

## EXPRESSION OF CONCERN

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## Expression of concern: The effect of metal ions on endogenous melanin nanoparticles used as magnetic resonance imaging contrast agents

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Expression of Concern for 'The effect of metal ions on endogenous melanin nanoparticles used as magnetic resonance imaging contrast agents' by Anqi Chen *et al.*, *Biomater. Sci.*, 2020, **8**, 379–390, <https://doi.org/10.1039/C9BM01580A>.

The Royal Society of Chemistry is publishing this expression of concern in order to alert readers to concerns with Fig. 3 and 5.

The *T*1-weighted phantom images in Fig. 3a, b and d contain duplicated images. The authors have explained that the process of moving, collection, and organisation for these approximate 150 images caused some of them to be duplicated, and have checked and provided a revised image here.

An independent expert has viewed the raw data and had concerns as the response indicated that some wells were diluted incorrectly due to operator error, and had concerns over the cropping and alignment of the images. The expert suggested that the authors repeat this analysis, however the authors have indicated that this may not be possible due to the time elapsed.

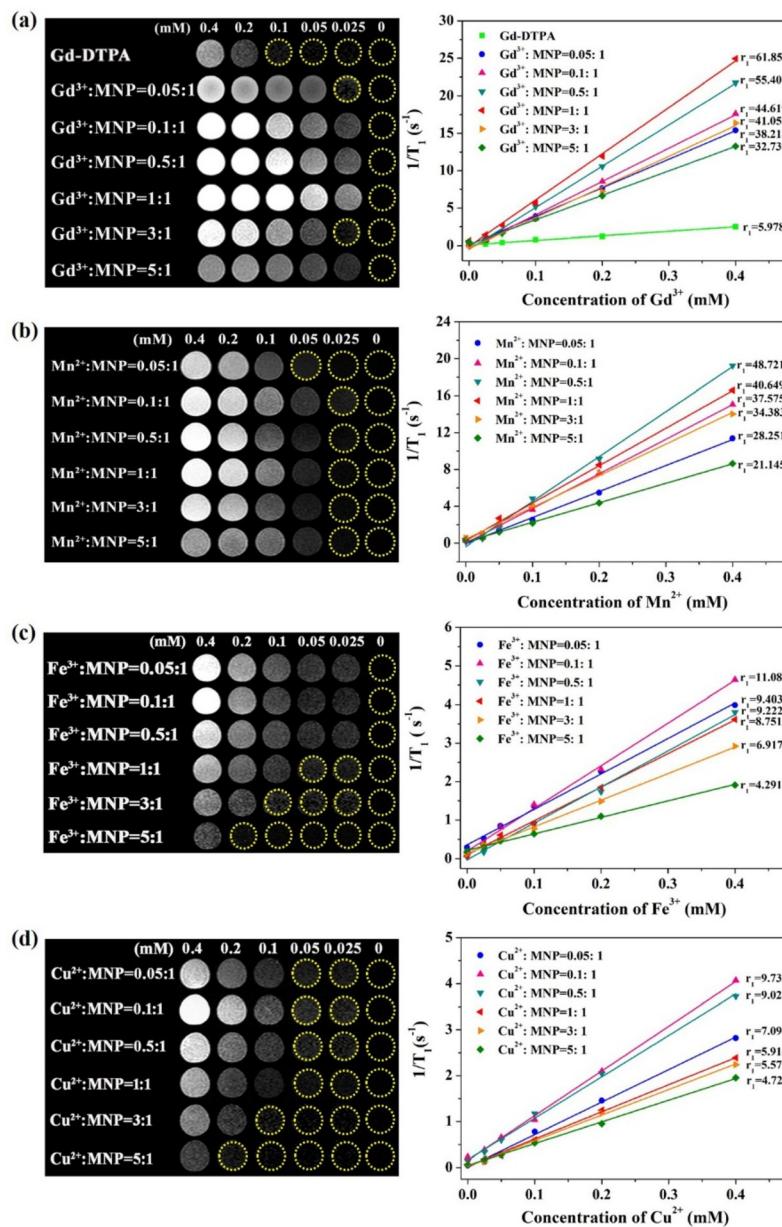
The images of H&E-stained organs in Fig. 5g contains partial duplications in the heart, spleen, lung and kidney images. The authors have explained that during the experiment, they carried out continuous field of view observation and acquisition of all H&E sections in the experimental group and the control group to ensure the *in vivo* safety of MNP-PEG-M injection on experimental animal tissue, and the experimental results proved that MNP-PEG-M was safe *in vivo*. The process of moving, collecting, and organising lots of images caused some of them to be duplicated. The authors have provided a revised Fig. 5g here, which has been reviewed by an independent expert.

