

Thanks to the editors and reviewers for their valuable comments on this article. According to the comments of the editors and reviewers, this article has been revised accordingly and explained as follows:

1. The PPT file of the FIGURES has been provided in accordance with the editing requirements.

2. The reviewers think that some lncRNA mentioned in the article has nothing to do with ROS. Although it has been proven in our previous article that ROS mediates the regulation of NEAT1 in inflammatory bowel disease, we still deleted the part of the lncRNA and ROS in CSCs for the sake of rigorous.

(Wang Kunpeng, Zhang Zijian, Liu Kai et al. Neat1-miRNA204-5p-PI3K-AKT axis as a potential mechanism for photodynamic therapy treated colitis in mice [J]. *Photodiagnosis Photodyn Ther*, 2018, 24: 349-357.)

3. In fact, many studies have confirmed the immunogenicity mediated by ROS. The immunogenicity generated by PDT, X-rays, γ -rays has a regulatory relationship with ROS. For instance, exo-CRT (calreticulin) has been shown to be induced by ROS-induced endoplasmic reticulum stress, while exo-CRT is a clear immunogenic cell death (ICD) marker.

(Li Wei, Yang Jie, Luo Lihua et al. Targeting photodynamic and photothermal therapy to the endoplasmic reticulum enhances immunogenic cancer cell death [J]. *Nat Commun*, 2019, 10: 3349.

Udartseva Olga O, Zhidkova Olga V, Ezdakova Maria I et al. Low-dose photodynamic therapy promotes angiogenic potential and increases immunogenicity of human mesenchymal stromal cells [J]. *J. Photochem. Photobiol. B, Biol.*, 2019, 199: 111596 .)

4. As the reviewers said, part of the killing mechanism for CSCs in PDT is against all tumor cells, and part of it is unique to CSCs. This article covers both of the above sections. Because PDT is a potential method of cancer treatment, it is worth all researchers in the field of cancer to further understand (including the field of CSCs). This will not cause this article to deviate from the theme of the journal, because most of the literature sources in this article are related to CSCs.

5. A large number of researchers use cell marker modification to actively target and eliminate CSCs, which is a relatively common synthetic scheme in the field of nanomaterials. In addition to active targeting, PS itself has the role of passive targeting. Because the PS particle size is small with an enhanced permeability and retention effect, so it is more enriched in cells (including CSCs) with relatively strong metabolism. We have published a similar review before.

(Wang Cong, Fan Wenpei, Zhang Zijian et al. Advanced Nanotechnology Leading the Way to Multimodal Imaging-Guided Precision Surgical Therapy [J]. *Adv. Mater. Weinheim*, 2019, 31: e1904329.

Kwon Seunglee, Ko Hyewon, You Dong Gil et al. Nanomedicines for Reactive Oxygen Species Mediated Approach: An Emerging Paradigm for Cancer Treatment [J]. *Acc. Chem. Res.*, 2019, 52: 1771-1782.)

6. There are indeed a small number of genes and proteins that may be related to ROS, but it

has not been proved that there is a causal relationship between them. In fact, when reviewing the literature, we hope not only to provide readers with clear regulatory network information, but also to provide researchers with some thoughts and directions for future research through careful description. Subsequent researchers can prove some potential causal relationships reviewed in this article, which is conducive to the follow-up research development in the field of CSCs and PDT.

7. The abbreviations in the text have been explained in more detail.

8. We revised some difficult sentences that the reviewers put forward. The description of immunogenicity has also been revised. We have integrated the description of the relationship between WNT pathway according to the opinions of reviewers.

9. Explanation of PS localization: ref 111 is actually a review of photochemical internalization(PCI), detailing how PS nanoparticles target specific cells and carry other drugs into the cell. The intracellular localization of PS which is not very relevant to the theme of CSCs involves quite complex chemical knowledge, and the author does not have a special understanding of this aspect, so it is difficult to explain clearly in this article.

10. Finally, in summary, this article appropriately reduced the length of the article in accordance with the requirements of the reviewers, reduced the amount of information, reintegrated similar research together, and added the author's instructions and conclusions, hoping that these changes will allow readers more convenient to obtain article information.