Participant Information Sheet

Immunity and Molecular studies of SARS-CoV-2 infection, post-viral conditions, and COVID-19 vaccination

Lead Researcher: Dr Anna Brooks

Study Site: University of Auckland

Contact phone number: 021 898965

Ethics committee ref.: EXP 10976

You are invited to participate in a study monitoring immunity and molecular signatures following recovery from SARS-CoV-2 viral infection and COVID-19 vaccination. Whether or not you take part is your choice. If you don't want to take part, you don't have to give a reason. If you want to take part now but change your mind later, you can withdraw from the study at any time.

This Participant Information Sheet will help you decide if you'd like to take part. It sets out why we are doing the study, what your participation would involve, the benefits and risks to you, and what would happen after the study ends. We will go through this information with you and answer any questions you may have. You do not have to decide today whether you will participate in this study. Before you decide, you may want to talk about the study with other people, such as family, whānau, friends, or healthcare providers. Feel free to do this.

If you agree to participate in this study, you will be asked to sign the Consent Form on the last page of this document. You will be given a copy of both the Participant Information Sheet and the Consent Form to keep. This document is 9 pages long, including the Consent Form. Please make sure you have read and understood all the pages.

Voluntary Participation and Withdrawal From This Study

Your participation in this research is voluntary. Before you choose whether to take part, it is important for you to understand why the research is being done and what it will involve for you. If you do not want to take part, you may contact the investigators to withdraw from the research at any time, without giving a reason. You can also request that any samples you provide for this research be withdrawn at any time before they are used.

What is the purpose of the study?

The purpose of this study is to investigate immunity and immune function following recovery from SARS-CoV-2 infection, the virus that causes COVID-19. We hope to better understand the underlying causes of the immune system disruption associated with Long COVID, and how this might compare to Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS), the most common, yet still poorly understood post-viral condition. These conditions are associated with ongoing, debilitating symptoms, many of which may be related to a dysfunctional or disrupted immune system.

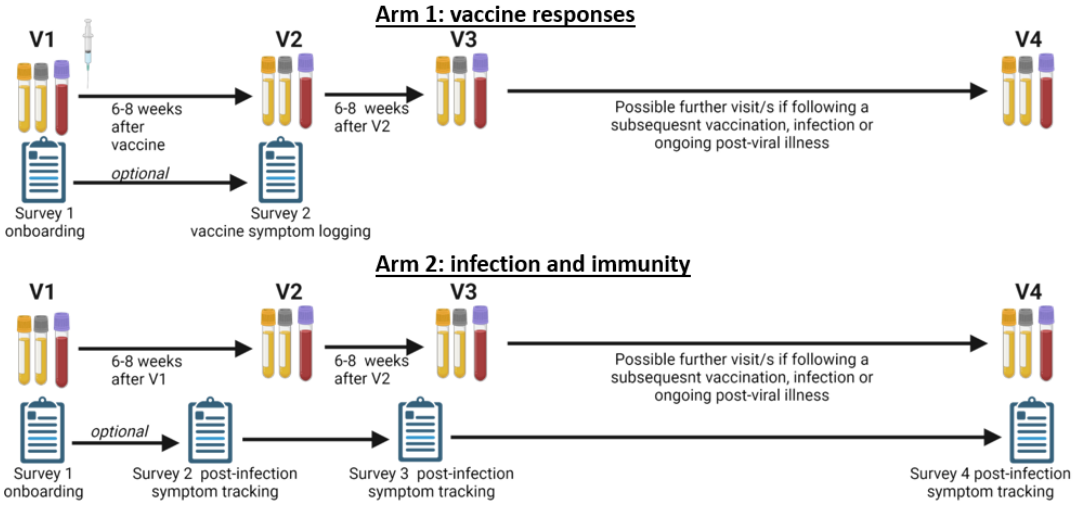
We aim to monitor immune cell changes and antibody levels to better understand immunity following infection and track changes after vaccination/boosters, and/or following infection. Finally, we will screen for inflammatory molecules/proteins and assess immune cell function in those with Long COVID and ME/CFS.

