

Phase I vaccine study of pEVAC-PS coronavirus vaccine

Submission date 23/11/2021	Recruitment status No longer recruiting	<input checked="" type="checkbox"/> Prospectively registered <input checked="" type="checkbox"/> Protocol
Registration date 29/11/2021	Overall study status Completed	<input type="checkbox"/> Statistical analysis plan <input type="checkbox"/> Results
Last Edited 12/09/2023	Condition category Infections and Infestations	<input type="checkbox"/> Individual participant data <input type="checkbox"/> Record updated in last year

Plain English summary of protocol

Background and study aims

There is currently no licensed vaccine that can protect across a whole range of the family of Coronaviruses that affect humans (known as Sarbeco Coronaviruses), such as SARS-CoV-2 which causes COVID-19, and SARS. Whilst highly effective vaccines have been produced for COVID-19, variants of the virus have evolved which are somewhat able to evade the immune responses given by vaccination or by previous infection. It is therefore important to develop a vaccine with a very broad range of coverage across the SARS-CoV-2 virus that causes COVID-19, and all its relatives. A vaccine that protects against other Sarbeco coronaviruses will also be useful to provide protection against future potential pandemic viruses.

The purpose of this study is to evaluate a new vaccine designed to protect against all Sarbeco Coronaviruses (and has the potential to protect against the variants of SARS-CoV-2) called pEVAC_PS, at different doses to assess its safety and immune response in healthy volunteers. This is the first study to use the pEVAC_PS vaccine in human participants. It is planned that up to a total of 36 volunteers will participate in the study.

Who can participate?

Healthy adults aged 18 to 50 years, immunised no less than 12 weeks prior with 2 doses of SARS-CoV-2 vaccine, and no evidence of prior SARS-CoV-2 infection.

What does the study involve?

Participants will come to their research site for up to 11 scheduled visits. They will also have a follow-up telephone call 1 day after your first dose of vaccine. All volunteers will attend a screening visit and if you are eligible, will receive two doses of the study vaccine, one month apart. The rest of the visits will be follow-up visits. These visits will be spread across 6 months, but up to 12 months if the dose of vaccine administered is found to be highly effective.

Participants will be asked to complete a diary, recording any symptoms you experience after the vaccination for one month following each injection. The first 6 volunteers will take part in Group 1. Further volunteers will be enrolled in subsequent groups depending on the results of the immune responses of participants in Group 1.

What are the possible benefits and risks of participating?

Benefits:

Information gained from the study might help to develop a vaccine for use in preventing infections from Sarbeco Coronaviruses including variants of the SARS-CoV-2 virus which causes COVID-19.

There are no known benefits to participants from taking part in this study.

Risks:

Some procedures in the study may cause discomfort or symptoms.

Vaccine Associated Risks: pEVAC_PS has not previously been studied in human participants and the potential side effects of the vaccine are currently unknown. Most symptoms are expected to be mild, although some effects may also be moderate or severe.

It is important to remember that this vaccine is in the early stages of development and the amount of safety data available is limited, which is part of the reason this study is being conducted.

Where is the study run from?

The study is run from and sponsored by the University Hospital Southampton NHS Foundation Trust, from the NIHR Southampton Clinical Research Facility (UK). There is an additional site at the NIHR Cambridge Clinical Research Facility.

When is the study starting and how long is it expected to run for?

May 2020 to September 2024

Who is funding the study?

UK Research and Innovation.

Who is the main contact?

Professor Saul Faust, s.faust@soton.ac.uk

Contact information

Type(s)

Scientific

Contact name

Prof Saul Faust

ORCID ID

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Contact details

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Additional identifiers

EudraCT/CTIS number

2021-002227-38

IRAS number

304756

ClinicalTrials.gov number

Nil known

Secondary identifying numbers

IRAS 304756, CPMS 50779

Study information

Scientific Title

A phase I safety, immunogenicity and dose escalation study of the candidate pan-Sarbeco Coronavirus vaccine pEVAC-PS in SARS-CoV-2 immunised UK healthy adult volunteers

Study objectives

A vaccine containing DNA coding for a pan-Sarbeco Coronavirus antigen designed using Digital Immune Optimised Synthetic Vaccine (DIOSynVax) technology is safe and tolerable and provides immunity across the range of Sarbeco Coronaviruses, including SARS-CoV and SARS-CoV-2

Ethics approval required

Ethics approval required

Ethics approval(s)

Approved 29/09/2021, South Central - Berkshire Research Ethics Committee (Bristol REC Centre, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6PN, United Kingdom; +44 207 104 8121; berkshire.rec@hra.nhs.uk), ref: 21/SC/0337

Study design

Open label single-centre first-in-human adaptive dose escalation phase I trial

Primary study design

Interventional

Secondary study design

Non randomised study

Study setting(s)

Hospital

Study type(s)

Treatment

Participant information sheet

Not available in web format, please use the contact details to request a patient information sheet.

