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An interventional study to evaluate the safety and immune response of a vaccine against Severe Acute Respiratory Syndrome coronavirus 2 (SARS-CoV-2, the virus that causes COVID-19 infection) when given to healthy adult participants

Submission date
27/08/2020

Recruitment status
No longer recruiting

Registration date
14/09/2020

Overall study status
Completed

Last Edited
24/05/2024

Condition category
Infections and Infestations

[_] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[_] Results
[_] Individual participant data
[_] Record updated in last year

Plain English summary of protocol

Background and study aims
COVID-19 is a condition caused by the coronavirus (called SARS-CoV-2) that was first identified in late 2019. This virus can infect the respiratory (breathing) system. Some people do not have symptoms but can carry the virus and pass it on to others. People who have developed the condition may develop a fever and/or a continuous cough among other symptoms. This can develop into pneumonia. Pneumonia is a chest infection where the small air pockets of the lungs, called alveoli, fill with liquid and make it more difficult to breathe.
In 2020, the virus has spread to many countries around the world and neither a vaccine against the virus or specific treatment for COVID-19 has yet been developed. As of April 2020, it is advised that people minimize travel and social contact, and regularly wash their hands to reduce the spread of the virus.
Groups who are at a higher risk from infection with the virus, and therefore of developing COVID-19, include people aged over 70 years, people who have long-term health conditions (such as asthma or diabetes), people who have a weakened immune system and people who are pregnant. People in these groups, and people who might come into contact with them, can reduce this risk by following the up-to-date advice to reduce the spread of the virus.
This study is being conducted to look at the safety and immune response (how the immune system of the human body reacts) to a vaccine for SARS-CoV-2.

Who can participate?
Healthy male and female volunteers aged between 18 and 55 years of age (Part 1) and healthy older volunteers aged 56 years and older (Part 2)

What does the study involve?
Participants will be given one of three (low, intermediate, high) dosages of the vaccine or placebo (dummy vaccine) as an intramuscular injection (injection directly into the muscle) to the upper arm on two occasions at least 28 days apart.
Participants will be asked to report any side effects or changes in health following vaccination via an electronic diary. Participants will report to the study site at various times during the study and undergo the following procedures:
1. Oral temperature, pulse rate and blood pressure will be measured
2. A 12-lead electrocardiogram (ECG) will be performed to assess heart rhythm
3. A physical examination will be performed to assess general health. This will include measuring body weight
4. About 15 ml (about three teaspoons) of blood and a urine sample will be collected to assess general health. The urine sample will also be collected to test for drugs of addiction. Additional safety samples may also be collected if required by the study doctor
5. An alcohol breath test
6. A throat swab will be performed and the sample will be sent to a lab to test for the presence of COVID-19
7. A urine sample will be taken to test for pregnancy. In the event of a positive urine pregnancy test, a blood test will be performed to confirm pregnancy status
8. A blood sample will be collected to assess the effect the study vaccine has on the body. About 34 to 73 ml of blood (7 to 14 teaspoons) will be collected at various times during the study visits

What are the possible benefits and risks of participating?
Participation in this study may help develop important scientific knowledge that could contribute to the development of a vaccine for COVID-19. The SARS-CoV-2 Sclamp vaccine is an experimental medication, therefore the risks to human participants have not been fully evaluated. The study vaccine has not been administered to humans so the risks at this time are unknown.

Where is the study run from?
Nucleus Network Brisbane (Q-Pharm Pty Ltd) (Australia)

When is the study starting and how long is it expected to run for?
March 2020 to April 2024

Who is funding the study?
University of Queensland (Australia)

Who is the main contact?
1. A/Prof Paul Griffin
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2. Christina Henderson
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Contact information

Type(s)
Public

Contact name
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Scientific

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Additional identifiers

ClinicalTrials.gov (NCT)
NCT04495933

Protocol serial number
UQ-1-SARS-CoV-2-Sclamp

Study information

Scientific Title
A Phase 1 randomised, double-blind, placebo-controlled, dosage-escalation, single centre study to evaluate the safety and immunogenicity of an adjuvanted SARS-CoV-2 Sclamp protein subunit vaccine (COVID-19 vaccine) In healthy adults aged 18 to 55 years and healthy older adults, aged 56 years and over

Study objectives
MF59 adjuvanted SARS-CoV-2 Sclamp vaccine is safe and elicits an immune response.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Approved 07/07/2020, Alfred Hospital Ethics Committee (55 Commercial Road, Melbourne VIC 3004, Australia; +61 (0)390768825; research@alfred.org.au), ref: 334/20

Study design
Single-centre interventional double-blinded placebo-controlled randomized trial

Primary study design
Interventional

Study type(s)
Prevention

Health condition(s) or problem(s) studied
COVID-19 (SARS-CoV-2 infection)

Interventions
Randomisation involves contacting the holder of the randomisation schedule who is the offsite pharmacist with no contact with participants.

