

Capsule Summary

Covaxin Neutralizes SARS-CoV-2 Delta and Omicron variants

Covaxin, also known as BBV152 is an inactivated whole Virion vaccine, developed by Bharat Biotech in collaboration with the Indian Council of Medical Research and National Institute of Virology, India. Previous studies have shown that Covaxin vaccine is 77.8 % efficacious against symptomatic COVID-19 infection and 93.4 % efficacious against severe symptomatic COVID-19 disease in adults [1].

The emergence of new Omicron variant has caused an unprecedented surge in COVID-19 infections worldwide. Omicron variant has more than 30 mutations within the spike protein, and it is causing increased incidence of breakthrough infections in people vaccinated with primary two dose vaccine regimen and boosted individuals [2]. Therefore, it is critical to evaluate the effectiveness of the available vaccines against the Omicron variant.

Objective:

To assess the neutralising activity of sera collected from individuals who received booster dose (6 months after the last dose of primary series) of Covaxin against Omicron variant. (Note: This study is published on the pre-print server medRxiv and has not yet undergone full peer review) [3].

Study overview:

- Booster dose of Covaxin was administered on Day 215, to individuals who had previously received the primary two dose regimen of Covaxin.
- Sera was collected 28 days after the booster dose
- Liver Virus Focus Reduction Neutralisation Assay (FRNT) was used to evaluate the neutralising capacity of sera.

Study Results:

| | Delta Variant | Omicron variant | Interpretation |
|--------------------------------|---------------|-----------------|---|
| Antibody Geometric Mean Titres | 480 | 75 | Covaxin booster generates robust neutralizing antibody response against the Omicron and Delta variants of SARS-CoV-2 virus. |
| Neutralizing activity of Sera | 100% | 90% | Covaxin booster generates robust neutralizing antibody response against the Omicron and Delta variants of SARS-CoV-2 virus. |

Conclusion:

Booster dose of Covaxin induces robust neutralization of the Omicron and Delta variants. Although the study has limitation with respect to small ample size and absence of clinical outcome findings, it does present critical findings in wake of the rampant spread of the Omicron variant.

Information Source:

Edara, V. et al., Covaxin (BB152) Vaccine Neutralizes SARSCoV-2 Delta and Omicron variants. medRxiv preprint <https://doi.org/10.1101/2022.01.24.22269189>, January 28, 2022. You can access the full article at <https://www.medrxiv.org/content/10.1101/2022.01.24.22269189v1.full.pdf>

References:

1. Ella, R., et al., Efficacy, safety, and lot-to-lot immunogenicity of an inactivated SARS-CoV-2 vaccine (BBV152): interim results of a randomised, double-blind, controlled, phase 3 trial. *Lancet*, 2021. 398(10317):- p. 2173-2184.
2. Wang, S.Y., et al., Severe breakthrough COVID-19 cases in the SARS-CoV-2 delta (B.1.617.2) variant era. *Lancet Microbe*, 2022. 3(1): p. e4-e5.
3. Edara, V. et al., Covaxin (BB152) Vaccine Neutralizes SARSCoV-2 Delta and Omicron variants. medRxiv preprint doi: <https://doi.org/10.1101/2022.01.24.22269189>, January 28, 2022.

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