

## Supporting Information

### Engineered Molybdenum Disulfide Nanosheets as Scavengers Against Oxidative Stress and Inhibit Ferroptosis to Alleviate Acute Kidney Injury

Xuwu Zhang,<sup>1, 2, #</sup> Zhipeng Xu,<sup>2, #</sup> Yongzheng Zhang,<sup>2</sup> Dan Wei,<sup>2</sup> Shuping Zhang,<sup>3, 4</sup> Jianning Wang,<sup>1, 2, \*</sup> Jiayu Ren,<sup>3, 4, \*</sup>

<sup>1</sup>, School of Clinical Medicine, Shandong Second Medical University, Weifang 261053, China;

<sup>2</sup>, The First Affiliated Hospital of Shandong First Medical University, Shandong First Medical University & Shandong Academy of Medical Sciences, Jinan 250014, China;

<sup>3</sup>, Medical Science and Technology Innovation Center, Shandong First Medical University & Shandong Academy of Medical Sciences, Jinan 250117, China;

<sup>4</sup>, School of Public Health, Shandong First Medical University & Shandong Academy of Medical Sciences, Jinan 250117, China.

\* Correspondence:

Jiayu Ren, [renjiayuscu@163.com](mailto:renjiayuscu@163.com)

Jianning Wang, [docjianningwang@163.com](mailto:docjianningwang@163.com)

Full list of author information is available at the end of the article.

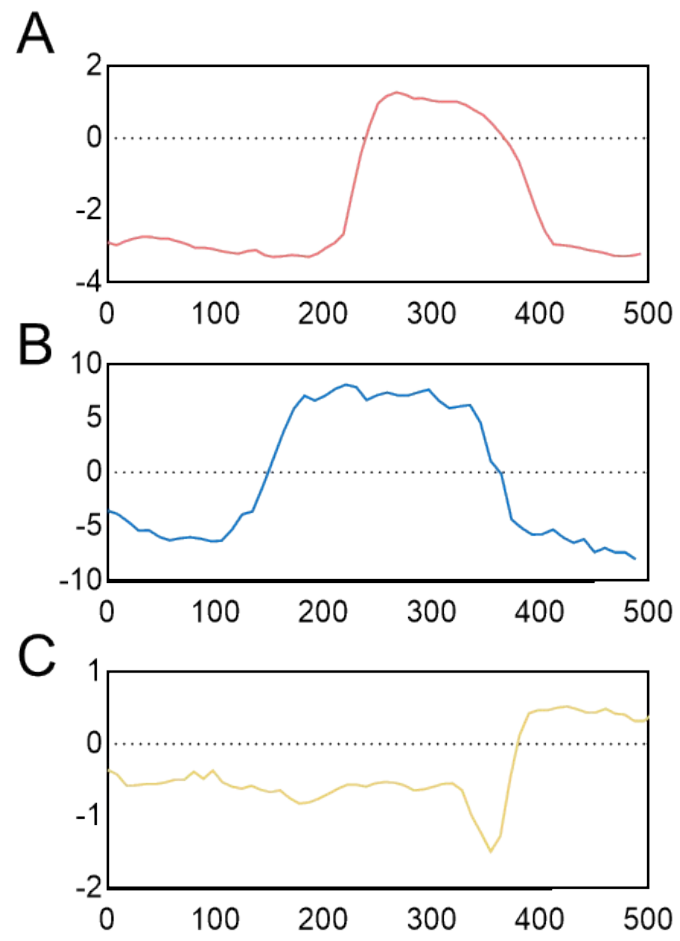


Fig. S1 AFM image of three nanosheets and their corresponding height analysis.