Participants will receive two single intramuscular (IM) doses of the following study treatments at 28 days apart as follows:

IM administration (to the deltoid region of the subjects non-dominant arm, administered by a registered nurse [RN]) of SARS-CoV-2 Sclamp adjuvanted vaccine, administered on Days 1 and 29, of one of the following treatments:

Treatment A (Cohorts 1 & 4): SARS-CoV-2 Sclamp vaccine 1 x 5 µg in 0.5 ml suspension, administered as two separate doses at least 28 days apart
Treatment B (Cohorts 2 & 5): SARS-CoV-2 Sclamp vaccine 1 x 15 µg in 0.5 ml suspension, administered as two separate doses, at least 28 days apart
Treatment C (Cohorts 3 & 6): SARS-CoV-2 Sclamp vaccine 1 x 45 µg in 0.5 ml suspension, administered as two separate doses at least 28 days apart
Treatment D (Cohort 3): SARS-CoV-2 Sclamp vaccine 1 x 45 µg in 0.5 ml suspension, followed by placebo administered as the second dose at least 28 days apart.

Participants will be followed-up for 12 months post second vaccination (Day 394).

Intervention Type
Biological/Vaccine

Phase
Phase I

Drug/device/biological/vaccine name(s)
MF59 adjuvanted SARS-CoV-2 Sclamp vaccine

Primary outcome(s)
1. Frequency and grading of solicited local and systemic reactogenicity adverse events (AEs) measured using FDA toxicity scoring for 7 days following each vaccination. Frequency, duration and relatedness of unsolicited AEs through to Day 57, Day 209 and Day 394. SAEs, MAAEs and

any AEs leading to study withdrawal through to Day 394
2. Geometric mean titre (GMT) of the serum antibody response to the Sclamp antigen compared to placebo measured by antigen-specific ELISA at Day 29 (28 days after first dose) and Day 57 (28 days after second dose)
3. GMT of the serum NAb titres to SARS-CoV-2 virus compared to placebo measured by microneutralization (MN) assay at Day 29 (28 days after first dose) and Day 57 (28 days after second dose)

Key secondary outcome(s))
1. Proportion of participants with ≥4 fold increase in titre above baseline measured by ELISA at Days 15, 29, 43, 57, 209, and 394 post-first study treatment administration compared to placebo
2. Proportion of participants with ≥4 fold increase in titre above baseline measured by MN assay at Days 15, 29, 43, 57, 209, and 394 post-first study treatment administration compared to placebo
3. GMT of the serum antibody response to the Sclamp antigen compared to placebo measured by antigen-specific ELISA at Days 1, 15, 29 (28 days after first dose), and Days 43, 57 (28 days after second dose) and Days 209 and 394 (6 and 12 months post-second dose respectively)
4. GMT of the serum NAb titres to SARS-CoV-2 virus compared to placebo measured by MN assay at Days 1, 15, 29 (28 days after first dose), and Days 43, 57 (28 days after second dose) and Days 209, 394

Completion date
30/04/2024

Eligibility

Key inclusion criteria
1. Healthy male or non-pregnant female, ≥18 and ≤55 years of age, with BMI >18 and <34.0 kg /m2 and body weight ≥50.0 kg for males and ≥45.0 kg for females (Part 1); Healthy male or non-pregnant female, ≥56 years of age, with BMI >18 and <34.0 kg/m2 and body weight ≥50.0 kg for males and ≥45.0 kg for females (Part 2)
2. Healthy as defined by:
2.1. The absence of clinically significant illness and surgery within 28 days prior to dosing. Subjects displaying signs or symptoms of an acute and/or febrile illness within 24 hours pre-dose (with at least 3 symptom-free pre-dose days required) will be carefully evaluated for upcoming illness/disease. Inclusion pre-dosing is at the discretion of the Investigator, and the subject may have their scheduled dosing postponed until the condition resolves
2.2. The absence of clinically significant history of neurological, endocrine, cardiovascular, respiratory, haematological, immunological, psychiatric, gastrointestinal, renal, hepatic, and metabolic disease (Part 1); b. The absence of clinically significant history of a pre-existing medical condition that is not stable (neurological, endocrine, cardiovascular, respiratory, haematological, immunological, psychiatric, gastrointestinal, renal, hepatic, and metabolic disease). A stable medical condition is defined as disease not requiring significant change in therapy or hospitalization for worsening disease during the 3 months before enrolment (Part 2)
3. Non-smokers or social smokers (defined as the equivalent of fewer than 10 cigarettes per week). Ex-heavy smokers (heavy smoking defined as the equivalent of 25 or more cigarettes per day) may be admitted if they have quit, or reduced their cigarette intake to the defined level of social smoking, for a period of at least 12 months
4. Women of childbearing potential (WOCBP) or men whose sexual partners are WOCBP must be able and willing to use at least 2 highly effective methods of contraception commencing at enrolment, during the study and for 3 months after last treatment administration. A female

