

## PEER-REVIEW REPORT

**Name of journal:** *World Journal of Gastroenterology*

**Manuscript NO:** 87853

**Title:** Mechanism research: selenium regulates virulence factors, reducing adhesion ability and inflammatory damage of *Helicobacter pylori*

**Provenance and peer review:** Unsolicited Manuscript; Externally peer reviewed

**Peer-review model:** Single blind

**Reviewer's code:** 07746599

**Position:** Peer Reviewer

**Academic degree:** PhD

**Professional title:** Doctor, Research Associate

**Reviewer's Country/Territory:** France

**Author's Country/Territory:** China

**Manuscript submission date:** 2023-10-26

**Reviewer chosen by:** AI Technique

**Reviewer accepted review:** 2023-10-30 08:16

**Reviewer performed review:** 2023-11-07 09:22

**Review time:** 8 Days and 1 Hour

Scientific quality	<input type="checkbox"/> Grade A: Excellent <input type="checkbox"/> Grade B: Very good <input checked="" type="checkbox"/> Grade C: Good <input type="checkbox"/> Grade D: Fair <input type="checkbox"/> Grade E: Do not publish
Novelty of this manuscript	<input type="checkbox"/> Grade A: Excellent <input checked="" type="checkbox"/> Grade B: Good <input type="checkbox"/> Grade C: Fair <input type="checkbox"/> Grade D: No novelty
Creativity or innovation of this manuscript	<input type="checkbox"/> Grade A: Excellent <input checked="" type="checkbox"/> Grade B: Good <input type="checkbox"/> Grade C: Fair <input type="checkbox"/> Grade D: No creativity or innovation

<b>Scientific significance of the conclusion in this manuscript</b>	<input type="checkbox"/> Grade A: Excellent <input checked="" type="checkbox"/> Grade B: Good <input type="checkbox"/> Grade C: Fair <input type="checkbox"/> Grade D: No scientific significance
<b>Language quality</b>	<input type="checkbox"/> Grade A: Priority publishing <input checked="" type="checkbox"/> Grade B: Minor language polishing <input type="checkbox"/> Grade C: A great deal of language polishing <input type="checkbox"/> Grade D: Rejection
<b>Conclusion</b>	<input type="checkbox"/> Accept (High priority) <input type="checkbox"/> Accept (General priority) <input checked="" type="checkbox"/> Minor revision <input type="checkbox"/> Major revision <input type="checkbox"/> Rejection
<b>Re-review</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>Peer-reviewer statements</b>	Peer-Review: <input checked="" type="checkbox"/> Anonymous <input type="checkbox"/> Onymous
	Conflicts-of-Interest: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

## SPECIFIC COMMENTS TO AUTHORS

The authors have certainly conducted an interesting and original study with complete statistical studies. The antibacterial effect of selenium present in the body is not the main one, and there should be other factors affecting the development of H. pylori infection. In this study, both in vivo and in vitro experiments proved that creation of a selenium-rich environment and induction of H. pylori cells with sodium selenite could significantly downregulate the expression of H. pylori virulence factors such as CagA and VacA, thereby significantly weakening the inflammatory effect and significantly reducing the pathogenicity thereof. Their conclusion was that sodium selenite is a low toxicity compound with a strong stability that could reduce the cell adhesion ability of H. pylori, thus mitigating the inflammatory damage to gastric mucosa. Comments/suggestions: 1- Title and key words - well chosen. 2- The abstract summarized and reflect the described in the manuscript. 3- Introduction contains the most important data to support the importance of the study. 4- Material and methods - the paragraphs are generally well structured and explained. 5- Results section is well and clearly presented with pertinent statistics. 6- Discussion paragraph is well organized,

and authors also presented also the limitations of the study. 7- Good quality of the Figures.

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**Reviewer's code:** 07746211

**Position:** Peer Reviewer

**Academic degree:** MD, PhD

**Professional title:** Assistant Lecturer, Researcher

**Reviewer's Country/Territory:** United States

**Author's Country/Territory:** China

**Manuscript submission date:** 2023-10-26

**Reviewer chosen by:** AI Technique

**Reviewer accepted review:** 2023-10-27 09:20

**Reviewer performed review:** 2023-11-07 10:09

**Review time:** 11 Days

Scientific quality	<input type="checkbox"/> Grade A: Excellent <input checked="" type="checkbox"/> Grade B: Very good <input type="checkbox"/> Grade C: Good <input type="checkbox"/> Grade D: Fair <input type="checkbox"/> Grade E: Do not publish
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<b>Peer-reviewer statements</b>	Peer-Review: <input checked="" type="checkbox"/> Anonymous <input type="checkbox"/> Onymous
	Conflicts-of-Interest: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

## SPECIFIC COMMENTS TO AUTHORS

This study explored how a selenium-rich environment acts on *H. pylori* virulence factors by inducing *H. pylori* with sodium selenite and elaborated the interaction mechanism between selenium and *H. pylori* in light of the toxicity and inflammatory injury of related strains on the stomach. The findings provide an experimental basis for selenium application in the prevention and treatment of *H. pylori* infection-related diseases. The paper is well-organized, which gives a detailed overview about the study background and abundant methodologies to verify the authors' hypothesis of the study. The methods are appropriate and results give a contribution to research progress in this field. Most importantly, this study offers an experimental basis for the use of selenium, a trace element, in *H. pylori* infection treatment in the future and a reference for to ensure that humans coexist with bacteria without developing diseases. I would suggest only minor revisions. Please revise the discussion in order highlight more concisely the key points.