How is the study designed?

This study is led by Dr Anna Brooks and her team at the University of Auckland and Emeritus Professor Warren Tate and his research team at the University of Otago, Dunedin. Members of the Brooks and Tate laboratories will carry out the research in Auckland and Dunedin, respectively.

We aim to recruit 400 people over the next 3 years to study Long COVID and its relationship to ME/CFS. We are interested in tracking immune cell changes (including immunity) following COVID-19 infection and vaccination, as well as monitor immune function changes over time. We have 2 arms to our study, 1) those that enrol to be tracked following vaccination, and 2) those that are either already vaccinated or those that cannot or choose not to be (will include those previously infected, already vaccinated, or have a post-viral condition).

The study will involve giving blood samples (approx. 1 to 4 visits) each taking approx. 15-30mins, as well as completing an onboarding survey (survey 1), plus additional surveys (between 2-4) if you are interested in tracking your symptoms. Immune cells and blood proteins (serum and plasma) will be isolated from blood samples to investigate immunity to COVID-19 and assess cell function. We may also ask for you to provide a salvia sample for similar purposes.



WHO CAN TAKE PART IN THE STUDY?

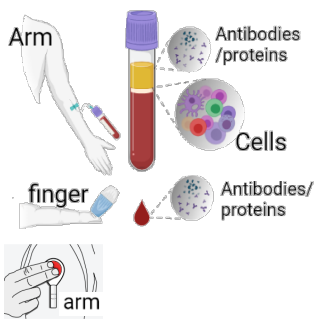
We invite you to participate in this study because you had a SARS-CoV-2 infection (COVID-19), have or suspect you have Long COVID, have ME/CFS or identify as being in good health (no history of COVID-19 or post-viral condition). You must be 16yrs or over and be willing to donate blood. To be included in our study, you mustn't have been diagnosed with a terminal illness, be pregnant or lactating, or have any cold or flu-like symptoms. You also can not have had COVID-19 in the last 28 days.

We will also ask about your COVID-19 vaccination status/intentions and will ask you to return for repeat blood donations after your vaccinations (if you are part of arm 1) or at defined intervals after your infection. However, vaccination or your intention to vaccinate are not essential. The choice to vaccinate will be entirely yours. The research team will not be able to provide any medical advice related to your condition or vaccination. Any advice must be sought from your doctor or healthcare provider, including if you experience any adverse events following vaccination.

The study investigators respect Māori and Pacific Peoples worldview, and therefore blood sampling will be treated with special consideration and respect. If you have any cultural requirements or questions that relate to your potential participation in this project, please ask the research team or the named cultural advisors before signing this document. It is the role of the investigators to ensure that you understand all procedures and risks: please feel free to ask any questions.

WHAT WILL MY PARTICIPATION IN THE STUDY INVOLVE?

Surveys: If you decide to take part, you will first be asked to fill out a pre-screening survey and return the attached consent form (by email or in person). After consenting you will be sent a link by email to complete the electronic survey (onboarding survey) which is required to enrol on to the study, and log your infection, vaccination and health history. This will take about 20 minutes. Once you begin a survey, data will be collected even if you do not finish it right away. This is so you can take your time or save your entry and return to it later. This information is stored securely as a 'partial entry' and you will be prompted to complete it later. Depending on which arm of the study you are on you will then be sent further surveys (to track symptoms, if applicable) at various intervals.



Blood samples: Consenting adults who are 16yrs or over will visit our premises or a community laboratory to have a phlebotomist take your blood (10-70ml). Your first visit may take approximately 15- 30mins. Blood drawing will involve only minor discomfort of having a needle introduced into your arm, in the same way as for standard blood tests at a doctor's surgery or pathology service collection centre. This will

mainly occur at community laboratories, or at the University of Auckland main campus on Symonds Street, however this will only ccur when public health orders allow.

