

Response to Reviewer 1 Comments

Thank you for taking the time to review our manuscript. We appreciate your valuable feedback and constructive suggestions. Below, we have addressed each of your comments and provided explanations or revisions accordingly.

Point 1: L 20: “of” to “on”.

Response 1: Thank you for your valuable suggestion. We agree with the comment and have re-written the sentence. The changes have been highlighted in the revised manuscript.

Point 2: L 23: “including” to “by”.

Response 2: Thank you for your valuable suggestion. We agree with the comment and have re-written the sentence. The changes have been highlighted in the revised manuscript.

Point 3: L 36: Protein isn't a short-term energy source.

Response 3: We are grateful for the suggestion. We agree with the comment and have changed the sentence.

Point 4: L 42: Please provide some relevant information on chipmunks' hibernation habits.

Response 4: Your suggestions are greatly appreciated and we have provided some relevant information on chipmunks' hibernation habits on line 41-46.

Point 5: L 77: During the experiment, were the chipmunks in the control group given food, and if so, how often? Were the animals in the experimental group fed as well? Why was the environment kept dark? In reality, when animals hibernate they build nests in sun-exposed spots to increase the temperature.”

Response 5: The hibernation group was placed in a constant temperature box at (3 ± 1) °C without light, while the control group was placed at room temperature of (22 ± 2) °C. Because unlike the hibernation patterns of some animals, the chipmunks consume food and water intermittently during their hibernation, both groups of chipmunks were allowed free access to food and water in the process of experiment. Because wild ground squirrels live in dark tree holes during hibernation, we kept the environment dark in order to simulate their hibernation state in the wild. Moreover, in the winter of Changchun, Jilin Province, China, even when there is direct sunlight, the ambient temperature is still very low.

Point 6: L 97: A detailed description of the glycogen assay procedure should be provided

here.

Response 6: Your suggestions are greatly appreciated and we have provided A detailed description of the glycogen assay procedure on line 98-105.

Point 7: L 100: First, the sample-collection details should be merged into the earlier liver-sampling section; second, the exact time points for blood draws must be specified; and finally, how was the blood handled after collection—did you isolate whole blood, plasma, or serum?

Response 7: Thank you for your valuable suggestion. We have merged the sample-collection details into the earlier liver-sampling section and added details about blood collection on line 80-83.

Point 8: L 108: So, how exactly did you measure that final ATP—what kit did you use, which instrument, and how were the results presented?

Response 8: Your suggestions are greatly appreciated and we have provided a detailed description of the ATP assay procedure on line 110-119.

Point 9: L 110: Please double-check this sentence—the experimental animals are all wrong. And which sample did you analyze: blood or liver?

Response 9: We are grateful for the suggestion. We have changed the sentence and the sample is only the liver.

Point 10: L 122-131: The transcriptome-sequencing methods and bioinformatics section need to be rewritten—the present description is far too brief. Specifically, the bioinformatics analysis never states which software was used for QC, filtering, alignment, and annotation. The paper also doesn't clarify whether you performed reference-guided or de novo transcriptomics; if it's reference-guided, which genome did you use as the reference?

Response 10: Your suggestions are greatly appreciated and we have provided a detailed description of the transcriptome-sequencing methods and bioinformatics section on line 133-155. We performed reference-guided transcriptomics and reference genome is GCA_025594165.1.

Point 11: L 133: Which genes did you quantify by qPCR, and what primers did you use for each target gene and for the internal reference gene?

Response 11: We are grateful for the suggestion. We quantified these genes using qPCR: P450 2C55(LOC124096538), P450 2C18, P450 2C55(LOC101972885), P450 2C5-like, P450 26A1, P450 2C18-like, Acyl-CoA Desaturase1, Apoc3, P450 4B1, Cpt1a, Pck1, EHHADH.

The primers have been added on line 162-163.

Point 12: L 151: First, not every dataset is suited to “mean $\pm$ SD” presentation, so the authors should state each variable explicitly (e.g., glycogen levels, relative gene expression, etc.). Second, data must be tested for normality before applying a t-test; if normality is violated, a non-parametric Mann–Whitney U test is required.

Response 12: We are grateful for the suggestion. We are sorry that the statistical analysis methods were not described clearly. The new description is on line 177-182.

Point 13: L 110: Please double-check this sentence—the experimental animals are all wrong. And which sample did you analyze: blood or liver?

Response 13: Thank you for your suggestion. We have changed the sentence and the sample is only the liver.

Point 14: L 156: Why did body-weight data suddenly appear? The timing and method of this measurement aren’t mentioned at all in the Materials and Methods section.

Response 14: We are sorry for this mistake. We have revised this sentence on line 181.

Point 15: L 176: The Materials and Methods section only mentions collecting liver and blood samples, whereas the Results imply that many other sample types were also obtained. Please provide a more detailed description of all sample-collection procedures in the Materials and Methods section.

Response 15: Your suggestions are greatly appreciated. We have provided a more detailed description of all sample-collection procedures in the Materials and Methods section on line 87-90.

Ponit 16: L 518: check this reference.

Response 16: We are grateful for the suggestion and we have made an exhaustive check of all references.