

# COvid VACcination during LACtation: the COVALAC-study

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## INTRODUCTION

Similar to other populations, breastfeeding women encounter SARS-CoV-2 and might contract COVID-19. The availability of new vaccines against COVID-19, urged for guidance about vaccination during lactation.

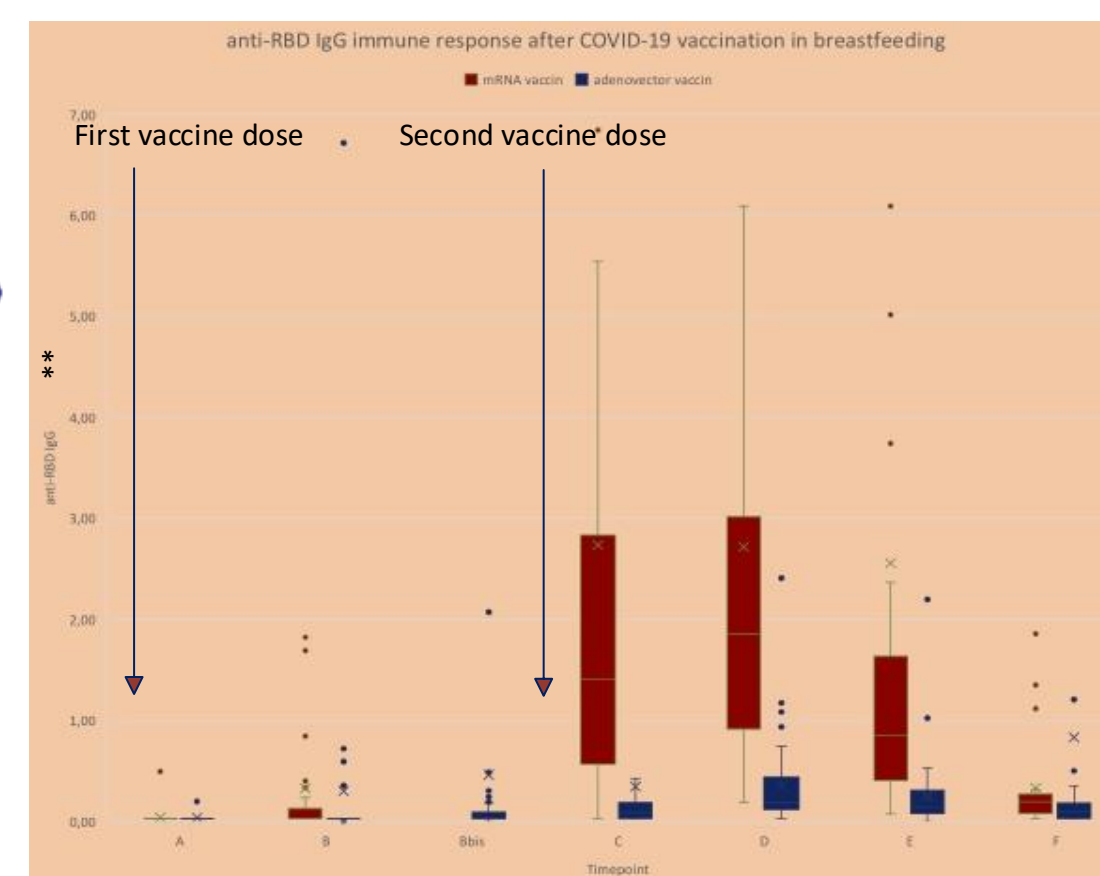
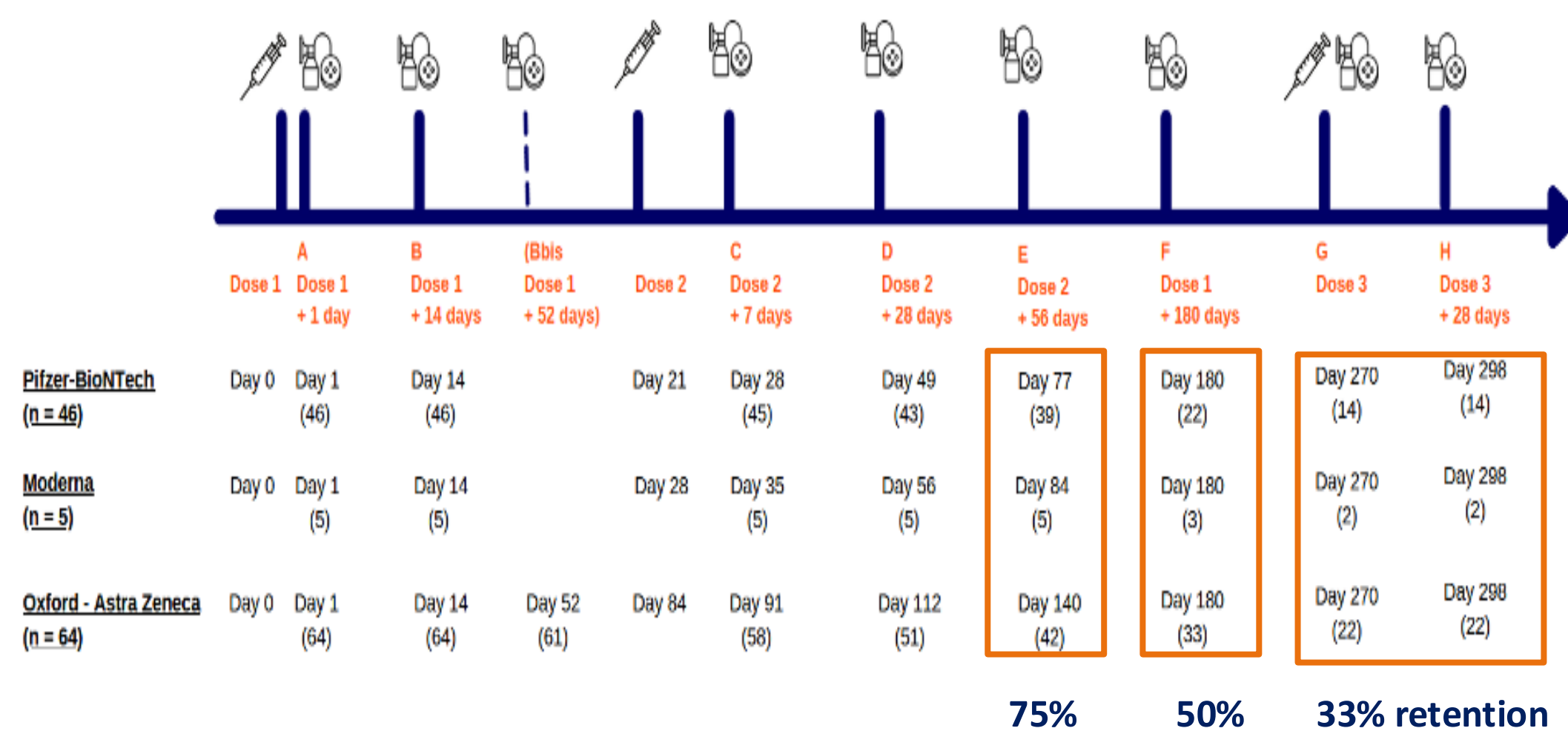
## AIM