Finger-pricks samples: In some cases, finger-prick blood sampling will be offered (for example, if you cannot donate blood due to alert level restrictions) using at-home sampling kits. These can then be returned to our lab by post. The finger prick requires putting a tiny needle in your fingertip to draw a few drops of blood. It is standard medical practice. Expect slight pain during the finger prick, and after, we will require you to squeeze your finger to get enough blood for the sample. Bleeding sometimes lasts a few minutes, and bruising may occur later. We use preloaded single-use needles to prevent accidental pricking, overly deep pricking, or cross-contamination by reusing needles.

Upper arm capillary blood sample: Another type of blood draw device will be offered to enable at-home sampling, or when only small volumes of blood (1/2 a ml) are required. The Tasso+ device is a sterile, disposable blood collection device. When collecting a sample, the device is placed onto the skin of the upper arm. A sterile, lancet punctures the skin and the button draws blood into a tube using vacuum. When the tube is full, the device is removed from the arm. The Tasso+ is a single use device and automatically retracts into a safe position after use. Expect minimal discomfort with the Tasso device compared to collecting blood with a finger stick or standard venipuncture procedure. Due to the small blood sample size from finger pricks or upper arm capillary sampling, these tests may only be used for limited aspects of the study, for example for detecting antibodies/proteins and some immune cell studies.

Saliva: We may ask if you would like to provide a saliva sample which is a less invasive way of providing samples to measure proteins for some of our tests.

Additional visits/samples

***Arm 1 vaccine responses*:** If you are enrolling because you are about to receive a vaccine (either primary or a boost) we will request further blood samples after your COVID-19 vaccine/s. We will suggest when it will be preferable to return for further blood tests (i.e. after approx. 6-8 weeks). We will ask if you can return to provide blood samples within a 2-week window, at a time convenient for you. We expect that you will be involved in this study for less than a year, returning to donate blood samples up to 4 times (optional). You will also be asked to participate in a further online survey to track your symptoms (if applicable).

Arm 2 infection and immunity: If you have been vaccinated at the time of enrolment (or do not intend to be vaccinated) and have a post-viral condition (Long covid or ME/CFS), have recently been infected, or are considered a healthy control, you may be asked to donate additional blood samples to track immune cells/proteins and track immune regulation/immunity over time. If you agree, you will be asked to return approximately 6-8 weeks after your first blood donation, and then 6-8 weeks after your second donation. If you are infected during this period, or receive a vaccine/boost, we may also request subsequent visits if you are interested. Repeat visits, however, are not a requirement to be part of the study. You will be asked to fill in a survey to track your acute infection symptoms (if recently infected/applicable).

WHAT WILL HAPPEN TO MY BLOOD SAMPLES?

Your blood samples will be coded so you cannot be identified by laboratory staff. Your sample will be sent to our laboratory where they will be prepared for our studies (serum/plasma/cells). Your samples will be stored in our laboratories (in secure freezers or liquid nitrogen cold storage) in an access restricted area at the Universities of Auckland and Otago, until analysis is completed. As well as investigating COVID-19 immunity, proteins and DNA from cells will be studied to investigate immune cell function. However, it is important to note that only fragments of DNA will be analysed that relate to cell function. No tests will be carried out on your DNA that could relate to your health or that of your family. We are interested only in how your cells behave in the laboratory, as representatives of typical blood cells.

As part of this project, most of your samples will be used and analysed within the next 1-3 years. Where research is ongoing (i.e., beyond 3 years), it may be very helpful to continue your samples beyond that time. For this reason, we are seeking your consent to store your samples for up to 10 years to allow maximum scientific benefit to be derived. Therefore, if you consent, your coded samples will be made available for future unspecified research relating only to COVID-19 or post-viral conditions and may also be added to data from other sources to form larger datasets. If it is not possible to do all the tests in our lab, we will ask you for your consent to send your coded blood samples (your name and identifying labels removed) to laboratories overseas where these tests can

be carried out by our collaborators. Any material to be destroyed will be done using established guidelines for discarding biohazard waste. If you are Māori and request a specific tikanga (Māori custom) process, these samples will be clearly marked. However, if you consent for your samples to be sent overseas, this will not be possible. If you choose to withdraw from the study, unused samples can be returned or destroyed; however, this will not be possible once analysed.

