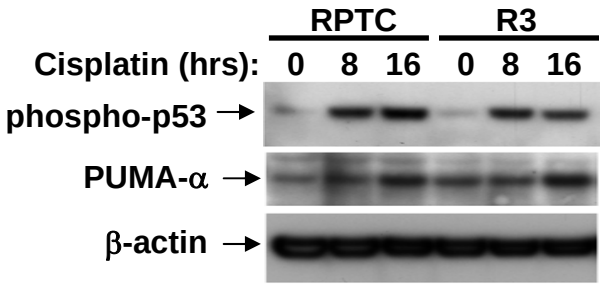
Legend for Supplemental Movie.

Time-lapse recording of mitochondrial morphology during azide-induced ATP depletion. RPTC cells were transfected with MitoRed to fluorescently label mitochondria and then incubated with 10mM azide in glucose-free medium to induce ATP depletion. Mitochondrial morphology in MitoRed-labeled cells was recorded every 90 seconds by an automated time-lapse fluorescence microscope (DeltaVision Core System, Applied Precision).



Supplemental Figure 1. p53 phosphorylation and PUMA-α induction during cisplatin treatment of RPTC and Drp1-siRNA transfected (R3) cells. RPTC and R3 cells were incubated with 20μM cisplatin for 0, 8, or 16 hours to collected whole cell lysate for immunoblot analysis of phosphorylated p53 (serine-15), PUMA-α, and β-actin.

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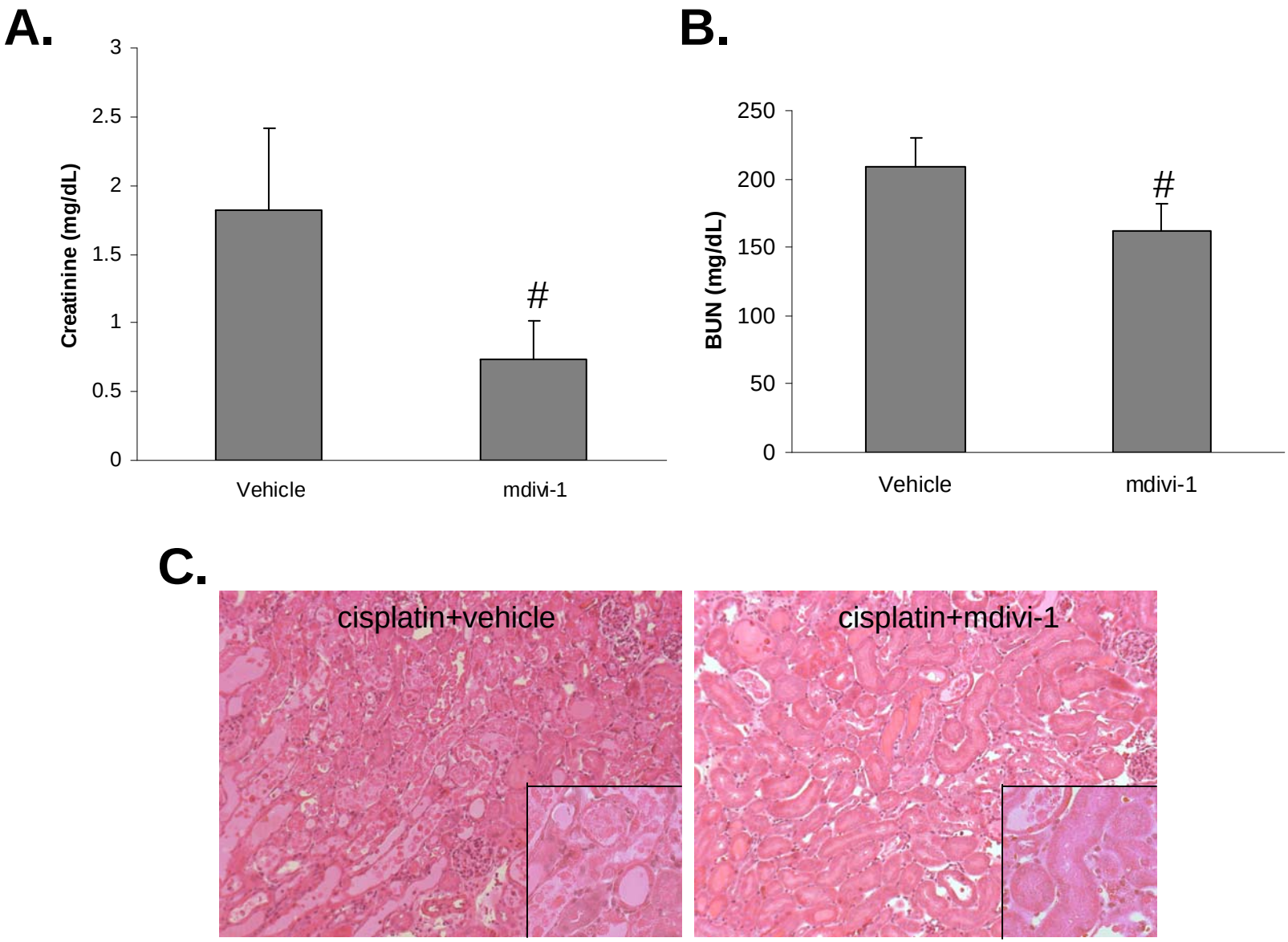

