

ESPS PEER-REVIEW REPORT

Name of journal: World Journal of Biological Chemistry

ESPS manuscript NO: 19987

Title: Longevity of animals under reactive oxygen species stress and disease susceptibility due to global warming

Reviewer's code: 01241504

Reviewer's country: China

Science editor: Yue-Li Tian

Date sent for review: 2015-05-30 10:30

Date reviewed: 2015-06-02 15:12

| CLASSIFICATION | LANGUAGE EVALUATION | SCIENTIFIC MISCONDUCT | CONCLUSION |
|---|--|--|--|
| <input type="checkbox"/> Grade A: Excellent | <input type="checkbox"/> Grade A: Priority publishing | Google Search: | <input type="checkbox"/> Accept |
| <input type="checkbox"/> Grade B: Very good | <input type="checkbox"/> Grade B: Minor language polishing | <input type="checkbox"/> The same title | <input type="checkbox"/> High priority for publication |
| <input type="checkbox"/> Grade C: Good | <input type="checkbox"/> Grade C: A great deal of language polishing | <input type="checkbox"/> Duplicate publication | <input type="checkbox"/> Rejection |
| <input type="checkbox"/> Grade D: Fair | <input type="checkbox"/> Grade D: Rejected | <input type="checkbox"/> Plagiarism | <input type="checkbox"/> Minor revision |
| <input type="checkbox"/> Grade E: Poor | | <input type="checkbox"/> No | <input type="checkbox"/> Major revision |
| | | BPG Search: | |
| | | <input type="checkbox"/> The same title | |
| | | <input type="checkbox"/> Duplicate publication | |
| | | <input type="checkbox"/> Plagiarism | |
| | | <input type="checkbox"/> No | |

COMMENTS TO AUTHORS

The authors sought to identify the correlation between the global warming and the longevity of animals by providing the evidences of the influences of altered temperature on animal's active oxygen species metabolism. This is an interesting review that presents a good overview of aspects of reactive oxygen species which are important in determination of animal's longevity. In addition, this review is well written, although there are several small errors in English usage. Overall, this manuscript can be considered for publication if further improvements are made. Minor concerns:

1. The authors should pay more attention to the English writing and are suggested to proof the manuscript carefully. Page 2 line 9: "example" to "examples", page 3 line 25: delete "although", page 8 line 3: delete "about", page 9 line 18: "much" to "many", page 10 line 9: delete "on", page 11 line 16: please reorganize the sentence "and any changes with these components", page 18 line 9: "is" to "are", page 24 line 3: insert "are" before expected.
2. The readers may be confused about the subtitles including "Mitochondria and the active oxygen species metabolism" on page 6, "Effects of global warming on human body" on page 12, and "Temperature, protein misfolding, diseases and longevity"



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on page 15, because they are the only sub-sections under each major sections. Please divide each major section into more sub-sections. 3. For the whole structure of the review, please consider changing the orders of some sections. For examples, "ACTIVE OXYGEN SPECIES METABOLISM" on page 4 could be combined with "ACTIVE OXYGEN SPECIES METABOLISM, TEMPERATURE AND AGING" on page 7, "MITOCHONDRIAL DIASTIBUTION OF ANIMALS IN POLAR AND EQUITORIAL LINES" on page 17 could be combined with "Mitochondria and the active oxygen species metabolism" on page 6. 4. In Fig.2, the annotations of x/y-coordinate are not clear.

ESPS PEER-REVIEW REPORT

Name of journal: World Journal of Biological Chemistry

ESPS manuscript NO: 19987

Title: Longevity of animals under reactive oxygen species stress and disease susceptibility due to global warming

Reviewer's code: 02606490

Reviewer's country: New Zealand

Science editor: Yue-Li Tian

Date sent for review: 2015-05-30 10:30

Date reviewed: 2015-06-14 20:23

| CLASSIFICATION | LANGUAGE EVALUATION | SCIENTIFIC MISCONDUCT | CONCLUSION |
|---|---|--|--|
| <input type="checkbox"/> Grade A: Excellent | <input type="checkbox"/> Grade A: Priority publishing | Google Search: | <input type="checkbox"/> Accept |
| <input type="checkbox"/> Grade B: Very good | <input checked="" type="checkbox"/> Grade B: Minor language polishing | <input type="checkbox"/> The same title | <input type="checkbox"/> High priority for publication |
| <input type="checkbox"/> Grade C: Good | <input type="checkbox"/> Grade C: A great deal of language polishing | <input type="checkbox"/> Duplicate publication | <input checked="" type="checkbox"/> Rejection |
| <input type="checkbox"/> Grade D: Fair | <input type="checkbox"/> Grade D: Rejected | <input checked="" type="checkbox"/> No | <input type="checkbox"/> Minor revision |
| <input checked="" type="checkbox"/> Grade E: Poor | | BPG Search: | <input type="checkbox"/> Major revision |
| | | <input type="checkbox"/> The same title | |
| | | <input type="checkbox"/> Duplicate publication | |
| | | <input type="checkbox"/> Plagiarism | |
| | | <input checked="" type="checkbox"/> No | |

