# Detection of salivary IgA among recovered COVID-19 Patients and non-infected subjects after the first dose of vaccination

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## ABSTRACT

**Introduction:** Mucosal immunity, including secretory IgA plays a vital role in host defence against respiratory pathogens, including SARS-CoV-2. Therefore, this study aims to analyse salivary IgA in response to the COVID-19 vaccines such as BNT162b2, CoronaVac, and AZD1222 in convalescents (RT-PCR-confirmed COVID-19) and naïve subjects (non-infected COVID-19) before receiving their second dose. **Materials and methods:** Saliva was collected in a sterile container, centrifuged and stored at -80 °C until analysis. Salivary IgA was detected using an Anti-SARS-CoV-2 ELISA (IgA) kit (Euroimun-Lübeck, Germany). **Results and conclusion:** The study involved 281 participants, with 145 convalescents and 136 naïve subjects. Before receiving the first dose of the COVID-19 vaccine, 81.4%, 15.2%, and 3.4% of the 145 convalescents had positive, negative, and borderline results, respectively. Then, before receiving the second dose, 100% positive results were observed with the salivary IgA ratio median of 4.95, 2.71 and 3.32 among BNT162b2, CoronaVac and AZD1222, respectively. There was evidence of a difference in salivary IgA ratio between BNT162b2, AZD1222 and CoronaVac ($p < 0.005$). However, there was no evidence of a difference in salivary IgA ratio between CoronaVac and AZD1222. For naïve subjects, 95.7%, 30.2% and 83.0% showed positive results before receiving the second dose of BNT162b2, CoronaVac and AZD1222, with the salivary IgA ratio median of 1.63, 0.74 and 1.43, respectively. There was evidence of a difference in saliva IgA ratio between BNT162b2 and CoronaVac as well as AZD1222 and CoronaVac ($p < 0.005$). However, no significant difference was observed between BNT162b2 and AZD1222. After the first dose of vaccination, the vaccines significantly increased the production of salivary IgA in convalescent compared to naïve subjects.

**Keywords:** SARS-CoV-2, COVID-19 vaccine, salivary IgA and mucosal immunity