We aim to get an insight in the excretion of antibodies into breastmilk after vaccination with different types of COVID-19 vaccines.

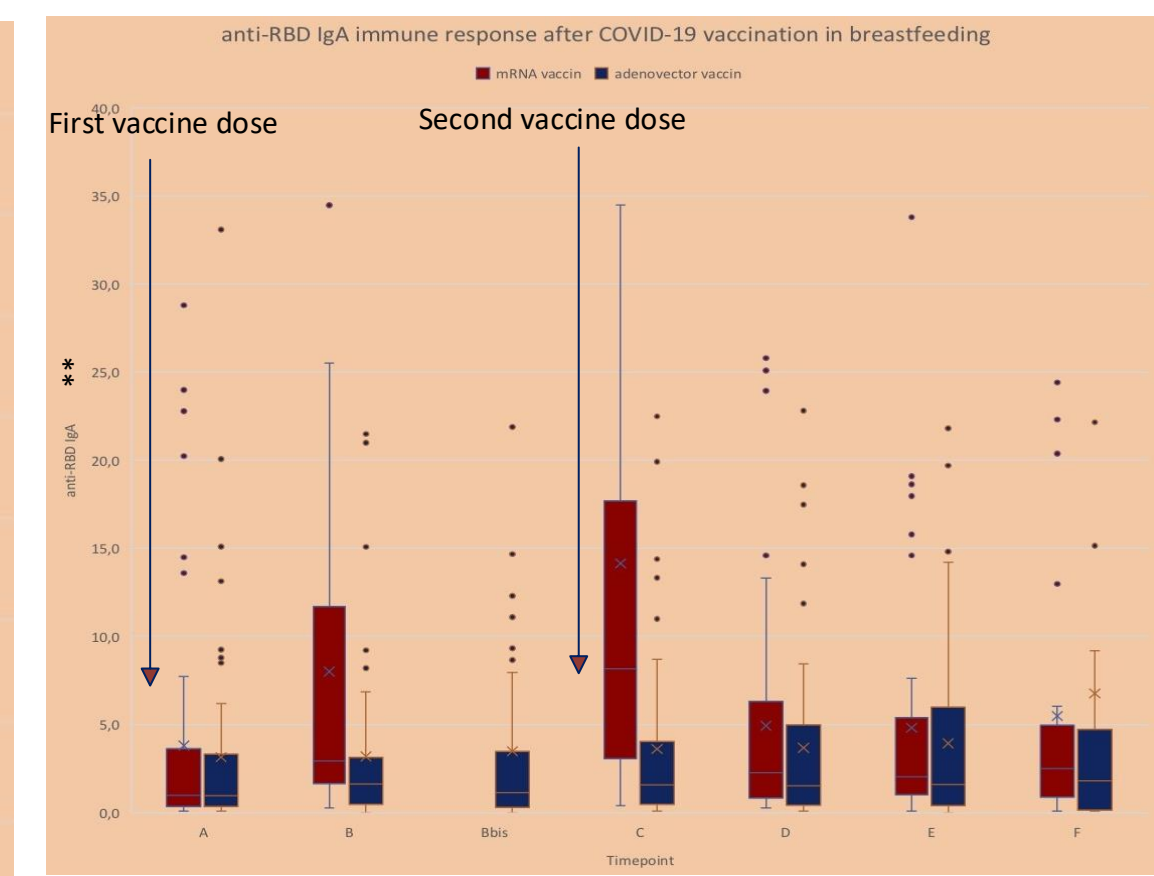
## METHODS

The COVALAC-study is Belgian a prospective cohort study, part of the PREGCOVAC.BE-study. Women that were vaccinated with a COVID-vaccine during the lactation period were followed. Participants could be included when they were older than 18 years, breastfeeding for at least 14 days, willing to be vaccinated with a COVID-vaccine and to donate breastmilk samples at multiple follow-up visits. COVID-19-specific sIgA and IgG antibodies against the spike protein and its receptor binding domain (RBD) were measured on all available breast milk samples with a Luminex Multiplex® assay.

## WORK PLAN, SAMPLE COLLECTION & CURRENT PROGRESS



\*\*Outliers higher than 7 BAU/ml were not included in this graphic. Six mothers had anti-RBD IgG higher than 7 BAU/ml. One woman of these outliers had pre-existing antibodies against SARS-CoV-2.

