

## ***Supporting Information***

# Microplastics-contaminated antibiotics as an emerging threat to mammalian liver: enhanced oxidative and inflammatory damages

Jianxin Fu,<sup>a</sup> Lan Zhang,<sup>a</sup> Keyu Xiang,<sup>c</sup> Yu Zhang,<sup>c</sup> Guoqing Wang,<sup>\*a,b</sup> Lingxin Chen<sup>\*d,e</sup>

<sup>a</sup>*College of Food Science and Engineering, Ocean University of China, 5 Yushan Road, Qingdao 266003, China E-mail: [gqwang@ouc.edu.cn](mailto:gqwang@ouc.edu.cn) (G. Wang)*

<sup>b</sup>*Laboratory for Marine Drugs and Bioproducts, Pilot National Laboratory for Marine Science and Technology (Qingdao), Qingdao 266237, China*

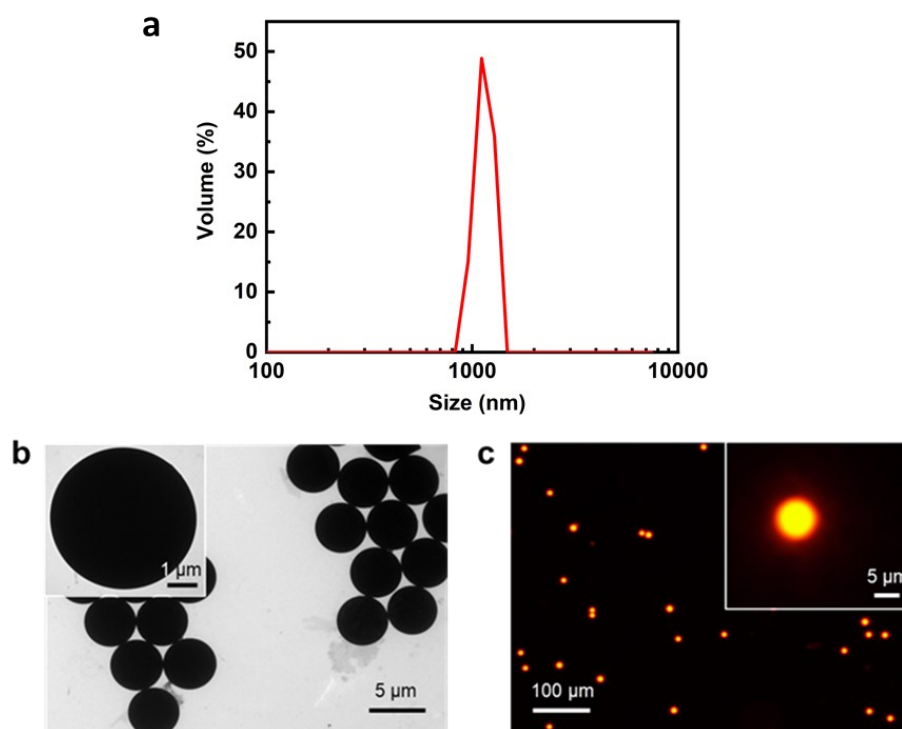
<sup>c</sup>*Institute of Evolution & Marine Biodiversity and Department of Marine Biology, Ocean University of China, Qingdao 266003, China*

<sup>d</sup>*CAS key laboratory of Coastal Environmental Process and Ecological Remediation, Research Center for Coastal Environmental Engineering and Technology, Yantai Institute of Coastal Zone Research, Chinese Academy of Sciences, Yantai 264003, China E-mail: [lxchen@yic.ac.cn](mailto:lxchen@yic.ac.cn) (L. Chen)*

