Review of: "Omicron Variant Could be an Antigenic Shift of SARS-CoV-2"

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Potential competing interests: No potential competing interests to declare.

The author has used the title “Omicron Variant Could be an Antigenic Shift of SARS-CoV-2” which is interesting topic to be studied but I will recommend to revise the title to make given study more attractive. Moreover, the given manuscript is written well but there are certain areas which need modification as follows;

Abstract

1. The author has discussed the emergence of various variants of Omicron and their impact but lacks the specific data to support the claims.
2. The author has mention the impact of variants on various aspects of life but does not provide any specific affecting rate to support the broad claims.
3. In abstract the author has used the word “limitations” without specifying what these limitations are? The author should provide more clarity on the specific gaps to encourage researchers to explore those areas.
4. The future perspective of the study is missing in the abstract. The author should add 2 to 3 lines about future perspective to validate the given study.

Introduction:

1. The author has talked about the 4th year of pandemic but consider briefly why fourth year since the pandemic is significant? Explain this in the 1st paragraph of your introduction.
2. The author has mentioned pandemic fatigue but do not provide in-text citation to promote the given claim. Here is the reference article which the author can cite in this area of study. Naveed, M., Mubeen, S., Ahmed, I., Khalid, N., Suleria, H. A. R., Bano, A., & Mumtaz, A. S. (2014). Identification and characterization of rhizospheric microbial diversity by 16S ribosomal RNA gene sequencing. *Brazilian Journal of Microbiology*, *45*, 985-993.
3. The concept of prime boosting vaccine method is mentioned but it could be beneficial to explain briefly what actually this strategy means?
4. The author has talked about the decline in vaccine efficacy against Delta variant in 2nd paragraph. Briefly explain what

factors cause to decrease its efficacy such as specific mutation in virus.

5. In the 3rd paragraph of introduction the in-text citation is missing to validate the given data so, the author can cite the given reference article in this study. Naveed, M., Ahmed, I., Khalid, N., & Mumtaz, A. S. (2014). Bioinformatics based structural characterization of glucose dehydrogenase (gdh) gene and growth promoting activity of Leclercia sp. QAU-66. *Brazilian Journal of Microbiology*, *45*, 603-611.
6. In the line of Omicron Evolution, the reference is missing please add the proper reference to support the claim.

Neutralization Resistant Mutations

1. In the section of discussing mutations, consider highlighting the key insights such as the stability potential investigated via ΔΔG score to help readers quickly grasp the importance of reported mutation.
2. The author has used the term “antigenic drift” but do not provide reference for this. Here is the reference article which the author can cite in this study. Naveed, M., Tehreem, S., Mubeen, S., Nadeem, F., Zafar, F., & Irshad, M. (2016). In-silico analysis of non-synonymous-SNPs of STEAP2: To provoke the progression of prostate cancer. *Open Life Sciences*, *11*(1), 402-416.

Naveed, M., Ali, U., Aziz, T., Rasool, M. J., Ijaz, A., Alharbi, M., ... & Alasmari, A. F. (2023). A reverse vaccinology approach to design an mRNA-based vaccine to provoke a robust immune response against HIV-1. Acta Biochimica Polonica, 70(2), 407-418.

1. Please provide a more detailed description of the Cohorts involved in polyclonal sera testing, including characteristics such as age groups or health conditions to enhance the understanding of the study participant’s diversity.

New approaches

1. The author should provide details about the mechanism or specific advantages which make nebulized Nano-bodies more potent in the lungs compared to intravenous administrations. Moreover, cite the given reference article in this part of your study. Naveed, M., Ali, U., Karobari, M. I., Ahmed, N., Mohamed, R. N., Abullais, S. S., ... & Scardina, G. A. (2022). A vaccine construction against COVID-19-associated mucormycosis contrived with immunoinformatics-based scavenging of potential Mucoralean Epitopes. Vaccines, 10(5), 664.
2. In the last clarify the specific sites outside the RBD motif, where monoclonal antibodies bind for clear understanding of binding interactions.

Discussion and Conclusion:

1. Specify the duration of the boosted individual's increased protection and mention if there are plans for sustained effectiveness.
2. Emphasize the significance of hypothesis suggesting Omicrons' evolution from animals and its potential implications for future zoonotic spillovers contributing to a more comprehensive conclusion.