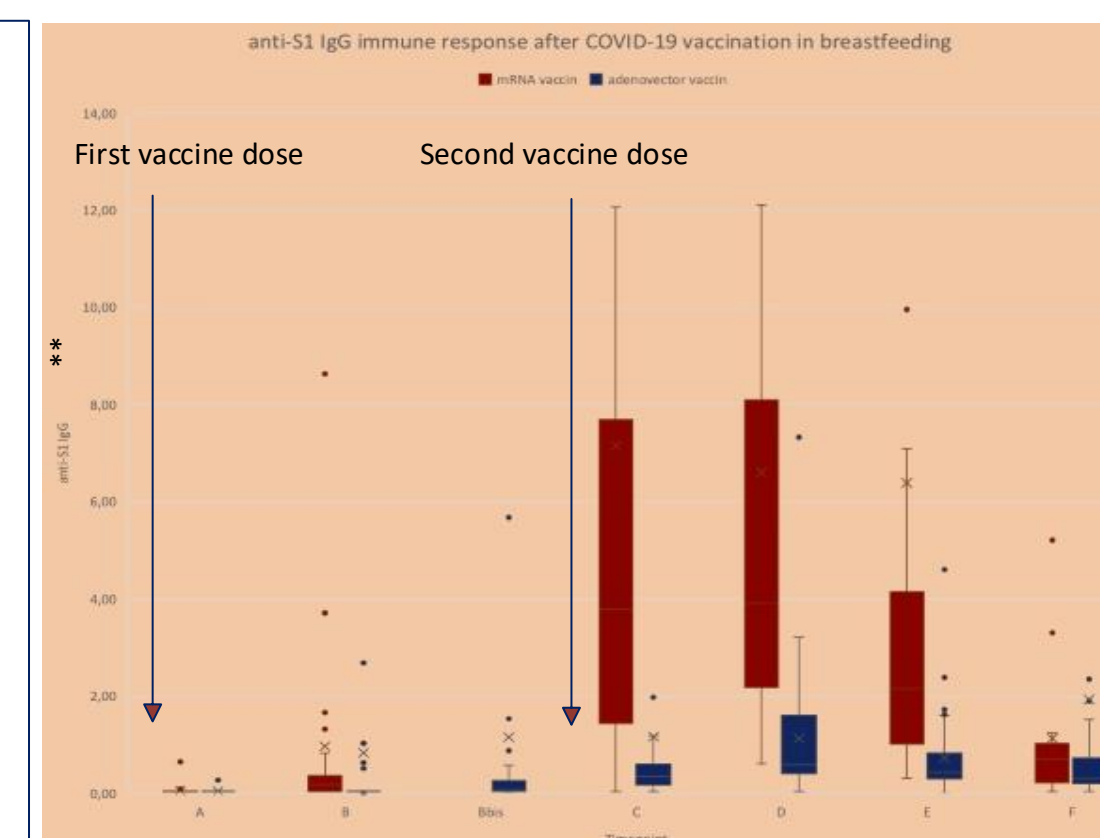


\*\*Outliers higher than 40 ng/ml were not included in this graphic. Two mothers had anti-RBD IgA higher than 40 ng/ml. One woman of these outliers had pre-existing antibodies against SARS-CoV-2.

