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# Nettskjema

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[COVID-19 and Immunity in Norway](#)

## COVID-19 and Immunity in Norway

Endre tittel

### Spørreskjema for sensitive data (TSD)

Skjema er koblet til TSD (p1324)

Stengt for svar

### Sist endret

2. desember 2020  
23:16  
av Tonje Braaten

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## COVID-19 and Immunity in Norway

Side 1

### COVID-19 AND IMMUNITY IN NORWAY (Korona og immunitet i Norge). A study on blood antibodies and immunity in the Norwegian populatio

 [Sideskift](#)

Side 2

Mandatory questions are marked with \*

### Covid-19

Have you been tested for Covid-19? \*

Yes, at least one test was positive

Yes, but the test was negative

Yes, waiting for result

No, I have not been tested

## When was the first time you tested positive? \*



Dette elementet vises kun dersom alternativet «Yes, at least one test was positive» er valgt i spørsmålet «Have you been tested for Covid-19?»



February-March



April-May



June-July



August-September



October-November

## Do you think you could have been infected with Covid-19? \*



Dette elementet vises kun dersom alternativet «Yes, but the test was negative», «No, I have not been tested» eller «Yes, waiting for result» er valgt i spørsmålet «Have you been tested for Covid-19?»



No



Yes



Do not know / do not wish to answer

## Did you have Covid-19 symptoms when you were infected? \*



Dette elementet vises kun dersom alternativet «Yes, at least one test was positive» er valgt i spørsmålet «Have you been tested for Covid-19?»



No



Yes



Do not know / do not wish to answer

### Which symptoms did you have? \*



Dette elementet vises kun dersom alternativet «Yes» er valgt i spørsmålet «Did you have Covid-19 symptoms when you were infected?»



Cold/flu symptoms such as coughing or runny nose



Difficulty breathing (more than usual)



Fever



Muscle or joint pain



Loss of sense of smell or taste



Stomach pain, nausea, or diarrhea



Other symptoms

### In which month did you experience the symptoms? \*



Dette elementet vises kun dersom alternativet «Yes» er valgt i spørsmålet «Did you have Covid-19 symptoms when you were infected?»

Velg ...

### How sick were you? \*



Dette elementet vises kun dersom alternativet «Yes» er valgt i spørsmålet «Did you have Covid-19 symptoms when you were infected?»



Mildly sick



Moderately sick



Very sick



Do not know / do not wish to answer

Were you hospitalised? \*



Dette elementet vises kun dersom alternativet «Yes» er valgt i spørsmålet «Did you have Covid-19 symptoms when you were infected?»



No



Yes

Have you had symptoms that could be due to Covid-19 during 2020? \*



Dette elementet vises kun dersom alternativet «Yes, but the test was negative», «No, I have not been tested» eller «Yes, waiting for result» er valgt i spørsmålet «Have you been tested for Covid-19?»



No



Yes



Do not know / do not wish to answer

## Which symptoms did you have? \*



Dette elementet vises kun dersom alternativet «Yes» er valgt i spørsmålet «Have you had symptoms that could be due to Covid-19 during 2020?»

Cold/flu symptoms such as coughing or runny nose

Difficulty breathing (more than usual)

Fever

Muscle or joint pain

Loss of sense of smell or taste

Stomach pain, nausea, or diarrhea

Other symptoms

## In which month did you experience the symptoms? \*



Dette elementet vises kun dersom alternativet «Yes» er valgt i spørsmålet «Have you had symptoms that could be due to Covid-19 during 2020?»

Velg ...

## How sick were you? \*



Dette elementet vises kun dersom alternativet «Yes» er valgt i spørsmålet «Have you had symptoms that could be due to Covid-19 during 2020?»

Mildly sick

Moderately sick



Very sick



Do not know / do not wish to answer

### Were you hospitalised? \*



Dette elementet vises kun dersom alternativet «Yes» er valgt i spørsmålet «Have you had symptoms that could be due to Covid-19 during 2020?»



No



Yes



Sideskift

Side 3

### Do you currently have any of the following diseases/disorders? \*



Heart disease



Cancer



Asthma



Chronic obstructive pulmonary disease (COPD) or other chronic lung disease



Liver disease



Kidney disease



Central nervous system disorder

Eating disorder

High blood pressure

Diabetes

Rheumatic disorder

Other autoimmune disease

I do not have any of these diseases/disorders

Do not know / do not wish to answer

Which type of diabetes do you have? \*



Dette elementet vises kun dersom alternativet «Diabetes» er valgt i spørsmålet «Do you currently have any of the following diseases/disorders?»



Type 1



Type 2



Gestational diabetes



Sideskift

## Travel

How many days per week did you usually take public transport between January and March



2020? \*

- 0
- 1
- 2 or more

How many days per week have you usually taken public transport since August 2020? \*

- 0
- 1
- 2 or more

 Sideskift

Side 5

Did you travel/were you traveling outside of Norway in February or March 2020? \*

- No
- Yes

Which continent(s) did you travel to? \*



Dette elementet vises kun dersom alternativet «Yes» er valgt i spørsmålet «Did you travel/were you traveling outside of Norway in February or March 2020?»

