

RESPONSE TO REVIEWER 2

We thank the reviewer for advising on experimental and conceptual aspects of our work. We have made revisions accordingly and answer to the comments point by point (resp.:) in the original text provided by the referee as detailed below.

REVIEWER 2

Open Review

☒ I would not like to sign my review report

☐ I would like to sign my review report

English language and style

☐ English very difficult to understand/incomprehensible

☐ Extensive editing of English language and style required

☐ Moderate English changes required

☐ English language and style are fine/minor spell check required

☒ I don't feel qualified to judge about the English language and style

	Yes	Can be improved	Must be improved	Not applicable
Does the introduction provide sufficient background and include all relevant references?	☒	☐	☐	☐
Are all the cited references relevant to the research?	☒	☐	☐	☐
Is the research design appropriate?	☐	☒	☐	☐
Are the methods adequately described?	☐	☒	☐	☐
Are the results clearly presented?	☐	☒	☐	☐
Are the conclusions supported by the results?	☒	☐	☐	☐

Comments and Suggestions for Authors

In the paper entitled Distinct Effects of Chemical Toxicity and Radioactivity on Metabolic Heat of Cultured Cells Revealed by 'Isotope-Editing', the authors describe a new methodology to study the effects of radiation on cell metabolism. Although the work is interesting, some things should be clarified

Major

1) I think it would be ideal to have a paragraph in which the microorganisms used are listed, indicating their temperatures, culture media, characteristics and why they were chosen

resp.: we have included paragraphs with culture conditions separately from the calorimetric methods.

2) since the mic for Eu varies from microorganism to microorganism, are the authors sure that the values used in the experiments are below the MIC?

resp.: Yes, Figure 1 shows that 100 μM Eu barely affected growth of the culture and is thus far below the MIC of Eu for the *Lactococcus* strain.

3) similar discourse with regard to uranium

resp.: A minimum inhibitory concentration of uranium for *Brassica napus* cells was not measured. However, the total uranium concentration of 50 μM U is lower than the half maximal inhibition concentration of U(VI) for *B. napus* cells, which was estimated by correlation of the oxidoreductase activity of the cells with IMC measurements (ref. 18). This stated in lines 117-119.

4) If in the caption of figure 1, reference is made to figure 2, perhaps it would be ideal to present figure 2 first and then figure 1

resp.: We have omitted the reference to Figure 2, instead the legend in Figure 2 references Figure 1 to express the relation between the two ways of presenting the same data. Since Figure 1 displays the raw data and serves as an initial control to ensure marginal growth effects of the 100 μM background concentration (i.e., far below the MIC), we think that the sequence of the Figures follows the conceptual experiment design better than the reverse order.

5) since the differences, as the authors themselves say, are minimal, it would be better if they were clearly marked on the figure, because I do not see any significant effect at the moment

resp.: The purpose of the Figure is to show the virtual absence of growth effects of the background concentration. The little influence is only visible upon full curve fitting and at higher Eu concentrations as shown in Figure 4. However, small features are now indicated by arrows and the slight decrease in peak metabolic activity in the presence of Eu is emphasized by corresponding number labels in Figure 1 and 2 and is further stated in the text (line 174-178) and the legend of Figure 2.

6) also in Figure 2-3 it would be ideal to highlight the differences, although in this case they are more pronounced

resp.: It is hard for the eye to discern curvature changes which are revealed only by a full curve fitting procedure which determines the growth parameters. However, the successive decrease in peak metabolic activity has been labeled in the revised Figure 2 as it is directly visible.

Minor:

line 19 remove the - in monitoring
done

line 127 between 50 (??) and 35 uM, to be rectified
done (line 131)

Submission Date

31 December 2022

Date of this review

18 Jan 2023 07:27:56