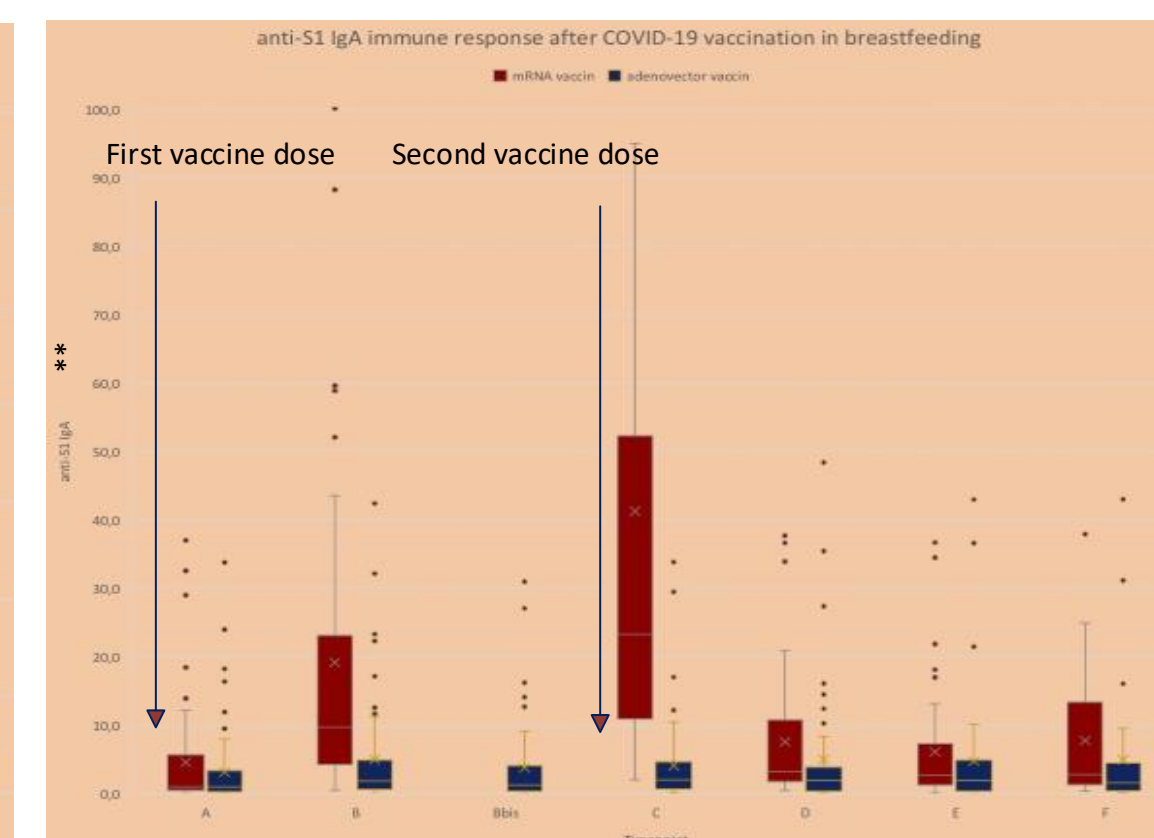
## RESULTS

- 115 vaccinated women were included
  - 46 BNT162b2 vaccine (mRNA group)
  - 5 mRNA2 vaccine (mRNA group)
  - 64 ChAdOx1-S vaccine (adenovector group - AVV)
- 34/115 (29.6%) of the women were immediately convinced to get vaccinated against SARS-CoV-2
- 2 women in the mRNA group and 2 women in the AVV group had already pre-existing COVID-19 antibodies before vaccination. This information is based on availability of anti-nucleocapsid in the breastmilk samples.
- SARS-CoV-2 specific IgG antibodies\***
  - An increase in SARS-CoV-2 specific IgG titers was seen 14 days after first vaccination, in both mRNA as adenovector vaccines
  - Women receiving adenovector and mRNA vaccines reached the highest titre at day 28 after the second dose
  - IgG antibodies are still excreted into breastmilk 6 months after first vaccination
  - Excretion is higher after vaccination with mRNA-vaccine
- SARS-CoV-2 specific IgA antibodies\***
  - An increase in SARS-CoV-2 specific IgA titers was seen 14 days after first vaccination, in both mRNA as adenovector vaccine
  - Women receiving AVV reached the highest titre at day 56 after the second dose, whereas women receiving the mRNA vaccine reached the highest titres 7 days after second dose
  - IgA antibodies are still excreted into breastmilk 6 months after first vaccination
  - IgA titres are highest close after second vaccine, but drop quickly
- IgA and IgG antibodies after booster vaccination**
  - Analysis still ongoing
  - We expect boosting will result in augmented IgG, but not for IgA levels in breastmilk