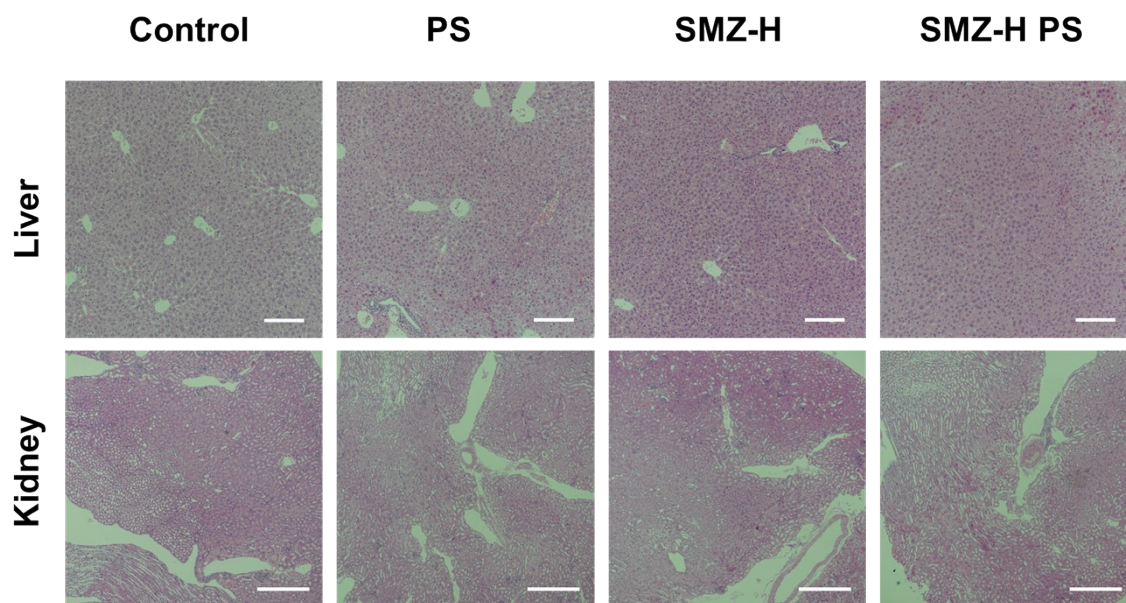
<sup>e</sup>*School of Pharmacy, Binzhou Medical University, Yantai, 264003, China*