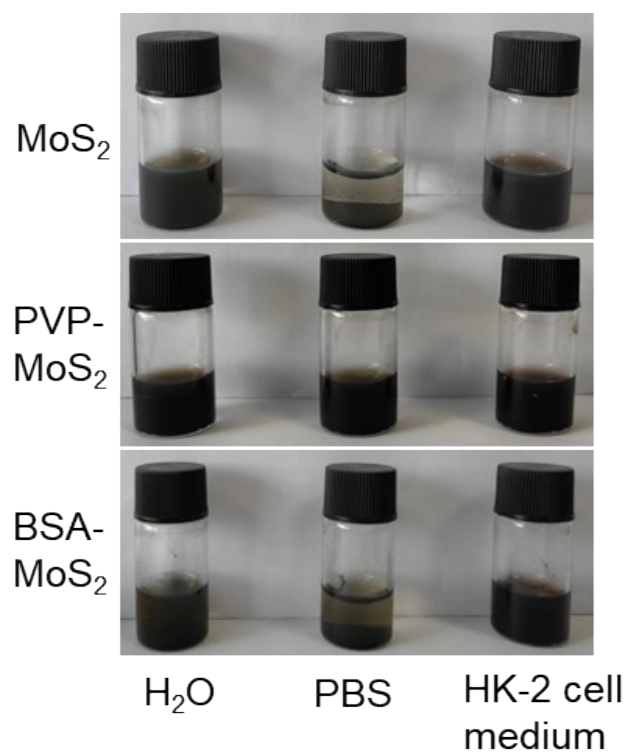


Fig. S2 Stability of three nanosheets in water, PBS, and HK-2 medium, respectively.

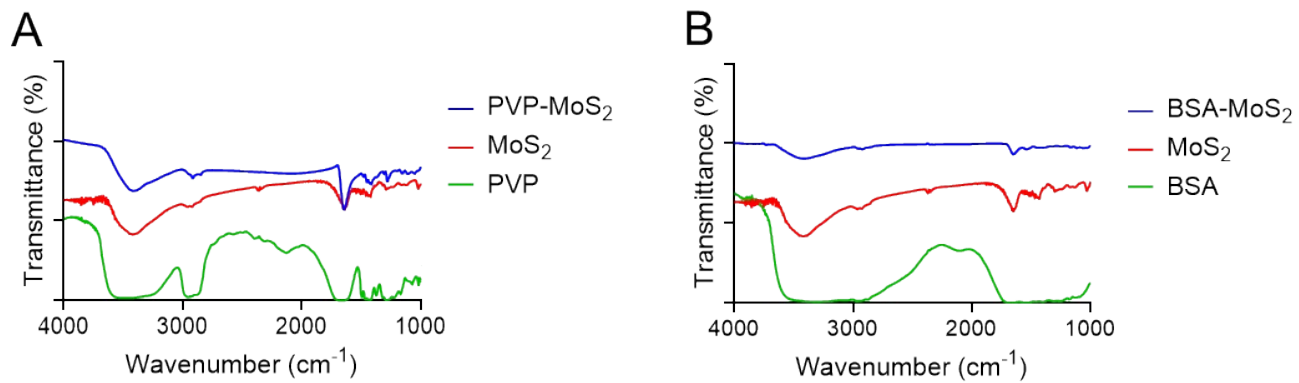


Fig. S3 Fourier transform infrared absorption spectra of three nanosheets.

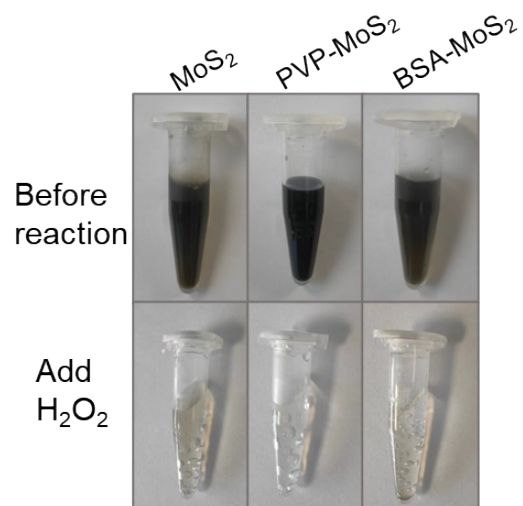


Fig. S4 Color changes before and after reaction of three nanosheets with 100 mM  $\text{H}_2\text{O}_2$ .