COMMENTS TO AUTHORS

In the paper "Longevity of animal's by ROS and disease susceptibility under high temperature" by Paital et. al. submitted for publication in WJBC authors intended to show that rise in atmospheric CO₂ and global temperature would inflict oxidative stress in human and animals. The very idea to connect the two subjects is worthwhile. Nevertheless, the part in the paper on ROS reveals that the authors have rather poor grip on the subject. Examples: On p6. ROS "are highly reactive in nature and can oxidize lipids to lipid peroxide, proteins to protein carbonyls and nucleic acids to their respective adducts". First of all, ROS vary in reactivity as well as in mechanisms and consequences of their action on cells. Second, not clear why among numerous products of protein oxidation by ROS only protein carbonyls were mentioned. Also superoxide radical in reaction with biomolecules acts mostly as reductant rather than oxidant. Antioxidant enzymatic system was described in a way that was accepted let say 10 years ago. Extremely important peroxiredoxins, glutaredoxins, thioredoxins were not mentioned. In Fig.1 low molecular compounds, namely ascorbic acid and others were presented as "Direct neutralization of ROS". Modern science says that



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antioxidant action of those molecules occurs not via direct scavenging. There is disagreement between the title and the subject of the paper. In title was mentioned high temperature while the Abstract and paper devoted to effect of global warming. Authors did not elaborate on how a few degrees raise in the mean global temperature could result in ROS production in human. In the chapter on the effect of global warming on human body and health other topics were discussed. Many important claims in the paper were supported by references of low credibility. For example, on p20 "The skin of people in hot climates certainly seems to age faster than that of people who live in colder climates [96]. " Too many references to internet sites rather than scientific journals. Some statements in the paper like on p.19 "For example, the northern people live longer and people exposed to hunger and hot climates during generations live shorter lives." were not substantiated.

ESPS PEER-REVIEW REPORT

Name of journal: World Journal of Biological Chemistry

ESPS manuscript NO: 19987

Title: Longevity of animals under reactive oxygen species stress and disease susceptibility due to global warming

Reviewer's code: 02538495

Reviewer's country: South Korea

Science editor: Yue-Li Tian

Date sent for review: 2015-05-30 10:30

Date reviewed: 2015-06-17 08:50

| CLASSIFICATION | LANGUAGE EVALUATION | SCIENTIFIC MISCONDUCT | CONCLUSION |
|--|--|--|---|
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| | | <input checked="" type="checkbox"/> No | |

COMMENTS TO AUTHORS

This manuscript describes hyperthermia and longevity in ROS condition. This is a good review to conceive concept on high temperature and ROS. ROS which is generated during metabolism, could affect high molecular weight molecules and subsequently, animal life time. Once ROS is produced, it is subject to neutralization mediated by various enzymes. However, at high temperature, homeostasis control would be collapsed and thus ROS would not be removed efficiently and followed by aging. ROS is generated by mitochondria and it may function as a toxic substance. Due to the global warming, many terrestrial, marine lives are affected. Thus it is highly likely that high temperature would cause disruption of homeostasis. Therefore, to avoid heat stress, hibernation and aestivation were employed in some animals. In contrast, homeotherms adapt to these temperature changes by adjusting body temperature to meet the needs. Although it is worth for publication, there are several parts which need further revision. Comments on this manuscript are; This manuscript depicts too broad ranges of longevity and diseases with some overlapping parts. One way to avoid this would be adding new figures or Tables. 1. More explanation on Fig 1 and Fig. 4



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would be helpful to understand these figures. Please add additional description in the figure legends.

2. Active oxygen species metabolism and active oxygen species metabolism, temperature and aging: Some overlapping terms should be avoided for clear understanding. Please rewrite it clearly. Also add a diagram how ROS is generated in mitochondria.

3. P11: Pathogens transmission according to temperature change? In these days, it would be more possible to transmit pathogens by high speed vehicles such as transmission of pathogens via airplane travel. Please add these facts also.

4. p12: UV irradiation may contribute to carcinogenesis and increase cancer incidence. However, UV is generally known to cause DNA damage and generates abnormal nucleotide adducts thus leading to mutation rather than ROS. Thus it would not contribute for decrease of life time, and would not be related to the title of this manuscript "Longevity of animal's by ROS and disease susceptibility under high temperature"..

5. P17 "MITOCHONDRIAL DIASTIBUTION OF ANIMALS IN POLAR AND EQUITORIAL LINES": There is a spell error.

6. Table 1. Please explain what is "GSSG".

7. P23. Fig.3: Wrong symbol is used.