

# NEW IMMUNOLOGY STUDY HIGHLIGHTS IMPORTANCE OF COVID VACCINATION OF THOSE WHO HAVE ALREADY BEEN EXPOSED TO THE VIRUS

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A study has found that both COVISHIELD and COVAXIN significantly enhance immune responses in subjects with varying levels of basal immunity to SARS CoV-2 developed through natural exposure. File | Photo Credit: PTI

A study of COVID-19 vaccine immunity highlights the importance of vaccination in those who have already been exposed to the virus.

The study has found that both COVISHIELD and COVAXIN significantly enhance immune responses in subjects with varying levels of basal immunity to SARS CoV-2 developed through natural exposure. The multi-centric study led by researchers from St John's Research Institute was published in *npj Vaccines*, a Nature journal on September 14.

COVISHIELD, manufactured by Serum Institute of India and COVAXIN, indigenously developed by Bharat Biotech Ltd were the first two vaccines authorized for COVID-19 vaccination in India. Even though India had a highly successful vaccination campaign, a majority of the population remained unvaccinated till end of 2021. A major question raised and unknown at that time was whether COVID vaccines available in India in 2021 were even capable of inducing immune responses over and above immunity that may have been acquired through natural exposure to the virus during the ancestral and Delta waves.

"We addressed this issue in 700 adults (aged 18-44 years) who received their primary series of vaccination between November 2021 and January 2022. The samples were collected till May 2023 following which the analysis was done," said Annapurna Vyakarnam, whose Human Immunology Laboratory is based at St John's Research Institute (SJRI).

The study participants, who were recruited from four clinical sites and five research institutes in Bengaluru, Pune and Vellore, received either two doses of COVAXIN at 28 days apart or two doses of COVISHIELD at three months apart as per Indian Council of Medical Research (ICMR) guidelines. The peak responses to both these vaccines were measured at two weeks (14 days) post the second dose (day 42 for COVAXIN and day 98 for COVISHIELD).

Professor Vyakarnam, who is the lead immunologist of the study, said circulating neutralising

antibodies and cellular T-cell responses are cornerstone immune parameters governing protection from severe disease. “This study probed magnitude, breadth and quality of these immune parameters using advanced immunological techniques and demonstrated all three parameters to be enhanced at two weeks after subjects received their first two doses of either of the COVID-19 vaccines,” said the researcher, who is also affiliated to King’s College London.

In addition, first round data from this group showed evidence of persistent anti-COVID-19 immunity, up to one year post COVISHIELD vaccination, but less so with COVAXIN, she said.

Srabanti Rakshit, Project Scientist at the Division of Infectious Diseases in SJRI, who is the lead author of the study, said, “this is not surprising as COVISHIELD vaccine was specifically engineered to enhance immunogenicity, whereas COVAXIN is an inactivated rapidly generated and highly deployable first response efficacious virus vaccine”.

“We hope that the unequivocal nature of scientific evidence showing COVID-19 vaccines to broaden and enhance anti-COVID immunity in subjects with pre-existing SARS-CoV-2 immunity, will spur future in-depth analysis of what constitutes persistent immunity to circulating SARS CoV-2 strains,” said the researchers.

“Importantly, we hope this will mitigate vaccine hesitancy arguments to current and future national COVID-19 booster vaccination recommendations; unfortunately vaccine hesitancy remains a global health challenge in significant pockets of the world,” they said.

Funded by CSR support from Hindustan Unilever, the study was done involving four clinical sites - (Bangalore Baptist Hospital (BBH), King Edward Memorial Hospital Research Center (KEM), Symbiosis University Hospital and Research Center (SUHRC) and St. John’s Medical College Hospital (SJMC)) and five research institutes (National Centre for Biological Sciences (NCBS), Institute for Stem Cell Science and Regenerative Medicine (InStem), St. John’s Research Institute (SJRI), National Chemical Laboratory (NCL) and Indian Institute of Science Education and Research Pune (IISER-Pune).

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