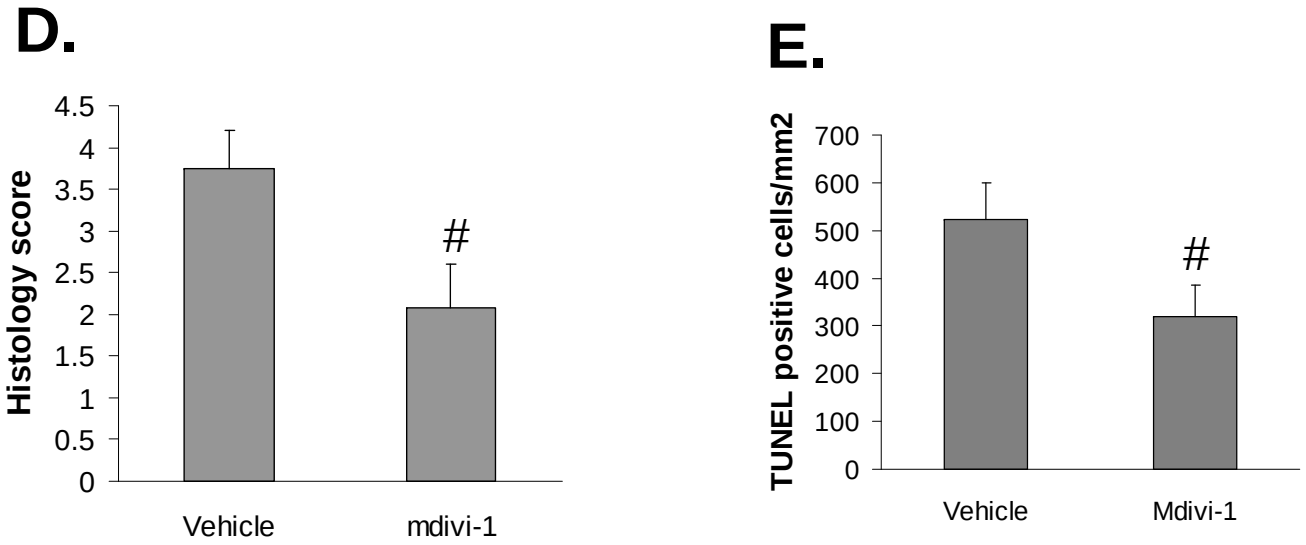

Supplemental Figure 2. Protective effects of mdivi-1 on cisplatin-induced renal injury and nephrotoxicity. C57BL/6 mice (male, 8 weeks) were injected with 30 mg/kg cisplatin to induced renal injury. 50 mg/kg mdivi-1 or vehicle solution was given at the time of cisplatin injection and daily afterwards. Blood samples and renal tissues were collected 4 days later for analysis. (**A**) Serum creatinine. (**B**) Blood urea nitrogen. (**C**) Representative renal histology. Inserts: histology at higher magnifications. (**D**) Quantification of tubular damage. The percentage of damaged renal tubules was determined for each animal to score the histology as described in Methods. (**E**) Tubular apoptosis analyzed by TUNEL assay. Data in (**A**), (**B**), (**D**) and (**E**) are mean ± SD, n=5. # $p<0.05$ statistically significant different from the cisplatin group injected with vehicle solution.