**Table S1.** Primer sequences used in qRT-PCR.

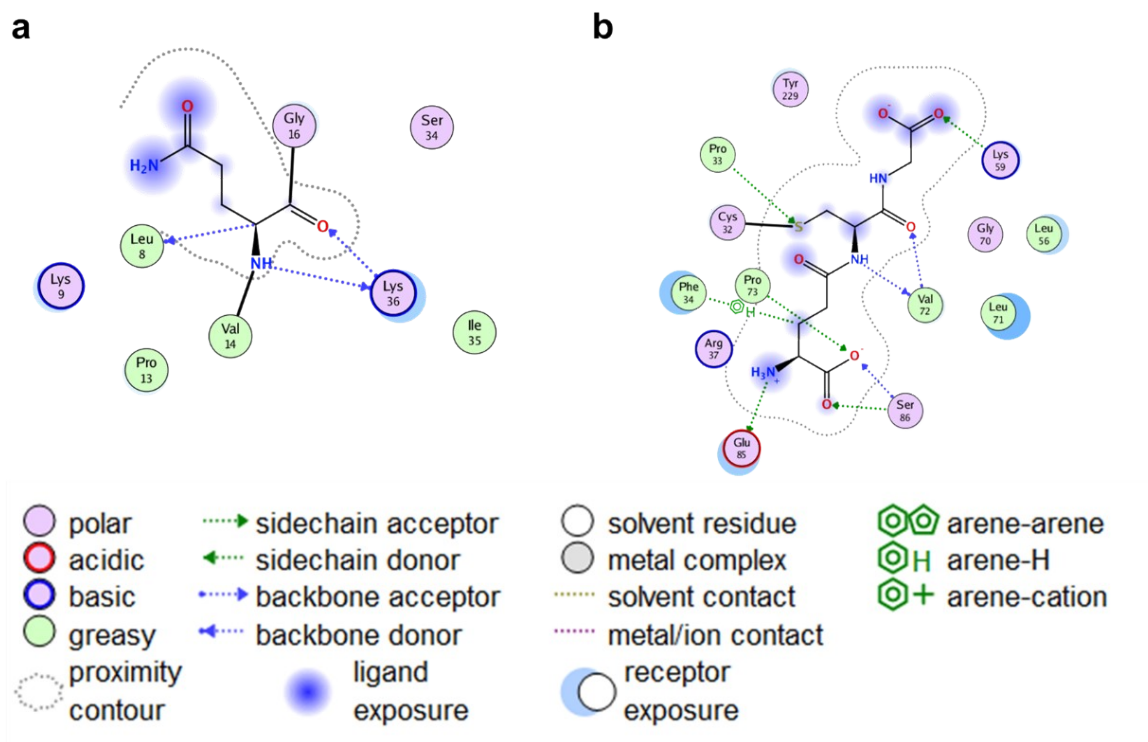
Gene	Forward sequence (5'- 3')	Reverse sequence (5'- 3')
<i>TNF-<math>\alpha</math></i>	CTCCTCACCCACACCGTCAG	ACTCCAAAGTAGACCTGCCCCG
<i>IL-8</i>	TTGAAGTTGACGGACCCCA	TCATCTCGGAGCCTGTAGTGC
<i>NF-<math>\kappa</math><math>\beta</math></i>	GCATCCAACCTGAAAATCGTG	GAACATCTGTGGGGGAAAAGTC
<i><math>\beta</math>-actin</i>	TGCACCACCAACTGCTTAGC	GGCATGGACTGTGGTCATGAG
<i>GSH-px</i>	CCATTTGGCTTGGTCATTCTG	CTGCTCTTTCTCCCCGTTCA
<i>SOD</i>	TGGGGACAATACACAAGGCTG	CCACCTTTGCCCAAGTCATC
<i>Keap1</i>	CCACATCTACGCAGTCGGG	ATACAGCAAGCGGTTGAGCAC
<i>Nrf2</i>	CGGGACTATTGAAGGCTGTGA	TGCTCTGGGGACGCTCG
<i>p38</i>	CCCAGATGCCGAAGATGAAC	CTGGTCATAAGGGTCAGCAACA



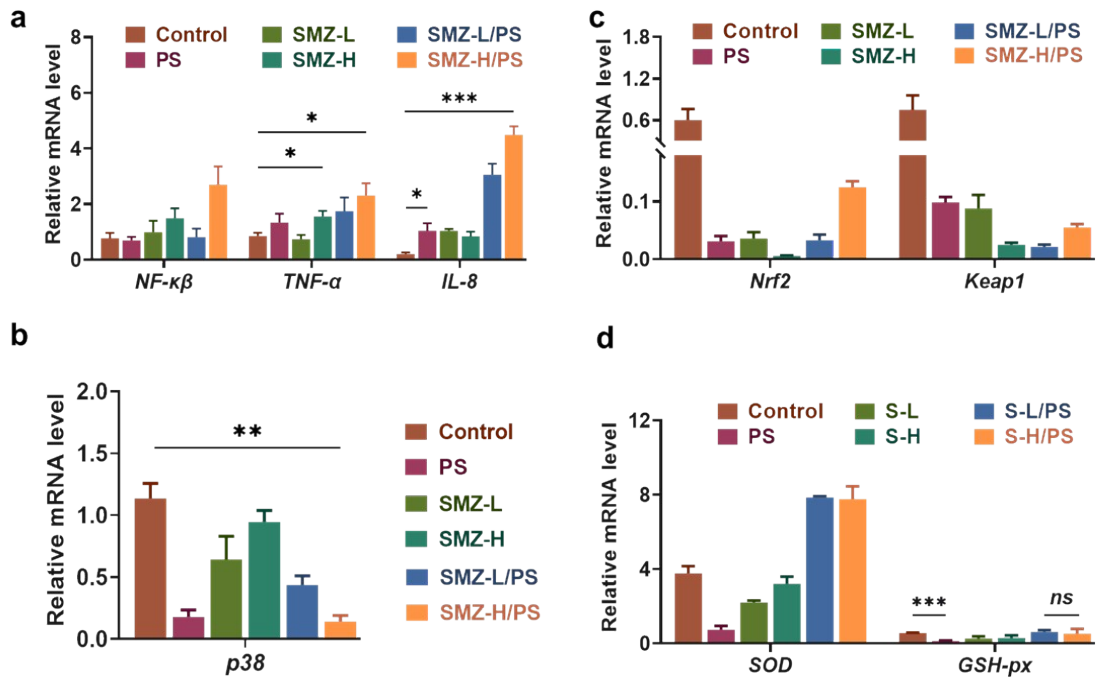
**Fig. S1** The dynamic light scattering size distribution (a) TEM images (b) and fluorescent images (c) of the polystyrene microplastics.