Please note that if you consent to the storage and use of your sample for up to 10 years, no future unspecified research can be done using your samples for projects different from what is described here (COVID-19 and post-viral conditions), including genetic research, without first gaining permission by submitting to the Health and Disabilities Ethics Committee (HDEC) and obtaining your consent.

Finally, you may have agreed to provide blood samples for other immune research studies (e.g., Use of human immune cells to develop new immune therapy, ethics AHPEC #023815) which permitted alternate uses of blood samples for future related research. If you provided blood previously for a study like this, we want to let you know that we may utilise those samples in this research so that we are able to compare any samples that you may have donated before, especially prior to COVID-19 vaccination, with those in this study.

WHAT ARE THE POSSIBLE RISKS OF THIS STUDY?

Not much is known about why some people get Long COVID and there is a small chance that vaccination of Long COVID patients could potentially make their symptoms worse. If you have concerns, please discuss these with your GP or another health professional. Overall, there are no major risks associated with taking part in this research, apart from the slight risks associated with any blood sampling. These are minimised by having all procedures undertaken by a person experienced in taking blood using the accepted antiseptic technique. There is a small chance of minor bruising because of needle insertion. Any adverse symptoms that you may experience will be recorded as part of the study, and you will be encouraged to inform the investigator of these as soon as possible.

Crowdfunding: To minimise the risk of feeling obligated or the perception there could be personal benefit, please do not tell us if you donated to the Long COVID crowdfunding appeal. All participants will be treated equally in our study so any contributions to crowdfunding should not be disclosed and will not in any way influence your involvement as a participant in the study.

WHAT ARE THE POSSIBLE BENEFITS OF THIS STUDY?

We cannot guarantee or promise that you will receive any direct benefits from this research; possible benefits may include indicators of immunity to COVID-19, however as our tests are for research purposes only, they will not be considered diagnostic.

WILL ANY COSTS BE REIMBURSED?

There will be no financial cost to you for taking part in the study. You will receive a koha (gratuity) of $20 per visit for your blood donation in the form of a voucher.

WHAT IF SOMETHING GOES WRONG?

In the unlikely event of a physical injury resulting from your participation in this study, you would be eligible **to apply** for compensation from ACC just as you would be if you were injured in an accident at work or home. This does not mean that your claim will automatically be accepted. You will have to lodge a claim with ACC, which may take some time to assess. If your claim is accepted, you will receive funding to assist in your recovery. If you have private health or life insurance, you may wish to check with your insurer that taking part in this study won't affect your cover.

WHAT WILL HAPPEN TO MY INFORMATION?

During this study the researchers will record information about you and your study participation. This includes the results of any study assessments. If you agree, information from your hospital records and your doctor, relevant to this study, may also be collected.

Identifiable Information

Identifiable information is any data that could be used to identify you (e.g., your name, date of birth, National Health Index number). Only the study investigators will have access to your identifiable information. In addition, the following groups may have access to your identifiable information:

- Medical staff who host your records (the hospital, your doctor, the Ministry of Health)
- The sponsor, ethics committees, or government agencies from New Zealand or overseas, if the study or site is audited. Audits are done to ensure that participants are protected, the

study is properly run, and the data collected is correct.
- Your usual doctor, if a study test gives an unexpected result that could be important for your health. This allows appropriate follow-up to be arranged.

De-identified (Coded) Information
To make sure your personal information is kept secure and confidential, information that identifies you will not be included in any report generated by the research team. Instead, you will be identified by a code. Only the principal investigators will have access to the secure databases (to link your code with your name) so that you can be identified by your coded data if needed.

