## **RSC Advances**



## RETRACTION

View Article Online
View Journal | View Issue



Cite this: RSC Adv., 2025, 15, 5648

## Retraction: Titanium dioxide nanoparticles induce mitochondria-associated apoptosis in HepG2 cells

Zhenglin Xia,<sup>a</sup> Jingliang He,<sup>b</sup> Bowei Li,<sup>a</sup> Ke He,<sup>a</sup> Wenbing Yang,<sup>c</sup> Xiaoxun Chen,<sup>d</sup> Jingian Zhang<sup>\*e</sup> and Guoan Xiang<sup>\*a</sup>

DOI: 10.1039/d5ra90014

rsc.li/rsc-advances

Retraction of 'Titanium dioxide nanoparticles induce mitochondria-associated apoptosis in HepG2 cells' by Zhenglin Xia *et al.*, *RSC Adv.*, 2018, **8**, 31764–31776, https://doi.org/10.1039/C8RA05132A.

The Royal Society of Chemistry hereby wholly retracts this *RSC Advances* article due to concerns with the reliability of the data. There are similarities in the western blot data of the blots for  $\alpha$ -ENaC in Fig. 12a of this article and the left-hand five blots for

caspase-3 in Fig. 4a in ref. 1.

There are similarities in the western blot data of the blots for GAPDH in Fig. 12b of this article and the left-hand five blots for GAPDH in Fig. 12b of this article and the left-hand five blots for GAPDH in Fig. 12b of this article and the left-hand five blots for GAPDH in Fig. 12b of this article and the left-hand five blots for GAPDH in Fig. 12b of this article and the left-hand five blots for GAPDH in Fig. 12b of this article and the left-hand five blots for GAPDH in Fig. 12b of this article and the left-hand five blots for GAPDH in Fig. 12b of this article and the left-hand five blots for GAPDH in Fig. 12b of this article and the left-hand five blots for GAPDH in Fig. 12b of this article and the left-hand five blots for GAPDH in Fig. 12b of this article and the left-hand five blots for GAPDH in Fig. 12b of this article and the left-hand five blots for GAPDH in Fig. 12b of this article and the left-hand five blots for GAPDH in Fig. 12b of this article and the left-hand five blots for GAPDH in Fig. 12b of this article and the left-hand five blots for GAPDH in Fig. 12b of this article and the left-hand five blots for GAPDH in Fig. 12b of this article and the left-hand five blots for GAPDH in Fig. 12b of this article and the left-hand five blots for GAPDH in Fig. 12b of this article and the left-hand five blots for the left-hand five blots for GAPDH in Fig. 12b of this article and the left-hand five blots for the left-hand five blots for

GAPDH in Fig. 4a in ref. 1, the left-hand five blots for GAPDH in Fig. 4c in ref. 1, and the first four blots for GAPDH in Fig. 5c of ref. 2.

The authors were unable to provide complete raw data for this article, so we are unable to validate the integrity of this data. Given the significance of the concerns about the validity of the data, and the lack of raw data, the findings presented in this paper are not reliable.

All authors were informed about the retraction of the article. Zhenglin Xia agrees with the decision to retract this article, the other authors have not responded.

Signed: Zhenglin Xia Date: 20th January 2025

Retraction endorsed by Laura Fisher, Executive Editor, RSC Advances

## References

- 1 Z. Xia, X. Huang, K. Chen, H. Wang, J. Xiao, K. He, R. Huang, X. Duan, H. Liu, J. Zhang and G. Xiang, Proapoptotic Role of Potassium Ions in Liver Cells, *Biomed Res. Int.*, 2016, 2016, 1729135, DOI: 10.1155/2016/1729135.
- 2 M. Zhang, J. Zhang, S. Liu, W. Qi, G. Lin, R. Qiu, M. Quan and J. Cheng, NS5ATP9 Suppresses Activation of Human Hepatic Stellate Cells, Possibly via Inhibition of Smad3/Phosphorylated-Smad3 Expression, *Inflammation*, 2015, **38**, 278–289.

<sup>&</sup>lt;sup>a</sup>Department of General Surgery, Guangdong Second Provincial General Hospital, Southern Medical University, Guangzhou 510515, People's Republic of China. E-mail: guoan\_66@163.com

bShunde Hospital of Guangzhou University of Chinese Medicine, Foshan 528300, People's Republic of China

Department of General Surgery, The Second Affiliated Hospital of Xi'an Jiao Tong University, Xi'an 710004, People's Republic of China

Department of Gastrointestinal Surgery, The Guigang City People's Hospital, Guigang, Guangxi 537100, People's Republic of China

Department of Laboratory Medicine, Guangdong Second Provincial General Hospital, Southern Medical University, Guangzhou 510515, People's Republic of China. E-mail: jingwanghou@163.com