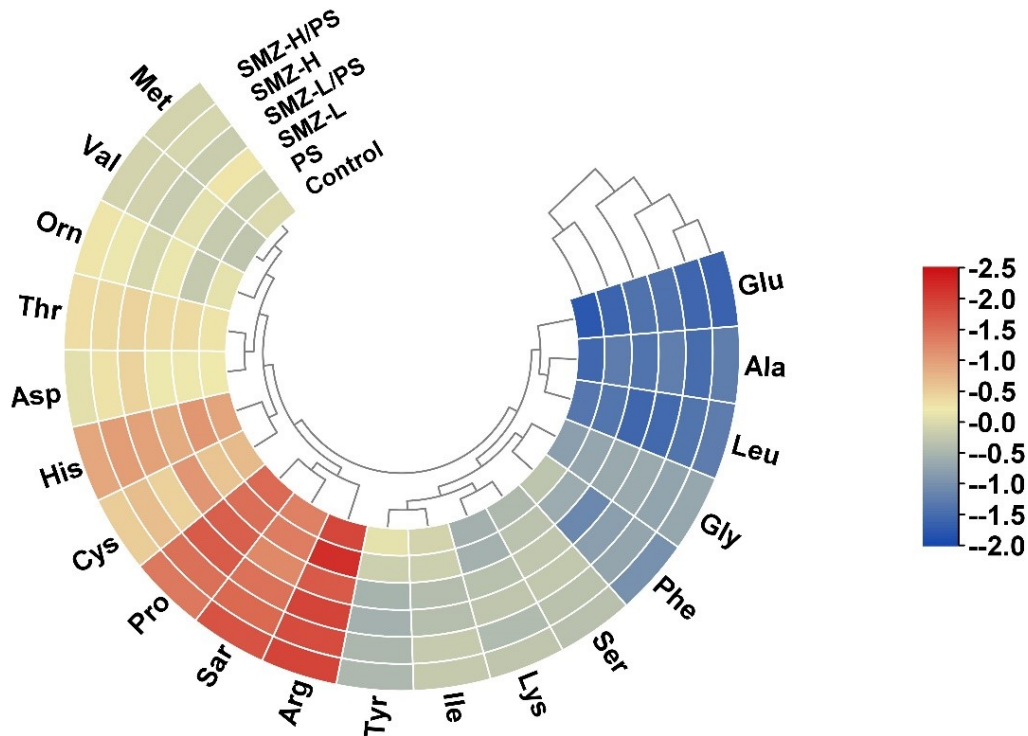
**Fig. S2** H&E-stained images of the liver (Scale bar: 100  $\mu\text{m}$ ) and kidney (Scale bar: 250  $\mu\text{m}$ ).



**Fig. S3** 2D sights of the matching forces in the active center of superoxide dismutase (**a**) and glutathione peroxidase (**b**) before docking with SMZ.



**Fig. S4** Relative mRNA level of many related genes. Each data was normalized with the housekeeping gene of  $\beta$ -actin.  $n = 3$ , \*  $P < 0.05$ , \*\*  $P < 0.01$ , \*\*\*  $P < 0.001$ , *ns*: not significant.



**Fig. S5** The levels of various free amino acid (FAA) in the mouse liver after exposure to polystyrene microplastics and SMZ for 28 days.