Health condition(s) or problem(s) studied

Prevention of COVID-19 and other severe beta-coronavirus infections

Interventions

Current interventions as of 24/07/2023:

Investigational product: pEVAC-PS

Doses: 1.2mg Intradermal (ID), 0.8mg ID, 0.4mg ID, 0.2mg ID

Total: 36 volunteers

Group 1: 9 volunteers; 2 doses of pEVAC-PS at 0.2mg intradermally

Group 2: 9 volunteers; 2 doses of pEVAC-PS at 0.4mg intradermally

Group 3: 9 volunteers; 2 doses of pEVAC-PS at 0.8mg intradermally

Group 4: 9 volunteers; 2 doses of pEVAC-PS at 1.2mg intradermally

Previous interventions:

Investigational product: pEVAC-PS

Doses: 1.2mg Intradermal (ID), 0.8mg ID, 0.4mg ID, 0.2mg ID

Total: 36 volunteers

Stage 1

Group 1: 6 volunteers; 2 doses of pEVAC-PS at 0.2mg (lowest dose) intradermally

Stage 2 subject to safety and immunogenicity analysis from stage 1 after 4 weeks post 2nd dose

- Primary immunogenicity target met

Expanded group 1: 12 volunteers; 2 doses of pEVAC-PS at 0.2mg intradermally

Review for plan of reduced dose formulation and testing if continued safety and immunogenicity targets met in expanded group

- Primary immunogenicity target not met

Group 2a: 9 volunteers; 2 doses of pEVAC-PS at 0.4mg intradermally PLUS

Group 2b: 9 volunteers; 2 doses of pEVAC-PS at 0.8mg intradermally

- Very Poor/No response

Group 2a: 9 volunteers; 2 doses of pEVAC-PS at 0.8mg intradermally PLUS

Group 2b: 9 volunteers; 2 doses of pEVAC-PS at 1.2mg intradermally

Stage 3 subject to safety and immunogenicity analysis from stage 2 after 4 weeks post 2nd dose

- Primary immunogenicity target met

Group 3: 12 volunteers, 2 doses of pEVAC-PS at the dose with the best immunogenicity and reactogenicity profile from Groups 2a or 2b

- Primary immunogenicity target not met at 2x 0.8mg ID

Group 2c: 12 volunteers; 2 doses of pEVAC-PS at 1.2mg intradermally

Intervention Type

Biological/Vaccine

Pharmaceutical study type(s)

Not Applicable

Phase

Phase I

Drug/device/biological/vaccine name(s)

pEVAC-PS

Primary outcome measure

Safety and reactogenicity measured as:

1. Solicited local reactogenicity signs and symptoms for 7 days following vaccination measured using participant symptom diary entries
2. Solicited systemic reactogenicity signs and symptoms for 7 days following vaccination measured using participant symptom diary entries
3. Unsolicited adverse events (AEs) for 28 days following vaccination measured using participant symptom diary entries
4. Safety laboratory measures measured using routine Haematology and Biochemistry at day 0, 3, 7 and 42
5. Occurrence of disease enhancement episodes measured using surveillance for COVID-19 hospitalisations during the whole study period

Secondary outcome measures

1. Humoral immunogenicity of pEVAC-PS through the analysis of SARS-CoV and SARS-CoV-2 RBD antibody titres at 28 days (4 weeks) after 2 doses of pEVAC-PS have been administered 28 days apart, measured as serology: receptor binding domain (RBD) responses in the majority of vaccinees per group for SARS-CoV and SARS-CoV-2
2. Dose tolerability at 28 days (4 weeks) after the second dose of vaccine measured using participant symptom diary entries
3. Results of immunogenicity at 28 days (4 weeks) after the second dose of vaccine measured using ELISpot
3. Long term (up to 12 months) humoral immunogenicity measured as serology: receptor binding domain (RBD) for SARS-CoV and SARS-CoV-2 RBD pre and post- immunisation.