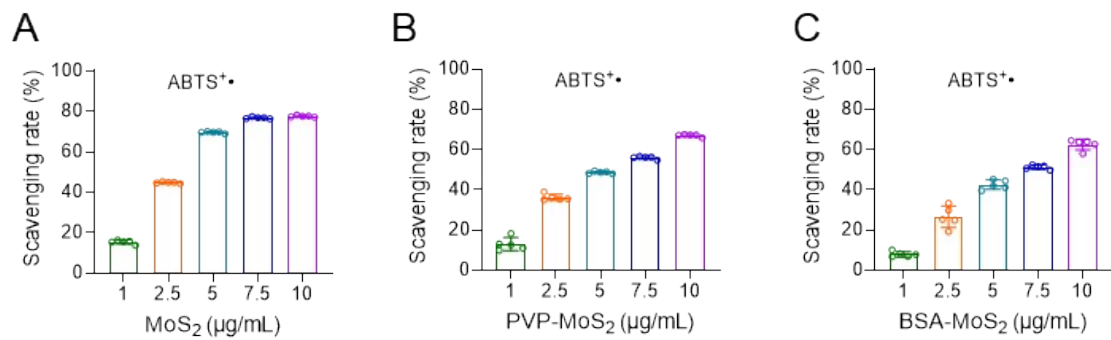


Fig. S5 ABTS<sup>+</sup> scavenging ability of MoS<sub>2</sub> (A), PVP-MoS<sub>2</sub> (B), BSA-MoS<sub>2</sub> (C) at different concentrations.

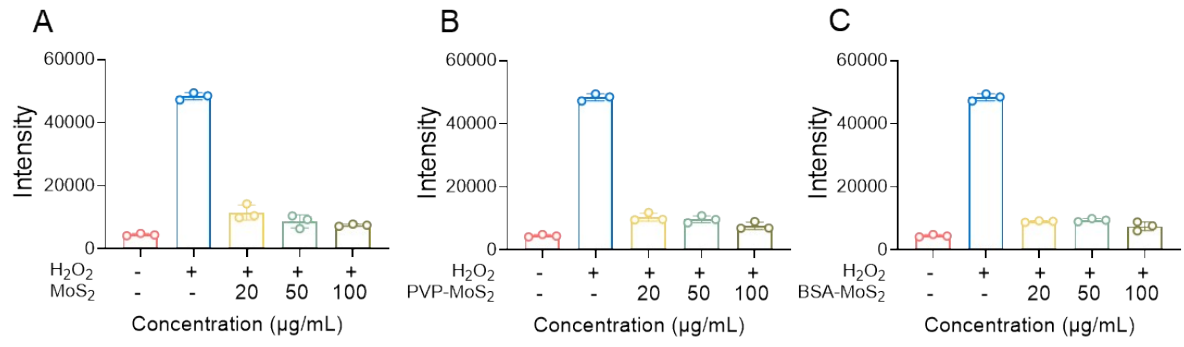


Fig. S6 Statistical analysis for ROS levels of HK-2 cells after different treatments.