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**Fig. 3** Comparison study of MRI performance *in vitro*. (a) T1-Weighted phantom images and relaxivity measurements of Gd-DTPA and MNP-PEG-Gd with different Gd<sup>3+</sup>:MNP mass ratios. (b) T1-Weighted phantom images and relaxivity measurements of MNP-PEG-Mn with different Mn<sup>2+</sup>:MNP mass ratios. (c) T1-Weighted phantom images and relaxivity measurements of MNP-PEG-Fe with different Fe<sup>3+</sup>:MNP mass ratios. (d) T1-Weighted phantom images and relaxivity measurements of MNP-PEG-Cu with different Cu<sup>2+</sup>:MNP mass ratios. The paramagnetic metal ion concentrations are indicated as 0.4, 0.2, 0.1, 0.05, 0.025 and 0 mM. The relaxivity plots show a linear increase in  $1/T_1$  (s<sup>-1</sup>) with increasing metal ion concentration, with Gd<sup>3+</sup> showing the highest relaxivity values.



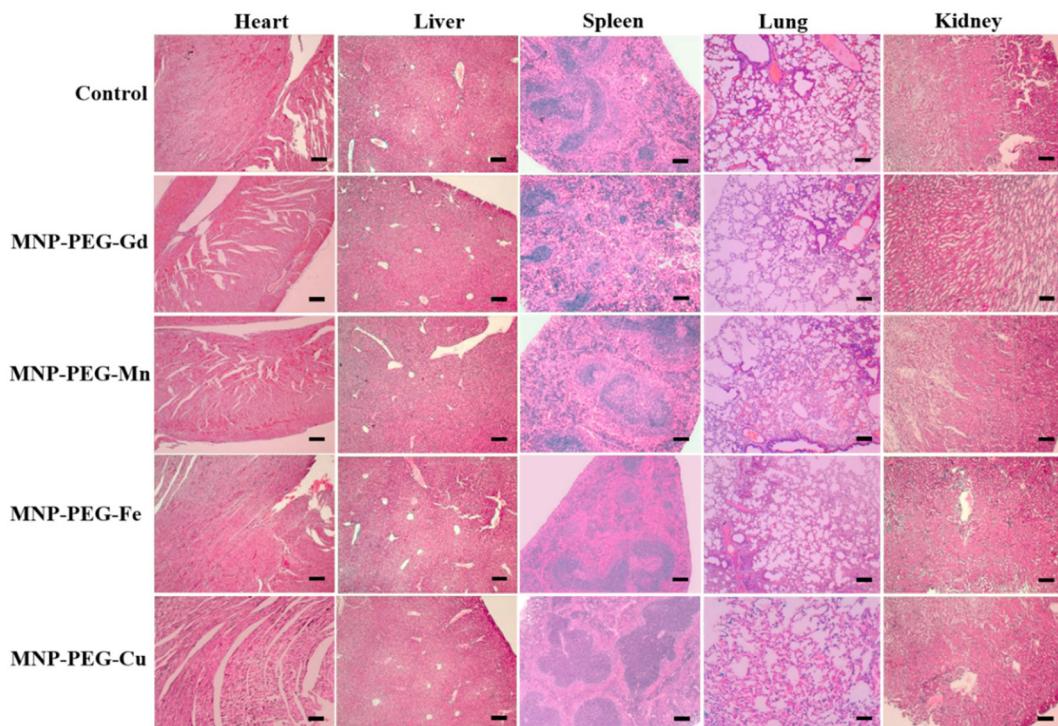


Fig. 5 (g) Images of H&E-stained major organs (heart, liver, spleen, lung and kidney) from healthy control mice and MNP-PEG-M-injected mice at 24 h. The scale bar of the images of H&E-stained organs are 200  $\mu\text{m}$ .

An expression of concern will continue to be associated with the article until the authors are able to repeat the experiment in Fig. 3.

Maria Southall  
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