Only researchers directly involved in this study, plus our trusted collaborators may have access to your coded information, which may be sent and stored overseas. The results of the study may be published or presented, but not in a form that would reasonably be expected to identify you.

Future Research Using Your Information.
If you agree, your coded information may be used for future unspecified research relating only to COVID-19 and post-viral conditions. This future unspecified research is optional. If you consent for further research opportunities the results from those future studies will be used together with the coded data collected in this study to help further understand the health impacts of COVID-19.

This future research may be conducted overseas. You will not be told when future research is undertaken using your information. Your information may be shared widely with other researchers. Your information may also be added to information from other studies, to form much larger sets of data. You will be able to request reports or other information about any research that is done using your information. Your information may be used indefinitely for future research unless you withdraw your consent. However, it may be extremely difficult or impossible to access your information or withdraw consent for its use once your information has been shared for future research.

Security and Storage of Your Information.
Your identifiable information is held at the University of Auckland during the study. Upon completion of the study the information will be transferred to a secure archiving site and stored for at least 10 years, then destroyed. Your coded information will be entered into electronic databases and stored on a secure server. Coded study information will be kept on secure, cloud-based storage indefinitely. All storage will comply with local and/or international data security guidelines.

Risks
Although efforts will be made to protect your privacy, absolute confidentiality of your information cannot be guaranteed. Even with coded information, there is no guarantee that you cannot be identified. The risk of people accessing and misusing your information (e.g., making it harder for you to get or keep a job or health insurance) is currently very small but may increase in the future as people find new ways of tracing information.

As research opportunities with international collaborators are in development, your coded information might be sent overseas. Other countries may have lower levels of data protection than New Zealand. There may be no New Zealand representation on overseas organisations which make decisions about the use of your information. There is a risk that overseas researchers may work with information in a way that is not culturally appropriate for New Zealanders. However, we will make every effort, and consult our cultural collaborators, to advise on the appropriateness of the international research and guide us as to which research would be of most benefit to you.

Rights to Access Your Information.
You have the right to request access to your information held by the research team. If you have any questions about the collection and use of information about you, you should ask the principal investigators

Rights to Withdraw Your Information.
You may withdraw your consent for the collection and use of your information at any time by informing the research team. If you withdraw your consent, your study participation will end, and the study team will stop collecting information from you. Information collected up until your withdrawal from the study will continue to be used and included in the study. This is to protect the quality of the study.

Ownership Rights.
Information from this study may lead to discoveries and inventions or the development of a commercial product. The rights to these will belong to the University of Auckland. You and your family will not receive any financial benefits or compensation, nor have any rights in any developments, inventions, or other discoveries that might come from this information.

Data-Linking.
In this study, we would like to link your study information with other data sets, which include information about you. This is called 'data-linking'. Data-linking in this study is optional, and we will ask for your consent. In this study, we will ask for your permission to link data obtained from your medical health providers via your National Heath Index number (NHI), name, date of birth and other demographic information to link to the NZ Ministry of Health, District Health Boards, Radiology services and Medical laboratories to retrieve medical information relevant to your COVID-19 history. This may include COVID-19 tests results and relevant medical management following recovery from infection. As this study is longitudinal, access to health records, relating to COVID-19 infection, ongoing symptoms and/or diagnoses will continue for the duration of the study (up to 10 years). We are not linking information to any national or regional data sets and will not share this information with anyone who will undertake linking activity.

Data-linking can produce a detailed picture of individuals, which will enable us to work out the short and long-term health and well-being impacts of COVID-19. Data-linking can increase the risk of identifying individuals and possibly others who may be in the same households, organisations, iwi or hapū. The utmost care will be made to minimise this risk, for example storing all identifiable data within password protected secure databases on secure severs.