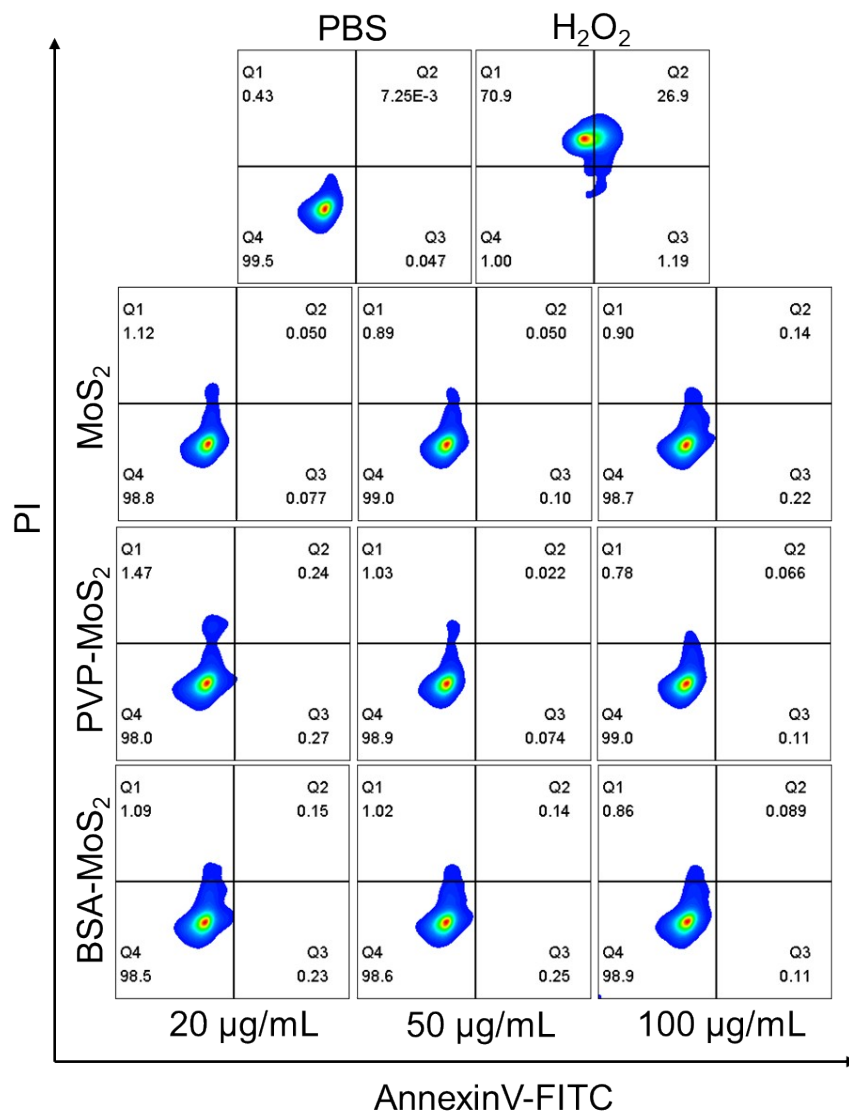


Fig. S7 PI/Annexin V-FITC staining of HK-2 cells under different treatment conditions.



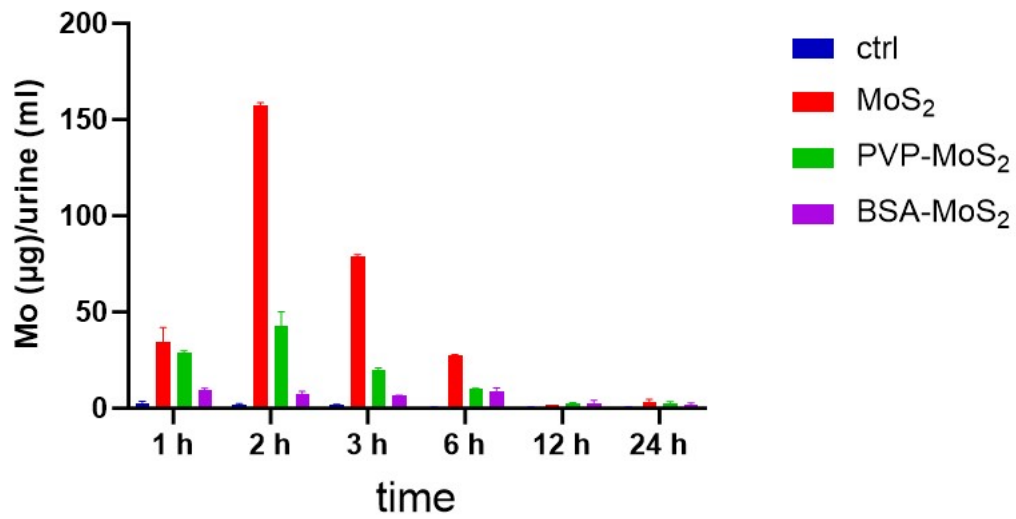


Fig. S8 Analysis of molybdenum in mouse urine by ICP-MS at different time points (1, 2, 3, 6, 12, 24 h).

