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ESPS PEER-REVIEW REPORT

Name of journal: World Journal of Biological Chemistry
ESPS manuscript NO: 16905
Title: Characterization of two alkyl hydroperoxide reductase C homologs alkyl hydroperoxide reductase C_H1 and alkyl hydroperoxide reductase C_H2 in Bacillus subtilis
Reviewer's code: 02254242
Reviewer's country: United States
Science editor: Fang-Fang Ji
Date sent for review: 2015-02-04 19:31
Date reviewed: 2015-02-08 01:49

CLASSIFICATION	LANGUAGE EVALUATION	SCIENTIFIC MISCONDUCT	CONCLUSION
[ ] Grade A: Excellent	[ ] Grade A: Priority publishing	Google Search:	[ ] Accept
[Y] Grade B: Very good	[Y] Grade B: Minor language polishing	[ ] The same title	[ ] High priority for publication
[ ] Grade C: Good	[ ] Grade C: A great deal of language polishing	[ ] Duplicate publication	[ ] Rejection
[ ] Grade D: Fair	[ ] Grade D: Rejected	[ ] Plagiarism	[Y] Minor revision
[ ] Grade E: Poor		[Y] No	[ ] Major revision
		BPG Search:	
		[ ] The same title	
		[ ] Duplicate publication	
		[ ] Plagiarism	
		[Y] No	

COMMENTS TO AUTHORS

The manuscript submitted by Cha and Kim, "Characterizationof two alkyl hydroperoxide reductase C (AhpC)homologs, AhpC_H1 and AhpC_H2 existed in Bacillus subtilis" (WJ 20150202115729[1]) describes the characterization of of the AhpC H1 and H2 proteins. The paper examines the two proteins in an attempt to discover the function of these two homologous enzymes in the same organism, both of which are postulated to protect against oxidative damage in cells. These two proteins were initially identified by sequence homologies, cloned, expressed, and purified. The authors have also generated a number of site-directed mutants of the proteins and examined the role of Cys residues in the proteins. Overall, the work in the manuscript carefully examines both the biochemistry and genetics of the AhpC H1 and H2 proteins. AhpC H1levels increase in response to alky peroxides. The authors have indicated that at least AhpC H1 protects against oxidative stress. It appears that there is a significant drop in cell density. Using the mutant proteins and complementation with the AhpC H1 or H2 would have provided further proof of the role of these

proteins. Also, showing actual survival of the cells in response to alkyl peroxides or hydrogen peroxide would have been useful. However, those are possible experiments to perform in the future, because this study is carefully performed and presents much data in a well-organized manner. The major issue is that there are a number of places that would benefit from examination by an English-language native scientist. Some of the difficulties are indicated below, but more are also present. Some other issues: Page 2. The abbreviation of AhpC and the activities should be briefly stated in the aims Page 2. "substation" is not a correct term. Page 4. "futures" should be "features". Figure 3. Size markers should be indicated directly in the figures, rather than listed in the figure legend. Page 11. "longer migration distance" and "slightly higher positions" are unclear. It appears that the migration is to a smaller molecular mass, but that should be clarified. Page 11. "…modified by AMS." should "…modification by AMS." Page 11. "wild-typed" should be "wild-type". Page 12 and other places in the text. "Extend of migration is apparently…" should be changed. Extent of migration is unclear and the data either show or don't show, but do not "apparently" show. The migration should be referred to with respect to size markers and not with respect to higher or lower or longer. Those terms can be difficult to understand. Page 13. "extract was fractionated into several fractions…" should be "extract was fractionated…". Page 14. "Oligomerization property of AhpC H1…" should be changed to something similar to "The capacity of AhpC H1 to form oligomers…" Page 14. "…variousa gel filtration…" should be "…gel filtration…" Page 15. "…did not significantly effects the molecular mass…" should be "…did not significantly alter the molecular mass…". Page 17/Figure 10. Do the investigators have an estimation of the increase in AhpC H1 in response to the different types of oxidative stress? There should be a way to estimate the increased production. Figure 11. The authors should briefly explain the growth curves in aerobic culture in. There is a decrease in cell density indicating that the cell numbers are decreasing for the mutants. Were the cells first cultured anaerobically? That type of detail should be in the materials and methods or results section. There is at least one place where Trx1 appears as Trx 1 (there is a space) Figure legends should be clearly labeled. For example the contents of Figure 2A1 are not clearly under 2A1. The labels should be 2A, 2B, 2C, etc. and not have the subheadings.

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COMMENTS TO AUTHORS

In this manuscript, the authors report the molecular and biochemical features of two alkyl hydroperoxide reductase C (AhpC) homologs, AhpC_H1 and AhpC_H2, in Bacillus subtilis. The physiological functions of AhpC_H1 and AhpC_H2 were then studied by a gene knock-out method,and AhpC_H1 was found to perform a different physiological function from that of AhpC_H2. The results sound interesting to the readers in the related field. However, this manuscript should be much improved in English, since there are many errors in grammar and spelling throughout the manuscript. The text should be properly reduced in length. Specific comments: 1. In cladogram of figure 1, the bootstrap values should be shown at each branch. 2. Were these recombinant proteins produced in E. coli purified under nature conditions or denatured conditions? 3. A statistical analysis should be done in figure 8.