# Letter to Editor

# Cytokine Receptor Allele Frequency, Immunogenicity, and Efficacy of New COVID-19 Vaccine in Different Setting

Dear Editor, COVID-19 vaccine is the new hope for controlling the new emerging pandemic disease, COVID-19. At present, many new COVID-19 vaccines have already been registered and are used in several countries around the world.<sup>[1]</sup> An important consideration in preventive medicine is the efficacy of the vaccine. The efficacy rate of vaccine varies in different reports from different settings. The impact of background population genetic on the efficacy rate of vaccine in different setting is interesting. The variations in genes coding for cytokines or cytokine receptor (CCR) s are examples on important genetic factor that are related to the efficacy, immunogenicity of the vaccine.<sup>[2]</sup> Some genetic polymorphisms such as CCR2 polymorphism (90G > A CCR2; rs1799864) are reported on the associations with decreased vaccine efficacy.<sup>[3]</sup>

The authors hereby analyzed on public data on genomic database, gnomAD,<sup>[4]</sup> aiming at assessment on allele frequencies of important chemokine receptor 2 (CCR2) polymorphism, rs1799864, in different populations. According to the database analysis, the allele frequencies are different in different population, from the lowest in Finnish European (0.06745) to the highest in East Asia (0.20300) and Latino (0.22890). Based on this data, the observation on different efficacy of vaccine reported from different settings around the world can be explained.<sup>[4]</sup> It might expect that the vaccine efficacy rates should be higher in the European population.

## Financial support and sponsorship

Nil.

#### **Conflicts of interest**

There are no conflicts of interest.

# Beuy Joob, Viroj Wiwanitkit<sup>1</sup>

Private Academic Consultant, Sanitation 1 Medical Academic Center, Bangkok Thailand, <sup>1</sup>Honorary Professor, Dr DY Patil University, Pune, Maharashtra, India Address for correspondence: Dr. Beuy Joob, Private Academic Consultant, Sanitation 1 Medical Academic Center, Bangkok, Thailand E-mail: beuyjoob@hotmail.com

Received: 04 Feb 21 Accepted: 18 Feb 21 Published: 16 Jun 23

### References

- Al-Kassmy J, Pedersen J, Kobinger G. Vaccine candidates against coronavirus infections. Where does COVID-19 stand? Viruses 2020;12:861.
- Zimmermann P, Curtis N. Factors that influence the immune response to vaccination. Clin Microbiol Rev 2019;32:e00084-18.
- Ganczak M, Żydecka KS, Dąbrowska MD, Adler G. Possible impact of 190G > A CCR2 and Δ32 CCR5 mutations on decrease of the HBV vaccine immunogenicity—A preliminary report. Int J Environ Res Public Health 2017;14:166.
- Jin P, Li J, Pan H, Wu Y, Zhu F. Immunological surrogate endpoints of COVID-2019 vaccines: The evidence we have versus the evidence we need. Signal Transduct Target Ther 2021;6:48.

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

Access this article online	
Quick Response Code:	Website: www.ijpvmjournal.net/www.ijpm.ir
	<b>DOI:</b> 10.4103/ijpvm.ijpvm_37_21

How to cite this article: Joob B, Wiwanitkit V. Cytokine receptor allele frequency, immunogenicity, and efficacy of new COVID-19 vaccine in different setting. Int J Prev Med 2023;14:71.

© 2023 International Journal of Preventive Medicine | Published by Wolters Kluwer - Medknow