- Europe
-

Asia

Africa

America

Oceania

Which country/countries in Europe did you travel to? \*



Dette elementet vises kun dersom alternativet «Europe» er valgt i spørsmålet «Which continent(s) did you travel to?»

Sweden

Denmark

Finland

Great Britain

Germany

Austria

Italy

Spain

France

Poland



Lithuania



Other country in Europe

Were you in quarantine upon arriving back in Norway from your travel abroad in February or March 2020? \*



Dette elementet vises kun dersom alternativet «Yes» er valgt i spørsmålet «Did you travel/were you traveling outside of Norway in February or March 2020?»



No



Yes

Have you traveled outside of Norway after March 2020? \*



No



Yes

Which continent(s) did you travel to? \*



Dette elementet vises kun dersom alternativet «Yes» er valgt i spørsmålet «Have you traveled outside of Norway after March 2020?»



Europe



Asia



Africa



America



Oceania

Which country/countries in Europe did you travel to? \*



Dette elementet vises kun dersom alternativet «Europe» er valgt i spørsmålet «Which continent(s) did you travel to?»

Sweden

Denmark

Finland

Great Britain

Germany

Austria

Italy

Spain

France

Poland

Lithuania

Other country in Europe

Were you in quarantine upon arriving back in Norway from your travel abroad since March 2020? \*



Dette elementet vises kun dersom alternativet «Yes» er valgt i spørsmålet «Have you traveled outside of Norway after March 2020?»



No



Yes



Sideskift

Side 6

Did you visit counties in Norway other than your home-county in February or March 2020? \*



No



Yes

Which county/counties did you visit? \*



Dette elementet vises kun dersom alternativet «Yes» er valgt i spørsmålet «Did you visit counties in Norway other than your home-county in February or March 2020?»



Agder



Innlandet



Møre and Romsdal



Nordland



Oslo



Rogaland



Vestfold and Telemark



Troms and Finnmark



Trøndelag



Vestland (except Bergen)



Bergen



Viken

Did you visit counties in Norway other than your home-county after March 2020? \*



No



Yes

Which county/counties did you visit? \*



Dette elementet vises kun dersom alternativet «Yes» er valgt i spørsmålet «Did you visit counties in Norway other than your home-county after March 2020?»



Agder



Innlandet



Møre and Romsdal



Nordland



Oslo



Rogaland



Vestfold and Telemark



Troms and Finnmark



Trøndelag



Vestland (except Bergen)



Bergen



Viken



Side 7

## Education and employment

What is your highest completed level of education? \*



Primary school / Junior high school



High school



Vocational school



University or college

Are you a student? \*



No



Yes

How many days per week were you usually at school/college/university between March and May 2020? \*



Dette elementet vises kun dersom alternativet «Yes» er valgt i spørsmålet «Are you a student?»



0



1



2 or more

How many days per week have you usually been at school/college/university since August 2020? \*



Dette elementet vises kun dersom alternativet «Yes» er valgt i spørsmålet «Are you a student?»



0



1



2 or more

Are you employed? \*



Yes



I am laid off





Yes, but I am on sick leave



I am retired



No

How many days per week were you usually at your workplace (outside of the home) between March and May 2020? \*



Dette elementet vises kun dersom alternativet «Yes», «Yes, but I am on sick leave» eller «I am laid off» er valgt i spørsmålet «Are you employed?»



0



1



2 or more

How many days per week have you usually been at your workplace (outside of the home) since August 2020? \*



Dette elementet vises kun dersom alternativet «Yes», «Yes, but I am on sick leave» eller «I am laid off» er valgt i spørsmålet «Are you employed?»



0



1



2 eller more

In which sector/industry do you work? \*



Dette elementet vises kun dersom alternativet «Yes», «Yes, but I am on sick leave» eller «I am laid off» er valgt i spørsmålet «Are you employed?»

Healthcare

Passenger transportation

Sales and service

Manufacturing

Agriculture and fishing

First response (fire, rescue, or police)

Kindergarten and primary school

Junior high school, high school, and higher education

Other sector/industry

Do you work in \*



Dette elementet vises kun dersom alternativet «Healthcare» er valgt i spørsmålet «In which sector/industry do you work?»

Municipal healthcare

Specialist healthcare

Private healthcare

## Living conditions

How many people live in your household? \*

1

2

3

4

5

6 or more

How many children (0-15 years) do you live with? \*



Dette elementet vises kun dersom alternativet «2», «4», «3», «6 or more» eller «5» er valgt i spørsmålet «How many people live in your household?»

0

1

2

3

4 or more

Do you live with a child who goes to Kindergarten? \*



Dette elementet vises kun dersom alternativet «3», «2», «4 or more» eller «1» er valgt i spørsmålet «How many children (0-15 years) do you live with?»