This research includes basic information such as your ethnic group, geographic region, age range, sex, and about your history of COVID-19 infection. It is possible that this research could one day help people in the same groups as you. However, it is also possible that research findings could be used inappropriately to support negative stereotypes, stigmatize, or discriminate against members of the same groups as you. We will work with our collaborators to assist in the interpretation of the findings, to ensure that all Māori-data related activities are appropriately governed from Te Ao Māori perspectives to meet Māori needs and aspirations. We will apply the same considerations for Pacific participants as well and work with our Pacific partners to assist in the interpretation and dissemination of the findings from this study.

Use of New Technologies (Online surveys)
The participant surveys will be conducted electronically using REDCap, a secure platform for surveys hosted by the University of Auckland. We use REDCap to collect data because the platform does not share data, and when we download data from the server to do research, it will be de-identified and not contain your name or any identifying information.

WHAT HAPPENS IF I CHANGE MY MIND?

Even if you decide to take part in this study but change your mind later, you can withdraw from the study at any time. If you choose to withdraw the data and analysis performed up to the point when you withdraw may continue to be processed however unused samples that have not been analysed can be returned or destroyed.

CAN I FIND OUT THE RESULTS OF THE STUDY?

We can provide you with some of the individual research results we generate, for example, evidence of exposure to the COVID-19 causing virus such as antibody levels or identification of COVID-19 specific immune cells. We will notify you if results indicate you may have had COVID-19, however if we do not find evidence of immunity to COVID-19, this may not be conclusive. Even in the absence of a positive result, we still aim to investigate immune disruption in those with post-viral conditions, irrespective of the virus that caused it, as indicated in the study plan diagram. So those who are negative for COVID-19 will instead fall into the post-viral (of unknown cause) analysis group (2b) to help understand the relationship between Long COVID (2a) and other post-viral conditions. It is important to understand that it may take some time to finalise the full outcomes from this study, as some tests will be done in batches once we have sufficient participant numbers. Some tests may provide individual results that are clinically significant but not clinically actionable; therefore, it is important to understand that the tests we are doing are for research only and not to be used for diagnostic purposes. These results are private and confidential to you and you can indicate on the consent form if you would like these to be sent to you by email or provided over the phone. In addition, you can also indicate if you'd like a summary report of the study. The overall findings of our

studies will also be available through public sources since we aim to publish the results of our research in a leading medical journal with a particular focus on immunity to COVID-19 or Long COVID. This will also include any future research involving your samples/data. In addition, we will offer to present our findings for participants and whānau at community hui/talanoa/fora and/or online events.

What will happen if the research finds any results which could impact my health?

If analysis of any samples produces findings of clinical significance, your usual doctor and/or appropriate specialist will be notified, and follow-up will be arranged if required.

WHO IS FUNDING THE STUDY?

Our research is mostly funded by the University of Auckland and the University of Otago, using funds allocated for public good research, including the University of Auckland Foundation, the Association of New Zealand ME Society (ANZMES), Maurice Wilkins Centre NZ Centre of Research Excellence (CoRE), Brain Research NZ CoRE, and family donations. Due to the urgency to begin this work, we are seeking further funding while the study is ongoing. In addition, collaborating researchers and/or companies may support aspects of the study by providing reagents and services free of charge through collaboration to help validate the new-to-market tests to investigate immunity to COVID-19.

WHO HAS APPROVED THE STUDY?

This study has been approved by an independent group of people called a Health and Disability Ethics Committee (HDEC), who check that studies meet established ethical standards. The Covid-19 ESOP Committee has approved this study.

WHO DO I CONTACT FOR MORE INFORMATION OR IF I HAVE CONCERNS?

