Laura H Spencer <lhs3@uw.edu>

# Revision requested for CBPD_2018_25

**Chris Martyniuk (Comparative Biochemistry and Physiology - Part D: Genomics and Proteomics)** <EviseSupport@elsevier.com> Sun, Nov 11, 2018 at 2:30 PM
Reply-To: cbpdcjm@gmail.com
To: lhs3@uw.edu

Ref: CBPD_2018_25
Title: Pacific geoduck (Panopea generosa) resilience to natural pH variation
Journal: Comparative Biochemistry and Physiology - Part D: Genomics and Proteomics

Dear Dr Spencer,

Thank you for submitting your manuscript to Comparative Biochemistry and Physiology - Part D: Genomics and Proteomics. I have received comments from reviewers on your manuscript. Your paper should become acceptable for publication pending suitable minor revision and modification of the article in light of the appended reviewer comments.I would ask that you complete any reviews within 60 days.

When resubmitting your manuscript, please carefully consider all issues mentioned in the reviewers' comments, outline every change made point by point, and provide suitable rebuttals for any comments not addressed.

To submit your revised manuscript:

- Log into EVISE® at: http://www.evise.com/evise/faces/pages/navigation/NavController.jspx?JRNL_ACR=CBPD
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- Click on 'Agree to Revise'
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I look forward to receiving your revised manuscript as soon as possible.

Kind regards,

Dr Martyniuk
Editor-in-Chief
Comparative Biochemistry and Physiology - Part D: Genomics and Proteomics

**Comments from the editors and reviewers:**
**-Reviewer 1**

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CBP_2018_025

In this study, authors present a proteomic approach to analyse changes in geoduck proteome in correlation with their physiological response to a specific environment, through the analysis of the gill tissue. I totally agree with the real importance to study physiological effects of contrasted environment using natural experiment with geoducks.

Introduction should be revised to be much more relevant. Methods are very well conducted in this paper (proteomic analysis) and meaning of the results is very satisfactory. The materials and methods section is very well described (proteomics). The paper is easy to read with a lot of citation but authors should have detailed more these citations (Cf minor corrections). The discussion is rich even if it lacks some minor points. I would just have appreciated that authors would be less speculative in their conclusion, because the analysis of one organ (the gills)

cannot rend possible to conclude on the resilience of one species! Authors should be more careful, one animal is not resumed by one organ. Physiology is well more complex. So please, justify better the choice of the organ for proteomic analysis (for my part, I find it is highly relevant in the context of natural experiments).

Taken together, all these comments rend possible the publication of this paper after minor corrections.

**-Reviewer 2**

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**Overall recommendation**

This is a well written and referenced manuscript. The idea of leveraging the natural pH differences between eelgrass and unvegetated habitats to best predict the effect of ocean acidification on geoduck under field conditions is brilliant. The study is well conducted but the materials and methods, results and discussion sections need some clarifications as listed below.

**Specific recommendations**

L 93: please provide the locations *P. generosa* broodstock were collected and spawned, and the juveniles grown. Also, what were the environmental conditions (eg., salinity and temperature) at the time juvenile *P. generosa* were collected prior to deployment?

L 103: what were the type and manufacturer of the water quality sensors used?

L 176: are the concentrations “1x, 1.3x, 2x, 4x, 6x, 8x, 8.7x, 9x” correct?

L 180: do you mean global ‘relative’ protein abundance? and for the rest of the paragraph? Should “abundance” be replaced by “relative abundance”?

L 223: why emphasize proteins involved in cellular response to oxidative stress?

L 312: Supplemental Table 1 needs to be referred to for the survival results

L 311: in the legend of figure 3 please indicate how growth results are presented?

L 332: add “in abundance” to “significantly different…” and as needed in the rest of the paragraph

L 333: please clarify the legend of figure 4 indicating what the line in each box (mean), end of each box and bars (std error? range?) represents?

L 361: “fishes”? you mean shellfishes? Or if “fishes” is correct then provide references

L 373: replace “protein abundance” with “abundance of selected proteins” and as needed throughout the discussion (L413, L435…)

L386: “SMR increased”? please clarify which selected proteins "SMR" refers too in the studies cited? Were those proteins the same as the ones selected in your study?