Overall study start date

21/05/2020

Completion date

01/09/2024

Eligibility

Key inclusion criteria

Current participant inclusion criteria as of 24/07/2023:

1. Healthy males and non-pregnant females
2. Aged 18 - 50 years
3. Immunised no less than 12 weeks prior with 2 or 3 doses of SARS-CoV-2 vaccine
4. No history of SARS-CoV-2 infection within the past 180 days

Previous participant inclusion criteria:

1. Healthy males and non-pregnant females
2. Aged 18 - 50 years
3. Immunised no less than 12 weeks prior with 2 doses of SARS-CoV-2 vaccine
4. No history of serological evidence of prior SARS-CoV-2 infection (seronegative for N)

Participant type(s)

Healthy volunteer

Age group

Adult

Lower age limit

18 Years

Upper age limit

50 Years

Sex

Both

Target number of participants

36

Total final enrolment

39

Key exclusion criteria

Current participant exclusion criteria as of 24/07/2023:

1. History of laboratory-confirmed MERS, SARS-CoV-1 or SARS-CoV-2 infection
2. Have an anti-SARS-CoV-2 and a SARS-CoV-1 RBD response of less than 0.5 or more than 2 AUC (Area Under the Curve) units
3. Planned receipt of any vaccine other than the study intervention within 30 days before and after each study vaccination
4. Administration of immunoglobulins and/or any blood products within the three months preceding the planned administration of the vaccine candidate
5. Any confirmed or suspected immunosuppressive or immunodeficient state, including HIV infection; asplenia; recurrent severe infections and use of immunosuppressant medication within the past 6 months, except topical steroids or short-term oral steroids (course lasting <14 days)
6. Any autoimmune conditions, except mild psoriasis, well-controlled autoimmune thyroid disease, vitiligo or stable coeliac disease not requiring immunosuppressive or immunomodulatory therapy
7. History of allergic disease or reactions likely to be exacerbated by any component of the pEVAC-PS vaccine
8. Any history of angioedema
9. Any history of anaphylaxis
10. Pregnancy, lactation or willingness/intention to become pregnant for 3 months following the last personal dose of vaccine in this trial

Previous participant exclusion criteria:

1. History of laboratory-confirmed MERS, SARS-CoV-1 or SARS-CoV-2 infection
2. Seropositive for SARS-CoV-2 Nucleocapsid IgG at screening
3. Have an anti-SARS-CoV-2 and a SARS-CoV-1 RBD response of more than 2 AUC (Area Under the Curve) units
4. Planned receipt of any vaccine other than the study intervention within 30 days before and after each study vaccination.
5. Administration of immunoglobulins and/or any blood products within the three months preceding the planned administration of the vaccine candidate.
6. Any confirmed or suspected immunosuppressive or immunodeficient state, including HIV infection; asplenia; recurrent severe infections and use of immunosuppressant medication

within the past 6 months, except topical steroids or short-term oral steroids (course lasting <14 days).

7. Any autoimmune conditions, except mild psoriasis, well-controlled autoimmune thyroid disease, vitiligo or stable coeliac disease not requiring immunosuppressive or immunomodulatory therapy.

8. History of allergic disease or reactions likely to be exacerbated by any component of the pEVAC-PS vaccine

9. Any history of angioedema.

10. Any history of anaphylaxis.

11. Pregnancy, lactation or willingness/intention to become pregnant for 3 months following the last personal dose of vaccine in this trial.

Date of first enrolment

14/12/2021

Date of final enrolment

01/09/2023

Locations

Countries of recruitment

England

United Kingdom

Study participating centre

University Hospital Southampton NHS Foundation Trust

Tremona Road

Southampton

United Kingdom

SO16 6YD

Study participating centre

NIHR Cambridge Clinical Research Facility

Cambridge Biomedical Campus

Hills Road

Cambridge

United Kingdom

CB2 0QQ

Sponsor information

Organisation

University Hospital Southampton NHS Foundation Trust

Sponsor details

Tremona Road
Southampton
England
United Kingdom
SO16 6YD
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sharon.davies-dear@uhs.nhs.uk

Sponsor type

Hospital/treatment centre

Website

<https://www.uhs.nhs.uk/>

ROR

<https://ror.org/0485axj58>

Funder(s)**Funder type**

Government

Funder Name

UK Research and Innovation

Alternative Name(s)

UKRI

Funding Body Type

Government organisation

Funding Body Subtype

National government

Location

United Kingdom

Results and Publications**Publication and dissemination plan**

Planned publication in a high-impact peer-reviewed journal

Intention to publish date

01/12/2025

Individual participant data (IPD) sharing plan

The data-sharing plans for the current study are unknown and will be made available at a later date

IPD sharing plan summary

Data sharing statement to be made available at a later date

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Protocol file	version 1.0	17/09/2021	24/11/2021	No	No
HRA research summary			28/06/2023	No	No