subject is considered to be a WOCBP following menarche and until she is in a postmenopausal state for 12 consecutive months (without an alternative medical cause) or otherwise permanently sterile (for which acceptable methods include hysterectomy, bilateral salpingectomy, and bilateral oophorectomy). A follicle-stimulating hormone (FSH) test may be used to confirm post-menopausal state. Examples of acceptable methods of contraceptive methods (for female subjects) to be used throughout the study include:
4.1. Simultaneous use of hormonal contraceptives, started at least 28 days prior to first study treatment administration and must agree to use the same hormonal contraceptive throughout the study, and condom for the male partner
4.2. Simultaneous use of intrauterine contraceptive device, placed at least 28 days prior to first study treatment administration, and condom for the male partner
4.3. Simultaneous use of a diaphragm or cervical cap and male condom for the male partner, started at least 28 days prior to first study treatment administration
4.4. Sterile male partner (vasectomized since at least 6 months prior to first study treatment administration)
4.5. True abstinence, defined as no sexual intercourse with a male partner, (for heterosexual couples) for at least 28 days prior to first study treatment administration and for at least the duration of the study. Periodic abstinence and withdrawal are not acceptable methods
5. WOCBP must have a negative urine pregnancy test prior to receiving each dose
6. Male subjects (including men who have had a vasectomy) with a pregnant partner, a female partner not of childbearing potential, or a same sex partner, must agree to use a condom from the first study treatment administration until at least 90 days after the last study treatment administration
7. Male subjects must be willing not to donate sperm until 90 days following the last study treatment administration
8. Must be able to attend all visits for the duration of the study and to comply with all study procedures according to the study schedule
9. Capable of, and have given, written informed consent

Participant type(s)
Healthy volunteer

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 years

Sex
All

Total final enrolment
216

Key exclusion criteria
1. Any clinically significant abnormality or vital sign abnormality at physical examination (including baseline high blood pressure [140/90] after 3 repeated measurements or high random blood sugar [non-fasting]), clinically significant abnormal laboratory test results or positive test

for HIV, hepatitis B, or hepatitis C found during medical screening (Part 1); Any clinically significant abnormality or vital sign abnormality at physical examination, or uncontrolled hypertension in adults aged ≥ 56 years and older ,or high random blood sugar [non-fasting]), clinically significant abnormal laboratory test results or positive test for HIV, hepatitis B, or hepatitis C found during medical screening (Part 2)..
2. Any acute or chronic ongoing illness which, in the judgement of the investigator, may preclude the subject's participation.
3. Any subject that has an active COVID-19 infection (positive COVID-19 test: nasal /oropharyngeal swab and/or positive serum antibody response) at screening, or Day 1, or has been in close contact with someone who has an active COVID-19 infection, or has recovered from a previous COVID-19, SARS-CoV-1, or MERS infection.
4. Positive pregnancy, urine drug screen, or alcohol breath test at screening.
5. Known history of allergic reactions or hypersensitivity to vaccines, or to any excipient in the formulation (including the adjuvant, MF59C.1).
6. Presence of a known, or suspected, impairment of the immune system including, but not limited to, HIV, autoimmune disorders, immunosuppressant therapy, and diabetes mellitus.
7. History of a known, or suspected, respiratory system disorder including, but not limited to, cystic fibrosis, reactive airway disease, emphysema, chronic bronchitis, chronic obstructive pulmonary disease (COPD), or asthma, excluding childhood asthma (Part 1); History of a known, or suspected, or currently unstable medical condition that may expose the participant to an increased risk for severe SARS-CoV-2 disease, such as a respiratory system disorder including, but not limited to, cystic fibrosis, reactive airway disease, emphysema, chronic bronchitis, chronic obstructive pulmonary disease (COPD), or asthma, excluding childhood asthma, uncontrolled hypertension, ischemic or structural heart disease, chronic kidney disease, chronic liver disease, endocrine disorder and neurological illness (Part 2)..
8. History of significant alcohol abuse within 12 months prior to screening.
9. Positive test for drugs of abuse (such as marijuana/tetrahydrocannabinol [THC] products, amphetamine, methamphetamine, methadone, barbiturates, benzodiazepines, cocaine, opiates, methylenedioxymethamphetamine [MDMA], or phencyclidine [PCP]) at screening, prior to dosing, or a history of drug abuse within 12 months prior to screening.
10. Participation in a clinical research study involving the administration of an investigational, or marketed, drug or device within 30 days prior to receiving the first treatment administration, or administration of a biological product in the context of a clinical research study within 90 days prior to the first dosing, or concomitant participation in an investigational study involving no drug, vaccine, or device administration, or intent to participate in another clinical study at any time during the conduct of the study.
11. Use of medications for the timeframes specified below, with the exception of hormonal contraceptives and medications exempted by the Investigator on a case-by-case basis because they are judged to interfere with subject safety e.g., topical drug products without significant systemic absorption are permissible:
11.1. Prescription medication within 14 days prior to the first dosing (Part 1); Prescription medication within 14 days prior to the first dosing that in the opinion of the Investigator could impact the subjects safe
participation in the study (Part 2);
11.2. Any medication, or treatments, that may affect the immune system such as allergy injections, immunoglobulin, interferon, immunomodulators, cytotoxic drugs, or other drugs known to be frequently associated with significant major organ toxicity within 90 days prior to enrolment;
11.3. Any registered vaccine administered within 30 days prior to enrolment in the study, or who plan to receive any non-study vaccines within 28 days of the second dose of the study vaccine
11.4. Any other investigational coronavirus vaccine i.e. SARS-CoV-1, SARS-CoV-2, MERS etc. at any time prior to, or during, the study.

