

Review of: "Evolution of new variants of SARS-CoV-2 during the pandemic: mutation-limited or selection-limited?"

Ricardo Durães-Carvalho¹

¹ Federal University of São Paulo

Potential competing interests: No potential competing interests to declare.

Indeed, as an overview, the idea is well-motivated and welcome. The work opens an interesting discussion, which I believe is already happening in several scientific forums. In general, I would like to respectfully deliver some general comments/suggestions to the authors. I recommend the authors consider some important insights into five points. **1)** The biological characteristics of SARS-CoV-2 (please see <https://www.pnas.org/doi/10.1073/pnas.2106379119>); **2)** An important point is about immunity, an important concept that needs to be clarified. Either the individual has the immune system at basal levels or it does not. If the population's immunity declines, it is understood that there is an immunocompromised state. **3)** Another complex and important factor that also needs to be considered is the genetic background of different populations. Sail over this world may bring many interesting explanations and provide a brainstorm for the authors' proposal. **4)** The possible cross-reaction with other beta-CoVs that infect humans circulating in such particular regions also needs to be considered or cited. Finally, **5)** the use of at least two additional epidemiological parameters as well as statistical analysis to evaluate such hypotheses could provide more accurate conclusions.

Minor comments

Figure 1: What would be the meaning of "immunity titers" on the y-axis? IgG? What about the numbers? Are they arbitrary?

Please mention the virus that you are focusing on. "Dynamics of immunity and selection of the new variant of SARS-CoV-2"?

There is a typo, virinat...

Considering the title of the work, maybe the other Fig. Legends also deserve clarification.