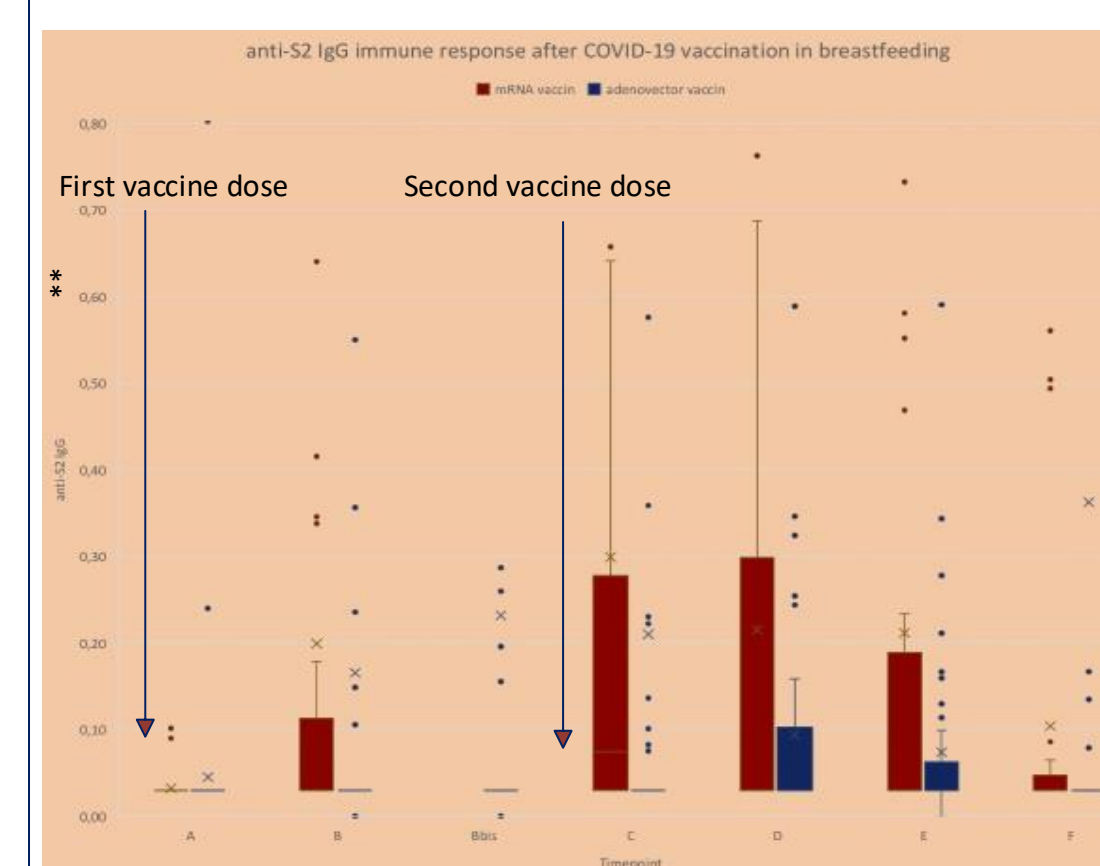
\*preliminary results, further analysis is still ongoing