Thank you for considering your participation in this study
Ngā Tāngata hei whakapānga atu - For more information please contact:

Dr Anna Brooks
The University of Auckland
Private Bag 92019
Auckland Mail Centre
Auckland 1142
EMAIL ADDRESS: a.brooks@auckland.ac.nz
TELEPHONE: 021898965

Emeritus Professor Warren Tate
Department of Biochemistry
University of Otago
PO Box 56
Dunedin 9054
warren.tate@otago.ac.nz
021 392 314

If you want to talk to someone who isn't involved with the study, you can contact an independent health and disability advocate on:
Phone: 0800 555 050
Fax: 0800 2 SUPPORT (0800 2787 7678)
Email: advocacy@advocacy.org.nz
Website: https://www.advocacy.org.nz

If you want to talk to someone about any Māori cultural issues you may have about this project, you can contact :

Jaylene Wehipeihana
Research Manager, Vision Mātauranga
Office of Research Strategy & Integrity
University of Auckland
Phone: +64 9 923 3537 ext 83537
Email: j.wehipeihana@auckland.ac.nz

If you want to talk to someone about any Pacific Health and cultural issues you may have about this project, you can contact :

Chris Puli'uvea
Department of Molecular Medicine & Pathology/Nutrition
Faculty of Medical and Health Science
University of Auckland
Phone: 02102777034
Email: c.puliuvea@auckland.ac.nz

You can also contact the health and disability ethics committee (HDEC) that approved this study on:
Phone: 0800 4 ETHIC
Email: hdecs@health.govt.nz

Consent Form

Immunity and Molecular studies of SARS-CoV-2 infection and COVID-19 vaccination

Please tick to indicate you consent to the following

I have read and understood the Participant Information Sheet, and I am 16yrs or over	☐	
I have been given sufficient time to consider whether to participate in this study.	☐	
I have had the opportunity to use a legal representative, whānau / family support, or a friend to help me ask questions and understand the study.	☐	
I understand that taking part in this study is voluntary (my choice) and that I may withdraw from the study at any time.	☐	
I understand that my coded data may be sent overseas	☐	
I understand my doctor or current provider will be informed of any significant abnormal results obtained during the study.	☐	
I understand that my participation in this study is confidential and that no material which could identify me personally will be used in any reports on this study.	☐	
I know whom to contact if I have any questions about the study in general.	☐	
If I decide to withdraw from the study, I understand that the information collected about me up to the point when I withdraw may continue to be processed.	☐	
I understand that if I have consented on another study to use my samples for future related research, that my stored blood samples may also be used for this study	☐	
I understand that my blood samples may be stored for at least 3 years.	☐	
I also consent to the storage and use of my coded blood samples for up to 10 years for unspecified research relating to COVID-19 or post-viral conditions. I understand that these samples will not be used in any other research project without obtaining additional ethical approval and consent.	Yes ☐	No ☐
I consent to my coded information being used in future unspecified research relating only to COVID-19 or post-viral conditions	Yes ☐	No ☐
I consent to my blood samples being sent overseas and I am aware that these samples will be disposed of using established guidelines for discarding biohazard waste and a tikanga will not be possible.	Yes ☐	No ☐
I consent to the research staff collecting and processing my information, including information about my health and medical records (data-linking)	Yes ☐	No ☐
I consent to the use of my samples in experiments that are funded from commercial sources.	Yes ☐	No ☐
I wish to receive a summary of the results from the study and understand that there may be a delay between data collection and the publication of the research results	Yes ☐	No ☐
I wish to be sent my individual research results from this study	Yes ☐	No ☐
(for Māori participants) I wish to be contacted to request a tikanga at the time of my sample disposal	Yes ☐	No ☐

Declaration by participant:
I hereby consent to take part in this study.

Participant's name:

Signature: Date:

How would you like to receive your individual results of this study?

Email: ☐ Phone: ☐

Declaration by member of research team:

I have given a verbal explanation of the research project to the participant and have answered the participant's questions about it.

I believe that the participant understands the study and has given informed consent to participate.

Researcher's name:

Signature: Date:

You can email your signed copy to: pvranz@auckland.ac.nz

Once you have consented to join the study, you can then go-ahead and complete the online pre-screening questionnaire to join our database. We will then send you the applicable on-boarding survey to complete enrolment if you meet our criteria.

Click the link to the pre-screen here: https://redcap.fmhs.auckland.ac.nz/surveys/?s=TRT883E9XC