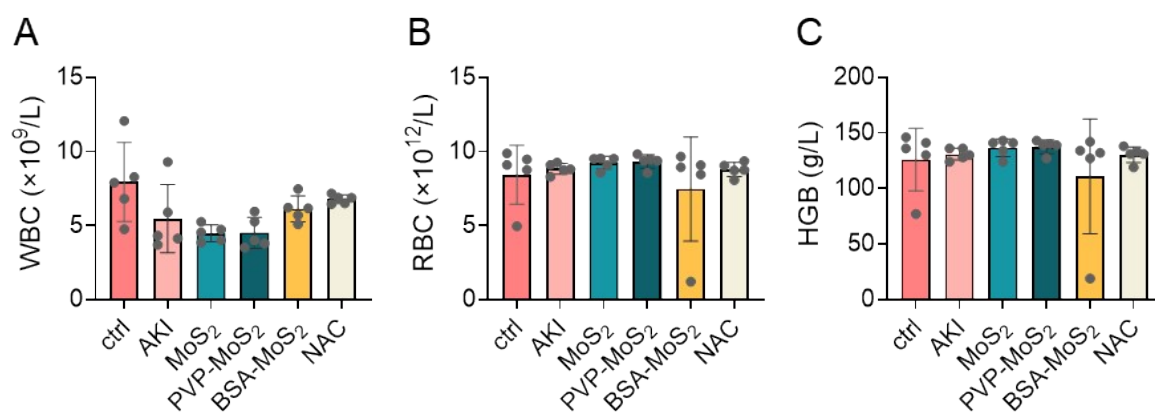


Fig. S9 Hematological parameters of mice after intravenous injection of PBS, three nanosheets, and NAC for 24 h. The data is the mean  $\pm$  SD (n = 5).

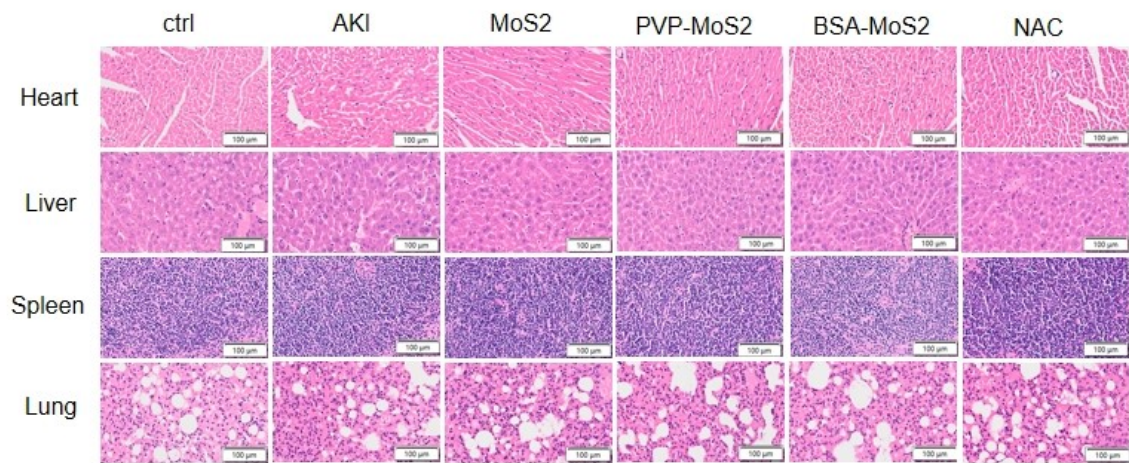


Fig. S10 H&E staining of the major organs (heart, liver, spleen and lung) after intravenous administration of three NSs for 24 h.