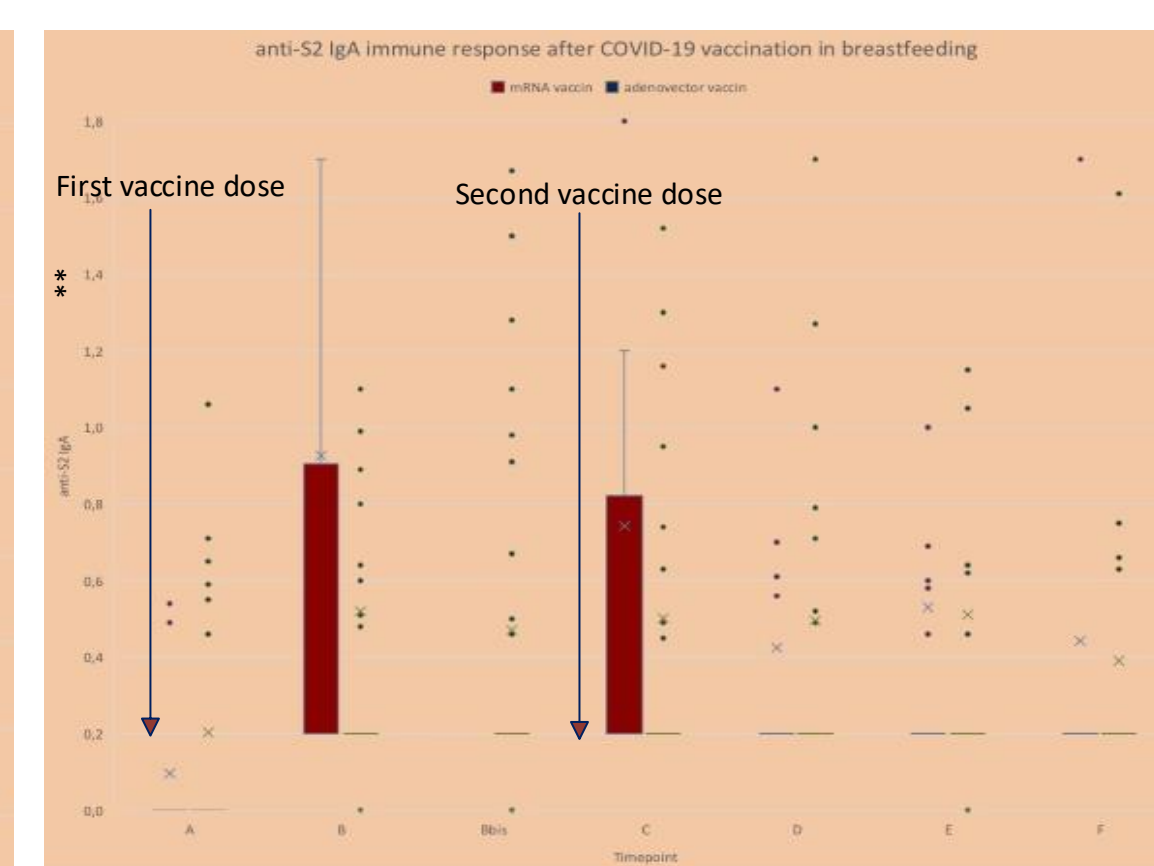
\*\*Outliers higher than 14 BAU/ml were not included in this graphic. Eight mothers had anti-S1 IgG higher than 14 BAU/ml. One woman of these outliers had pre-existing antibodies against SARS-CoV-2.



\*\*Outliers higher than 100 ng/ml were not included in this graphic. Two mothers had anti-S1 IgA higher than 100 ng/ml.



\*\*Outliers higher than 0,80 BAU/ml were not included in this graphic. Eight mothers had anti-S2 IgG higher than 0,80 BAU/ml. One woman of these outliers had pre-existing antibodies against SARS-CoV-2.



\*\*Outliers higher than 1,80 ng/ml were not included in this graphic. Ten mothers had anti-S2 IgA higher than 1,80 ng/ml. One woman of these outliers had pre-existing antibodies against SARS-CoV-2.

## CONCLUSION

The study suggests that the use of mRNA vaccine could be preferred over adenovector vaccines, when higher antibody levels are preferred. The study contributes to the knowledge on SARS-CoV-2 vaccination and the use of different vaccine-platforms during breastfeeding. As vaccination during lactation could result in clinically relevant sIgA-titers in breastmilk and protecting the child in early life, it is of importance that women have this information to decide whether to take the vaccine.