) schematics showing the different oxidation states of HisPRDX6 as indicated by Mascot data. The native HisPRDX6 oxidation state corresponds to the lowest band separated on a gel (F) with (E) thru (C) representing each ascending excised band of HisPRDX6 and the corresponding oxidation of methionines and the dimerization of the protein.

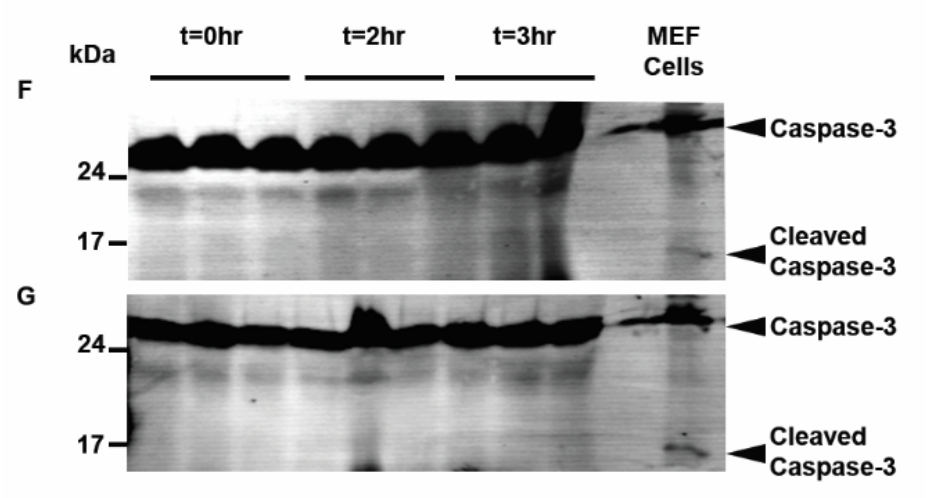
Supplementary Figure 3. MBP-AE1(C) and MBP protein expression.



(A) Coomassie-stained gel of expressed and purified MBP-AE1(C) and MBP. (B) Merged Western blot image of the samples probed simultaneously for AE1 (green) and MBP (red) using a fluorescent conguated secondary dye. Yellow staining represents overlapping signals.

Supplementary Figure 4. Vacuole characterization and detection of apoptosis





Kidney sections from acid gavaged *Prdx6*$^{+/+}$ mice showing vacuolation (white arrowheads) were stained for (A) calreticulin, a soluble endoplasmic reticulum protein; (B) LC3, an autophagosomal marker; (C) perilipin, a lipid storage protein; (D) EEA1, an early endosomal marker; and (E) LAMP2, a lysosomal marker. All staining in green, scale bars = 20 µm.

A Western blot for activated Caspase-3 (17/19 kDa cleaved fragment) was performed on *Prdx6*$^{+/+}$ (F) and *Prdx6*$^{-/-}$ (G) mouse kidney lysates after acid gavage showed no detectable activation (n=3 for each group). Staurosporine-treated mouse embryonic fibroblasts (MEF) cells provided a control for the blot.

Supplementary Table 1. Blood biochemistry of adult *Prdx6*$^{+/+}$ and *Prdx6*$^{-/-}$ animals

	Prdx6$^{+/+}$	*Prdx6*$^{-/-}$	P
pH	7.31 ± 0.03	7.07 ± 0.04	0.0080
HCO_3^- (mM)	20.3 ± 0.29	18.8 ± 1.48	ns
pCO_2 (kPa)	5.5 ± 0.38	8.7 ± 0.11	0.0012

Physiological blood parameters of adult *Prdx6*$^{+/+}$ and *Prdx6*$^{-/-}$ animals on a standard diet. All values are mean ± SEM. n=3 animals.