11.5. Over-the-counter products within 7 days prior to the first dosing, with the exception of the occasional use of paracetamol (up to 2 g daily) and standard-dose vitamins (Part 1); Over-the-counter products within 7 days prior to the first dosing, that in the opinion of the investigator could impact the subjects safe participation in the study. Paracetamol (up to 2 g daily) and standard-dose vitamins will be permitted (Part 2).
12. Donation of plasma within 7 days prior to dosing. Donation or loss of blood (excluding volume drawn at screening) of 50 mL to 499 mL of blood within 30 days, or more than 499 mL within 56 days prior to the first dosing.
13. Receipt of blood products within 2 months prior to the first study treatment administration (Day 1), or planned receipt of blood products during the study period.
14. Breast-feeding subject, or subject who plans to breastfeed from the time of first dose through 60 days after last study treatment administration.
15. Presence of tattoos, scarring, skin discoloration, or any other skin disturbances at the injection site which, in the opinion of the Investigator, may inhibit the ability to effectively perform an injection site assessment.
16. Employee or immediate relative of an employee of the clinical site, any of its affiliates or partners, or Syneos Health.
17. Any reason which, in the opinion of the Investigator, would interfere with the primary study objectives or prevent the subject from participating in the study.
18. Permanent resident in an aged care facility (nursing or aged care home) (Part 2 only)

Date of first enrolment
13/07/2020

Date of final enrolment
25/08/2020

Locations

Countries of recruitment
Australia

Study participating centre
Nucleus Network Brisbane (Q-Pharm Pty Ltd)
Level 5
Clive Berghofer Cancer Research Centre (CBCRC)
300c Herston Road
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4007

Sponsor information

Organisation
University of Queensland

ROR
https://ror.org/00rqy9422

Funder(s)

Funder type
University/education

Funder Name
University of Queensland

Alternative Name(s)
The University of Queensland, UQ Australia, University of Queensland in Australia, University of Queensland - Australia, The University of Queensland | Brisbane QLD, uniofqld, UQ

Funding Body Type
Government organisation

Funding Body Subtype
Universities (academic only)

Location
Australia

Funder Name
Coalition for Epidemic Preparedness Innovations

Alternative Name(s)
CEPI Norway, CEPI

Funding Body Type
Government organisation

Funding Body Subtype
Trusts, charities, foundations (both public and private)

Location
Norway

Results and Publications

Individual participant data (IPD) sharing plan

Individual participant data underlying published results only on a case-by-case basis at the discretion of the Primary Sponsor. Christina Henderson, UQ Project Manager (rapid.response.trials@uq.edu.au) will be the contact for access to the datasets. Individual participant data that underlie the results reported in the [published] article, after de-identification (text, tables, figures, and appendices) will be available, immediately after publication with no end date. The data will be shared with researchers who provide a methodologically sound proposal and who reach out to the nominated contact, for analyses required to achieve the aims in the approved research proposal. Proposals should be directed to rapid.response.trials@uq.edu.au. To gain access, data requestors will need to sign a data access agreement.

IPD sharing plan summary

Available on request