No

Yes

Do you live with a child who goes to school? \*



Dette elementet vises kun dersom alternativet «3», «2», «4 or more» eller «1» er valgt i spørsmålet «How many children (0-15 years) do you live with?»

No

Yes

Do you live in an apartment complex with a shared entrance? \*

No

Yes

Has anyone else in your household been tested positive for Covid-19? \*

No

Yes

Don't know / do not wish to answer

Has anyone in your social circle (friends, colleagues) been tested positive for Covid-19? \*

No

Yes

Don't know / do not wish to answer



Sideskift

Side 9

## Other questions

How tall are you (in cm)? \*

How much do you weigh (in kg)? \*

Do you or have you previously smoked daily? \*

No

Previously smoked

Currently smoke

Do not wish to answer

How many years ago did you quit smoking? \*



Dette elementet vises kun dersom alternativet «Previously smoked» er valgt i spørsmålet «Do you or have you previously smoked daily?»



0-1



1-5



5-10



More than 10



Do not wish to answer

Do you use snuff? \*



No



Yes



Do not wish to answer

How often do you use snuff? \*



Dette elementet vises kun dersom alternativet «Yes» er valgt i spørsmålet «Do you use snuff?»



Everday



A few times per week



A few times per month



Rarely

Have you used antibiotics in 2020? \*

No

Yes

Do not know / do not wish to answer

Have you used steroids (e.g. Prednisolon) in 2020? \*

No

Yes

Do not know / do not wish to answer

Did you get vaccinated for the current flu/influenza season (autumn 2020/2021)? \*

No

Yes

Do you take cod liver oil or vitamin D supplements? \*

No

Yes

Occasionally

Are you physically active at a moderate intensity level (slightly out-of-breath) at least 2.5 hours per week? \*

No



Yes



Do not know / do not wish to answer

Do you consent to being contacted again for future studies on Covid-19? \*



Yes



No

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## **S2: Analytical methods for detection of SARS-CoV-2 antibodies**

Antibody measurement: A multiplexed bead-based flow cytometric assay, referred to as microsphere affinity proteomics (MAP), was adapted for detection of SARS-CoV2 antibodies<sup>1</sup>. Thus amine-functionalized polymer beads were color-coded with fluorescent dyes as described earlier and reacted successively with amine-reactive biotin (sulfo-NHS-LC-biotin, Proteochem, USA) and neutravidin (Thermo Fisher). A DNA construct encoding the receptor-binding domain of Spike-1 protein (RBD) from SARS-CoV2 was provided by Florian Krammer, and the protocol described in<sup>2</sup> was used to produce recombinant protein in Expi293F cells<sup>2</sup>. Bacterially expressed full length nucleocapsid from SARS-CoV2 was purchased from Prospec Bio ([www.prospecbio.com](http://www.prospecbio.com)). Viral proteins solubilized in PBS were biotinylated chemically using a four to one molar ratio of sulfo-NHS-LC-biotin to protein. Free biotin was removed with G50 sephadex spin columns. Biotinylated proteins were bound to neutravidin-coupled microspheres with fluorescent barcodes. Beads with Neutravidin only were used as reference for background binding. Eluates from dried blood spots were incubated with a mixture of antigen-coupled and Neutravidin-only beads for 1h at 22°C under constant agitation. The beads were washed twice in PBT, labelled with R-Phycoerythrin-conjugated goat-anti-Human IgG-Fc (Jackson Immunoresearch) for 20 min, washed again and analyzed by flow cytometry (Attune Next, Thermo Fisher). Specific binding was measured as the ratio of R-Phycoerythrin fluorescence intensity of antigen-coupled beads and neutravidin-only beads. Samples containing antibodies both to Nucleocapsid and RBD were considered to be positive. Reference panels containing samples

from 287 individuals with PCR-confirmed SARS-CoV2 infection and 1343 pre-pandemic samples were used to set the cutoff. With a cutoff set to obtain a specificity of 100%, the sensitivity was 84% and 92% when including borderline values. The cutoff values for positives were five and ten for antibodies to RBD and Nucleocapsid, respectively. Borderline was defined as RBD higher than five.

## References

1. Wu, W., Slastad, H., de la Rosa Carrillo, D., Frey, T., Tjonnfjord, G., Boretti, E., Aasheim, H.C., Horejsi, V. & Lund-Johansen, F. Antibody array analysis with label-based detection and resolution of protein size. *Mol Cell Proteomics* **8**, 245-257 (2009).
2. Amanat, F., Stadlbauer, D., Strohmeier, S., Nguyen, T.H., Chromikova, V., McMahon, M., Jiang, K., Arunkumar, G.A., Jurczynszak, D. & Polanco, J. A serological assay to detect SARS-CoV-2 seroconversion in humans. *Nature medicine*, 1-4 (2020).