Author’s response to reviews

Title: The anti-apoptotic, antioxidant and anti-inflammatory effects of curcumin on acrylamide-induced neurotoxicity in rats

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Author’s response to reviews:

Dear Editor:
We have revised the manuscript (PHAT-D-19-00317) according to the suggestions and comments from the reviewer. Please see the response under following.
We hope that the manuscript can fit the quality of the journal this time. Thank you very much for your consideration!

Yours sincerely, Jun WANG

Reviewer reports:
Reviewer 1: A solid contribution to the growing evidence for neuroprotective effects of curcumin.
Dear reviewer:
We have revised the manuscript (PHAT-D-19-00317) according to the suggestions and comments from you and other reviewers. Please see the response under following.
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Yours sincerely, Jun WANG

Some minor points

* More detail in the methods to allow potential replication are required.
Thank you very much for your kindly reminder! Some details in the methods (TUNEL assay and real-time PCR, etc.) have added in the revised manuscript.
* More detail on replication - i.e., how many technical and biological replicates needed. All experiments were conducted with two technical replicates, which has been added in Methods section, line 5, page 10 according to your professional suggestion.

* In the discussion, please discuss the paradox that in cancer studies curcumin seems to upregulate ROS, but in this study, is an anti-oxidant. Thank you very much for your professional and kindly reminder! The description on the double-edged roles of curcumin in the level of intracellular ROS has been added in Discussion section, line 6-13, page 15.

* Please justify the dose choice more thoroughly. Thank you very much for your kindly reminder! The doses of ACR and curcumin were chosen based on the previous study and preliminary experiments. This statement has been added in Methods section, line 5-6, page 7.

Reviewer 2: In this manuscript, the authors examined the protective effect of curcumin in ACR-induced neurotoxicity rats. It provided new evidence for the application of curcumin in clinics. I have some suggestions to improve the manuscript.

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Yours sincerely, Jun WANG

1. In Fig2, it is suggested that the authors point out the lesions by arrows in the pictures. This will make the results more clear. Thank you very much for your kindly reminder! However, because ACR induced histopathological alterations in rat brains include the decreased number of neurons, condensed and fragmented nuclei in the areas shown in Fig.1. So it is difficult to point out the specific lesions by arrows. In the Results section, we describe the effect of curcumin on ACR-induced histopathological alterations as “As showing in Fig. 2, severe neuronal loss, condensed and fragmented nuclei were found in the cortex and hippocampus of ACR intoxicated rats. Compared with the ACR model group, there was more nerve cells and less pathological alterations in the brain of rats administrated with curcumin.” to make the results more clear.

2. In Fig3, I suggest that a bar chart be added to show the statistical significance of the number of apoptotic cells based on the average from more fields. Thank you very much for your professional and kindly reminder! The Fig 3 has been revised, and quantitative assessment results of neuronal density of TUNEL-positive cells have been added as Fig3B.